Results of Proficiency Test
Gasoline - EN (winter)
October 2020

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1995 the Institute for Interlaboratory Studies (iis) organizes proficiency scheme for Gasoline twice a year. In 2010 it was decided to use either the ASTM D4814 or EN228 specification for evaluation for one of the two proficiency tests. During the annual proficiency testing program 2019/2020 it was decided to continue the proficiency test for the analyzes of Gasoline in accordance with the latest applicable version of EN228. The interlaboratory study on Gasoline contains also PTs for the determination of Dry Vapour Pressure Equivalent (DVPE), RON/MON and RON91.
In this interlaboratory study registered for participation:

- 154 laboratories in 59 different countries for Gasoline EN (winter) iis20B06EN
- 116 laboratories in 47 different countries for DVPE iis20B06DVPE
- 78 laboratories in 48 different countries for RON & MON iis20B06RON
- 13 laboratories in 10 different countries registered for RON91 iis20B06R91.

In this interlaboratory study a total 161 laboratories in 62 different countries registered for participation. See appendix 5 for the number of participants per country.
In this report the results of this Gasoline EN proficiency tests are presented and discussed. This report is also available as PDF file from 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 to four different samples of Gasoline, see table below for an overview.

Samples	Purpose
#20185: 1x 1L	Regular analyzes
#20186: 1x 1L (± 750 mL filled)	DVPE
#20187: 2x 1L	RON & MON
#20188: 2x 1L	RON91

Table 1: Gasoline samples used in PT iis20B06

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 sample for the regular Gasoline PT a batch of approximately 360 liters of a regular winter grade Gasoline was purchased from the local market. After homogenization 185 amber glass bottles of 1 L were filled and labelled #20185.
The homogeneity of the subsamples was checked by determination of Density at 15°C in accordance with test method ASTM D4052 on 10 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
Sample #20185-1	726.45
Sample #20185-2	726.50
Sample #20185-3	726.41
Sample #20185-4	726.43
Sample #20185-5	726.43
Sample #20185-6	726.50
Sample #20185-7	726.37
Sample #20185-8	726.50
Sample #20185-9	726.51
Sample #20185-10	726.48

Table 2: homogeneity test results of subsamples #20185

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)	0.13
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 3: evaluation of the repeatability of subsamples #20185

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 PT on DVPE in Gasoline a batch of approximately 200 liters of a regular winter grade Gasoline was purchased from the local market. After homogenization 140 amber glass bottles of 1 L were filled with approximately 750 mL Gasoline and labelled #20186.
The homogeneity of the subsamples was checked by determination of DVPE according to EN13016 on 8 stratified randomly selected samples.

	DVPE in kPa
Sample #20186-1	91.2
Sample #20186-2	91.3
Sample #20186-3	91.2
Sample #20186-4	91.0
Sample #20186-5	91.3
Sample #20186-6	91.2
Sample #20186-7	91.1
Sample #20186-8	91.2

Table 4: homogeneity test results of subsamples #20186

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

Table 5: evaluation of repeatability of subsamples #20186

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

For the PT on RON/MON in Gasoline a batch of approximately 275 liters of a regular winter grade Gasoline was purchased from the local market. After homogenization 210 amber glass bottles of 1 L were filled and labelled #20187.

The homogeneity of the subsamples was checked by determination of Density at 15°C in accordance with test method ASTM D4052 on 10 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
Sample #20187-1	726.64
Sample #20187-2	726.66
Sample #20187-3	726.73
Sample #20187-4	726.65
Sample #20187-5	726.64
Sample #20187-6	726.68
Sample #20187-7	726.65
Sample #20187-8	726.66
Sample #20187-9	726.67
Sample #20187-10	726.60

Table 6: homogeneity test results of subsamples #20187

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)	0.09
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 7: evaluation of the repeatability of subsamples #20187

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 PT on RON 91 in Gasoline a batch of approximately 50 liters of a regular winter grade Gasoline was obtained from a third party. After homogenization 37 amber glass bottles of 1 L were filled and labelled #20188.
The homogeneity of the subsamples was checked by determination of Density at 15°C in accordance with test method ASTM D4052 on 9 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
Sample #20188-1	744.16
Sample #20188-2	744.04
Sample #20188-3	744.10
Sample #20188-4	744.16
Sample #20188-5	744.12
Sample #20188-6	744.14

	Density at 15°C in kg/m^3
Sample #20188-7	744.13
Sample #20188-8	744.12
Sample #20188-9	744.11

Table 8: homogeneity test results of subsamples #20188

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)	0.10
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 9: evaluation of the repeatability of subsamples #20188

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 16, 2020. 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 #20185: 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, Doctor Test, Gum (solvent washed), Lead, Manganese, 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 #20186 was requested to determine: Air Saturated Vapour Pressure (ASVP) and Dry Vapour Pressure Equivalent (DVPE) and on samples #20187 and #20188: 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. Also, some analytical details were asked.

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 appropriate reference test methods that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The 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 appendix 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 analyzis and the original test results are placed under ‘Remarks’ in the test result tables in appendix 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.

According to ISO5725 the original test results per determination were submitted to Dixon’s, Grubbs’ or Rosner’s outlier tests. Outliers are marked by D(0.01) for the Dixon’s test, by G(0.01) or DG(0.01) for the Grubbs’ test and by R(0.01) for the Rosner’s test. Stragglers are marked by D(0.05) for the Dixon’s test, by G(0.05) or DG(0.05) for the Grubbs’ test and by R(0.05) for the Rosner’s test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. 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 was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM, EN and ISO reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the variation of this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility based on former iis proficiency tests could be used.
When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate whether the reported test result is fit-for-use.

The z-scores were calculated according to:

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

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.

The usual interpretation of z-scores is as follows:

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

4 EVALUATION

Some problems were encountered with the dispatch of the samples due to COVID-19 pandemic. Therefore, the reporting time on the data entry portal was extended with one week.
In the PT with the regular analyzes two participants reported the test results after the extended reporting date and eighteen other participants did not report any test results at all.
In the DVPE PT two participants reported the test results after the final reporting date and fourteen other participants did not report any test results at all.
In the RON/MON PT one participant reported the test results after the final reporting date and ten other participants did not report any test results at all.
In the RON91 PT three participants did not report any test results. All other participants reported before the final reporting date.
Not all participants were able to report all analyzes requested.
Finally over all Gasoline EN PTs 140 participants reported in total 2447 numerical test results. Observed were 83 outlying test results, which is 3.4%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

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 reported test results. The abbreviations, used in these tables, are explained in appendix 6.

In the iis PT reports the ASTM test methods are referred to with a number e.g. ASTM D1298 and an added designation for the year that the test method was adopted or revised e.g. ASTM D1298:12b. If applicable a designation in parentheses is added to designate the year of reapproval e.g. ASTM D1298:12b(2017). In the tables of appendix 1 only the test method number and year of adoption or revision will be used.

Sample #20185

API Gravity: This determination was problematic for a number of laboratories. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1298:12b(2017).

Appearance: This determination was not problematic. All reporting participants agreed on the appearance as Pass or Clear and Bright.

Aromatics by FIA: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of EN15553:07.
To improve the reproducibility close attention should be paid to the identification of the chromatographic boundaries. EN15553 mentions in §9.4: “With some oxygenate blended fuels another red band may appear several centimetres above the reddish or brown alcohol/aromatic boundary and this shall be ignored.”
Three laboratories reported to use a lotnummer for fluorescent above 3000000975, but no effect has been observed.

Aromatics by GC: The determination in %V/V was problematic dependent on test method used. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ISO22854-A:16. Regretfully for the determination in %M/M no precision data is available. Therefore, no z-scores were calculated. One statistical outlier was observed in the test results reported in %M/M. The calculated reproducibility after rejection of the statistical outlier is smaller than in the previous PT iis19B05EN.

Benzene: This determination was problematic dependent on test method used. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:16 but in agreement with the requirements of EN12177:00 and EN238:96+A1:04.
When the test results from the method ISO22854 are evaluated separately the calculated reproducibility is in agreement with the respective requirements of ISO22854-A:16.

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 problematic for a number of laboratories. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Distillation: The distillation was not problematic for seven of the eight reported distillation parameters. In total twenty-five statistical outliers were observed and two other test results were excluded. Most calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ISO3405:19 automatic mode, except for % evaporated at 70°C. For the manual mode all parameters with known requirements are in agreement with ISO3405:19 except for 90% evaporated.
No effect is observed from make or type distillation equipment.

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

Gum (solvent washed): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ISO6246:17.

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

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

Olefins by FIA: This determination was not problematic. Two statistical outlies were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of EN15553:07.
Two laboratories reported to use a lotnummer for fluorescent above 3000000975, but no effect has been observed.

Olefins 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 agreement with the requirements of ISO22854-A:16.
Regretfully, no precision data is available for the determination in %M/M. Therefore, no z-scores were calculated. One statistical outlier was observed in the test results reported in %M/M. The calculated reproducibility is smaller than observed in previous PT iis19B05EN.

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

Ethanol: 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 ISO22854-A:16.

Ethers (C5 or more): 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 ISO22854-A:16.

ETBE: This determination was problematic for a number of laboratories. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:16.

MTBE: This determination was problematic for a number of laboratories. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:16.

Other Oxygenates: All other Oxygenates are near or below the detection limit and therefore not further evaluated. The reported test results are given in appendix 2.

Oxygen content: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:16.

Sulfur: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ISO20846:19 and ASTM D5453:19a.

Sample #20186

ASVP: 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 EN13016-1:18.

DVPE: The Air Saturated Vapour Pressure (ASVP) can be converted to Dry Vapour Pressure Equivalent (DVPE) according to EN13016-1. This conversion was problematic. Two 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 #20187

RON: The determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO5164:14.

MON: The 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 ISO5163:14.

Sample #20188 (RON91)

RON: The determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ISO5164:14.

MON: The determination was problematic. No statistical outliers were observed. The calculated reproducibility 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 reproducibility (R(lit)) derived from reference test methods (in casu ASTM, EN and ISO methods) are presented in the next tables.

Parameter	unit	n	average	2.8 * sd	R(lit)
API Gravity		58	63.2	0.3	0.3
Appearance		95	Pass	n.a.	n.a.
Aromatics by FIA	%V/V	47	25.4	4.8	3.7
Aromatics by GC	%V/V	60	23.9	1.3	1.2
Aromatics by GC	%M/M	40	28.7	1.5	n.a.
Benzene	%V/V	88	0.62	0.05	0.04
Copper Corrosion 3 hrs at 50°C		97	1(1a/1b)	n.a.	n.a.
Density at 15°C	kg/m^3	124	726.7	0.8	1.5
Initial Boiling Point	°C	123	27.8	4.7	4.7
Temp. at 10% evaporated	°C	123	42.2	3.4	3.9
Temp. at 50% evaporated	°C	121	81.7	3.9	4.0
Temp. at 90% evaporated	°C	117	137.9	4.1	5.8
Final Boiling Point	°C	122	176.4	5.2	7.1
%volume at 70°C	%V/V	118	42.5	3.0	2.7
%volume at 100°C	%V/V	116	64.2	2.4	2.2
%volume at 150°C	%V/V	107	94.2	1.1	1.3
Doctor Test		48	negative	n.a.	n.a.
Gum (solvent washed)	mg/100mL	58	0.7	1.3	2.3
Lead as Pb	mg/L	57	<3	n.e.	n.e.
Manganese as Mn	mg/L	45	<2	n.e.	n.e.
Olefins by FIA	%V/V	43	7.8	2.9	2.8
Olefins by GC	%V/V	60	8.0	1.4	1.4
Olefins by GC	%M/M	38	7.6	1.4	n.a.
Oxidation Stability	minutes	59	>360	n.a.	n.a.
Ethanol	%V/V	81	4.75	0.49	0.47
Ethers (C5 or more C atoms)	%V/V	49	4.71	0.37	0.47
ETBE	%V/V	72	2.88	0.33	0.42
MTBE	%V/V	73	1.86	0.20	0.40
Oxygen content	%M/M	76	2.63	0.21	0.31
Sulfur	mg/kg	116	4.1	1.7	1.7

Table 10: performance evaluation sample #20185

Parameter	unit	n	average	2.8 * sd	R(lit)
ASVP	kPa	70	97.67	2.24	1.58
DVPE acc. to EN13016-1	kPa	98	90.44	2.11	1.58

Table 11: performance evaluation sample #20186

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		65	95.5	0.9	0.7
MON		55	85.9	1.1	0.9

Table 12: performance evaluation sample #20187

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		10	91.3	0.9	0.7
MON		7	80.9	1.4	0.9

Table 13: performance evaluation sample #20188

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF OCTOBER 2020 WITH PREVIOUS PTS

	October 2020	October 2019	October 2018	October 2017	October 2016
Number of reporting laboratories	140	161	143	148	146
Number of test results	2447	2643	2587	2694	2570
Number of statistical outliers	83	83	77	77	54
Percentage of statistical outliers	3.4%	3.1%	3.0%	2.9%	2.1%

Table 14: comparison with previous proficiency tests

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.

The performance of the determinations of the proficiency tests was compared against the requirements of the reference test methods. The conclusions are given in the following table.

Determination	October 2020	October 2019	October 2018	October 2017	October 2016
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.

Determination	October 2020	October 2019	October 2018	October 2017	October 2016
Olefins by FIA	+/-	+/-	-	+/-	+/-
Olefins by GC	+	+/-	+	+/-	+
Methanol	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 15: comparison determinations against the reference test method

The performance of the determinations against the requirements of the reference test methods is listed in the above table. 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

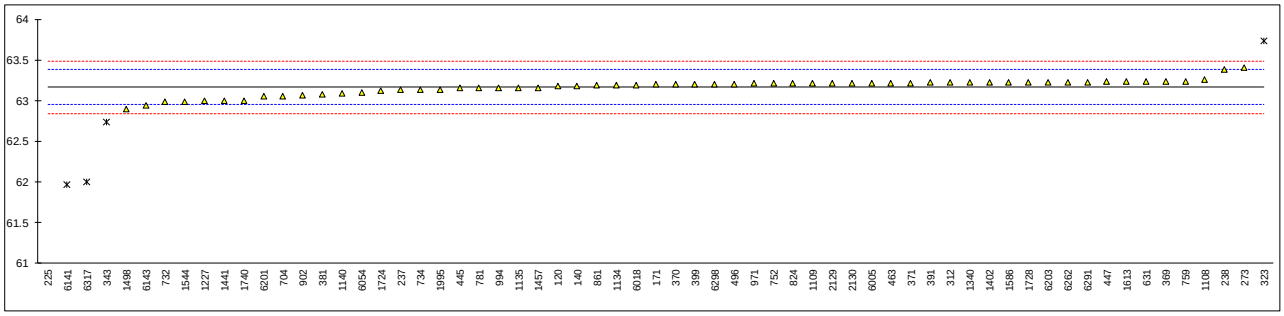
Determination of API Gravity on sample #20185;

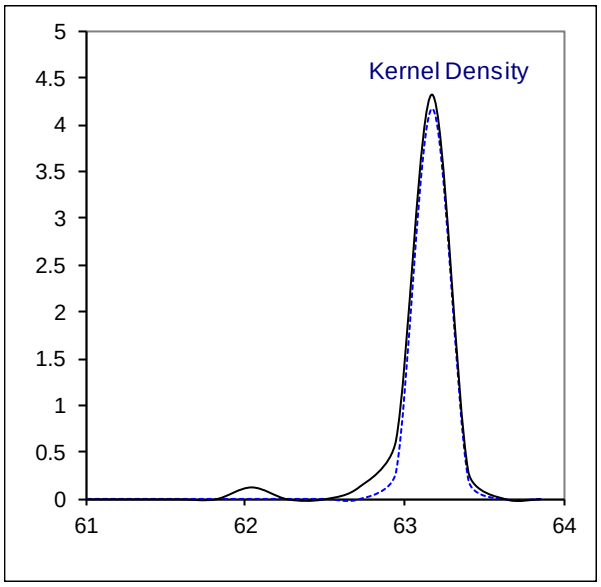
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	63.176		0.10	1143		-----		-----
140	D4052	63.18		0.14	1167		-----		-----
159		-----		-----	1171		-----		-----
171	D4052	63.2		0.33	1191		-----		-----
225	D4052	6.2	R(0.01)	-531.67	1194		-----		-----
237	D4052	63.13		-0.33	1205		-----		-----
238	D4052	63.38		2.01	1212		-----		-----
273	D4052	63.4		2.19	1227	D1298	63.0		-1.54
311		-----		-----	1229		-----		-----
312	ISO12185	63.22		0.51	1237		-----		-----
323	D1298	63.73	R(0.01)	5.27	1266		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1299		-----		-----
335		-----		-----	1340	D1298	63.22		0.51
336		-----		-----	1394		-----		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398		-----		-----
343	D1298	62.74	C,R(0.01)	-3.97	1402	D4052	63.22		0.51
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D4052	63.0		-1.54
353		-----		-----	1457	D1298	63.16		-0.05
369	D4052	63.24		0.70	1459		-----		-----
370	ISO12185	63.2		0.33	1498	D4052	62.9		-2.47
371	D4052	63.216		0.48	1528		-----		-----
381	ISO12185	63.08		-0.79	1544	ISO12185	62.988		-1.65
391	ISO12185	63.22		0.51	1556		-----		-----
399	D4052	63.2		0.33	1569		-----		-----
403		-----		-----	1575		-----		-----
404		-----		-----	1586	D1298	63.22		0.51
420		-----		-----	1613	D4052	63.23		0.61
431		-----		-----	1631		-----		-----
440		-----		-----	1635		-----		-----
444		-----		-----	1636		-----		-----
445	D1298	63.16		-0.05	1667		-----		-----
447	D4052	63.23		0.61	1720		-----		-----
463	ISO12185	63.215		0.47	1724	D4052	63.12		-0.42
485		-----		-----	1728	D4052	63.22		0.51
496	D4052	63.201		0.34	1740	D4052	63.002		-1.52
631	D4052	63.24		0.70	1742		-----		-----
633		-----		-----	1776		-----		-----
704	D1298	63.058		-1.00	1810		-----		-----
732	ISO12185	62.98		-1.73	1811		-----		-----
734	D1250	63.13		-0.33	1833		-----		-----
752	D1250	63.21		0.42	1864		-----		-----
759	D1298	63.24		0.70	1911		-----		-----
779		-----		-----	1953		-----		-----
781	D4052	63.16		-0.05	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D4052	63.13		-0.33
824	ISO12185	63.21		0.42	2129	D1298	63.21		0.42
846		-----		-----	2130	D1298	63.21		0.42
861	SH/T0604	63.19		0.23	6005	ISO12185	63.21		0.42
875		-----		-----	6012		-----		-----
902	D4052	63.06		-0.98	6018	ISO12185	63.19		0.23
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054	D4052	63.10		-0.61
971	D4052	63.21		0.42	6075		-----		-----
994	D1250	63.16		-0.05	6103		-----		-----
998		-----		-----	6141	D4052	61.9645	R(0.01)	-11.21
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143	D4052	62.94		-2.10
1033		-----		-----	6170		-----		-----
1059		-----		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	D4052	63.05		-1.07
1108	ISO12185	63.255		0.84	6203	ISO12185	63.22		0.51
1109	D287	63.21		0.42	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	D4052	63.19		0.23	6258		-----		-----
1135	D4052	63.16		-0.05	6262	D4052	63.22		0.51
1140	D287	63.0820		-0.78	6291	D1298	63.22		0.51

lab	method	value	mark	z(targ)
6298	D4052	63.2		0.33
6317	D4052	62.00	C,R(0.01)	-10.87
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	58
outliers	5
mean (n)	63.165
st.dev. (n)	0.0952
R(calc.)	0.267
st.dev.(D1298:12b)	0.1071
R(D1298:12b)	0.3

Lab 343 first reported 62.7
Lab 6317 first reported 62.28





Determination of Appearance on sample #20185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4176	Clear		-----	1143	Visual	clear and bright		-----
140		-----		-----	1167	Visual	Clear&Bright		-----
159		-----		-----	1171		-----		-----
171	Visual	Clear and Bright		-----	1191		-----		-----
225	Visual	C&B		-----	1194		-----		-----
237	D4176	C&B		-----	1205		-----		-----
238		-----		-----	1212	Visual	C&B		-----
273		-----		-----	1227		-----		-----
311		-----		-----	1229		-----		-----
312	Visual	Br&Cl		-----	1237		-----		-----
323	D4176	C&B		-----	1266	D4176	clear &bright		-----
333		-----		-----	1275	D4176	Clear & Bright		-----
334	Visual	clear and bright		-----	1299	Visual	Cl&Br		-----
335	Visual	Clear and Bright		-----	1340	Visual	a clear, bright		-----
336	Visual	C&B		-----	1394		-----		-----
337	Visual	Clair et limpide		-----	1397		-----		-----
338	Visual	Clear limpid		-----	1398		-----		-----
343	Visual	clear&bright		-----	1402	D4176	Clear and Bright		-----
344	D4176	Clear&Bright		-----	1433	Visual	clear and bright		-----
352	Visual	Clear and Bright		-----	1441	Visual	Clear & Bright		-----
353	D4176	Pass		-----	1457	D4176	Pass		-----
369	Visual	Clear & Bright		-----	1459		-----		-----
370	D4176	clear & bright		-----	1498	D4176	B&C		-----
371	D4176	pass		-----	1528	Visual	clear and bright		-----
381	Visual	clear		-----	1544	Visual	clear and bright		-----
391	Visual	C&B		-----	1556		-----		-----
399	Visual	Clear & Bright		-----	1569	D4176	pass		-----
403	Visual	clear&bright		-----	1575		-----		-----
404		-----		-----	1586	Visual	Clear & Bright		-----
420		-----		-----	1613	Visual	Clear and Bright		-----
431		-----		-----	1631		-----		-----
440	Visual	Clear and Bright		-----	1635		-----		-----
444	E2680	Pass		-----	1636	Visual	C&B		-----
445	Visual	C&B		-----	1667		-----		-----
447	Visual	Clear & Bright		-----	1720		-----		-----
463	Visual	clear & bright		-----	1724	Visual	Clear & Bright		-----
485		-----		-----	1728	Visual	CLEAR		-----
496	Visual	clear&bright		-----	1740	Visual	B+C		-----
631	Visual	clear & bright		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	EN228	clear and bright		-----	1810		-----		-----
732	D4176	C&B		-----	1811		-----		-----
734	Visual	Cl&Br		-----	1833		Clear & Bright		-----
752	D4176	Clear & Bright		-----	1864	Visual	Clear and bright		-----
759	Visual	C&B		-----	1911		-----		-----
779	Visual	Clear & Bright		-----	1953		C&B		-----
781	D4176	PASS		-----	1967		-----		-----
782		-----		-----	1971	Visual	Clear & bright		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	Visual	clear & bright		-----
824	Visual	Clear & Bright		-----	2129	Visual	C&B		-----
846	Visual	pass		-----	2130	Visual	C&B		-----
861	Visual	Clear & Bright		-----	6005	Visual	Clear&Bright		-----
875		-----		-----	6012	Visual	Clear		-----
902	D4176	PASS		-----	6018	Visual	Clear&Bright		-----
912		-----		-----	6028	D4176	clear&bright		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054	Visual	Clear & Brigth		-----
971	Visual	Pass		-----	6075	Visual	C&L		-----
994	Visual	c@b		-----	6103		-----		-----
998	D4176	Pass		-----	6141	Visual	Clear & Bright		-----
1006		-----		-----	6142		-----		-----
1011	Visual	Bright and Clear		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	Visual	Clear & Bright		-----	6184		-----		-----
1082		-----		-----	6192	Visual	bright and clear		-----
1097	Visual	limpide		-----	6201	Visual	Br&Cl		-----
1108	Visual	bright/clear		-----	6203	Visual	Clear and Bright		-----
1109	D4176	Pass		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	D4176	Clear and Bright		-----	6258	D4176	Clear & Bright		-----
1135	D4176	Clear&Bright		-----	6262	Visual	Pass		-----
1140	Visual	C&B		-----	6291	Visual	bright & clear		-----

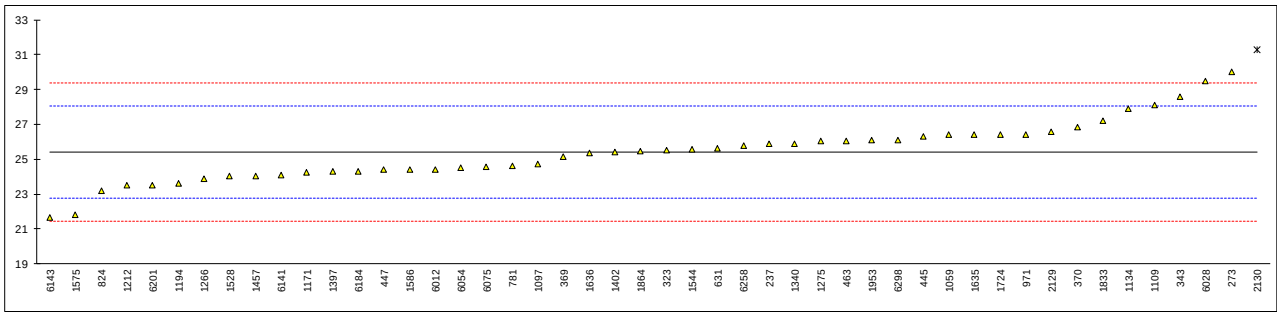
lab	method	value	mark	z(targ)
6298	D4176	Bright & Clear		-----
6317	Visual	Bright & Clear		-----
6321	D4176	Pass		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----
	n	95		
	mean (n)	Pass (Clear & Bright)		

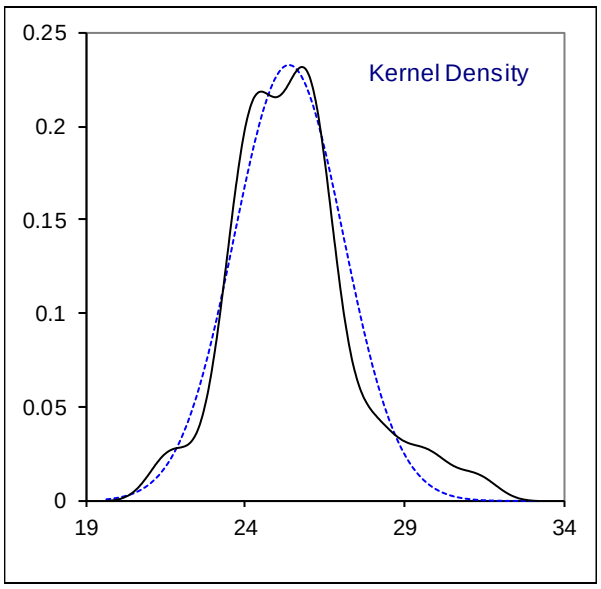
Determination of Aromatics by FIA (without oxygenates correction) on sample #20185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167		-----		-----
159		-----		-----	1171	D1319Mod.	24.26		-0.87
171		-----		-----	1191		-----		-----
225		-----		-----	1194	EN15553	23.6		-1.37
237	D1319	25.9		0.37	1205		-----		-----
238		-----		-----	1212	EN15553	23.49		-1.45
273	D1319	30.0		3.47	1227		-----		-----
311		-----		-----	1229		-----		-----
312		-----		-----	1237		-----		-----
323	EN15553	25.5		0.07	1266	D1319	23.9		-1.14
333		-----		-----	1275	IP156	26.02		0.46
334		-----		-----	1299		-----		-----
335		-----		-----	1340	D1319	25.9		0.37
336		-----		-----	1394		-----		-----
337		-----		-----	1397	EN15553	24.3		-0.84
338		-----		-----	1398		-----		-----
343	D1319	28.6		2.41	1402	D1319	25.4		-0.01
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	D1319	24.03		-1.05
369	EN15553	25.17		-0.18	1459		-----		-----
370	D1319	26.82		1.07	1498		-----		-----
371		-----		-----	1528	EN15553	24.02		-1.05
381		-----		-----	1544	EN15553	25.57		0.12
391		-----		-----	1556		-----		-----
399		-----		-----	1569		-----		-----
403		-----		-----	1575	In house	21.8		-2.73
404		-----		-----	1586	D1319	24.4		-0.77
420		-----		-----	1613	D1319	--		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635	EN15553	26.4		0.75
444		-----		-----	1636	EN15553	25.34		-0.05
445	D1319	26.31		0.68	1667		-----		-----
447	D1319	24.4		-0.77	1720		-----		-----
463	D1319	26.05		0.48	1724	EN15553	26.40		0.75
485		-----		-----	1728		-----		-----
496		-----		-----	1740		-----		-----
631	D1319	25.62		0.16	1742		-----		-----
633		-----		-----	1776		-----		-----
704		-----		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833	EN15553	27.23		1.38
752		-----		-----	1864	EN15553	25.45		0.03
759		-----		-----	1911		-----		-----
779		-----		-----	1953		26.1		0.52
781	EN15553	24.6		-0.61	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995		-----		-----
824	D1319	23.17		-1.70	2129	D1319	26.6		0.90
846		-----		-----	2130	D1319	31.3	R(0.01)	4.46
861		-----		-----	6005		-----		-----
875		-----		-----	6012	D1319	24.4		-0.77
902		-----		-----	6018		-----		-----
912		-----		-----	6028	D1319	29.5		3.09
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054	D1319	24.5126		-0.68
971	D1319	26.43		0.77	6075	EN15553	24.59		-0.62
994		-----		-----	6103		-----		-----
998		-----		-----	6141	In house	24.1		-0.99
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143	D1319	21.63		-2.86
1033		-----		-----	6170		-----		-----
1059	EN15553	26.4		0.75	6184	D1319	24.32		-0.83
1082		-----		-----	6192		-----		-----
1097	D1319	24.71		-0.53	6201	D1319	23.5		-1.45
1108		-----		-----	6203		-----		-----
1109	D1319	28.09		2.03	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	D1319	27.9		1.88	6258	D1319	25.8		0.29
1135		-----		-----	6262		-----		-----
1140		-----		-----	6291		-----		-----

lab	method	value	mark	z(targ)
6298	D1319	26.1		0.52
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	OK
n	47
outliers	1
mean (n)	25.41
st.dev. (n)	1.717
R(calc.)	4.81
st.dev.(EN15553:07)	1.3214
R(EN15553:07)	3.7





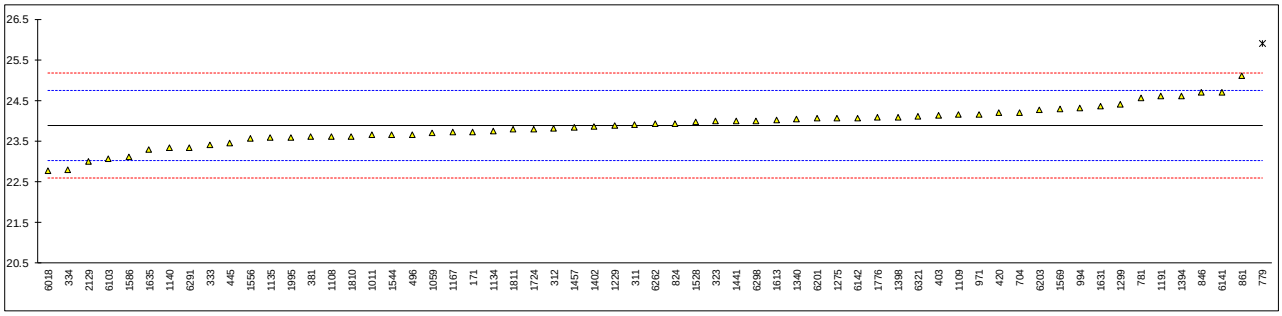
Determination of Aromatics by GC on sample #20185; results in %V/V

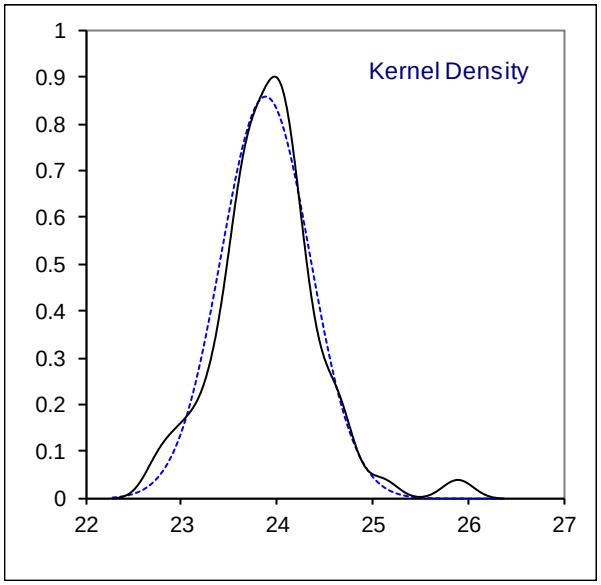
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167	ISO22854-A	23.72		-0.38
159		-----		-----	1171		-----		-----
171	ISO22854-A	23.72		-0.38	1191	ISO22854-A	24.60		1.65
225		-----		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238		-----		-----	1212		-----		-----
273		-----		-----	1227		-----		-----
311	ISO22854-A	23.9		0.04	1229	ISO22854-A	23.88		-0.01
312	ISO22854-A	23.82		-0.15	1237		-----		-----
323	ISO22854-A	24.0		0.27	1266		-----		-----
333	ISO22854-A	23.4		-1.12	1275	ISO22854-A	24.07		0.43
334	ISO22854-A	22.80		-2.50	1299	ISO22854-A	24.4		1.19
335		-----		-----	1340	ISO22854-A	24.03		0.34
336		-----		-----	1394	In house	24.6		1.65
337		-----		-----	1397		-----		-----
338		-----		-----	1398	D6730	24.094		0.49
343		-----		-----	1402	ISO22854-A	23.87		-0.03
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D6839	24.0		0.27
353		-----		-----	1457	ISO22854-A	23.83		-0.12
369		-----		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	23.97		0.20
381	ISO22854-A	23.6		-0.65	1544	ISO22854-A	23.65		-0.54
391		-----		-----	1556	ISO22854-A	23.56		-0.75
399		-----		-----	1569	ISO22854-A	24.30		0.96
403	ISO22854-A	24.14		0.59	1575		-----		-----
404		-----		-----	1586	ISO22854-A	23.10		-1.81
420	ISO22854-A	24.21		0.75	1613	D6839	24.02		0.32
431		-----		-----	1631	ISO22854-A	24.36		1.10
440		-----		-----	1635	ISO22854	23.3		-1.35
444		-----		-----	1636		-----		-----
445	ISO22854-A	23.44		-1.02	1667		-----		-----
447		-----		-----	1720		-----		-----
463		-----		-----	1724	ISO22854-A	23.80		-0.19
485		-----		-----	1728		-----		-----
496	ISO22854-A	23.66		-0.52	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776	ISO22854-A	24.09		0.48
704	D5580	24.21		0.75	1810		23.62		-0.61
732		-----		-----	1811	ISO22854-A	23.79		-0.22
734		-----		-----	1833		-----		-----
752		-----		-----	1864		-----		-----
759		-----		-----	1911		-----		-----
779	D6729	25.894	R(0.01)	4.64	1953		-----		-----
781	ISO22854	24.56		1.56	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D6730	23.59		-0.68
824	D5580	23.93		0.11	2129	D6730	23.00		-2.04
846	GB/T30519	24.7		1.88	2130		-----		-----
861	GB/T30519	25.1		2.81	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018	ISO22854-A	22.77		-2.57
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D6839	24.16	C	0.64	6075		-----		-----
994	D6729	24.321		1.01	6103	D6730	23.0765		-1.86
998		-----		-----	6141	In house	24.7		1.88
1006		-----		-----	6142	ISO22854-A	24.07		0.43
1011	ISO22854-A	23.65		-0.54	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO22854-A	23.69		-0.45	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	24.06		0.41
1108	ISO22854-A	23.6		-0.65	6203	ISO22854-A	24.27		0.89
1109	D6839	24.16		0.64	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	23.74		-0.33	6258		-----		-----
1135	ISO22854-A	23.59		-0.68	6262	ISO22854-A	23.92		0.08
1140	D6839	23.34		-1.25	6291	ISO22854-A	23.34		-1.25

lab	method	value	mark	z(targ)
6298	D6730	24.0	C	0.27
6317		-----		-----
6321	ISO22854-A	24.11		0.52
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	OK
n	60
outliers	1
mean (n)	23.883
st.dev. (n)	0.4638
R(calc.)	1.299
st.dev.(ISO22854-A:16)	0.4333
R(ISO22854-A:16)	1.213

Lab 971 first reported 25.90
Lab 6298 first reported 25.9





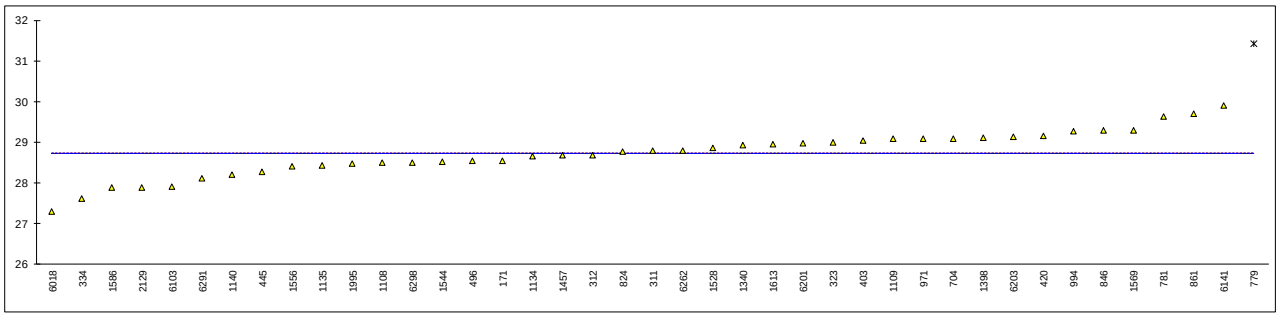
Determination of Aromatics by GC on sample #20185; results in %M/M

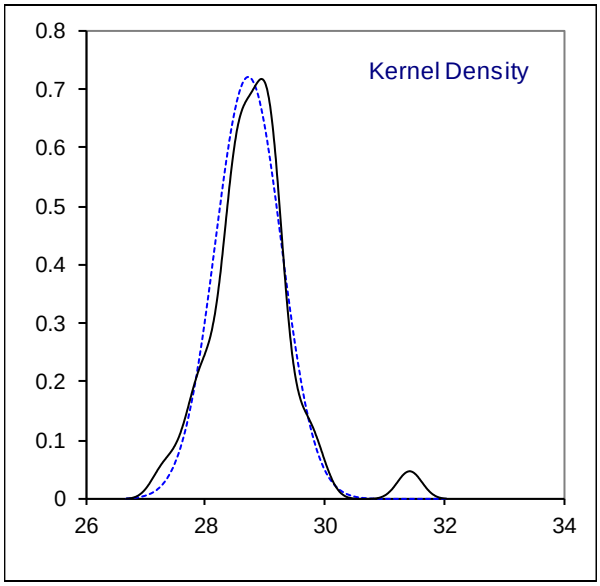
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167		-----		-----
159		-----		-----	1171		-----		-----
171	ISO22854-A	28.55		-----	1191		-----		-----
225		-----		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238		-----		-----	1212		-----		-----
273		-----		-----	1227		-----		-----
311	ISO22854-A	28.8		-----	1229		-----		-----
312	ISO22854-A	28.69		-----	1237		-----		-----
323	ISO22854-A	29.0		-----	1266		-----		-----
333		-----		-----	1275		-----		-----
334	ISO22854-A	27.62		-----	1299		-----		-----
335		-----		-----	1340	ISO22854-A	28.92		-----
336		-----		-----	1394		-----		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398	D6730	29.106		-----
343		-----		-----	1402		-----		-----
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	ISO22854-A	28.68		-----
369		-----		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	28.85		-----
381		-----		-----	1544	ISO22854-A	28.52		-----
391		-----		-----	1556	ISO22854-A	28.41		-----
399		-----		-----	1569	ISO22854-A	29.30		-----
403	ISO22854-A	29.04		-----	1575		-----		-----
404		-----		-----	1586	ISO22854-A	27.89		-----
420	ISO22854-A	29.15		-----	1613	D6839	28.96		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635		-----		-----
444		-----		-----	1636		-----		-----
445	ISO22854-A	28.27		-----	1667		-----		-----
447		-----		-----	1720		-----		-----
463		-----		-----	1724		-----		-----
485		-----		-----	1728		-----		-----
496	ISO22854-A	28.54		-----	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	D5580	29.09		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833		-----		-----
752		-----		-----	1864		-----		-----
759		-----		-----	1911		-----		-----
779	D6729	31.428	R(0.01)	-----	1953		-----		-----
781	ISO22854	29.62		-----	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D6730	28.47		-----
824	D5580	28.76		-----	2129	D6730	27.89		-----
846	GB/T30519	29.3		-----	2130		-----		-----
861	GB/T30519	29.7		-----	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018	ISO22854-A	27.30		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D6839	29.08	C	-----	6075		-----		-----
994	D6729	29.259		-----	6103	D6730	27.912		-----
998		-----		-----	6141	In house	29.9		-----
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059		-----		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	28.97		-----
1108	ISO22854-A	28.5		-----	6203	ISO22854-A	29.14		-----
1109	D6839	29.08		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	28.65		-----	6258		-----		-----
1135	ISO22854-A	28.44		-----	6262	ISO22854-A	28.80		-----
1140	D6839	28.21		-----	6291	ISO22854-A	28.11		-----

lab	method	value	mark	z(targ)
6298	D6730	28.5	C	-----
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

	normality	OK
	n	40
	outliers	1
	mean (n)	28.724
	st.dev. (n)	0.5533
	R(calc.)	1.549
	st.dev.(lit)	unknown
	R(lit)	unknown
Compare		
	R(iis19B05EN)	1.765

Lab 971 first reported 29.98
Lab 6298 first reported 30.7





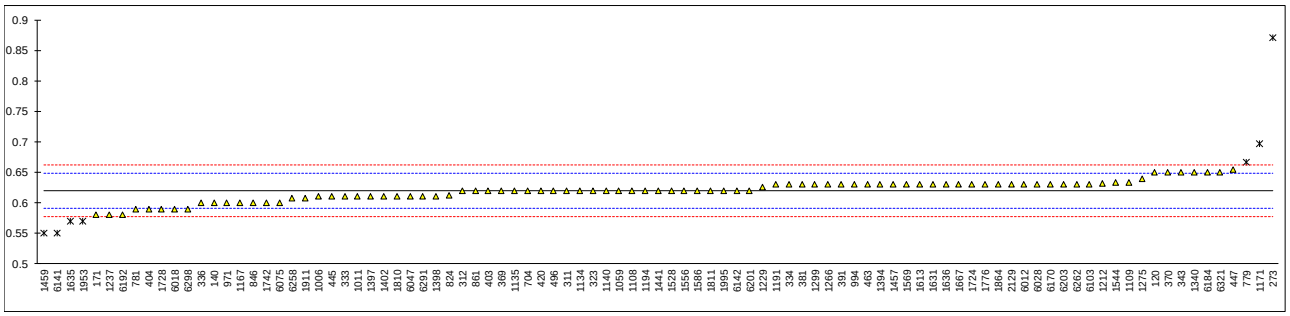
Determination of Benzene on sample #20185; results in %V/V

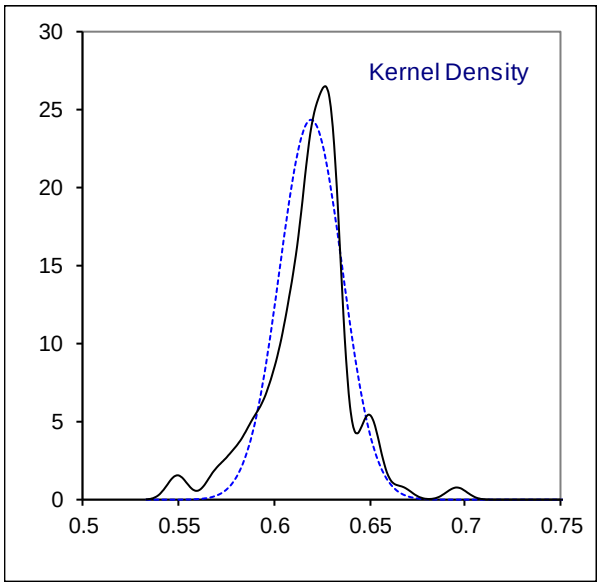
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D3606	0.65		2.11	1143		-----		-----
140	D3606	0.60		-1.39	1167	ISO22854-A	0.60		-1.39
159		-----		-----	1171	D6277	0.696	R(0.05)	5.33
171	ISO22854-A	0.58	C	-2.79	1191	ISO22854-A	0.63		0.71
225		-----		-----	1194	EN12177	0.62		0.01
237		-----		-----	1205		-----		-----
238		-----		-----	1212	EN238	0.632		0.85
273	D6277	0.87	CR(0.01)	17.51	1227		-----		-----
311	ISO22854-A	0.62		0.01	1229	ISO22854-A	0.625		0.36
312	ISO22854-A	0.62		0.01	1237	EN238	0.58		-2.79
323	ISO22854-A	0.62		0.01	1266	EN238	0.63	C	0.71
333	ISO22854-A	0.61		-0.69	1275	ISO22854-A	0.64		1.41
334	ISO22854-A	0.63		0.71	1299	ISO22854-A	0.63		0.71
335		-----		-----	1340	EN12177	0.65		2.11
336	EN238	0.6		-1.39	1394	In house	0.63		0.71
337		-----		-----	1397	EN238	0.61		-0.69
338		-----		-----	1398	D6730	0.611		-0.62
343	EN238	0.65	C	2.11	1402	ISO22854-A	0.61		-0.69
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D6839	0.62		0.01
353		-----		-----	1457	ISO22854-A	0.63		0.71
369	EN238	0.62		0.01	1459	EN12177	0.55	R(0.05)	-4.89
370	EN238	0.65		2.11	1498		-----		-----
371		-----		-----	1528	ISO22854-A	0.62		0.01
381	ISO22854-A	0.63		0.71	1544	ISO22854-A	0.633		0.92
391	EN12177	0.63		0.71	1556	ISO22854-A	0.62		0.01
399		-----		-----	1569	ISO22854-A	0.63		0.71
403	ISO22854-A	0.62		0.01	1575		-----		-----
404	EN238	0.59	C	-2.09	1586	ISO22854-A	0.62		0.01
420	ISO22854-A	0.62		0.01	1613	D6839	0.63		0.71
431		-----		-----	1631	ISO22854-A	0.63		0.71
440		-----		-----	1635	EN238	0.57	R(0.05)	-3.49
444		-----		-----	1636	EN238	0.63		0.71
445	ISO22854-A	0.61		-0.69	1667	EN12177	0.63		0.71
447	IP429	0.654		2.39	1720		-----		-----
463	EN238	0.63		0.71	1724	ISO22854-A	0.63		0.71
485		-----		-----	1728	EN238	0.59		-2.09
496	ISO22854-A	0.620		0.01	1740		-----		-----
631		-----		-----	1742	EN238	0.6		-1.39
633		-----		-----	1776	ISO22854-A	0.63		0.71
704	D5580	0.62		0.01	1810		0.61		-0.69
732		-----		-----	1811	ISO22854-A	0.62		0.01
734		-----		-----	1833		-----		-----
752		-----		-----	1864	EN12177	0.63		0.71
759		-----		-----	1911	EN12177	0.608		-0.83
779	D6729	0.667	R(0.05)	3.30	1953		0.57	R(0.05)	-3.49
781	ISO22854	0.59		-2.09	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D6730	0.62		0.01
824	D5580	0.612		-0.55	2129	D6730	0.63		0.71
846	SH/T0713	0.6		-1.39	2130		-----		-----
861	SH/T0693	0.62		0.01	6005		-----		-----
875		-----		-----	6012	D6277	0.63		0.71
902		-----		-----	6018	ISO22854-A	0.59		-2.09
912		-----		-----	6028	EN238	0.63		0.71
913		-----		-----	6034		-----		-----
914		-----		-----	6047	EN12177	0.61		-0.69
963		-----		-----	6054		-----		-----
971	D5580	0.60		-1.39	6075	EN238	0.60		-1.39
994	D6729	0.630		0.71	6103	D6730	0.63035		0.74
998		-----		-----	6141	In house	0.55	R(0.05)	-4.89
1006	D5580	0.61		-0.69	6142	ISO22854-A	0.62		0.01
1011	ISO22854-A	0.61		-0.69	6143		-----		-----
1033		-----		-----	6170	EN12177	0.63		0.71
1059	ISO22854-A	0.62		0.01	6184	D6277	0.65		2.11
1082		-----		-----	6192	D6277	0.58		-2.79
1097		-----		-----	6201	ISO22854-A	0.62		0.01
1108	ISO22854-A	0.62		0.01	6203	ISO22854-A	0.63		0.71
1109	D3606	0.634		0.99	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	0.62		0.01	6258	EN12177	0.607		-0.90
1135	ISO22854-A	0.62		0.01	6262	ISO22854-A	0.63		0.71
1140	D6839	0.62		0.01	6291	ISO22854-A	0.61		-0.69

lab	method	value	mark	z(targ)
6298	D5580	0.59		-2.09
6317		-----		-----
6321	ISO22854-A	0.65	C	2.11
6332		-----		-----
6344		-----		-----
6346		-----		-----

			Only ISO22854:
	normality	OK	not OK
	n	88	40
	outliers	7	0
	mean (n)	0.6198	0.6202
	st.dev. (n)	0.01642	0.01329
	R(calc.)	0.0460	0.0372
	st.dev.(ISO22854-A:16)	0.01429	0.01429
	R(ISO22854-A:16)	0.04	0.04
Compare			
	R(EN12177:00)	0.10	---
	R(EN238:96+A1:04)	0.17	---

Lab 171 first reported 2.87
Lab 273 first reported 0.67
Lab 343 first reported 0.7
Lab 404 first reported 0.56
Lab 1266 first reported 0.53
Lab 6321 first reported 0.85





Determination of Copper Corrosion 3hrs at 50°C on sample #20185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140	D130	1a		-----	1167	ISO2160	1a		-----
159		-----		-----	1171	ISO2160	1A		-----
171	D130	1a		-----	1191		-----		-----
225	D130	1a		-----	1194		-----		-----
237	D130	1A		-----	1205		-----		-----
238	D130	1a		-----	1212	ISO2160	1A		-----
273	D130	1a		-----	1227	D130	1A		-----
311	D130	1A		-----	1229		-----		-----
312	ISO2160	1a		-----	1237		-----		-----
323	D130	1A		-----	1266	ISO2160	1a		-----
333		-----		-----	1275	IP154	1a		-----
334	D130	1A		-----	1299	D130	1A		-----
335	ISO2160	1		-----	1340	ISO2160	klasa 1		-----
336	D130	1		-----	1394	ISO2160	1		-----
337		-----		-----	1397	ISO2160	1		-----
338		-----		-----	1398		-----		-----
343	D130	1a		-----	1402	IP154	1A		-----
344	D130	1a		-----	1433	D130	1a		-----
352	ISO2160	1a		-----	1441	D130	1a		-----
353	IP154	1a		-----	1457	ISO2160	1A		-----
369	ISO2160	1A		-----	1459		-----		-----
370	ISO2160	1A		-----	1498		-----		-----
371	ISO2160	1a		-----	1528	ISO2160	1a		-----
381		-----		-----	1544	ISO2160	1A		-----
391	D130	1A		-----	1556	ISO2160	Class 1		-----
399	D130	1A		-----	1569	D130	1a		-----
403	D130	1a		-----	1575		-----		-----
404	ISO2160	clasa 1		-----	1586	D130	1A		-----
420	ISO2160	Class 1		-----	1613	D130	1a		-----
431		-----		-----	1631		-----		-----
440	IP154	1b		-----	1635	ISO2160	1A		-----
444		-----		-----	1636	ISO2160	1a		-----
445	IP154	1a		-----	1667		-----		-----
447	D130	1a		-----	1720		-----		-----
463	D130	1A		-----	1724	D130	1a		-----
485		-----		-----	1728	D130	1a		-----
496	D130	1a		-----	1740	D130	1b		-----
631	D130	1a		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	ISO2160	1a		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833		1		-----
752		-----		-----	1864	ISO2160	1a		-----
759		-----		-----	1911		-----		-----
779	D130	1a		-----	1953	ISO2160	1a		-----
781	ISO2160	1a		-----	1967		-----		-----
782		-----		-----	1971	ISO2160	1a		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D130	1A		-----
824	D130	1a		-----	2129	ISO2160	1A		-----
846	GB/T5096	1a		-----	2130	D130	1a		-----
861	GB/T5096	1a		-----	6005	ISO2160	1a		-----
875		-----		-----	6012	D130	1A		-----
902	D130	1a		-----	6018	ISO2160	1a		-----
912		-----		-----	6028	ISO2160	1a		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D130	1a		-----	6075	ISO2160	1a		-----
994	D130	1a		-----	6103	D130	1a		-----
998	D130	1A		-----	6141	D130	Class 1a		-----
1006	D130	1a		-----	6142		-----		-----
1011	ISO2160	1b		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO2160	1a		-----	6184	ISO2160	1 a		-----
1082		-----		-----	6192		-----		-----
1097	ISO2160	1a		-----	6201	D130	1a		-----
1108	ISO2160	1		-----	6203	ISO2160	1A		-----
1109	D130	1a		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134		-----		-----	6258	D130	1a		-----
1135	ISO2160	1A		-----	6262	D130	1A		-----
1140	IP154	1A		-----	6291	D130	1A		-----

lab	method	value	mark	z(targ)
6298	D130	1a		-----
6317	D130	1a		-----
6321	IP154	1A		-----
6332		-----		-----
6344	ISO2160	1a		-----
6346		-----		-----
	n	97		
	mean (n)	1 (1a / 1b)		

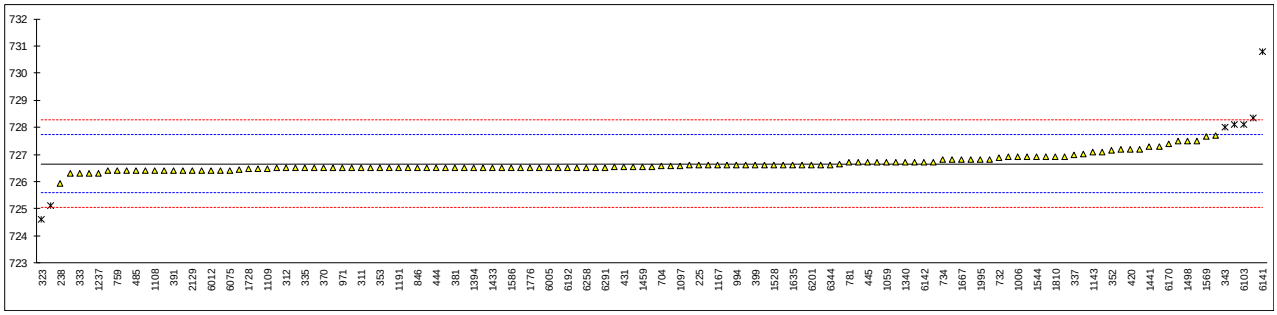
Determination of Density at 15°C on sample #20185; results in kg/m^3

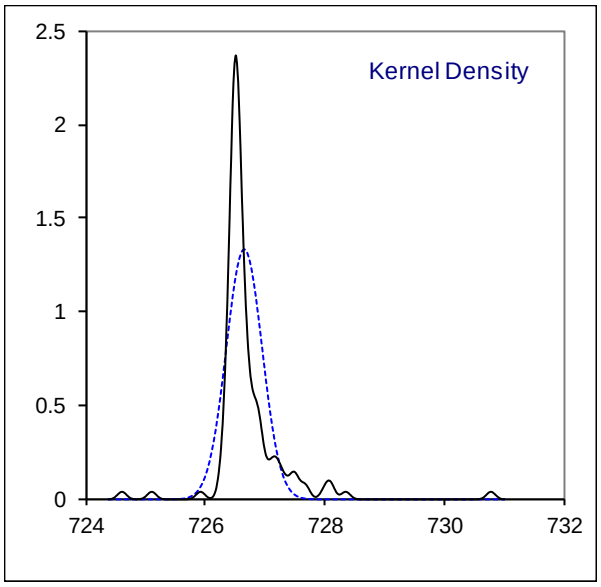
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	726.7		0.09	1143	ISO12185	727.1		0.83
140	D4052	726.6		-0.10	1167	ISO12185	726.6		-0.10
159		-----		-----	1171	D4052	726.40		-0.47
171	D4052	726.6		-0.10	1191	ISO12185	726.5		-0.29
225	D4052	726.6		-0.10	1194		-----		-----
237	D4052	726.3		-0.66	1205	ISO12185	727.02		0.68
238	D4052	725.92		-1.37	1212	ISO12185	726.5		-0.29
273	D4052	726.3		-0.66	1227	D4052	726.9		0.46
311	D4052	726.5		-0.29	1229	ISO12185	726.7		0.09
312	ISO12185	726.5		-0.29	1237	ISO12185	726.3		-0.66
323	ISO12185	724.6	R(0.01)	-3.83	1266	ISO3675	726.5		-0.29
333	ISO12185	726.3		-0.66	1275	IP365	726.65		-0.01
334	ISO12185	726.5		-0.29	1299	D4052	726.6		-0.10
335	ISO12185	726.5		-0.29	1340	ISO12185	726.7		0.09
336	ISO12185	726.4		-0.47	1394	ISO12185	726.5		-0.29
337	ISO12185	727.0		0.65	1397		-----		-----
338	ISO12185	726.5		-0.29	1398	D4052	726.8		0.27
343	ISO12185	728.0	R(0.01)	2.51	1402	IP365	726.5		-0.29
344		-----		-----	1433	ISO12185	726.5		-0.29
352	ISO12185	727.14		0.91	1441	D4052	727.3		1.21
353	IP365	726.5		-0.29	1457	ISO12185	726.7		0.09
369	ISO12185	726.5		-0.29	1459	ISO12185	726.55		-0.19
370	ISO12185	726.5		-0.29	1498	D4052	727.5		1.58
371	ISO12185	726.5		-0.29	1528	D4052	726.6		-0.10
381	ISO12185	726.5		-0.29	1544	ISO12185	726.90		0.46
391	ISO12185	726.4		-0.47	1556	ISO12185	726.50		-0.29
399	D4052	726.6		-0.10	1569	ISO12185	727.65		1.86
403		-----		-----	1575		-----		-----
404	D4052	726.5		-0.29	1586	ISO12185	726.5		-0.29
420	ISO12185	727.2		1.02	1613	D4052	726.4		-0.47
431	ISO12185	726.55		-0.19	1631	ISO12185	726.6		-0.10
440	D4052	727.5		1.58	1635	ISO12185	726.6		-0.10
444	D4052	726.5		-0.29	1636	ISO12185	726.9		0.46
445	D4052	726.7		0.09	1667	ISO12185	726.8		0.27
447	D4052	726.4		-0.47	1720		-----		-----
463	ISO12185	726.48		-0.33	1724	D1298	726.8		0.27
485	ISO12185	726.4		-0.47	1728	D4052	726.46		-0.36
496	ISO12185	726.53		-0.23	1740	D4052	727.3		1.21
631	D4052	726.39		-0.49	1742	ISO12185	726.5		-0.29
633		-----		-----	1776	ISO12185	726.5		-0.29
704	ISO12185	726.57		-0.16	1810		726.9		0.46
732	ISO12185	726.88		0.42	1811	ISO12185	727.1		0.83
734	D4052	726.8		0.27	1833	ISO12185	726.9		0.46
752	D4052	726.5		-0.29	1864	ISO12185	726.82		0.31
759	ISO12185	726.4		-0.47	1911	ISO12185	726.50		-0.29
779	D4052	726.5		-0.29	1953		725.1	R(0.01)	-2.90
781	ISO12185	726.7		0.09	1967		-----		-----
782		-----		-----	1971	ISO12185	726.41		-0.46
785		-----		-----	1984	ISO12185	726.55		-0.19
798		-----		-----	1995	D4052	726.8		0.27
824	ISO12185	726.5		-0.29	2129	D4052	726.4		-0.47
846	SH/T0604	726.5	C	-0.29	2130	D4052	726.4		-0.47
861	SH/T0604	726.60		-0.10	6005	ISO12185	726.5		-0.29
875		-----		-----	6012	ISO3675	726.4		-0.47
902	D4052	726.7		0.09	6018	ISO12185	726.6		-0.10
912		-----		-----	6028	ISO12185	726.5		-0.29
913		-----		-----	6034	D4052	727.5		1.58
914		-----		-----	6047	ISO12185	728.1	R(0.01)	2.70
963		-----		-----	6054	D4052	726.43		-0.42
971	D4052	726.5		-0.29	6075	ISO12185	726.41		-0.46
994	ISO12185	726.6		-0.10	6103	ISO12185	728.1	R(0.01)	2.70
998	D4052	726.58		-0.14	6141	D4052	730.8	R(0.01)	7.74
1006		726.9		0.46	6142	ISO12185	726.7		0.09
1011	ISO12185	726.9		0.46	6143	D4052	727.7		1.95
1033		-----		-----	6170	ISO3675	727.4		1.39
1059	ISO12185	726.7		0.09	6184	ISO3675	727.2		1.02
1082	ISO12185	726.55		-0.19	6192	D1298	726.5		-0.29
1097	ISO12185	726.58		-0.14	6201	D4052	726.6		-0.10
1108	ISO12185	726.4		-0.47	6203	ISO12185	726.5		-0.29
1109	D4052	726.49		-0.31	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	D4052	726.6		-0.10	6258	D4052	726.5		-0.29
1135	ISO12185	726.5		-0.29	6262	D4052	726.5		-0.29
1140	IP365	727.2		1.02	6291	ISO12185	726.5		-0.29

lab	method	value	mark	z(targ)
6298	D4052	726.6		-0.10
6317	D4052	728.36	R(0.01)	3.18
6321	IP365	726.7		0.09
6332		-----		-----
6344	ISO12185	726.6		-0.10
6346		-----		-----

normality	not OK
n	124
outliers	7
mean (n)	726.654
st.dev. (n)	0.3004
R(calc.)	0.841
st.dev.(ISO12185:96)	0.5357
R(ISO12185:96)	1.5

Lab 846 first reported 731.1





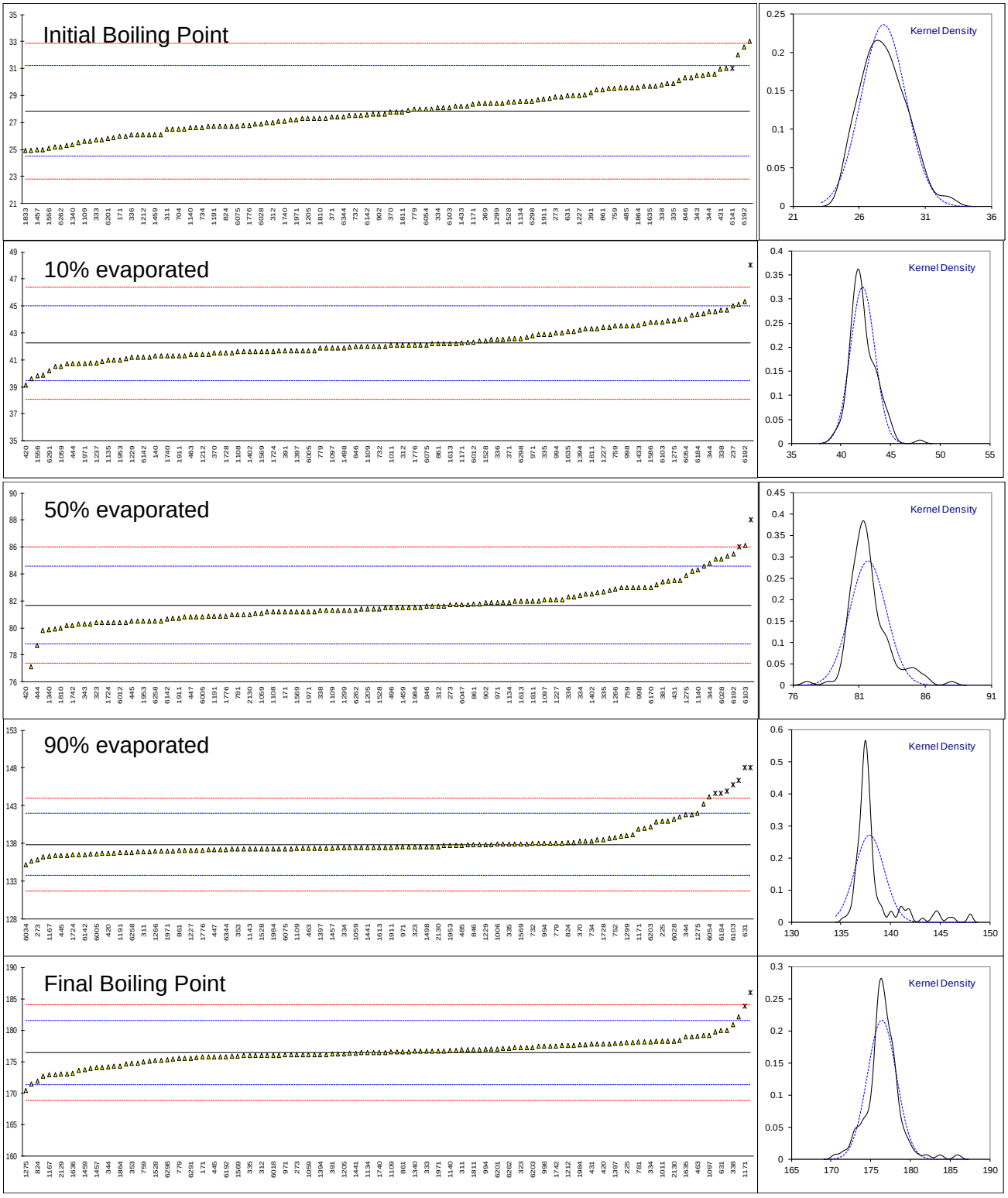
Determination of Distillation at 760 mmHg on sample #20185; results in °C

lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
120		-----		-----		-----		-----		-----	
140	D86-automated	25.2		41.3		81.0		137.5		178.3	
159		-----		-----		-----		-----		-----	
171	D86-automated	26.0		41.9		81.2		137.1		175.8	
225	D86-manual	33.0		44.0		83.0		141.0		178.0	
237	D86	32.0		45.0		83.0		139.0		179.0	
238		-----		-----		-----		-----		-----	
273	D86-automated	28.9		42.1		81.7		135.9		176.1	
311	D86-automated	26.5		41.0		80.8		136.9		176.9	
312	ISO3405-automated	27.0		42.1		81.6		137.8		176.0	
323	D86-automated	27.2		40.7		80.4		137.6		177.3	
333	ISO3405-automated	25.7		41.7		81.2		136.7		176.7	
334	D86-automated	28.1		42.3		82.4		137.5		178.2	
335	D86-automated	29.9		42.9		82.7		137.9		176.0	
336	ISO3405-automated	26.1		42.5		82.3		137.4		176.5	
337		-----		-----		-----		-----		-----	
338	ISO3405-automated	29.8		44.7		81.3	C	138.0	C	180.9	
343	ISO3405-automated	30.5		40.5		80.3		136.4		180.0	
344	D86-automated	30.6		44.6		84.8		141.8		174.2	
352		-----		-----		-----		-----		-----	
353	ISO3405-automated	27.4		42.0		81.1		137.3		174.8	
369	ISO3405-automated	28.4		45.1		82.6		139.2		176.2	
370	ISO3405-automated	27.8		41.5		80.3		138.3		176.1	
371	ISO3405-automated	27.4		42.6		79.9		140.0		176.7	
381	ISO3405-automated	29.6		44.4		83.4		140.9		176.6	C
391	ISO3405-automated	29.2		41.7		80.9		135.7		176.2	
399		-----		-----		-----		-----		-----	
403	D86-automated	27.9		42.1		81.3		137.6		175.8	
404	D86-automated	26.7		40.8		80.2		136.6		176.0	
420	ISO3405-automated	26.1		39.15		75.25	R(0.01)	136.7		177.8	
431		30.95		42.4		83.5		144.6	R(0.01)	177.8	
440		-----		-----		-----		-----		-----	
444	D86-automated	29.9		40.7		78.7		136.2		177.8	
445	IP123-automated	28.2		41.4		80.5		136.4		175.8	
447	D86-automated	27.0		41.1		80.8		137.2		178.4	
463	D86-automated	28.4		41.4		81.8		137.4		179.1	
485	ISO3405-automated	29.60		41.95		81.90		137.75		179.1	
496	D86-automated	29.6		42.9		81.5		137.4		176.0	
631	D86-manual	29.0		43.5		88.0	R(0.01)	148.0	R(0.01)	180.0	
633		-----		-----		-----		-----		-----	
704	ISO3405-manual	26.5		41.3		81.2		137.8		176.5	
732		27.5		42.0		82.0		138.0		177.5	
734	D86-automated	26.63		43.33		83.21		138.36		177.5	
752	D86	30.1		44.7		84.2		138.8		179.7	
759	ISO3405-manual	29.5		43.5		83.0		141.0		175.0	
779	D86-manual	28.0		41.9		81.3		138.0		175.5	
781	ISO3408-automated	26.5		42.0		81.0		136.9		178.1	
782		-----		-----		-----		-----		-----	
785		-----		-----		-----		-----		-----	
798		-----		-----		-----		-----		-----	
824	D86-automated	26.7		42.0		81.9		138.1		171.9	
846	GB/T6536-automated	30.3		42.0		81.6		137.8		177.6	
861	GB/T6536-automated	29.4		42.2		81.8		137.1		176.6	
875		-----		-----		-----		-----		-----	
902	D86-automated	27.6		42.5		81.9		137.6		176.1	
912		-----		-----		-----		-----		-----	
913		-----		-----		-----		-----		-----	
914		-----		-----		-----		-----		-----	
963		-----		-----		-----		-----		-----	
971	D86-automated	28.4		42.8		81.9		137.6		176.1	
994	D86-manual	29.0		43.0		81.5		138.0		177.0	
998	D86-manual	29.5		43.5		83.0		138.5		177.5	
1006	D86-automated	28.7		43.3		82.5		137.9		174.6	
1011	ISO3405-automated	27.3		42.1		82.1		137.9		178.3	
1033		-----		-----		-----		-----		-----	
1059	ISO3405-automated	26.7		40.5		81.1		137.5		176.1	
1082		25.7		42.2		81.6		137.5		175.9	
1097	ISO3405-automated	27.5		41.9		82.1		137.7		179.2	
1108	ISO3405-automated	27.6		41.6		81.2		137.3		176.9	
1109	D86-automated	25.6		42.0		81.3		137.4		176.6	
1126		-----		-----		-----		-----		-----	
1134	IP123-automated	28.6		42.5		81.9		137.5		176.5	
1135	ISO3405-automated	26.1		41.0		81.4		137.2		176.7	
1140	IP123-automated	26.6		43.9		84.3		143.2		176.8	
1143	ISO3405-automated	27.3		40.9		81.4		137.3		178.2	
1167	ISO3405-automated	29.4		41.7		80.9		136.3		172.9	
1171	ISO3405-manual	28.34		42.25		83.45		139.90		183.7	R(0.05)

lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
1191	ISO3405-automated	26.7		41.9		80.9		136.8		175.5	
1194		-----		-----		-----		-----		-----	
1205	D86-automated	27.3		41.5		81.4		138.0		176.2	
1212	ISO3405-automated	26.1		41.4		80.8		136.7		177.6	
1227	D86-automated	29		43.4		82.1		137.1		176.1	
1229	ISO3405-automated	25.5		41.2		81.0		137.8		176.3	
1237	ISO3405-automated	29.7		40.8		80.7		137.3		176.6	
1266	ISO3405-automated	26.9		44.3	C	82.9	C	137.0		182.1	
1275	IP123-automated	26.8		43.9		83.9		142.0		170.5	
1299	D86-automated	28.4		41.6		81.3		139.1		177.5	
1340	ISO3405-automated	25.37		39.87		79.87		137.23		176.6	
1394		27.5		43.2		82.8		137.9		176.1	
1397	ISO3405-automated	28.6		41.7		81.7		137.4		177.9	
1398		-----		-----		-----		-----		-----	
1402	ISO3405-automated	25.3		41.6		82.5		137.4		177.3	
1433	ISO3405-automated	28.2		43.6		85.1		144.9	R(0.01)	178.3	
1441	D86-automated	31.0		44.6		82.3		137.5		176.3	
1457	ISO3405-automated	25.0		41.2		81.5		137.4		174.1	
1459	ISO3405-automated	26.1		41.6		81.5		137.5		173.7	
1498	D86-automated	28.8		41.9		81.2		137.6		173.6	
1528	D86-automated	28.5		42.4		81.4		137.3		175.2	
1544	ISO3405-automated	26.10		42.20		81.60		137.55		174.8	
1556	ISO3405-automated	25.1		39.8		80.4		137.2		176.8	
1569	D86-automated	25.0		41.6		81.2		137.9		175.9	
1575		-----		-----		-----		-----		-----	
1586	D86-automated	26.6		43.8		85.3		141.8		177.8	
1613	D86-automated	27.8		42.2		82.0		137.5		177.7	
1631		-----		-----		-----		-----		-----	
1635	ISO3405-automated	29.7		43.1		82.0		137.6		178.9	
1636		27.1		42.6		79.8		137.3		173.2	
1667	ISO3405-automated	28.9		41.6		81.2		138.1		175.2	
1720		-----		-----		-----		-----		-----	
1724	D86-automated	28.1		41.6		80.4		136.5		174.0	
1728	ISO3405-manual	28		41.5		81.5		138.5		176	
1740	D86-automated	27.1		41.3	C	80.4	C	136.8	C	176.5	
1742	ISO3405-automated	28.4		40.7		80.2		137.1		177.5	
1776	ISO3405-automated	26.8		42.1		80.9		137.1		174.3	
1810	D86-automated	27.3		43.8		80.0		138.0		176.1	
1811	D86-automated	27.8		43.3		82.0		137.5		176.9	
1833	ISO3405-automated	24.9		42.9		82.0		137.0		177.2	
1864	ISO3405-automated	29.6		41.3		80.5		137.9		174.3	
1911	ISO3405-automated	28.75		41.30		80.70		137.50		175.4	
1953		29.7		41		80.5		137.7		172.9	
1967		-----		-----		-----		-----		-----	
1971	ISO3405-automated	27.2		40.7		81.2		137.0		176.7	
1984	ISO3405-automated	24.95		42.2		81.5		137.3		177.6	
1995	D86-automated	28.5		43		83		138.7		171.5	
2129	IP123-automated	27.6		42.7		81.5		137.0		173.1	
2130		26.7		41.7		81.0		137.6		178.3	
6005	ISO3405-automated	25.9		41.7		80.8		136.6		172.7	
6012	D86-manual	30.3		42.3		80.4	C	137.8	C	176.5	
6018	ISO3405-automated	26.5		41.7		81.2		137.3		176.0	
6028	ISO3405-automated	26.9		43.1		85.1		141.2		178.0	
6034	D86-automated	28.2		39.6		77.1		135.2		174.1	
6047	ISO3405-automated	30.6		42.1		81.7		138.3		175.7	
6054	D86-automated	28.0		44.0		84.6		144.2		173.1	
6075	ISO3405-automated	26.7		42.1		82.1		137.3		177.1	
6103	ISO3405-automated	28.1		43.8		86.1		145.8	R(0.01)	176.7	
6141	D86-manual	31	ex	48	R(0.01)	86	ex	148	R(0.01)	186	R(0.01)
6142	ISO3405-automated	27.55		41.2		80.65		136.55		175.8	
6143		-----		-----		-----		-----		-----	
6170	ISO3405-manual	30.5		43.5		83.0		141.5		177.0	
6184	ISO3405-automated	29.05		44.35		80.5	C	144.6	C,R(0.01)	177.9	
6192	D86-automated	32.6		45.3		85.5		146.3	R(0.01)	175.8	
6201	D86-automated	25.8		41.2		81.3		137.7		177	
6203	ISO3405-automated	28.0		43.7		83.5		140.2		177.3	
6238		-----		-----		-----		-----		-----	
6249		-----		-----		-----		-----		-----	
6258	D86-automated	27.3		43.4		80.5		136.8		176.0	
6262	D86-automated	25.2		41.4		81.3		136.9		177.1	
6291	D86-automated	25.6		40.2		80.3		136.5		175.5	
6298	D86-automated	28.6		42.6		81.7		137.3		175.3	
6317		-----		-----		-----		-----		-----	
6321	IP123-automated	26.0		41.3		80.4		136.4		176.9	
6332		-----		-----		-----		-----		-----	
6344		27.4		41.5		80.5		137.2		175.1	
6346		-----		-----		-----		-----		-----	

lab	method	IBP	10% eva	50% eva	90% eva	FBP
	normality	OK	OK	suspect	not OK	suspect
	n	123	123	121	117	122
	outliers	0+1ex	1	2+1ex	7	2
	mean (n)	27.84	42.23	81.69	137.86	176.4
	st.dev. (n)	1.693	1.227	1.375	1.477	1.838
	R(calc.)	4.74	3.43	3.85	4.13	5.15
	st.dev.(ISO3405-A:19)	1.679	1.382	1.433	2.054	2.536
	R(ISO3405-A:19)	4.7	3.87	4.01	5.75	7.1
Compare						
	R(ISO3405-M:19)	5.6	3.86	4.07	4.06	7.2

Lab 338 first reported 86.8 for 50% eva / 147.6 for 90% eva
Lab 381 first reported 186.6 for FBP
Lab 1266 first reported 37.3 for 10% eva / 76.4 for 50% eva
Lab 1740 first reported 43.9 for 10% eva / 85.3 for 50% eva / 145.9 for 90% eva
Lab 6012 first reported 86.4 for 50% eva / 144.5 for 90% eva
Lab 6184 first reported 85.9 for 50% eva / 146.3 for 90% eva



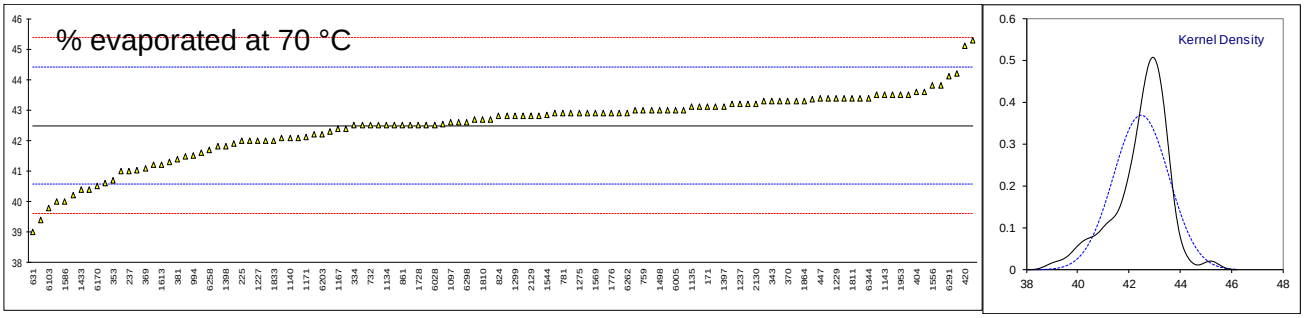
Determination of Distillation at 760 mmHg on sample #20185; results in %V/V ---continued---

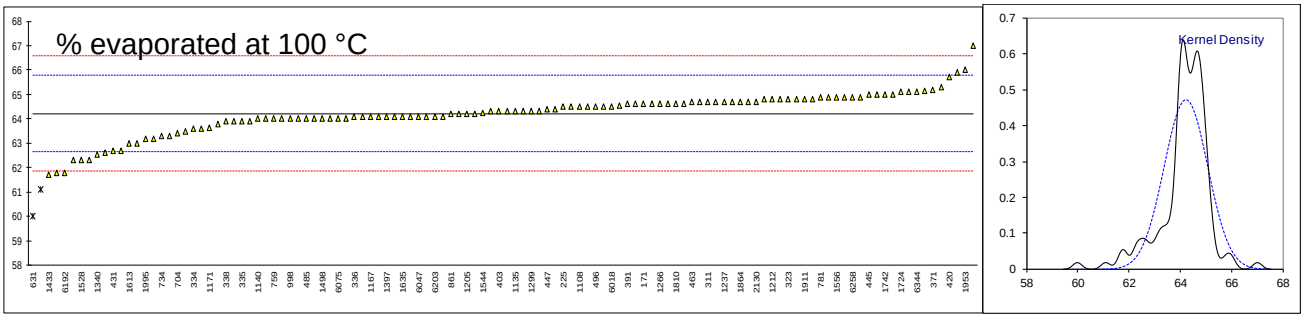
lab	method	%E70°C	mark	%E100°C	mark	%E150°C	mark	%residue	mark	%loss	mark
120		-----		-----		-----		-----		-----	
140		-----		-----		-----		1.0		2.0	
159		-----		-----		-----		-----		-----	
171	D86-automated	43.1		64.6		94.6		1.0		1.3	
225	D86-manual	42.0		64.5		93.0		1.2		0.8	
237	D86	41.0		63.5		91.5	R(0.01)	1.0		0.5	
238		-----		-----		-----		-----		-----	
273		-----		-----		-----		0.8		-----	
311	D86-automated	43.4		64.7		94.9		1.0		2.5	
312	ISO3405-automated	42.5		64.3		94.2		1.0		1.5	
323	D86-automated	43.5		64.8		94.2		1.1		3.9	
333		-----		-----		-----		-----		-----	
334	D86-automated	42.5		63.6		94.6		1.1		1.7	
335	D86-automated	42.0		63.9		94.0		1.0		0.6	
336	ISO3405-automated	42.1		64.1		94.4		1.0		0.3	
337		-----		-----		-----		-----		-----	
338	ISO3405-automated	42.1		63.9		93.9		1.0		2.6	
343	ISO3405-automated	43.3		64.7		94.6		1		1.9	
344	D86-automated	40.2		62.3		92.8	R(0.05)	1.0		1.1	
352		-----		-----		-----		-----		-----	
353	ISO3405-automated	40.7		62.6		92.1	R(0.01)	1.0		2.1	
369	ISO3405-automated	41.1		64.8		94.1		1.1		0.8	
370	ISO3405-automated	43.3		64.6		94.5		1.0		2.0	
371	ISO3405-automated	42.8		65.2		93.6		1.0		1.2	
381	ISO3405-automated	41.4		63.2		93.6		1.3		1.0	
391	ISO3405-automated	43.3		64.6		95.0		0.6		1.0	
399		-----		-----		-----		-----		-----	
403	D86-automated	42.9		64.3		94.1		1.0		1.9	
404	D86-automated	43.6		64.9		94.6		0.9		2.5	
420	ISO3405-automated	45.1		65.7		93.7		1.1		-----	
431		41.8		62.7		91.7	R(0.01)	3.8		0.2	
440		-----		-----		-----		-----		-----	
444	D86-automated	44.2		65.9		94.3		1.0		4.3	
445	IP123-automated	43.3		65.0		94.6		1.0		3.2	
447	D86-automated	43.4		64.4		94.3		0.9		2.4	
463	D86-automated	43.0		64.7		94.4		0.8		2.0	
485	ISO3405-automated	42.55		64.00		94.15		1.1		1.5	
496	D86-automated	42.5		64.5		94.1		1.2		1.9	
631	D86-manual	39.0		60.0	R(0.01)	90.5	R(0.01)	0.7		0.3	
633		-----		-----		-----		-----		-----	
704	ISO3405-manual	41.3		63.4		94.2		1.1		1.4	
732		42.5		64.0		94.5		1.0		1.0	
734	D86-automated	41.6		63.3		93.95		1.0		0.65	
752	D86	40.0		64.0		94.0		0.8		2.2	
759	ISO3405-manual	43.0		64.0		94.0		1.0		2.0	
779	D86-manual	42.5		64.5		94.0		1.2		0.8	
781	ISO3408-automated	42.9		64.9		94.5		1.0		2.0	
782		-----		-----		-----		-----		-----	
785		-----		-----		-----		-----		-----	
798		-----		-----		-----		-----		-----	
824	D86-automated	42.8		64.1		94.1		1.0		1.8	
846		-----		-----		-----		1.0		2.4	
861	GB/T6536-automated	42.5		64.2		94.8		1.0		2.5	
875		-----		-----		-----		-----		-----	
902	D86-automated	42.3		64.3		94.3		1.0		1.5	
912		-----		-----		-----		-----		-----	
913		-----		-----		-----		-----		-----	
914		-----		-----		-----		-----		-----	
963		-----		-----		-----		-----		-----	
971	D86-automated	42.2		64.2		94.2		1.3		1.4	
994	D86-manual	41.5		64		94		-----		-----	
998	D86-manual	41.0		64.0		94.0		-----		-----	
1006		-----		-----		-----		0.9		1.2	
1011	ISO3405-automated	42.4		64		94.1		1		1.5	
1033		-----		-----		-----		-----		-----	
1059	ISO3405-automated	43.5		64.6		94.1		1.0		2.7	
1082		42.7		64.1		94.2		1.0		-----	
1097	ISO3405-automated	42.6		63.9		94.2		1.0		1.9	
1108	ISO3405-automated	43.1		64.5		94.3		1.0		2.0	
1109	D86-automated	42.9		64.5		94.6		0.9		2.0	
1126		-----		-----		-----		-----		-----	
1134	IP123-automated	42.5	C	64.3		94.3		1.0		3.1	
1135	ISO3405-automated	43.1		64.3		94.9		1.0		2.4	
1140	IP123-automated	42.1		64.0		93.7		1.6		1.2	
1143	ISO3405-automated	43.5		64.2		94.5		2.4		0.9	
1167	ISO3405-automated	42.4		64.1		94.6		1.2		2.0	

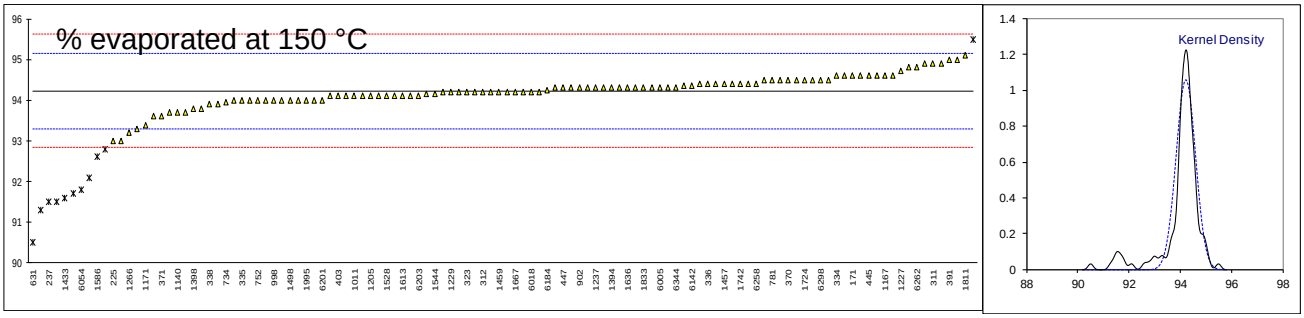
lab	method	%E70°C	mark	%E100°C	mark	%E150°C	mark	%residu	mark	%los	mark
1171	ISO3405-manual	42.13		63.63		93.38		1.00		2.88	
1191	ISO3405-automated	43.2		64.8		94.4		0.9		-----	
1194		-----		-----		-----		-----		-----	
1205	D86-automated	43.1		64.2		94.1		1.0		2.4	
1212	ISO3405-automated	43.3		64.8		94.6		0.7		2.3	
1227	D86-automated	42.00		64.54		94.72		0.74		1.47	
1229	ISO3405-automated	43.4		64.7		94.2		1.0		-----	
1237	ISO3405-automated	43.2		64.7		94.3		1.0		3.6	
1266	ISO3405-automated	41.2	C	64.6	C	93.2		1.0		2.4	
1275	IP123-automated	42.9		64.8		94.3		1.0		2.0	
1299	D86-automated	42.8		64.3		93.7		1.5		1.4	
1340	ISO3405-automated	41.03		62.53		95.5	C,R(0.05)	1.0		1.6	
1394		41.9		63.8		94.3		1.0		0.8	
1397	ISO3405-automated	43.1		64.1		94		-----		-----	
1398	D86-automated	41.8		63.6		93.8		1.2		1.0	
1402	ISO3405-automated	42.5		63.9		94.5		1.1		1.2	
1433	ISO3405-automated	40.4		61.7		91.6	R(0.01)	1.0		2.8	
1441		-----		-----		-----		1.3		-----	
1457	ISO3405-automated	43.0		64.4		94.4		1.0		1.9	
1459	ISO3405-automated	42.9		64.1		94.2		1.0		2.1	
1498	D86-automated	43		64		94		1.0		1.8	
1528	D86-automated	40.4		62.3		94.1	C	1.0		2.2	
1544	ISO3405-automated	42.85		64.25		94.15		1.0		2.1	
1556	ISO3405-automated	43.8		64.9		94.3		1.0		3.8	
1569	D86-automated	42.9		64.7		94.1		1.0		1.4	
1575		-----		-----		-----		-----		-----	
1586	D86-automated	40.0		61.8		92.6	R(0.05)	1.0		1.2	
1613	D86-automated	41.2		63.0		94.1		1.0		1.6	
1631		-----		-----		-----		-----		-----	
1635	ISO3405-automated	42.0		64.1		94.2		1.0		3.0	
1636		43.0		65.0		94.3		1.0		2.3	
1667	ISO3405-automated	42.9		64.6		94.2		1.0		2.4	
1720		-----		-----		-----		-----		-----	
1724	D86-automated	43.2		65.1		94.5		1.0		2.6	
1728	ISO3405-manual	42.5		64		93.8		1.4		1.6	
1740	D86-automated	43.4		64.9		94.4		0.5		2.4	
1742	ISO3405-automated	43.6		65.0		94.4		1.0		3.1	
1776	ISO3405-automated	42.9		65.0		94.3		1.0		1.7	
1810	D86-automated	42.7		64.6		93.9		1.0		1.4	
1811	D86-automated	43.4		65.3		95.1		1.0		1.2	
1833	ISO3405-automated	42.0		64.1		94.3		1.0		1.1	
1864	ISO3405-automated	43.3		64.7		94.0		1.0		2.1	
1911	ISO3405-automated	43.35		64.80		94.20		1.00		2.50	
1953		43.5		66		93.3		1		3.7	
1967		-----		-----		-----		-----		-----	
1971	ISO3405-automated	42.5	C	62.7		94.3		1.0		2.8	
1984	ISO3405-automated	42.8		64.3		94.35		1.0		1.4	
1995	D86-automated	41.47		63.18		94		1.4		0.6	
2129	IP123-automated	42.8		64.7		94.4		1.0		0.8	
2130		43.2		64.7		94.1		1.0		3.7	
6005	ISO3405-automated	43.0		64.8		94.3		1.0		1.6	
6012	D86-manual	43.5		64.5		94.5		1		1.4	
6018	ISO3405-automated	43.0		64.5		94.2		0.8		2.3	
6028	ISO3405-automated	42.5		63.3		94.2		1.3		1.6	
6034	D86-automated	45.3		67		94.9		1.0		-----	
6047	ISO3405-automated	42.6		64.1		94.0		1.0		2.6	
6054	D86-automated	40.6		62.3		91.8	R(0.01)	1.0		2.4	
6075	ISO3405-automated	42.7		64.0		94.3		0.9		1.9	
6103	ISO3405-automated	39.8		61.1	R(0.05)	91.5	R(0.01)	1.0		3.2	
6141		-----		-----		-----		-----		-----	
6142	ISO3405-automated	43.4		65.15		94.35		1.0		2.55	
6143		-----		-----		-----		-----		-----	
6170	ISO3405-manual	40.5		63.0		93.0		1.5		1.5	
6184	ISO3405-automated	42.8		64.1		94.25		0.9		2.8	
6192	D86-automated	39.4		61.8		91.3	R(0.01)	0.5		2.7	
6201	D86-automated	42.9		64.6		94		1.2		2	
6203	ISO3405-automated	42.2		64.1		94.1		1.0		1.4	
6238		-----		-----		-----		-----		-----	
6249		-----		-----		-----		-----		-----	
6258	D86-automated	41.7		64.9		94.4		1.0		2.2	
6262	D86-automated	42.9		64.0		94.8		1.0		2.0	
6291	D86-automated	44.1		64.9		95.0		1.0		3.2	
6298	D86-automated	42.6		64.1		94.5		1.10		0.70	
6317		-----		-----		-----		-----		-----	
6321	IP123-automated	43.8		65.1		94.5		0.7		2.6	
6332		-----		-----		-----		-----		-----	
6344		43.4		65.1		94.3		1.0		2.4	
6346		-----		-----		-----		-----		-----	

lab	method	%E70°C	%E100°C	%E150°C
	normality	suspect	suspect	suspect
	n	118	116	107
	outliers	0	2	11
	mean (n)	42.490	64.221	94.224
	st.dev. (n)	1.0829	0.8467	0.3775
	R(calc.)	3.032	2.371	1.057
	st.dev.(ISO3405-A:19)	0.9643	0.7857	0.4643
	R(ISO3405-A:19)	2.7	2.2	1.3
Compare				
	R(ISO3405-M:19)	unknown	unknown	unknown

Lab 1134 first reported 52.5 for %E70°C
Lab 1266 first reported 46.0 for %E70°C / 67.7 for %E100°C
Lab 1340 first reported 92.1 for %E150°C
Lab 1528 first reported 92.1 for %E150°C
Lab 1971 first reported 39.6 for %E70°C







Determination of Doctor Test on sample #20185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143	ISO5275	negative		-----
140	D4952	Negative		-----	1167		-----		-----
159		-----		-----	1171		-----		-----
171	D4952	Negative [Sweet]		-----	1191		-----		-----
225	D4952	Negative		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238	D4952	Negative		-----	1212	D4952	Neg		-----
273	IP30	Negative		-----	1227		-----		-----
311		-----		-----	1229		-----		-----
312	IP30	negative		-----	1237		-----		-----
323	D4952	neg		-----	1266		-----		-----
333		-----		-----	1275	IP30	negative mercaptans absent		-----
334	D4952	negative		-----	1299		-----		-----
335		-----		-----	1340	D4952	negative		-----
336	D4952	NEGATIVE		-----	1394		-----		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398		-----		-----
343		-----		-----	1402	IP30	Negative		-----
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D4952	Negative		-----
353		-----		-----	1457	IP30	Negative		-----
369	D4952	negative		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371		-----		-----	1528		-----		-----
381		-----		-----	1544	D4952	Negative		-----
391	D4952	Negative		-----	1556	D4952	Negative		-----
399	IP30	Negative		-----	1569		-----		-----
403		-----		-----	1575		-----		-----
404		-----		-----	1586	IP30	negative		-----
420		-----		-----	1613	D4952	Negative		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635		-----		-----
444		-----		-----	1636		-----		-----
445	IP30	Negative		-----	1667		-----		-----
447	IP30	Negative		-----	1720		-----		-----
463	D4952	negative, mercaptans absent		-----	1724				-----
485		-----		-----	1728	D4952	NEGATIVE		-----
496		-----		-----	1740	D4952	negative		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	D4952	negative		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833		-----		-----
752		-----		-----	1864		-----		-----
759		-----		-----	1911		-----		-----
779		-----		-----	1953		-----		-----
781	D4952	sweet		-----	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995		-----		-----
824	D4952	Negative		-----	2129	IP30	Negative		-----
846	SH/T0174	negative		-----	2130	IP30	Negative		-----
861	SH/T0174	Negative		-----	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	IP30	Negative		-----	6075		-----		-----
994	D4952	negative		-----	6103		-----		-----
998		-----		-----	6141		-----		-----
1006		-----		-----	6142	IP30	Neg		-----
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO5275	negative		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	IP30	Negative		-----
1108		-----		-----	6203	IP30	negativ		-----
1109	IP30	Negative		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134		-----		-----	6258	IP30	Negative		-----
1135	IP30	negative		-----	6262	IP30	Neg		-----
1140	IP30	Negative		-----	6291	IP30	negative		-----

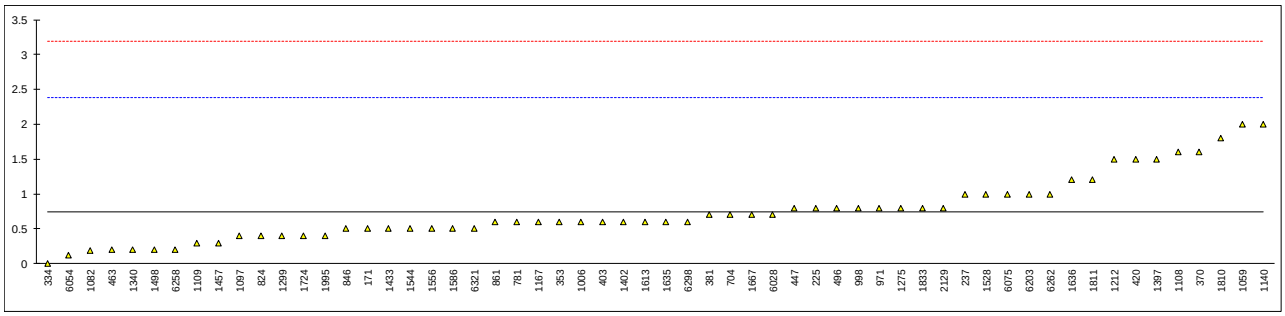
lab	method	value	mark	z(targ)
6298	IP30	Negative		-----
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----
	n	48		
	mean (n)	negative		

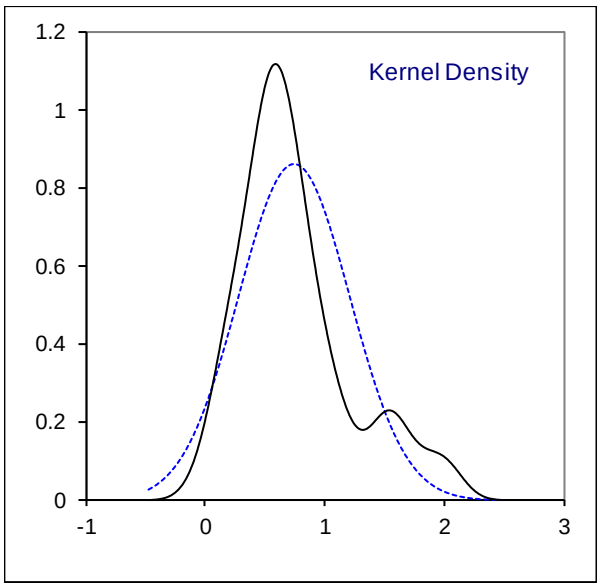
Determination of Gum (solvent washed) on sample #20185; results in mg/100mL

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140	D381	<0.5		-----	1167	ISO6246	0.6		-0.18
159		-----		-----	1171		-----		-----
171	D381	0.5		-0.30	1191		-----		-----
225	D381	0.8		0.07	1194		-----		-----
237	D381	1.0		0.31	1205		-----		-----
238		-----		-----	1212	ISO6246	1.5		0.92
273	D381	<0.5		-----	1227		-----		-----
311	ISO6246	<1		-----	1229		-----		-----
312	ISO6246	<1		-----	1237		-----		-----
323	ISO6246	< 0.5		-----	1266		-----		-----
333		-----		-----	1275	IP131	0.8		0.07
334	ISO6246	0		-0.92	1299	D381	0.4		-0.42
335		-----		-----	1340	ISO6246	0.2		-0.67
336		-----		-----	1394		-----		-----
337		-----		-----	1397	ISO6246	1.5		0.92
338		-----		-----	1398		-----		-----
343	D381	<0.5		-----	1402	ISO6246	0.6		-0.18
344		-----		-----	1433	ISO6246	0.5		-0.30
352		-----		-----	1441		-----		-----
353	IP131	0.6		-0.18	1457	ISO6246	0.3		-0.55
369	ISO6246	<0.5		-----	1459		-----		-----
370	ISO6246	1.6		1.05	1498	D381	0.2		-0.67
371		-----		-----	1528	ISO6246	1.0		0.31
381	ISO6246	0.7		-0.06	1544	ISO6246	0.50		-0.30
391		-----		-----	1556	ISO6246	0.5		-0.30
399		-----		-----	1569	ISO6246	<1		-----
403	D381	0.6		-0.18	1575	D381	<0.5		-----
404		-----		-----	1586	D381	0.5		-0.30
420	ISO6246	1.5		0.92	1613	D381	0.6		-0.18
431		-----		-----	1631		-----		-----
440		-----		-----	1635	ISO6246	0.6		-0.18
444		-----		-----	1636	ISO6246	1.2		0.56
445	ISO6246	<0.5		-----	1667	ISO6246	0.7		-0.06
447	D381	0.8		0.07	1720		-----		-----
463	D381	0.2		-0.67	1724	D381	0.4		-0.42
485		-----		-----	1728		-----		-----
496	D381	0.8		0.07	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	ISO6246	0.7		-0.06	1810	ISO6246	1.8		1.29
732		-----		-----	1811	ISO6246	1.2		0.56
734		-----		-----	1833	ISO6246	0.8		0.07
752		-----		-----	1864	ISO6246	<0.5		-----
759		-----		-----	1911		-----		-----
779		-----		-----	1953		-----		-----
781	ISO6246	0.6		-0.18	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D381	0.4		-0.42
824	ISO6246	0.4		-0.42	2129	IP131	0.8		0.07
846	GB/T8019	0.5		-0.30	2130	D381	<1		-----
861	GB/T8019	0.6		-0.18	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028	ISO6246	0.7		-0.06
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054	D381	0.12		-0.77
971	D381	0.8		0.07	6075	ISO6246	1		0.31
994		-----		-----	6103		-----		-----
998	D381	0.8		0.07	6141		-----		-----
1006	D381	0.6		-0.18	6142		-----		-----
1011	ISO6246	<1		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO6246	2.0		1.54	6184		-----		-----
1082	ISO6246	0.19		-0.68	6192		-----		-----
1097	ISO6246	0.4		-0.42	6201	D381	<0,1		-----
1108	ISO6246	1.6		1.05	6203	ISO6246	1.0		0.31
1109	D381	0.3		-0.55	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134		-----		-----	6258	D381	0.2		-0.67
1135	ISO6246	<1		-----	6262	D381	1.0		0.31
1140	IP131	2		1.54	6291		-----		-----

lab	method	value	mark	z(targ)
6298	D381	0.6		-0.18
6317		-----		-----
6321	IP131	0.5		-0.30
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	58
outliers	0
mean (n)	0.747
st.dev. (n)	0.4640
R(calc.)	1.299
st.dev.(ISO6246:17)	0.8160
R(ISO6246:17)	2.285





Determination of Lead as Pb on sample #20185; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140	D3237	<2.5		-----	1167	EN237	<2.5		-----
159		-----		-----	1171	D5059-C	0.6		-----
171	D3237	0.54		-----	1191	In house	0.3		-----
225		-----		-----	1194		-----		-----
237	IP352	<2.5		-----	1205		-----		-----
238		-----		-----	1212	EN237	<2,5		-----
273		-----		-----	1227		-----		-----
311		-----		-----	1229	EN237	<2		-----
312	EN237	<2,5		-----	1237		-----		-----
323	EN237	< 2.5		-----	1266		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1299	EN237	0.1		-----
335		-----		-----	1340	EN237	<2.5		-----
336		-----		-----	1394	EN237	0.7		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398		-----		-----
343		-----		-----	1402	EN237	0.0000		-----
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	D3237	0		-----
369		-----		-----	1459	EN237	0.0		-----
370		-----		-----	1498		-----		-----
371	EN237	<2.5		-----	1528	EN237	<2.5		-----
381	EN237	<2,5		-----	1544	EN237	0.00		-----
391		-----		-----	1556		-----		-----
399		-----		-----	1569	In house	<1		-----
403	EN237	<2.5		-----	1575	D3237	<3		-----
404	EN237	<2.5		-----	1586	EN237	<2.5		-----
420	EN237	<2,5		-----	1613	D3237	<2.5		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635	EN237	0.38		-----
444		-----		-----	1636		-----		-----
445	EN237	<2.5		-----	1667		-----		-----
447	IP428	0.40192		-----	1720		-----		-----
463		-----		-----	1724	IP428	<3,0		-----
485		-----		-----	1728	EN237	<2.5		-----
496	EN237	<2.5		-----	1740	EN237	<2.5		-----
631	D3237	<2.5		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	EN237	< 2.5		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833	EN237	<3.0		-----
752		-----		-----	1864	EN237	<2.5		-----
759		-----		-----	1911		-----		-----
779		-----		-----	1953		-----		-----
781	EN237	<2.5		-----	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995		-----		-----
824	D3237	<2.5		-----	2129	EN237	0		-----
846	GB/T8020	<2.5		-----	2130	IP352	0.001		-----
861	GB/T8020	<2.5		-----	6005		-----		-----
875		-----		-----	6012	D3237	<2,5		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D3237	<2.5		-----	6075		-----		-----
994		-----		-----	6103	D5059-A	<0.1		-----
998		-----		-----	6141		-----		-----
1006	D3237	<2.5		-----	6142		-----		-----
1011	EN237	<3.0		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	EN13723	<2,5		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	EN237	<2,5		-----
1108		-----		-----	6203		-----		-----
1109		-----		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134		-----		-----	6258	D3237	0.0		-----
1135	EN237	<2.5		-----	6262	EN237	<2.5		-----
1140	EN237	1.61		-----	6291	EN237	<2.5		-----

lab	method	value	mark	z(targ)
6298	D3237	<2.5		-----
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----
	n	57		
	mean (n)	<3		

Determination of Manganese as Mn on sample #20185; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140	D3831	<0.25		-----	1167	EN16136	0.042		-----
159		-----		-----	1171		-----		-----
171	D3831	0.6		-----	1191		-----		-----
225		-----		-----	1194		-----		-----
237	EN16136	<0.5		-----	1205		-----		-----
238		-----		-----	1212	EN16136	<0,5		-----
273		-----		-----	1227		-----		-----
311		-----		-----	1229		-----		-----
312	EN16136	<0.5		-----	1237		-----		-----
323	EN16136	< 0.50		-----	1266		-----		-----
333		-----		-----	1275		-----		-----
334		-----		-----	1299	EN16135	0.2		-----
335		-----		-----	1340	EN16135	<2.0		-----
336		-----		-----	1394		-----		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398		-----		-----
343		-----		-----	1402	EN16135	0.3880		-----
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	D3831	0		-----
369	EN16136	<0.5		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371	EN16135	<2.0		-----	1528	EN16135	<2		-----
381	EN16135	<2,0		-----	1544	EN16136	0.00		-----
391		-----		-----	1556		-----		-----
399		-----		-----	1569	In house	<0.2		-----
403	EN16135	<2.0		-----	1575		-----		-----
404	EN16135	<2.0		-----	1586	EN16135	<0.1		-----
420	EN16135	<1,0		-----	1613	EN16136	<0.5		-----
431		-----		-----	1631	EN16136	<2.0		-----
440		-----		-----	1635		-----		-----
444		-----		-----	1636		-----		-----
445	EN16135	<0.2		-----	1667		-----		-----
447	EN16135	0		-----	1720		-----		-----
463		-----		-----	1724	EN16135	<2,0		-----
485		-----		-----	1728		-----		-----
496		-----		-----	1740		-----		-----
631	D3831	<2		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704	EN16136	< 0.5		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833	EN16135	<2.0		-----
752		-----		-----	1864	EN16135	<2.0		-----
759		-----		-----	1911		-----		-----
779		-----		-----	1953		-----		-----
781	EN16136	<0.5		-----	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995		-----		-----
824		-----		-----	2129	EN16136	0.0		-----
846	SH/T0711	<0.25		-----	2130		-----		-----
861	SH/T0711	<0.25		-----	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028	EN16135	0.04		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D3831	<0.25		-----	6075		-----		-----
994		-----		-----	6103	In house	<0.3		-----
998		-----		-----	6141		-----		-----
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059		-----		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	EN16135	<0,25		-----
1108		-----		-----	6203	EN16136	0.23		-----
1109		-----		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134		-----		-----	6258	EN16136	0.0		-----
1135	EN16136	<0.5		-----	6262	D3831	<0.25		-----
1140	IP589	0.261		-----	6291	D3831	<0.25		-----

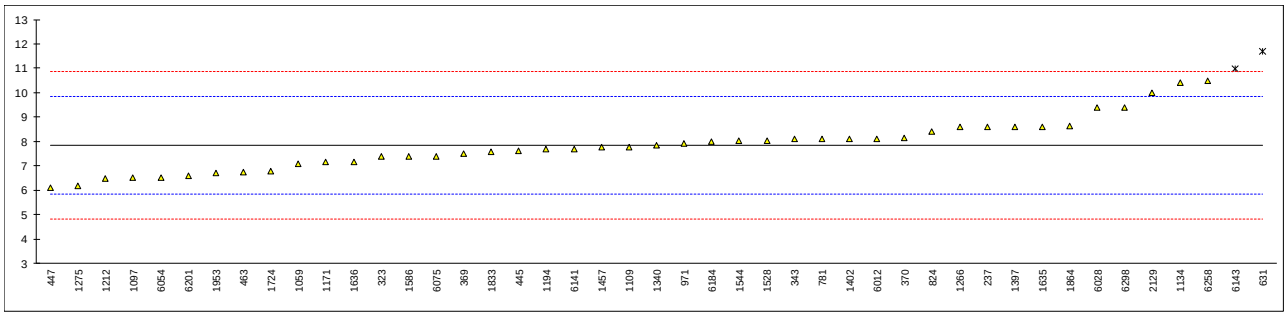
lab	method	value	mark	z(targ)
6298	D3831	<0.25		-----
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----
	n	45		
	mean (n)	<2		

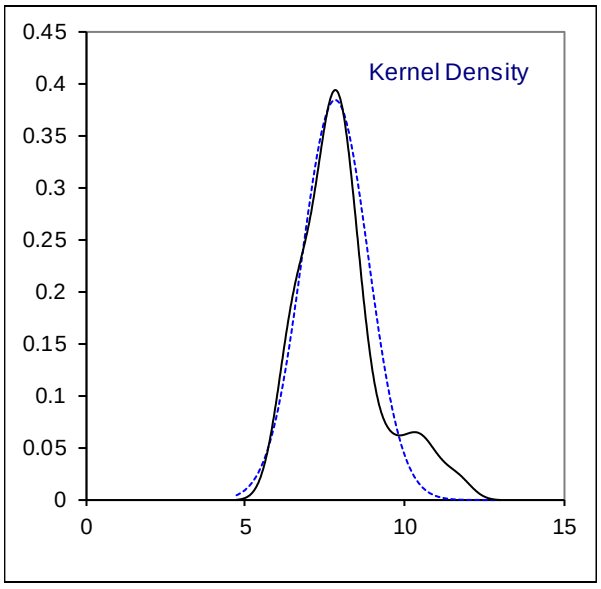
Determination of Olefins by FIA (without oxygenates correction) on sample #20185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167		-----		-----
159		-----		-----	1171	D1319Mod.	7.16		-0.68
171		-----		-----	1191		-----		-----
225		-----		-----	1194	D1319	7.7		-0.15
237	D1319	8.6		0.75	1205		-----		-----
238		-----		-----	1212	EN15553	6.50		-1.34
273		-----		-----	1227		-----		-----
311		-----		-----	1229		-----		-----
312		-----		-----	1237		-----		-----
323	EN15553	7.4		-0.44	1266	D1319	8.6		0.75
333		-----		-----	1275	IP156	6.18		-1.66
334		-----		-----	1299		-----		-----
335		-----		-----	1340	D1319	7.85		0.00
336		-----		-----	1394		-----		-----
337		-----		-----	1397	EN15553	8.6		0.75
338		-----		-----	1398		-----		-----
343	D1319	8.1		0.25	1402	D1319	8.1		0.25
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	D1319	7.77		-0.08
369	EN15553	7.51		-0.34	1459		-----		-----
370	D1319	8.14		0.29	1498		-----		-----
371		-----		-----	1528	EN15553	8.04		0.19
381		-----		-----	1544	EN15553	8.03		0.18
391		-----		-----	1556		-----		-----
399		-----		-----	1569		-----		-----
403		-----		-----	1575		-----		-----
404		-----		-----	1586	D1319	7.4		-0.44
420		-----		-----	1613	D1319	--		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635	D1319	8.6		0.75
444		-----		-----	1636	EN15553	7.18		-0.66
445	EN15553	7.6		-0.25	1667		-----		-----
447	D1319	6.1		-1.74	1720		-----		-----
463	D1319	6.75		-1.09	1724	EN15553	6.77		-1.07
485		-----		-----	1728		-----		-----
496		-----		-----	1740		-----		-----
631	D1319	11.68	DG(0.05)	3.81	1742		-----		-----
633		-----		-----	1776		-----		-----
704		-----		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833	EN15553	7.59		-0.26
752		-----		-----	1864	EN15553	8.65		0.80
759		-----		-----	1911		-----		-----
779		-----		-----	1953		6.7		-1.14
781	EN15553	8.1		0.25	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995		-----		-----
824	D1319	8.4		0.55	2129	D1319	10.0		2.14
846		-----		-----	2130		-----		-----
861		-----		-----	6005		-----		-----
875		-----		-----	6012	D1319	8.1		0.25
902		-----		-----	6018		-----		-----
912		-----		-----	6028	D1319	9.4		1.54
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054	D1319	6.5302		-1.31
971	D1319	7.91		0.06	6075	EN15553	7.40		-0.44
994		-----		-----	6103		-----		-----
998		-----		-----	6141	In house	7.7		-0.15
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143	D1319	10.96	DG(0.05)	3.09
1033		-----		-----	6170		-----		-----
1059	EN15553	7.1		-0.74	6184	D1319	8.0		0.15
1082		-----		-----	6192		-----		-----
1097	D1319	6.51		-1.33	6201	D1319	6.6		-1.24
1108		-----		-----	6203		-----		-----
1109	D1319	7.78		-0.07	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	D1319	10.4		2.54	6258	D1319	10.5		2.64
1135		-----		-----	6262		-----		-----
1140		-----		-----	6291		-----		-----

lab	method	value	mark	z(targ)
6298	D1319	9.4		1.54
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	OK
n	43
outliers	2
mean (n)	7.848
st.dev. (n)	1.0402
R(calc.)	2.913
st.dev.(EN15553:07)	1.0062
R(EN15553:07)	2.817





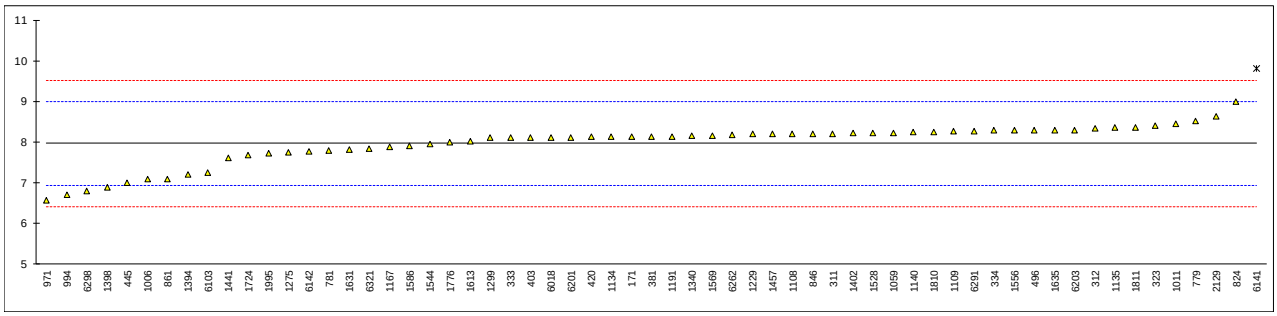
Determination of Olefins by GC on sample #20185; results in %V/V

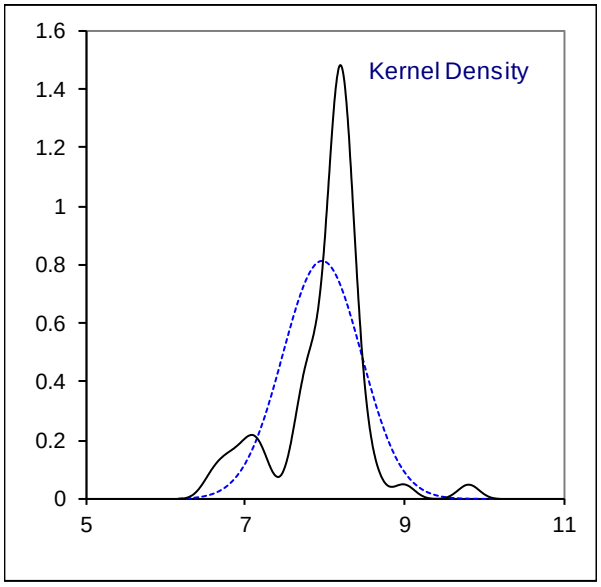
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167	ISO22854-A	7.89		-0.15
159		-----		-----	1171		-----		-----
171	ISO22854-A	8.13		0.31	1191	ISO22854-A	8.14		0.33
225		-----		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238		-----		-----	1212		-----		-----
273		-----		-----	1227		-----		-----
311	ISO22854-A	8.2		0.45	1229	ISO22854-A	8.19		0.43
312	ISO22854-A	8.34		0.72	1237		-----		-----
323	ISO22854-A	8.4		0.83	1266		-----		-----
333	ISO22854-A	8.1		0.25	1275	ISO22854-A	7.74		-0.44
334	ISO22854-A	8.28		0.60	1299	ISO22854-A	8.1		0.25
335		-----		-----	1340	ISO22854-A	8.15		0.35
336		-----		-----	1394	In house	7.2		-1.48
337		-----		-----	1397		-----		-----
338		-----		-----	1398	D6730	6.895		-2.07
343		-----		-----	1402	ISO22854-A	8.22		0.49
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D6839	7.6		-0.71
353		-----		-----	1457	ISO22854-A	8.19		0.43
369		-----		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	8.22		0.49
381	ISO22854-A	8.14		0.33	1544	ISO22854-A	7.95		-0.04
391		-----		-----	1556	ISO22854-A	8.28		0.60
399		-----		-----	1569	ISO22854-A	8.15		0.35
403	ISO22854-A	8.10		0.25	1575		-----		-----
404		-----		-----	1586	ISO22854-A	7.9		-0.13
420	ISO22854-A	8.13		0.31	1613	D6839	8.02		0.10
431		-----		-----	1631	ISO22854-A	7.82		-0.29
440		-----		-----	1635	ISO22854	8.3		0.64
444		-----		-----	1636		-----		-----
445	ISO22854-A	7.00		-1.87	1667		-----		-----
447		-----		-----	1720		-----		-----
463		-----		-----	1724	ISO22854-A	7.69		-0.54
485		-----		-----	1728		-----		-----
496	ISO22854-A	8.29		0.62	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776	ISO22854-A	7.99		0.04
704		-----		-----	1810		8.25		0.54
732		-----		-----	1811	ISO22854-A	8.35		0.74
734		-----		-----	1833		-----		-----
752		-----		-----	1864		-----		-----
759		-----		-----	1911		-----		-----
779	D6729	8.510		1.05	1953		-----		-----
781	ISO22854	7.80		-0.33	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D6730	7.72		-0.48
824	D6839	8.99		1.97	2129	D6730	8.62		1.26
846	GB/T30519	8.2		0.45	2130		-----		-----
861	GB/T30519	7.1		-1.68	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018	ISO22854-A	8.11		0.27
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D6839	6.57		-2.70	6075		-----		-----
994	D6729	6.700		-2.45	6103	D6730	7.2485		-1.39
998		-----		-----	6141	In house	9.8	R(0.05)	3.54
1006	D6730	7.09	C	-1.70	6142	ISO22854-A	7.76		-0.40
1011	ISO22854-A	8.44		0.91	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO22854-A	8.23		0.51	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	8.12		0.29
1108	ISO22854-A	8.2		0.45	6203	ISO22854-A	8.30		0.64
1109	D6839	8.26		0.56	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	8.13		0.31	6258		-----		-----
1135	ISO22854-A	8.35		0.74	6262	ISO22854-A	8.17		0.39
1140	D6839	8.24		0.52	6291	ISO22854-A	8.26		0.56

lab	method	value	mark	z(targ)
6298	D6730	6.8		-2.26
6317		-----		-----
6321	ISO22854-A	7.84		-0.25
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	60
outliers	1
mean (n)	7.968
st.dev. (n)	0.4930
R(calc.)	1.380
st.dev.(ISO22854-A:16)	0.5175
R(ISO22854-A:16)	1.449

Lab 1006 first reported 9.67



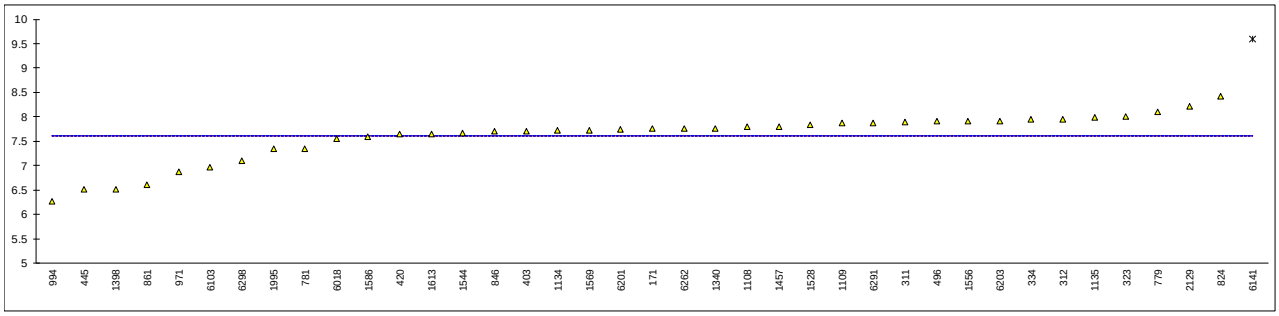


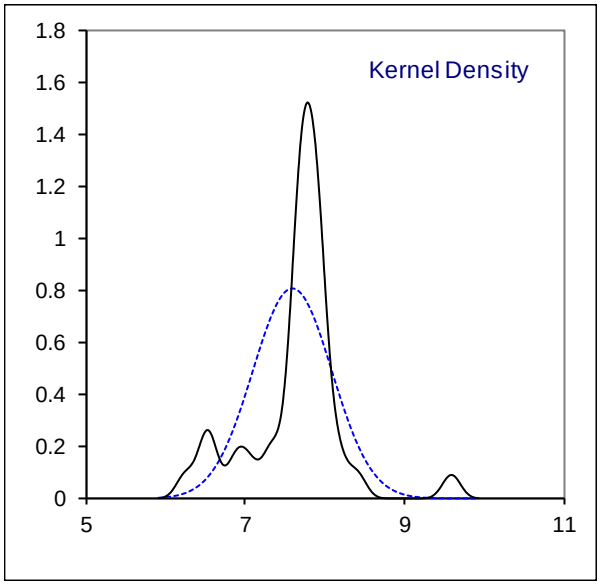
Determination of Olefins by GC on sample #20185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167		-----		-----
159		-----		-----	1171		-----		-----
171	ISO22854-A	7.76		-----	1191		-----		-----
225		-----		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238		-----		-----	1212		-----		-----
273		-----		-----	1227		-----		-----
311	ISO22854-A	7.9		-----	1229		-----		-----
312	ISO22854-A	7.95		-----	1237		-----		-----
323	ISO22854-A	8.0		-----	1266		-----		-----
333		-----		-----	1275		-----		-----
334	ISO22854-A	7.95		-----	1299		-----		-----
335		-----		-----	1340	ISO22854-A	7.77		-----
336		-----		-----	1394		-----		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398	D6730	6.522		-----
343		-----		-----	1402		-----		-----
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	ISO22854-A	7.80		-----
369		-----		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	7.83		-----
381		-----		-----	1544	ISO22854-A	7.67		-----
391		-----		-----	1556	ISO22854-A	7.91		-----
399		-----		-----	1569	ISO22854-A	7.73		-----
403	ISO22854-A	7.71		-----	1575		-----		-----
404		-----		-----	1586	ISO22854-A	7.6		-----
420	ISO22854-A	7.65		-----	1613	D6839	7.65		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635		-----		-----
444		-----		-----	1636		-----		-----
445	ISO22854-A	6.52		-----	1667		-----		-----
447		-----		-----	1720		-----		-----
463		-----		-----	1724		-----		-----
485		-----		-----	1728		-----		-----
496	ISO22854-A	7.91		-----	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704		-----		-----	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833		-----		-----
752		-----		-----	1864		-----		-----
759		-----		-----	1911		-----		-----
779	D6729	8.110		-----	1953		-----		-----
781	ISO22854	7.35		-----	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D6730	7.34		-----
824	D6839	8.42		-----	2129	D6730	8.21		-----
846	GB/T30519	7.7		-----	2130		-----		-----
861	GB/T30519	6.6		-----	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018	ISO22854-A	7.56		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D6839	6.87		-----	6075		-----		-----
994	D6729	6.266		-----	6103	D6730	6.966		-----
998		-----		-----	6141	In house	9.6	R(0.05)	-----
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059		-----		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	7.74		-----
1108	ISO22854-A	7.8		-----	6203	ISO22854-A	7.91		-----
1109	D6839	7.88		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	7.73		-----	6258		-----		-----
1135	ISO22854-A	7.98		-----	6262	ISO22854-A	7.76		-----
1140		-----		-----	6291	ISO22854-A	7.88		-----

lab	method	value	mark	z(targ)
6298	D6730	7.1		-----
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

	normality	suspect
	n	38
	outliers	1
	mean (n)	7.605
	st.dev. (n)	0.4962
	R(calc.)	1.389
	st.dev.(lit)	unknown
	R(lit)	unknown
Compare		
	R(iis19B05EN)	1.795





Determination of Oxidation Stability on sample #20185; results in minutes

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167	ISO7536	>900		-----
159		-----		-----	1171		-----		-----
171	D525	>900		-----	1191		-----		-----
225	D525	>360		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238		-----		-----	1212	ISO7536	>900		-----
273		-----		-----	1227		-----		-----
311	D525	>900		-----	1229		-----		-----
312	ISO7536	>900		-----	1237		-----		-----
323	ISO7536	>900		-----	1266		-----		-----
333		-----		-----	1275	IP40	>900		-----
334	ISO7536	>900		-----	1299	D525	>960		-----
335		-----		-----	1340	ISO7536	>900		-----
336	ISO7536	>900		-----	1394	ISO7536	>900		-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398		-----		-----
343		-----		-----	1402	D525	>900		-----
344		-----		-----	1433	ISO7536	>900		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	ISO7536	>900		-----
369		-----		-----	1459		-----		-----
370		-----		-----	1498		-----		-----
371	ISO7536	>900		-----	1528	ISO7536	>900		-----
381		-----		-----	1544	ISO7536	>900		-----
391	ISO7536	>1440		-----	1556	ISO7536	>900		-----
399		-----		-----	1569	ISO7536	>500		-----
403	D525	>900		-----	1575		-----		-----
404		-----		-----	1586	D525	>900		-----
420	ISO7536	>600		-----	1613	D525	>360		-----
431		-----		-----	1631		-----		-----
440		-----		-----	1635	ISO7536	>900		-----
444		-----		-----	1636	ISO7536	>600		-----
445	IP40	>900		-----	1667		-----		-----
447	D525	>900		-----	1720		-----		-----
463		-----		-----	1724	D525	>1440		-----
485		-----		-----	1728	D525	>900		-----
496	ISO7536	>900		-----	1740		-----		-----
631	D525	>900		-----	1742		-----		-----
633		-----		-----	1776		-----		-----
704		-----		-----	1810	D7525	>800		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833	ISO7536	>360		-----
752		-----		-----	1864	ISO7536	388		-----
759		-----		-----	1911		-----		-----
779		-----		-----	1953		-----		-----
781	ISO7536	>900		-----	1967		-----		-----
782		-----		-----	1971		-----		-----
785		-----		-----	1984		-----		-----
798		-----		-----	1995		-----		-----
824	D525	>900		-----	2129	ISO7536	>900		-----
846	GB/T8018	>900		-----	2130	IP40	>480		-----
861	GB/T8018	>900		-----	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034	D525	>360		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D525	>900		-----	6075	ISO7536	>900		-----
994		-----		-----	6103	D7525	1167.79		-----
998		-----		-----	6141		-----		-----
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO7536	>900		-----	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	D525	>900		-----
1108	ISO7536	>900		-----	6203	ISO7536	480		-----
1109	D525	>900		-----	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134		-----		-----	6258	D525	>900		-----
1135	ISO7536	>900		-----	6262	D525	>900		-----
1140		-----		-----	6291	ISO7536	>900		-----

lab	method	value	mark	z(targ)
6298	D525	>900		-----
6317		-----		-----
6321	IP40	>1000		-----
6332		-----		-----
6344	ISO7536	>360		-----
6346		-----		-----
	n	59		
	mean (n)	>360		

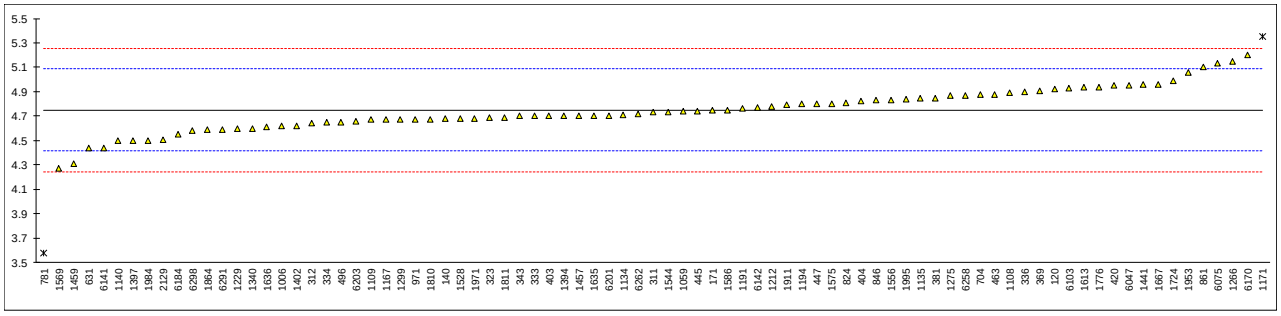
Determination of Ethanol on sample #20185; results in %V/V

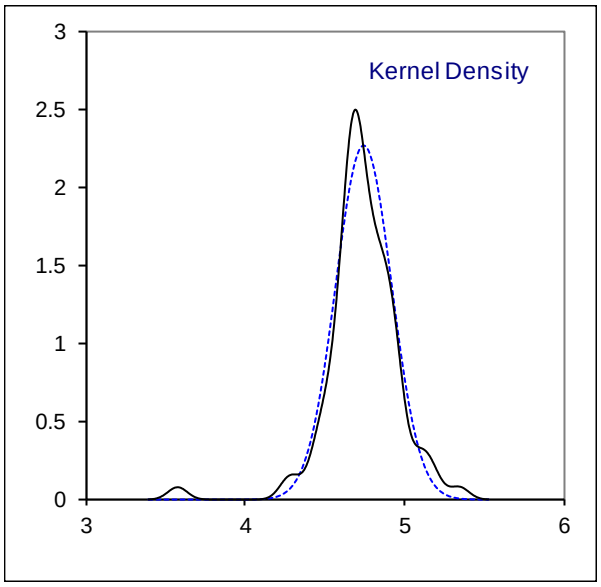
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	4.924		1.04	1143		-----		-----
140	D5599	4.68		-0.41	1167	EN13132	4.67		-0.47
159		-----		-----	1171	D5845Mod.	5.35	R(0.01)	3.57
171		4.75		0.00	1191		4.76		0.06
225		-----		-----	1194	D5845	4.8		0.30
237		-----		-----	1205		-----		-----
238		-----		-----	1212	EN13132	4.78		0.18
273		-----		-----	1227		-----		-----
311	ISO22854-A	4.73		-0.11	1229	ISO22854-A	4.60		-0.89
312	ISO22854-A	4.64		-0.65	1237		-----		-----
323	ISO22854-A	4.69		-0.35	1266	D5845	5.15		2.38
333	ISO22854-A	4.70		-0.29	1275	ISO22854-A	4.87		0.72
334	ISO22854-A	4.65		-0.59	1299		4.67		-0.47
335		-----		-----	1340	EN13132	4.60		-0.89
336	EN1601	4.9		0.90	1394	EN13132	4.7		-0.29
337		-----		-----	1397	EN13132	4.5		-1.48
338		-----		-----	1398		-----		-----
343	EN13132	4.7		-0.29	1402	ISO22854-A	4.62		-0.77
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D4815	4.96		1.25
353		-----		-----	1457	ISO22854-A	4.70		-0.29
369	EN13132	4.91		0.96	1459	In house	4.31		-2.61
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	4.68		-0.41
381	ISO22854-A	4.85		0.60	1544	ISO22854-A	4.733		-0.10
391		-----		-----	1556	ISO22854-A	4.83		0.48
399		-----		-----	1569	ISO22854-A	4.27		-2.85
403	ISO22854-A	4.70		-0.29	1575	D4815	4.8		0.30
404	D5845	4.82		0.42	1586	ISO22854-A	4.75		0.00
420	ISO22854-A	4.95		1.19	1613	D6839	4.94		1.13
431		-----		-----	1631		-----	W	-----
440		-----		-----	1635	ISO22854	4.70		-0.29
444		-----		-----	1636	EN13132	4.61		-0.83
445	ISO22854-A	4.74		-0.05	1667	EN13132	4.96		1.25
447	IP466	4.8		0.30	1720		-----		-----
463	EN13132	4.88		0.78	1724	ISO22854-A	4.99		1.43
485		-----		-----	1728		-----		-----
496	ISO22854-A	4.650		-0.59	1740		-----		-----
631	D5845	4.44		-1.84	1742		-----		-----
633		-----		-----	1776		4.94		1.13
704	D4815	4.88		0.78	1810		4.67		-0.47
732		-----		-----	1811		4.69		-0.35
734		-----		-----	1833		-----		-----
752		-----		-----	1864	EN13132	4.59	C	-0.95
759		-----		-----	1911	EN13132	4.79		0.24
779		-----		-----	1953		5.06		1.85
781	ISO22854	3.58	R(0.01)	-6.96	1967		-----		-----
782		-----		-----	1971	EN13132	4.68		-0.41
785		-----		-----	1984	EN1601	4.5		-1.48
798		-----		-----	1995	D6730	4.84		0.54
824	D4815	4.81		0.36	2129	D6730	4.51		-1.42
846	SH/T0663	4.83		0.48	2130		-----		-----
861	SH/T0663	5.10		2.09	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047	EN13132	4.95		1.19
963		-----		-----	6054		-----		-----
971	D4815	4.67		-0.47	6075	EN13132	5.13		2.27
994		-----		-----	6103	D6730	4.92905		1.07
998		-----		-----	6141		4.44		-1.84
1006	D4815	4.62		-0.77	6142	ISO22854-A	4.77		0.12
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170	EN13132	5.2		2.68
1059	ISO22854-A	4.74		-0.05	6184	D5845	4.55		-1.19
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	4.70		-0.29
1108		4.89		0.84	6203	ISO22854-A	4.66		-0.53
1109	D6839	4.67		-0.47	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	4.71		-0.23	6258	EN13132	4.87		0.72
1135	ISO22854-A	4.85		0.60	6262	ISO22854-A	4.72		-0.17
1140	D6839	4.50		-1.48	6291	ISO22854-A	4.59		-0.95

lab	method	value	mark	z(targ)
6298	D4815	4.58		-1.01
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	OK
n	81
outliers	2
mean (n)	4.7492
st.dev. (n)	0.17574
R(calc.)	0.4921
st.dev.(ISO22854-A:16)	0.16811
R(ISO22854-A:16)	0.4707

Lab 1631 test result withdrawn. First reported 3.94
Lab 1864 first reported 5.46





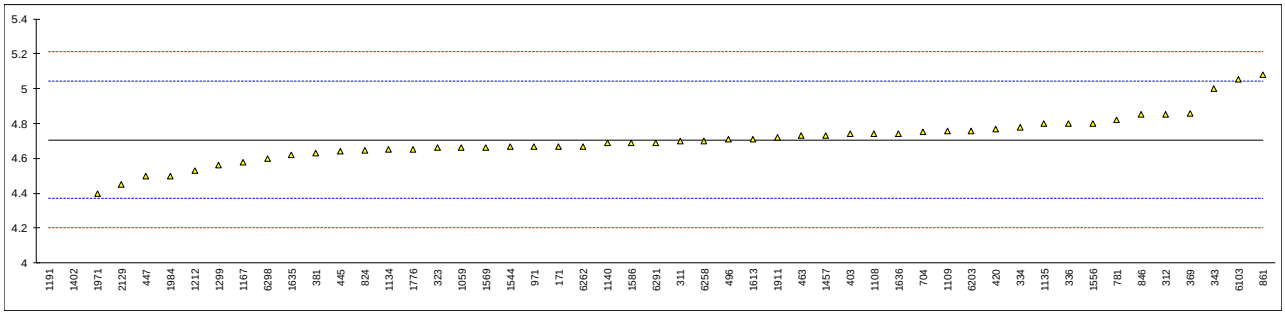
Determination of Ethers (C5 or more C atoms) on sample #20185; results in %V/V

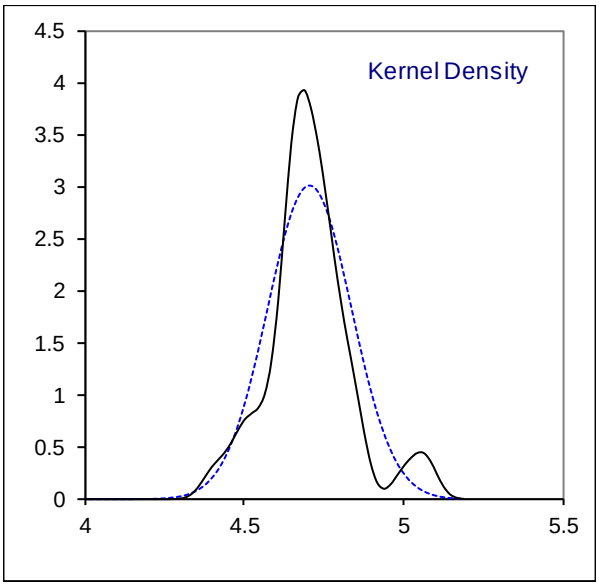
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143		-----		-----
140		-----		-----	1167	EN13132	4.58		-0.76
159		-----		-----	1171		-----		-----
171		4.67		-0.22	1191		0	R(0.01)	-28.06
225		-----		-----	1194		-----		-----
237		-----		-----	1205		-----		-----
238		-----		-----	1212	EN13132	4.53		-1.05
273		-----		-----	1227		-----		-----
311	ISO22854-A	4.7		-0.04	1229		-----		-----
312	ISO22854-A	4.85		0.85	1237		-----		-----
323	ISO22854-A	4.66		-0.28	1266		-----		-----
333		-----		-----	1275		-----		-----
334	ISO22854-A	4.78		0.44	1299		4.56		-0.88
335		-----		-----	1340		-----		-----
336	EN1601	4.8		0.56	1394		-----	W	-----
337		-----		-----	1397		-----		-----
338		-----		-----	1398		-----		-----
343	EN13132	5.0		1.75	1402	ISO22854-A	0.00	R(0.01)	-28.06
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	ISO22854-A	4.73		0.14
369	EN13132	4.86		0.91	1459		-----		-----
370		-----		-----	1498		-----		-----
371		-----		-----	1528		-----		-----
381	ISO22854-A	4.63		-0.46	1544	ISO22854-A	4.666		-0.24
391		-----		-----	1556	ISO22854-A	4.80		0.56
399		-----		-----	1569	ISO22854-A	4.66	C	-0.28
403	ISO22854-A	4.74		0.20	1575		-----		-----
404		-----		-----	1586	ISO22854-A	4.69		-0.10
420	ISO22854-A	4.77		0.38	1613	D6839	4.71		0.02
431		-----		-----	1631		-----		-----
440		-----		-----	1635	ISO22854	4.62		-0.52
444		-----		-----	1636	EN13132	4.74		0.20
445	ISO22854-A	4.64		-0.40	1667		-----		-----
447	IP466	4.5		-1.23	1720		-----		-----
463	EN13132	4.73		0.14	1724		-----		-----
485		-----		-----	1728		-----		-----
496	ISO22854-A	4.710		0.02	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		4.65		-0.34
704	D4815	4.75		0.26	1810		-----		-----
732		-----		-----	1811		-----		-----
734		-----		-----	1833		-----		-----
752		-----		-----	1864		-----		-----
759		-----		-----	1911	EN13132	4.72		0.08
779		-----		-----	1953		-----		-----
781	ISO22854	4.82		0.67	1967		-----		-----
782		-----		-----	1971	EN13132	4.40		-1.83
785		-----		-----	1984	EN1601	4.5		-1.23
798		-----		-----	1995		-----		-----
824	D4815	4.646		-0.36	2129	D6730	4.45		-1.53
846	SH/T0663	4.85		0.85	2130		-----		-----
861	SH/T0663	5.08		2.22	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047		-----		-----
963		-----		-----	6054		-----		-----
971	D4815	4.67	C	-0.22	6075		-----		-----
994		-----		-----	6103	D6730	5.0536		2.07
998		-----		-----	6141		-----		-----
1006		-----		-----	6142		-----		-----
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170		-----		-----
1059	ISO22854-A	4.66		-0.28	6184		-----		-----
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	<0,8	f-?	<-23.29
1108		4.74		0.20	6203	ISO22854-A	4.76		0.32
1109	D6839	4.76		0.32	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	4.65		-0.34	6258	EN13132	4.70		-0.04
1135	ISO22854-A	4.8		0.56	6262	ISO22854-A	4.67		-0.22
1140	D6839	4.69	C	-0.10	6291	ISO22854-A	4.69		-0.10

lab	method	value	mark	z(targ)
6298	D4815	4.60		-0.64
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	49
outliers	2
mean (n)	4.7068
st.dev. (n)	0.13209
R(calc.)	0.3699
st.dev.(ISO22854-A:16)	0.16773
R(ISO22854-A:16)	0.4696

Lab 971 first reported <0.20
Lab 1140 first reported 0.00
Lab 1394 test result withdrawn. First reported 1.8
Lab 1569 first reported <0.8
Lab 6201 possibly a false negative test result?





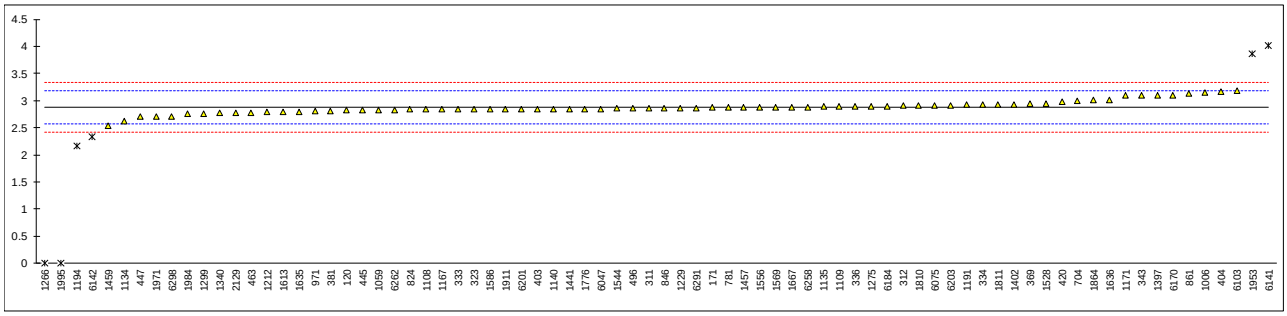
Determination of ETBE on sample #20185; results in %V/V

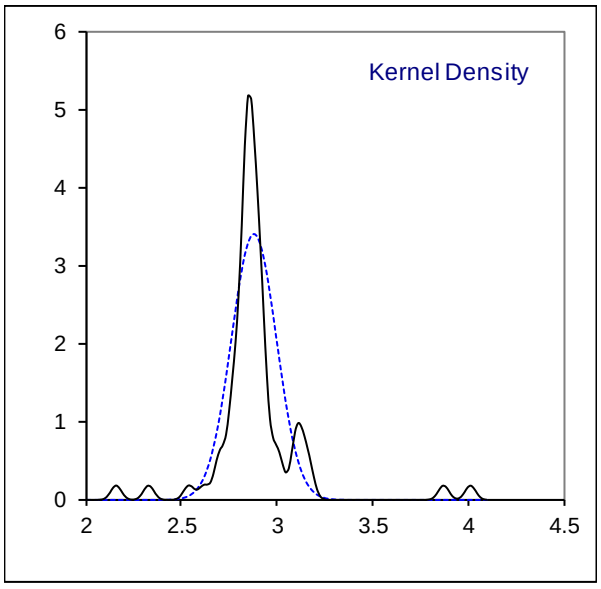
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	2.824		-0.37	1143		-----		-----
140		-----		-----	1167	EN13132	2.84		-0.26
159		-----		-----	1171	D5845Mod.	3.10		1.46
171		2.87		-0.06	1191		2.92		0.27
225		-----		-----	1194	D5845	2.16	R(0.01)	-4.76
237		-----		-----	1205		-----		-----
238		-----		-----	1212	EN13132	2.79		-0.59
273		-----		-----	1227		-----		-----
311	ISO22854-A	2.86		-0.13	1229	ISO22854-A	2.86		-0.13
312	ISO22854-A	2.91		0.20	1237		-----		-----
323	ISO22854-A	2.84		-0.26	1266	D5845	0.0	C,R(0.01)	-19.03
333	ISO22854-A	2.84		-0.26	1275	ISO22854-A	2.90		0.13
334	ISO22854-A	2.92		0.27	1299		2.76		-0.79
335		-----		-----	1340	EN13132	2.77		-0.72
336	EN1601	2.9		0.13	1394		-----		-----
337		-----		-----	1397	EN13132	3.1		1.46
338		-----		-----	1398		-----		-----
343	EN13132	3.1		1.46	1402	ISO22854-A	2.93		0.33
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D4815	2.85		-0.20
353		-----		-----	1457	ISO22854-A	2.87		-0.06
369	EN13132	2.94		0.40	1459	In house	2.54		-2.24
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	2.94		0.40
381	ISO22854-A	2.81		-0.46	1544	ISO22854-A	2.853		-0.18
391		-----		-----	1556	ISO22854-A	2.88		0.00
399		-----		-----	1569	ISO22854-A	2.88		0.00
403	ISO22854-A	2.85		-0.20	1575		-----		-----
404	D5845	3.16		1.85	1586	ISO22854-A	2.84		-0.26
420	ISO22854-A	2.98		0.66	1613	D6839	2.79		-0.59
431		-----		-----	1631		-----		-----
440		-----		-----	1635	ISO22854	2.79		-0.59
444		-----		-----	1636	EN13132	3.02		0.93
445	ISO22854-A	2.83		-0.33	1667	EN13132	2.88		0.00
447	IP466	2.7		-1.19	1720		-----		-----
463	EN13132	2.78		-0.66	1724	ISO22854-A	<0,8	f-?	<-13.74
485		-----		-----	1728		-----		-----
496	ISO22854-A	2.860		-0.13	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		2.85		-0.20
704	D4815	2.99		0.73	1810		2.91		0.20
732		-----		-----	1811		2.92		0.27
734		-----		-----	1833		-----		-----
752		-----		-----	1864	EN13132	3.01		0.86
759		-----		-----	1911	EN13132	2.84		-0.26
779		-----		-----	1953		3.87	R(0.01)	6.54
781	ISO22854	2.87		-0.06	1967		-----		-----
782		-----		-----	1971	EN13132	2.7		-1.19
785		-----		-----	1984	EN1601	2.75		-0.86
798		-----		-----	1995	D6730	0	C,R(0.01)	-19.03
824	D4815	2.837		-0.28	2129	D6730	2.77		-0.72
846	SH/T0663	2.86		-0.13	2130		-----		-----
861	SH/T0663	3.13		1.65	6005		-----		-----
875		-----		-----	6012		-----		-----
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047	EN13132	2.85		-0.20
963		-----		-----	6054		-----		-----
971	D4815	2.80		-0.53	6075	EN13132	2.91		0.20
994		-----		-----	6103	D6730	3.1748		1.95
998		-----		-----	6141		4.01	R(0.01)	7.47
1006	D4815	3.14		1.72	6142	ISO22854-A	2.33	R(0.01)	-3.63
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170	EN13132	3.1		1.46
1059	ISO22854-A	2.83		-0.33	6184	D5845	2.90		0.13
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	2.84		-0.26
1108		2.84		-0.26	6203	ISO22854-A	2.91		0.20
1109	D6839	2.90		0.13	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	2.62		-1.72	6258	EN13132	2.88		0.00
1135	ISO22854-A	2.89		0.07	6262	ISO22854-A	2.83		-0.33
1140	D6839	2.85	C	-0.20	6291	ISO22854-A	2.86		-0.13

lab	method	value	mark	z(targ)
6298	D4815	2.70		-1.19
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	72
outliers	6
mean (n)	2.8797
st.dev. (n)	0.11749
R(calc.)	0.3290
st.dev.(ISO22854-A:16)	0.15135
R(ISO22854-A:16)	0.4238

Lab 1140 first reported 0.00
Lab 1266 first reported 4.91
Lab 1724 possibly a false negative test result?
Lab 1995 first reported 2.33





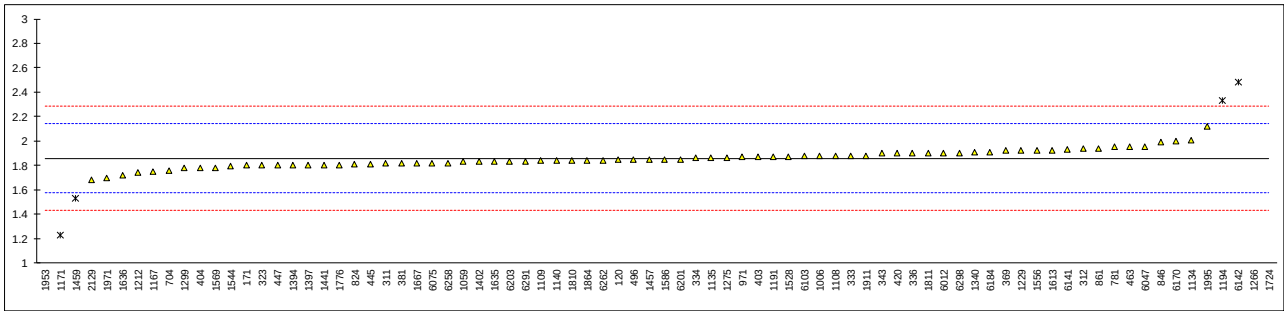
Determination of MTBE on sample #20185; results in %V/V

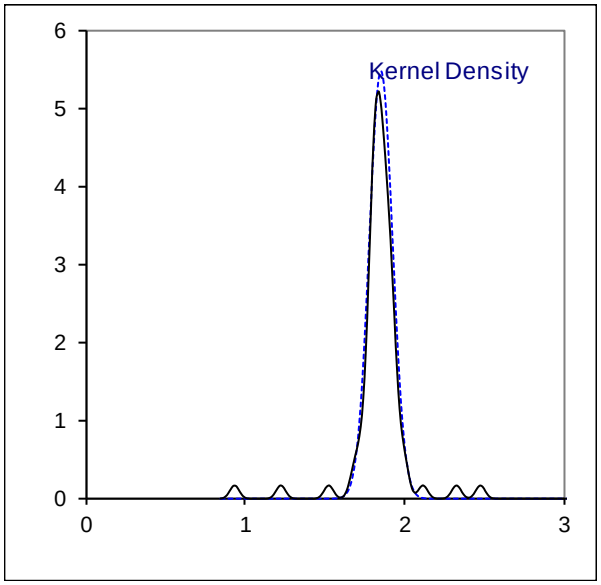
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	1.849		-0.05	1143		-----		-----
140		-----		-----	1167	EN13132	1.75		-0.75
159		-----		-----	1171	D5845Mod.	1.23	R(0.01)	-4.41
171		1.80		-0.40	1191		1.87		0.09
225		-----		-----	1194	D5845	2.33	R(0.01)	3.33
237		-----		-----	1205		-----		-----
238		-----		-----	1212	EN13132	1.74		-0.82
273		-----		-----	1227		-----		-----
311	ISO22854-A	1.82		-0.26	1229	ISO22854-A	1.92		0.45
312	ISO22854-A	1.94		0.59	1237		-----		-----
323	ISO22854-A	1.80		-0.40	1266	D5845	3.8	C,R(0.01)	13.67
333	ISO22854-A	1.88		0.16	1275	ISO22854-A	1.86		0.02
334	ISO22854-A	1.86		0.02	1299		1.78		-0.54
335		-----		-----	1340	EN13132	1.91		0.37
336	EN1601	1.9		0.30	1394	EN13132	1.8		-0.40
337		-----		-----	1397	EN13132	1.8		-0.40
338		-----		-----	1398		-----		-----
343	EN13132	1.9		0.30	1402	ISO22854-A	1.83		-0.19
344		-----		-----	1433		-----		-----
352		-----		-----	1441	D4815	1.80		-0.40
353		-----		-----	1457	ISO22854-A	1.85		-0.05
369	EN13132	1.92		0.45	1459	In house	1.53	R(0.01)	-2.30
370		-----		-----	1498		-----		-----
371		-----		-----	1528	ISO22854-A	1.87		0.09
381	ISO22854-A	1.82		-0.26	1544	ISO22854-A	1.793		-0.45
391		-----		-----	1556	ISO22854-A	1.92		0.45
399		-----		-----	1569	ISO22854-A	1.78		-0.54
403	ISO22854-A	1.87		0.09	1575		-----		-----
404	D5845	1.78		-0.54	1586	ISO22854-A	1.85		-0.05
420	ISO22854-A	1.90		0.30	1613	D6839	1.92		0.45
431		-----		-----	1631		-----	W	-----
440		-----		-----	1635	ISO22854	1.83		-0.19
444		-----		-----	1636	EN13132	1.72		-0.96
445	ISO22854-A	1.81		-0.33	1667	EN13132	1.82		-0.26
447	IP466	1.8		-0.40	1720		-----		-----
463	EN13132	1.95		0.66	1724	ISO22854-A	4.91	R(0.01)	21.47
485		-----		-----	1728		-----		-----
496	ISO22854-A	1.850		-0.05	1740		-----		-----
631		-----		-----	1742		-----		-----
633		-----		-----	1776		1.80		-0.40
704	D4815	1.76		-0.68	1810		1.84		-0.12
732		-----		-----	1811		1.90		0.30
734		-----		-----	1833		-----		-----
752		-----		-----	1864	EN13132	1.84		-0.12
759		-----		-----	1911	EN13132	1.88		0.16
779		-----		-----	1953		0.94	R(0.01)	-6.45
781	ISO22854	1.95		0.66	1967		-----		-----
782		-----		-----	1971	EN13132	1.7		-1.10
785		-----		-----	1984	EN1601	<0.17	f-?	<-11.86
798		-----		-----	1995	D6730	2.12	C	1.85
824	D4815	1.809		-0.34	2129	D6730	1.68		-1.24
846	SH/T0663	1.99		0.94	2130		-----		-----
861	SH/T0663	1.94		0.59	6005		-----		-----
875		-----		-----	6012	D5845	1.9		0.30
902		-----		-----	6018		-----		-----
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047	EN13132	1.95		0.66
963		-----		-----	6054		-----		-----
971	D4815	1.87		0.09	6075	EN13132	1.82		-0.26
994		-----		-----	6103	D6730	1.8788		0.16
998		-----		-----	6141		1.93		0.52
1006	D4815	1.88		0.16	6142	ISO22854-A	2.48	R(0.01)	4.38
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170	EN13132	2.0		1.01
1059	ISO22854-A	1.83		-0.19	6184	D5845	1.91		0.37
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	1.85		-0.05
1108		1.88		0.16	6203	ISO22854-A	1.83		-0.19
1109	D6839	1.84		-0.12	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	2.01		1.08	6258	EN13132	1.82		-0.26
1135	ISO22854-A	1.86		0.02	6262	ISO22854-A	1.84		-0.12
1140	D6839	1.84	C	-0.12	6291	ISO22854-A	1.83		-0.19

lab	method	value	mark	z(targ)
6298	D4815	1.90		0.30
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	73
outliers	7
mean (n)	1.8567
st.dev. (n)	0.07287
R(calc.)	0.2040
st.dev.(ISO22854-A:16)	0.14218
R(ISO22854-A:16)	0.3981

Lab 1140 first reported 5.01
Lab 1266 first reported 0.0
Lab 1631 test result withdrawn. First reported 4.92
Lab 1984 possibly a false negative test result?
Lab 1995 first reported 2.18





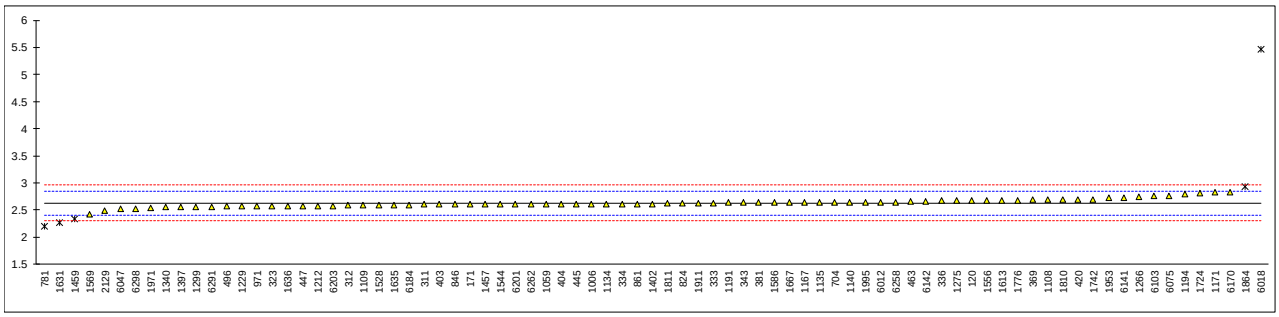
Determination of Oxygen content on sample #20185; results in %M/M

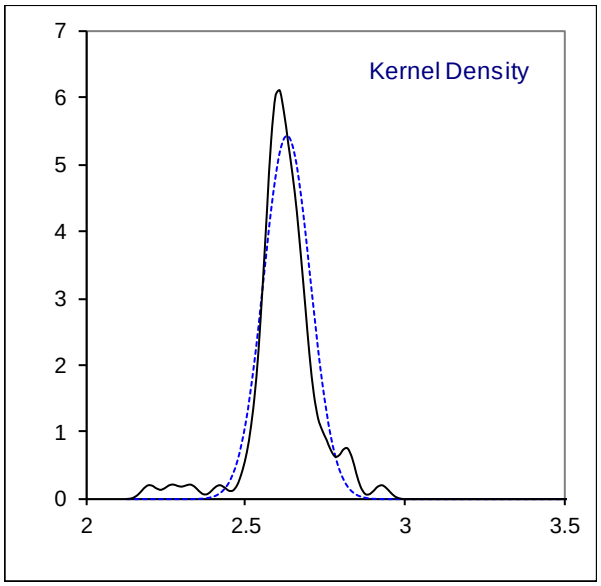
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	2.67		0.34	1143		-----		-----
140		-----		-----	1167	EN13132	2.645		0.12
159		-----		-----	1171	D5845Mod.	2.824		1.74
171	ISO22854-A	2.60		-0.29	1191	ISO22854-A	2.64		0.07
225		-----		-----	1194	D5845	2.8		1.52
237		-----		-----	1205		-----		-----
238		-----		-----	1212	EN13132	2.58		-0.47
273		-----		-----	1227		-----		-----
311	ISO22854-A	2.60	C	-0.29	1229	ISO22854-A	2.57		-0.56
312	ISO22854-A	2.59		-0.38	1237		-----		-----
323	ISO22854-A	2.57		-0.56	1266	EN1601	2.75		1.07
333	ISO22854-A	2.63		-0.02	1275	ISO22854-A	2.67		0.34
334	ISO22854-A	2.61		-0.20	1299		2.56		-0.65
335		-----		-----	1340	EN13132	2.55		-0.74
336	EN1601	2.67		0.34	1394		-----	W	-----
337		-----		-----	1397	EN13132	2.55		-0.74
338		-----		-----	1398		-----		-----
343	EN13132	2.64		0.07	1402	ISO22854-A	2.61		-0.20
344		-----		-----	1433		-----		-----
352		-----		-----	1441		-----		-----
353		-----		-----	1457	ISO22854-A	2.60		-0.29
369	EN13132	2.69		0.52	1459	In house	2.33	R(0.05)	-2.73
370		-----		-----	1498		-----		-----
371		-----		-----	1528	EN22854	2.59		-0.38
381	ISO22854-A	2.64		0.07	1544	ISO22854-A	2.60		-0.29
391		-----		-----	1556	ISO22854-A	2.68		0.43
399		-----		-----	1569	ISO22854-A	2.42		-1.91
403	ISO22854-A	2.60		-0.29	1575		-----		-----
404	D5845	2.61		-0.20	1586	EN22854	2.64		0.07
420	EN22854	2.70		0.62	1613	D6839	2.68		0.43
431		-----		-----	1631	EN22854	2.27	R(0.01)	-3.27
440		-----		-----	1635	ISO22854	2.59		-0.38
444		-----		-----	1636	EN13132	2.57		-0.56
445	ISO22854-A	2.61		-0.20	1667	EN13132	2.64		0.07
447	IP466	2.58		-0.47	1720		-----		-----
463	EN13132	2.66		0.25	1724	ISO22854-A	2.82		1.70
485		-----		-----	1728		-----		-----
496	ISO22854-A	2.570		-0.56	1740		-----		-----
631		-----		-----	1742	D5622	2.70		0.62
633		-----		-----	1776	ISO22854-A	2.68		0.43
704	D4815	2.65		0.16	1810		2.69		0.52
732		-----		-----	1811	ISO22854-A	2.62		-0.11
734		-----		-----	1833		-----		-----
752		-----		-----	1864	EN13132	2.928	C,R(0.05)	2.67
759		-----		-----	1911	EN13132	2.627		-0.04
779		-----		-----	1953		2.72		0.80
781		2.20	R(0.01)	-3.90	1967		-----		-----
782		-----		-----	1971	EN13132	2.54		-0.83
785		-----		-----	1984		-----		-----
798		-----		-----	1995	D6730	2.65		0.16
824	D4815	2.625		-0.06	2129	D6729	2.497		-1.22
846	SH/T0663	2.60		-0.29	2130		-----		-----
861	SH/T0663	2.61		-0.20	6005		-----		-----
875		-----		-----	6012	D5845	2.65		0.16
902		-----		-----	6018	ISO22854-A	5.46	R(0.01)	25.54
912		-----		-----	6028		-----		-----
913		-----		-----	6034		-----		-----
914		-----		-----	6047	EN13132	2.52		-1.01
963		-----		-----	6054		-----		-----
971	D4815	2.57		-0.56	6075	EN13132	2.76		1.16
994		-----		-----	6103	D6730	2.755		1.11
998		-----		-----	6141	In house	2.73		0.89
1006	D4815	2.61		-0.20	6142		2.66		0.25
1011		-----		-----	6143		-----		-----
1033		-----		-----	6170	EN13132	2.83		1.79
1059	ISO22854-A	2.61		-0.20	6184	D5845	2.59		-0.38
1082		-----		-----	6192		-----		-----
1097		-----		-----	6201	ISO22854-A	2.60		-0.29
1108	ISO22854-A	2.69		0.52	6203	EN22854	2.58		-0.47
1109	D6839	2.59		-0.38	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	ISO22854-A	2.61		-0.20	6258	EN13132	2.65		0.16
1135	EN22854	2.65		0.16	6262	ISO22854-A	2.60		-0.29
1140	D6839	2.65		0.16	6291	ISO22854-A	2.56		-0.65

lab	method	value	mark	z(targ)
6298	D4815	2.53		-0.92
6317		-----		-----
6321		-----		-----
6332		-----		-----
6344		-----		-----
6346		-----		-----

normality	suspect
n	76
outliers	5
mean (n)	2.6319
st.dev. (n)	0.07338
R(calc.)	0.2055
st.dev.(ISO22854-A:16)	0.11071
R(ISO22854-A:16)	0.31

Lab 311 first reported 10
Lab 1394 test result withdrawn. First reported 2.12
Lab 1864 first reported 3.256



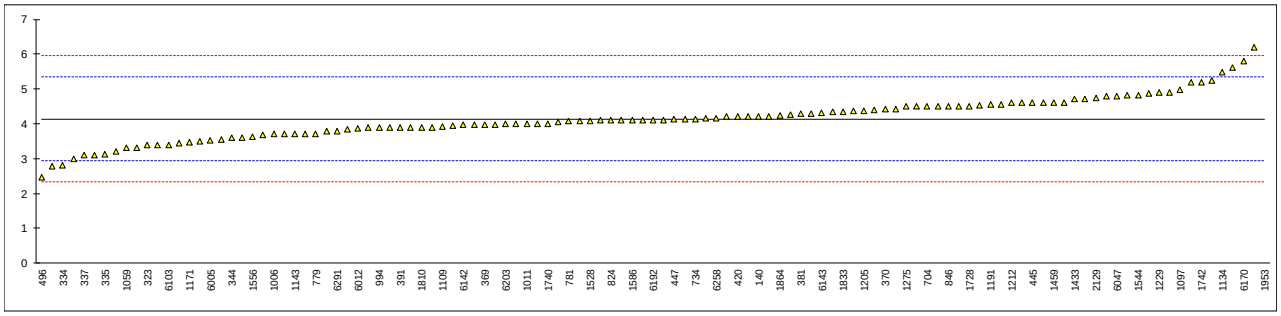


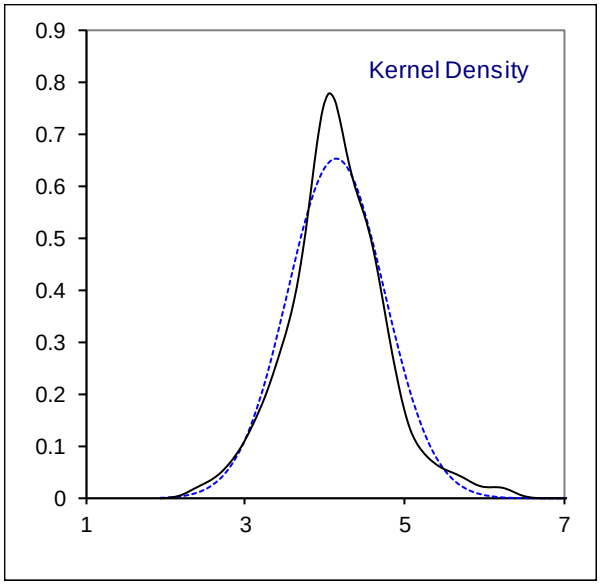
Determination of Sulfur on sample #20185; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1143	ISO20846	3.71		-0.72
140	D2622	4.2		0.10	1167	ISO20846	4.36		0.36
159		-----		-----	1171	ISO20846	3.47		-1.12
171	D5453	4.5		0.60	1191	ISO20846	4.55		0.68
225		-----		-----	1194	D7220/IP532	4.56		0.70
237	D5453	3.0		-1.90	1205	ISO20846	4.37		0.38
238		-----		-----	1212	ISO20846	4.60		0.76
273	D5453	5.24		1.83	1227	D5453	3.7		-0.73
311	ISO20846	4.0		-0.24	1229	ISO20846	4.9		1.26
312	ISO20846	3.44		-1.17	1237	ISO20846	3.79		-0.58
323	ISO20846	3.4		-1.23	1266	ISO20846	3.55		-0.98
333	ISO20846	3.9		-0.40	1275	IP490	4.49		0.58
334	ISO20846	2.8		-2.23	1299	ISO20884	4.8		1.09
335	ISO20846	3.12		-1.70	1340	ISO20846	3.85		-0.48
336	ISO20846	5.2		1.76	1394	ISO20846	4.5		0.60
337	ISO20846	3.1		-1.73	1397	ISO20846	4.81		1.11
338	ISO20846	4.5		0.60	1398	ISO20846	4.34		0.33
343	ISO20846	3.9		-0.40	1402		2.78		-2.26
344	D5453	3.6		-0.90	1433	ISO20846	4.7		0.93
352	ISO20846	4.05		-0.15	1441	D5453	4.6		0.76
353	IP490	4.91		1.28	1457	ISO20846	4.42		0.46
369	ISO20846	3.98		-0.27	1459	ISO20884	4.6		0.76
370	ISO20846	4.42		0.46	1498	D5453	4.1		-0.07
371	ISO20846	4.15		0.01	1528	ISO20846	4.08		-0.10
381	ISO20846	4.3		0.26	1544	ISO20884	4.83		1.14
391	ISO20846	3.9		-0.40	1556	ISO20846	3.63		-0.85
399	D5453	4.2		0.10	1569	ISO20846	3.9		-0.40
403	ISO20846	4.08		-0.10	1575		-----		-----
404	D5453	4.1		-0.07	1586	ISO20846	4.1		-0.07
420	ISO20846	4.2		0.10	1613	D5453	4.0		-0.24
431		-----		-----	1631		-----		-----
440		-----		-----	1635	ISO20846	3.30		-1.40
444	D5453	4.54		0.66	1636	ISO20846	3.98		-0.27
445	D2622	4.6		0.76	1667		-----		-----
447	IP490	4.12		-0.04	1720		-----		-----
463	ISO20846	3.97		-0.29	1724	D5453	4.21		0.11
485		-----		-----	1728	D5453	4.5		0.60
496	ISO20846	2.46		-2.80	1740	D5453	4		-0.24
631	D7039	3.4		-1.23	1742	ISO20846	5.2		1.76
633		-----		-----	1776	ISO20846	3.1		-1.73
704	ISO20846	4.5		0.60	1810	D5453	3.9		-0.40
732	D4294	<17		-----	1811	ISO20846	3.9		-0.40
734	D5453	4.14		0.00	1833	ISO20846	4.34		0.33
752		-----		-----	1864	ISO20846	4.23		0.15
759	ISO20884	<5		-----	1911		-----		-----
779	ISO20846	3.72		-0.70	1953		20	R(0.01)	26.36
781	ISO20846	4.07		-0.12	1967		-----		-----
782		-----		-----	1971	ISO20846	3.60		-0.90
785		-----		-----	1984	ISO20846	4.25		0.18
798		-----		-----	1995	D5453	3.71		-0.72
824	D5453	4.1		-0.07	2129	D4294	4.74		0.99
846	SH/T0689	4.5		0.60	2130	D4294	6.2		3.42
861	SH/T0689	4.2		0.10	6005	ISO20846	3.51		-1.05
875		-----		-----	6012	ISO20846	3.86		-0.47
902	D5453	4.6		0.76	6018	ISO20846	3.94		-0.34
912		-----		-----	6028	ISO20846	4.1		-0.07
913		-----		-----	6034	D5453	4.7		0.93
914		-----		-----	6047	ISO20846	4.8		1.09
963		-----		-----	6054	D7039	4.13		-0.02
971		-----		-----	6075	ISO20846	4.88		1.23
994	D5453	3.9		-0.40	6103	D4294	3.4		-1.23
998		-----		-----	6141		-----		-----
1006	D5453	3.7		-0.73	6142		3.96		-0.30
1011	ISO20846	4.0		-0.24	6143	D2622	4.31		0.28
1033		-----		-----	6170	ISO20846	5.8		2.76
1059	ISO20846	3.3		-1.40	6184	ISO20846	4.39		0.41
1082		-----		-----	6192	ISO20846	4.1		-0.07
1097	D5453	4.97		1.38	6201	ISO20846	4.6		0.76
1108	ISO20846	3.69		-0.75	6203	ISO20846	3.99		-0.25
1109	D7039	3.92		-0.37	6238		-----		-----
1126		-----		-----	6249		-----		-----
1134	IP490	5.4673		2.20	6258	ISO20846	4.16		0.03
1135	ISO20846	4.3		0.26	6262	ISO20846	3.2		-1.57
1140	D5453	5.6		2.42	6291	ISO20846	3.8		-0.57

lab	method	value	mark	z(targ)
6298	D5453	3.5		-1.07
6317		-----		-----
6321	ISO20846	4.1		-0.07
6332		-----		-----
6344		-----		-----
6346		-----		-----

	normality	suspect
	n	116
	outliers	1
	mean (n)	4.142
	st.dev. (n)	0.6104
	R(calc.)	1.709
	st.dev.(ISO20846:19)	0.6016
	R(ISO20846:19)	1.684
Compare		
	R(D5453:19a)	1.683

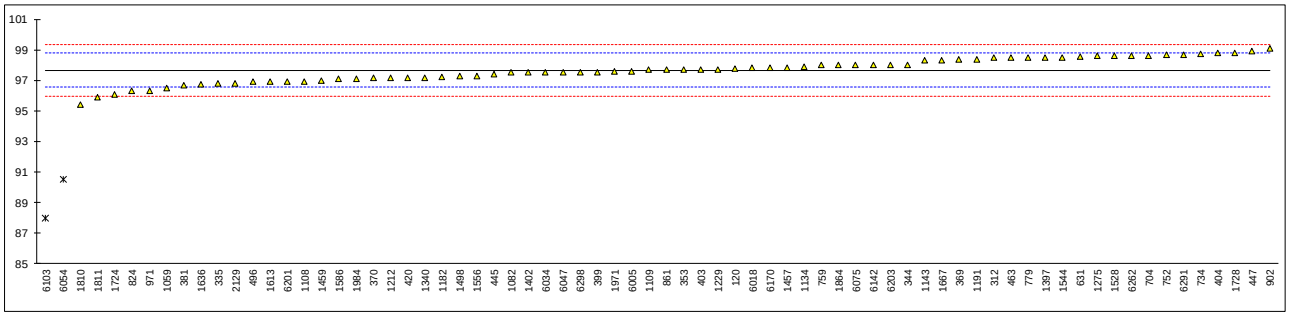


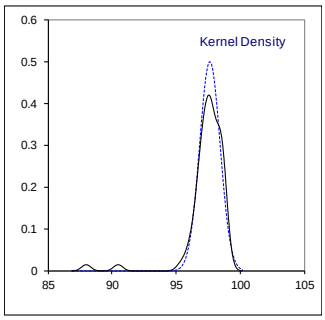


Determination of ASVP on sample #20186; results in kPa

lab	method	value	mark	z(targ)	remarks
120	D5191	97.77		0.18	
140		-----		-----	
159		-----		-----	
171		-----		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311		-----		-----	
312	EN13016-1	98.5		1.48	
323		-----		-----	
333		-----		-----	
334		-----		-----	
335	EN13016-1	96.8		-1.54	
336		-----		-----	
337		-----		-----	
338		-----		-----	
343		-----		-----	
344	EN13016-1	98.02		0.62	
353	EN13016-1	97.7		0.06	
369	EN13016-1	98.4		1.30	
370	EN13016-1	97.15		-0.92	
381	EN13016-1	96.7		-1.71	
391		-----		-----	
399	EN13016-1	97.55		-0.21	
403	EN13016-1	97.7		0.06	
404	EN13016-1	98.8		2.01	
420	EN13016-1	97.19		-0.85	
440		-----		-----	
444		-----		-----	
445	EN13016-1	97.4		-0.47	
447	D5191	98.9		2.18	
463	EN13016-1	98.5		1.48	
485		-----		-----	
496	EN13016-1	96.9		-1.36	
631	D5191	98.57		1.60	
633		-----		-----	
704	EN13016-1	98.63		1.71	
734	D5191	98.75		1.92	
752	EN13016-1	98.7		1.83	
759	EN13016-1	98.0		0.59	
779	D5191	98.5		1.48	
782		-----		-----	
785		-----		-----	
798		-----		-----	
824	D5191	96.3		-2.42	
846		-----		-----	
861	SH/T0794	97.7		0.06	
875		-----		-----	
902	EN13016-1	99.1		2.54	
963		-----		-----	
971	EN13016-1	96.34		-2.35	
1006		-----		-----	
1011		-----		-----	
1033		-----		-----	
1059	EN13016-1	96.5		-2.07	
1082	EN13016-1	97.5		-0.30	
1108	EN13016-1	96.94		-1.29	
1109	D5191	97.68		0.02	
1134	D5191	97.89		0.39	
1143	EN13016-1	98.3		1.12	
1167		-----		-----	
1182	D5191	97.2		-0.83	
1191	EN13016-1	98.4		1.30	
1194		-----		-----	
1212	EN13016-1	97.15		-0.92	
1229	EN13016-1	97.7		0.06	
1275	EN13016-1	98.6		1.65	
1299		-----		-----	
1340	EN13016-1	97.19		-0.85	
1397	EN13016-1	98.5		1.48	
1402	EN13016-1	97.5		-0.30	
1457	EN13016-1	97.81		0.25	
1459	EN13016-1	97.0		-1.18	
1498	D5191	97.28		-0.69	
1528	EN13016-1	98.6		1.65	

lab	method	value	mark	z(targ)	remarks
1544	EN13016-1	98.50		1.48	
1556	EN13016-1	97.3		-0.65	
1586	EN13016-1	97.1		-1.01	
1613	EN13016-1	96.9		-1.36	
1631		-----		-----	
1635		-----		-----	
1636	EN13016-1	96.71		-1.70	
1667	EN13016-1	98.3		1.12	
1720		-----		-----	
1724	IP391	96.1		-2.78	
1728	EN13016-1	98.80		2.01	
1730		-----		-----	
1776		-----		-----	
1810	EN13016-1	95.4		-4.02	
1811	EN13016-1	95.9		-3.13	
1833		-----		-----	
1864	EN13016-1	98.0		0.59	
1953		-----		-----	
1967		-----		-----	
1971	EN13016-1	97.6		-0.12	
1984	EN13016-1	97.1		-1.01	
2129	EN13016-1	96.8		-1.54	
2130		-----		-----	
6005	EN13016-1	97.6		-0.12	
6012		-----		-----	
6018	EN13016-1	97.8		0.23	
6028		-----		-----	
6034		97.5		-0.30	
6047	EN13016-1	97.5		-0.30	
6054	D5191	90.5	R(0.01)	-12.70	
6075	EN13016-1	98.0		0.59	
6103	EN13016-1	88.0	R(0.01)	-17.13	
6142	EN13016-1	98.0		0.59	
6170	D5191	97.8		0.23	
6201	D5191	96.90		-1.36	
6203	EN13016-1	98.0		0.59	
6238		-----		-----	
6262	EN13016-1	98.6		1.65	
6291	EN13016-1	98.7		1.83	
6298	D5191	97.5		-0.30	
6321		-----		-----	
					Without ASTM D5191, see §4.1:
	normality	OK			OK
	n	70			57
	outliers	2			1
	mean (n)	97.667			97.644
	st.dev. (n)	0.7996			0.8123
	R(calc.)	2.239			2.274
	st.dev.(EN13016-1:18)	0.5643			0.5643
	R(EN13016-1:18)	1.58			1.58



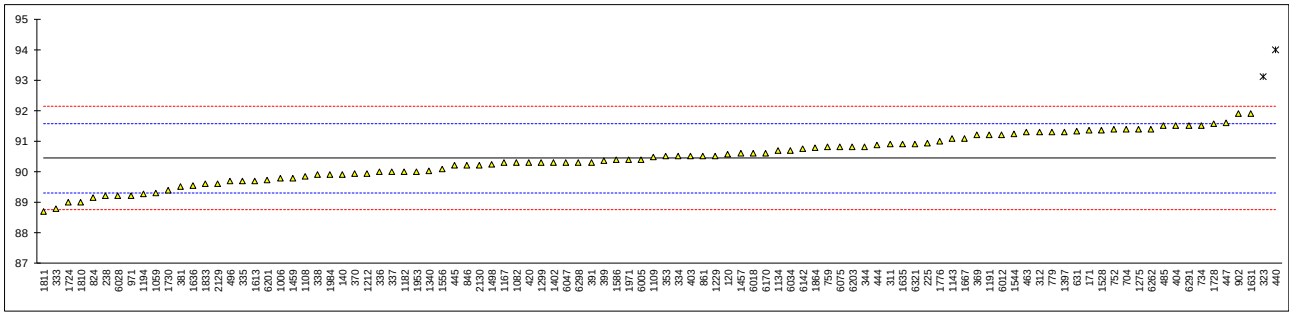


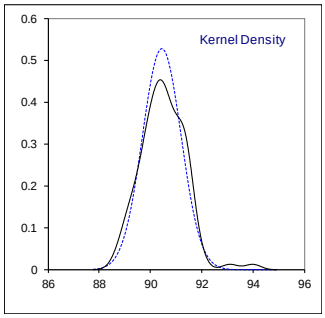
Determination of DVPE acc. to EN13016-1 on sample #20186; results in kPa

lab	method	value	mark	z(targ)	remarks
120	D5191	90.57		0.23	
140	D5191	89.91	C	-0.94	first reported 13.04 kPa
159		-----		-----	
171	D5191	91.36	C	1.63	first reported 13.25 kPa
225	D5191	90.95		0.90	
237		-----		-----	
238	D5191	89.2		-2.20	
311	D5191	90.9		0.81	
312	EN13016-1	91.3		1.52	
323	EN13016-1	93.1	R(0.01)	4.71	
333	EN13016-1	88.8		-2.91	
334	EN13016-1	90.5		0.11	
335	D5191	89.7		-1.31	
336	EN13016-1	90.0		-0.78	
337	EN13016-1	90.0		-0.78	
338	EN13016-1	89.9		-0.96	
343		-----		-----	
344	EN13016-1	90.81		0.66	
353	EN13016-1	90.500		0.11	
369	EN13016-1	91.2		1.35	
370	EN13016-1	89.95		-0.87	
381	EN13016-1	89.5		-1.67	
391	EN13016-1	90.31		-0.23	
399	EN13016-1	90.36		-0.14	
403	EN13016-1	90.5		0.11	
404	EN13016-1	91.5		1.88	
420	EN13016-1	90.3		-0.25	
440	D5191	94.0	R(0.01)	6.31	
444	D5191	90.873	C	0.77	first reported as ASVP
445	EN13016-1	90.2		-0.43	
447	D5191	91.6		2.06	
463	EN13016-1	91.3		1.52	
485	EN13016-1	91.5		1.88	
496	EN13016-1	89.7		-1.31	
631	D5191	91.34		1.59	
633		-----		-----	
704	D5191	91.4		1.70	
734	D5191	91.51		1.90	
752	EN13016-1	91.4		1.70	
759	EN13016-1	90.8		0.64	
779	D5191	91.3		1.52	
782		-----		-----	
785		-----		-----	
798		-----		-----	
824	D5191	89.15		-2.29	
846	SH/T0794	90.2		-0.43	
861	SH/T0794	90.5		0.11	
875		-----		-----	
902	EN13016-1	91.9		2.59	
963		-----		-----	
971	EN13016-1	89.22		-2.16	
1006	D5191	89.8		-1.13	
1011		-----		-----	
1033		-----		-----	
1059	EN13016-1	89.3		-2.02	
1082	EN13016-1	90.3		-0.25	
1108	EN13016-1	89.84		-1.06	
1109	D5191	90.48		0.07	
1134	D5191	90.6839		0.43	
1143	EN13016-1	91.0795		1.13	
1167	EN13016-1	90.3		-0.25	
1182	D5191	90		-0.78	
1191	EN13016-1	91.2		1.35	
1194	EN13016-1	89.26		-2.09	
1212	EN13016-1	89.95		-0.87	
1229	EN13016-1	90.5		0.11	
1275	EN13016-1	91.4		1.70	
1299	D5191	90.3		-0.25	
1340	EN13016-1	90.025		-0.74	
1397	EN13016-1	91.3		1.52	
1402	IP394	90.3		-0.25	
1457	EN13016-1	90.60		0.28	
1459	EN13016-1	89.8		-1.13	
1498	D5191	90.25		-0.34	
1528	EN13016-1	91.37		1.65	

lab	method	value	mark	z(targ)	remarks
1544	EN13016-1	91.23		1.40	
1556	EN13016-1	90.1		-0.60	
1586	EN13016-1	90.4		-0.07	
1613	EN13016-1	89.7		-1.31	
1631	EN13016-1	91.9		2.59	
1635	EN13016-1	90.9		0.81	
1636	EN13016-1	89.55		-1.58	
1667	EN13016-1	91.0795		1.13	
1720		-----		-----	
1724	IP394	89.0		-2.55	
1728	EN13016-1	91.562		1.99	
1730	EN13016-1	89.4		-1.84	
1776	EN13016-1	91.0		0.99	
1810	EN13016-1	89.0		-2.55	
1811	EN13016-1	88.7		-3.08	
1833	EN13016-1	89.6		-1.49	
1864	EN13016-1	90.79		0.62	
1953	EN13016-1	90		-0.78	
1967		-----		-----	
1971	EN13016-1	90.4		-0.07	
1984	EN13016-1	89.9		-0.96	
2129	EN13016-1	89.6		-1.49	
2130	EN13016-1	90.2		-0.43	
6005	EN13016-1	90.4		-0.07	
6012	EN13016-1	91.2		1.35	
6018	EN13016-1	90.6		0.28	
6028	EN13016-1	89.2		-2.20	
6034	D5191	90.7		0.46	
6047	EN13016-1	90.3		-0.25	
6054		-----		-----	
6075	EN13016-1	90.8		0.64	
6103		-----		-----	
6142	EN13016-1	90.75		0.55	
6170	D5191	90.6		0.28	
6201	D5191	89.73		-1.26	
6203	EN13016-1	90.8		0.64	
6238		-----		-----	
6262	EN13016-1	91.4		1.70	
6291	EN13016-1	91.5		1.88	
6298	D5191	90.3		-0.25	
6321	IP394	90.9		0.81	

normality	OK
n	98
outliers	2
mean (n)	90.440
st.dev. (n)	0.7541
R(calc.)	2.112
st.dev.(EN13016-1:18)	0.5643
R(EN13016-1:18)	1.580



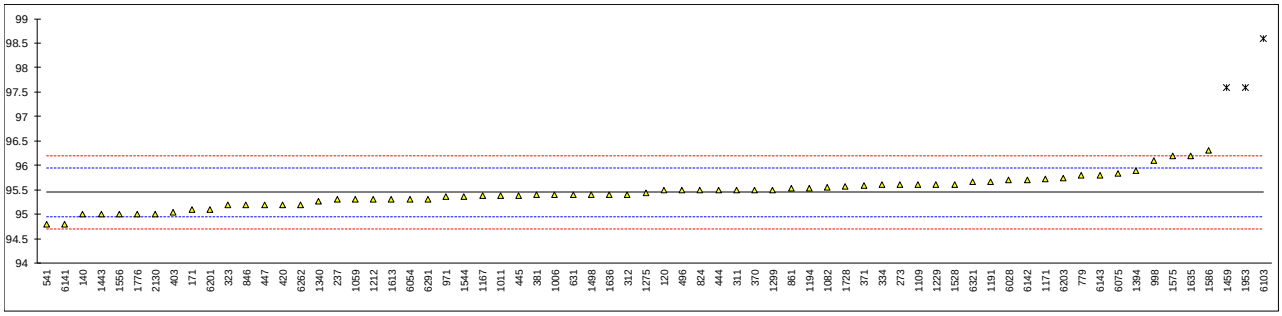


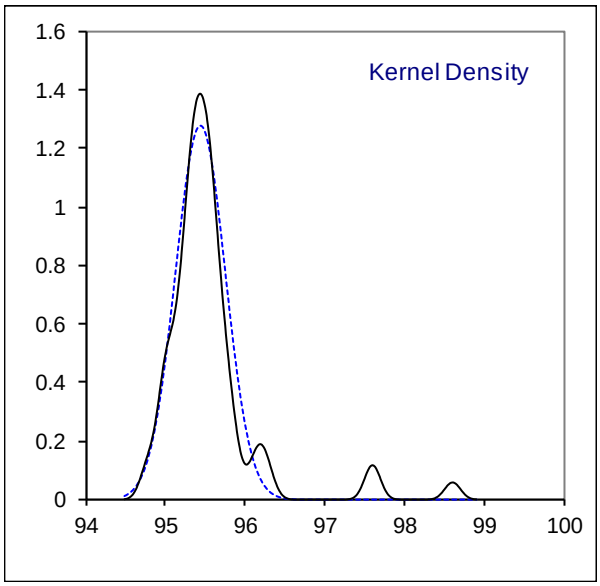
Determination of RON on sample #20187;

lab	method	value	mark	z(targ)	remarks
120	D2699	95.5	C	0.20	first reported 90.8
140	D2699	95.0		-1.80	
159		-----		-----	
171	D2699	95.1		-1.40	
237	D2699	95.3		-0.60	
273	D2699	95.6		0.60	
311	ISO5164	95.5		0.20	
312	ISO5164	95.41		-0.16	
323	ISO5164	95.2		-1.00	
334	ISO5164	95.6		0.60	
370	ISO5164	95.5		0.20	
371	ISO5164	95.59		0.56	
381	ISO5164	95.4		-0.20	
399		-----		-----	
403	D2699	95.05		-1.60	
420	ISO5164	95.2		-1.00	
444	D2699	95.5		0.20	
445	ISO5164	95.39		-0.24	
447	D2699	95.2		-1.00	
496	ISO5164	95.5		0.20	
541	D2699	94.8		-2.60	
551		-----		-----	
631	D2699	95.40		-0.20	
779	GOST R52947	95.8		1.40	
782		-----		-----	
824	D2699	95.5		0.20	
846	GB/T5487	95.2		-1.00	
861	GB/T5487	95.53		0.32	
962		-----		-----	
963		-----		-----	
971	D2699	95.37		-0.32	
998	GOST8226	96.1		2.60	
1006	D2699	95.4		-0.20	
1011	ISO5164	95.39		-0.24	
1059	ISO5164	95.3		-0.60	
1082	ISO5164	95.55		0.40	
1109	D2699	95.6		0.60	
1143		-----		-----	
1167	ISO5164	95.38		-0.28	
1171	D2699Mod.	95.72		1.08	
1191	ISO5164	95.67		0.88	
1194	D2699	95.53		0.32	
1212	ISO5164	95.3		-0.60	
1229	ISO5164	95.6		0.60	
1275	IP237	95.43		-0.08	
1299	D2699	95.5		0.20	
1340	ISO5164	95.27		-0.72	
1394		95.9		1.80	
1443	ISO5164	95.0		-1.80	
1459	In house	97.6	R(0.01)	8.60	
1498	D2699	95.4		-0.20	
1528	D2699	95.6		0.60	
1544	ISO5164	95.37		-0.32	
1556	ISO5164	95.0		-1.80	
1575	In house	96.2		3.00	
1586	D2699	96.3		3.40	
1613	D2699	95.3		-0.60	
1635	ISO5164	96.2		3.00	
1636	ISO5164	95.4		-0.20	
1720		-----		-----	
1728	D2699	95.57		0.48	
1776	ISO5164	95.0		-1.80	
1953		97.6	R(0.01)	8.60	
1967		-----		-----	
2130	ISO5164	95.0		-1.80	
6028	ISO5164	95.7		1.00	
6054	D2699	95.3		-0.60	
6075	ISO5164	95.84		1.56	
6103	In house	98.6	R(0.01)	12.60	
6141	In house	94.8		-2.60	
6142	ISO5164	95.7		1.00	
6143	D2699	95.8		1.40	
6201	ISO5164	95.10		-1.40	
6203	ISO5164	95.75		1.20	
6238		-----		-----	

lab	method	value	mark	z(targ)	remarks
6262	D2699	95.2		-1.00	
6291	ISO5164	95.3		-0.60	
6321	D2699	95.66		0.84	

normality	OK
n	65
outliers	3
mean (n)	95.45
st.dev. (n)	0.312
R(calc.)	0.87
st.dev.(ISO5164:14)	0.250
R(ISO5164:14)	0.7



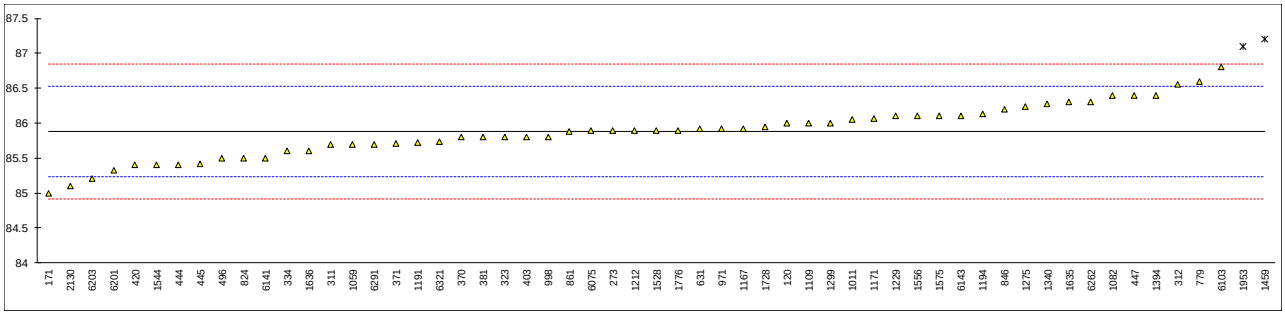


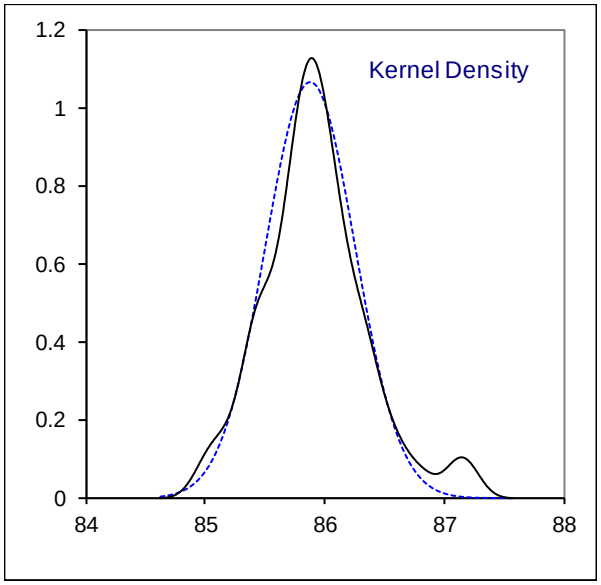
Determination of MON on sample #20187;

lab	method	value	mark	z(targ)	remarks
120	D2700	86.0		0.37	
140		-----		-----	
159		-----		-----	
171	D2700	85.0		-2.74	
237		-----		-----	
273	D2700	85.9		0.06	
311	ISO5163	85.7		-0.56	
312	ISO5163	86.56		2.11	
323	ISO5163	85.8		-0.25	
334	ISO5163	85.6		-0.87	
370	ISO5163	85.8		-0.25	
371	ISO5163	85.71		-0.53	
381	ISO5163	85.8		-0.25	
399		-----		-----	
403	D2700	85.8		-0.25	
420	ISO5163	85.4		-1.49	
444	D2700	85.41		-1.46	
445	ISO5163	85.42		-1.43	
447	D2700	86.4		1.62	
496	ISO5163	85.5		-1.18	
541		-----		-----	
551		-----		-----	
631	D2700	85.92		0.12	
779	GOST R52947	86.6		2.24	
782		-----		-----	
824	D2700	85.5		-1.18	
846	GB/T503	86.2		0.99	
861	GB/T503	85.88		0.00	
962		-----		-----	
963		-----		-----	
971	D2700	85.92		0.12	
998	GOST511	85.8		-0.25	
1006		-----		-----	
1011	ISO5163	86.05		0.53	
1059	ISO5163	85.7		-0.56	
1082	ISO5163	86.39		1.59	
1109	D2700	86.0		0.37	
1143		-----		-----	
1167	ISO5163	85.92		0.12	
1171	D2700Mod.	86.07		0.59	
1191	ISO5163	85.72		-0.50	
1194	D2700	86.13		0.78	
1212	ISO5163	85.9		0.06	
1229	ISO5163	86.1		0.68	
1275	IP236	86.24		1.12	
1299	D2700	86.0		0.37	
1340	ISO5163	86.28		1.24	
1394		86.4		1.62	
1443		-----		-----	
1459	In house	87.2	DG(0.05)	4.11	
1498		-----		-----	
1528	D2700	85.9		0.06	
1544	ISO5163	85.40		-1.49	
1556	ISO5163	86.1		0.68	
1575	In house	86.1		0.68	
1586		-----		-----	
1613	D2700	--		-----	
1635	ISO5163	86.3		1.31	
1636	ISO5163	85.6		-0.87	
1720		-----		-----	
1728	D2700	85.94		0.19	
1776	ISO5163	85.9		0.06	
1953		87.1	DG(0.05)	3.79	
1967		-----		-----	
2130	ISO5163	85.1		-2.43	
6028		-----		-----	
6054		-----		-----	
6075	ISO5163	85.89		0.03	
6103	In house	86.8		2.86	
6141	In house	85.5		-1.18	
6142		-----		-----	
6143	D2700	86.1		0.68	
6201	ISO5163	85.33		-1.71	
6203	ISO5163	85.20		-2.12	
6238		-----		-----	

lab	method	value	mark	z(targ)	remarks
6262	D2700	86.3		1.31	
6291	ISO5163	85.7		-0.56	
6321	D2700	85.74		-0.44	

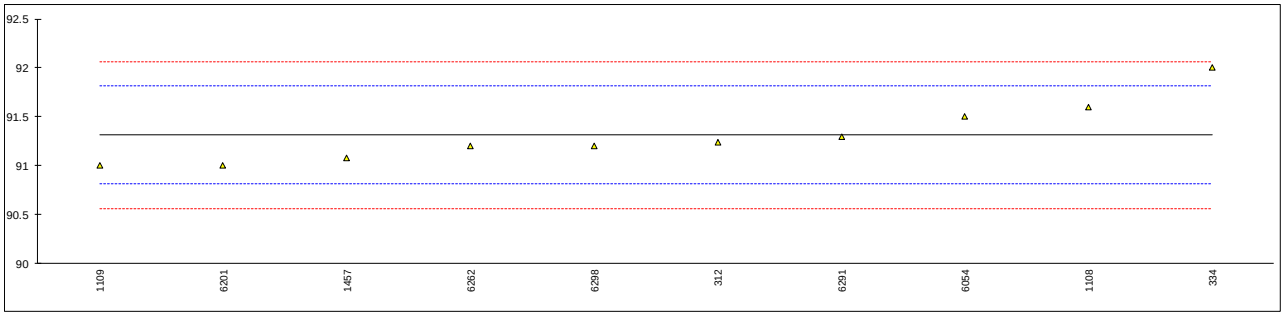
normality	OK
n	55
outliers	2
mean (n)	85.88
st.dev. (n)	0.375
R(calc.)	1.05
st.dev.(ISO5163:14)	0.321
R(ISO5163:14)	0.9

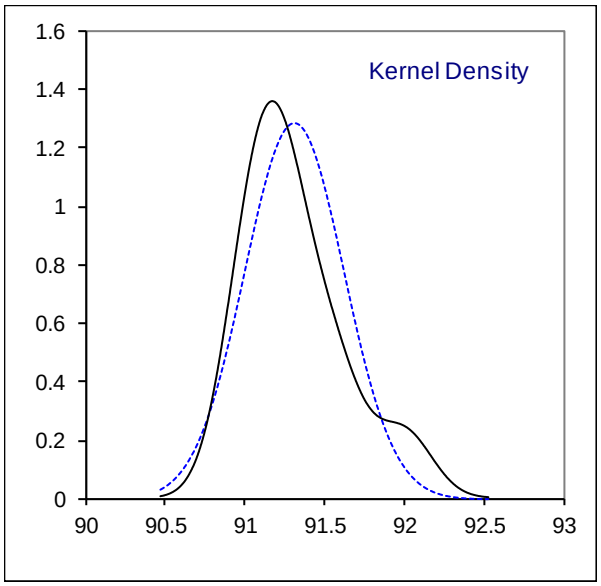




Determination of RON on sample #20188;

lab	method	value	mark	z(targ)	remarks
312	ISO5164	91.24		-0.29	
334	ISO5164	92.0	C	2.75	first reported 81.3
1108	ISO5164	91.6		1.15	
1109	D2699	91.0		-1.25	
1229		-----		-----	
1277		-----		-----	
1457	D2699	91.08		-0.93	
6054	D2699	91.5		0.75	
6201		91.0		-1.25	
6238		-----		-----	
6262	D2699	91.2		-0.45	
6291	ISO5164	91.3		-0.05	
6298	D2699	91.2		-0.45	
	normality	not OK			
	n	10			
	outliers	0			
	mean (n)	91.31			
	st.dev. (n)	0.311			
	R(calc.)	0.87			
	st.dev.(ISO5164:14)	0.250			
	R(ISO5164:14)	0.7			

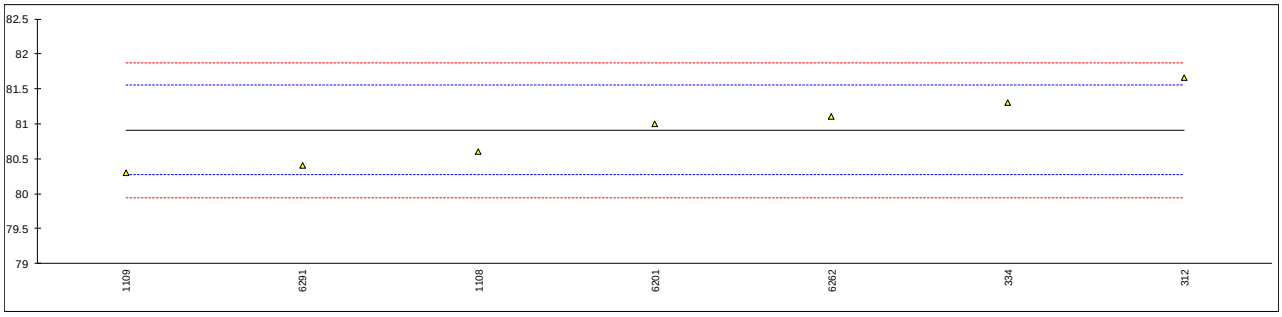


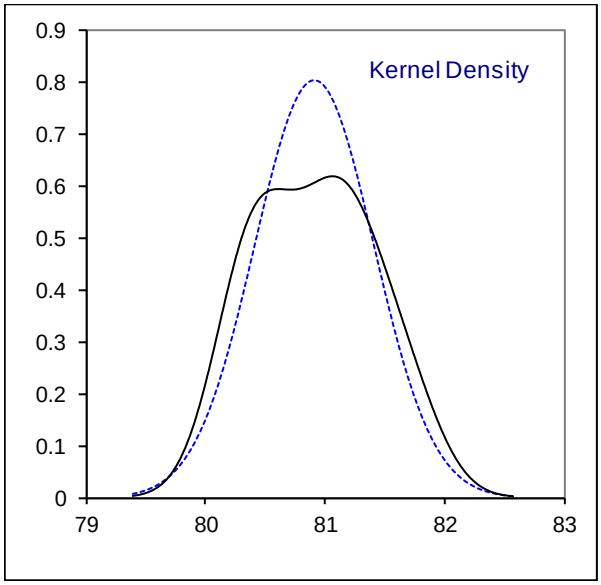


Determination of MON on sample #20188;

lab	method	value	mark	z(targ)	remarks
312	ISO5163	81.66		2.34	
334	ISO5163	81.3	C	1.22	first reported 92.0
1108	ISO5163	80.6		-0.96	
1109	D2700	80.3		-1.89	
1229		-----		-----	
1277		-----		-----	
1457		-----		-----	
6054		-----		-----	
6201		81.0		0.28	
6238		-----		-----	
6262	D2700	81.1		0.60	
6291	ISO5163	80.4		-1.58	
6298		-----		-----	

normality	unknown
n	7
outliers	0
mean (n)	80.91
st.dev. (n)	0.498
R(calc.)	1.39
st.dev.(ISO5163:14)	0.321
R(ISO5163:14)	0.9





APPENDIX 2: Determination of Other Oxygenates on sample #20185; results in %V/V

lab	MeOH	i-PrOH	i-BuOH	t-BuOH	DIPE	TAME	Oxygenates	Remarks
120	-----	-----	-----	-----	-----	-----	-----	
140	-----	-----	-----	-----	-----	-----	-----	
159	-----	-----	-----	-----	-----	-----	-----	
171	0	0	0	0	0	0	0	
225	-----	-----	-----	-----	-----	-----	-----	
237	-----	-----	-----	-----	-----	-----	-----	
238	-----	-----	-----	-----	-----	-----	-----	
273	-----	-----	-----	-----	-----	-----	-----	
311	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	
312	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	
323	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
333	<0.80	<0.80	<0.80	<0.80	-----	-----	-----	
334	<0.01	<0.01	<0.01	0.03	<0.01	0.01	9.48	
335	-----	-----	-----	-----	-----	-----	-----	
336	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	9.6	
337	-----	-----	-----	-----	-----	-----	-----	
338	-----	-----	-----	-----	-----	-----	-----	
343	<0.2	<0.2	<0.2	<0.2	-----	<0.2	<0.2	
344	-----	-----	-----	-----	-----	-----	-----	
352	-----	-----	-----	-----	-----	-----	-----	
353	-----	-----	-----	-----	-----	-----	-----	
369	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	
370	-----	-----	-----	-----	-----	-----	-----	
371	-----	-----	-----	-----	-----	-----	-----	
381	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8	
391	-----	-----	-----	-----	-----	-----	-----	
399	-----	-----	-----	-----	-----	-----	-----	
403	-----	-----	-----	-----	-----	0.02	-----	
404	-----	-----	-----	-----	-----	-----	-----	
420	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	
431	-----	-----	-----	-----	-----	-----	-----	
440	-----	-----	-----	-----	-----	-----	-----	
444	-----	-----	-----	-----	-----	-----	-----	
445	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	
447	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
463	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2	-----	
485	-----	-----	-----	-----	-----	-----	-----	
496	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
631	-----	-----	-----	-----	-----	-----	-----	
633	-----	-----	-----	-----	-----	-----	-----	
704	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
732	-----	-----	-----	-----	-----	-----	-----	
734	-----	-----	-----	-----	-----	-----	-----	
752	-----	-----	-----	-----	-----	-----	-----	
759	-----	-----	-----	-----	-----	-----	-----	
779	-----	-----	-----	-----	-----	-----	-----	
781	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	
782	-----	-----	-----	-----	-----	-----	-----	
785	-----	-----	-----	-----	-----	-----	-----	
798	-----	-----	-----	-----	-----	-----	-----	
824	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
846	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
861	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
875	-----	-----	-----	-----	-----	-----	-----	
902	-----	-----	-----	-----	-----	-----	-----	
912	-----	-----	-----	-----	-----	-----	-----	
913	-----	-----	-----	-----	-----	-----	-----	
914	-----	-----	-----	-----	-----	-----	-----	
963	-----	-----	-----	-----	-----	-----	-----	
971	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
994	-----	-----	-----	-----	-----	-----	-----	
998	-----	-----	-----	-----	-----	-----	-----	
1006	ND	-----	-----	-----	ND	0.03	-----	
1011	-----	-----	-----	-----	-----	-----	-----	
1033	-----	-----	-----	-----	-----	-----	-----	
1059	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	
1082	-----	-----	-----	-----	-----	-----	-----	
1097	-----	-----	-----	-----	-----	-----	-----	
1108	0.00	0.05	0.00	0.00	0.00	0.02	0.00	
1109	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
1126	-----	-----	-----	-----	-----	-----	-----	
1134	0.00	0.05	0.00	0.00	0.00	0.03	0.00	
1135	<0.1	<0.1	<0.1	<0.1	<0.1	0.02	<0.1	
1140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1143	-----	-----	-----	-----	-----	-----	-----	
1167	<0.2	0.12	<0.2	0.02	-----	-----	<0.2	

lab	MeOH	i-PrOH	i-BuOH	t-BuOH	DIPE	TAME	Oxygenates	Remarks
1171	0.00	-----	-----	-----	0.00	0.80	-----	
1191	4.76	0	0	0	-----	0.02	-----	
1194	0	-----	-----	0	0.66	0.93	-----	
1205	-----	-----	-----	-----	-----	-----	-----	
1212	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	
1227	-----	-----	-----	-----	-----	-----	-----	
1229	0	0	0	0	0	0.02	-----	
1237	-----	-----	-----	-----	-----	-----	-----	
1266	0.0	-----	-----	-----	-----	-----	-----	
1275	-----	-----	-----	-----	0.01	-----	-----	
1299	<0.01	<0.01	<0.01	0.06	-----	-----	<0.01	
1340	-----	-----	-----	-----	-----	-----	-----	
1394	0.0	0.0	0.0	0.0	-----	-----	-----	
1397	<0,2	<0,2	<0,2	<0,2	-----	-----	-----	
1398	-----	-----	-----	-----	-----	-----	-----	
1402	0.06	0.00	0.00	0.03	0.00	0.01	0.01	
1433	-----	-----	-----	-----	-----	-----	-----	
1441	<0.2	-----	-----	-----	<0.2	<0.2	-----	
1457	0	0	0	0.04	0	0.01	0	
1459	< 0.5	-----	-----	-----	-----	-----	-----	
1498	-----	-----	-----	-----	-----	-----	-----	
1528	-----	-----	-----	-----	-----	0.02	0.03	
1544	0.00	0.00	0.00	0.00	0.00	0.02	0.00	
1556	0	0	0.01	0	0	0	0	
1569	<0.8	<0.8	<0.8	<0.8	-----	-----	-----	
1575	-----	-----	-----	-----	-----	-----	-----	
1586	0.0	0.09	0.0	0.0	0.0	0.0	0.0	
1613	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1631	-----	-----	-----	-----	-----	-----	-----	
1635	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	Not det.	
1636	-----	-----	-----	-----	-----	-----	-----	
1667	-----	-----	-----	-----	-----	-----	-----	
1720	-----	-----	-----	-----	-----	-----	-----	
1724	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8	-----	
1728	-----	-----	-----	-----	-----	-----	-----	
1740	-----	-----	-----	-----	-----	-----	-----	
1742	-----	-----	-----	-----	-----	-----	-----	
1776	-----	-----	-----	-----	-----	-----	-----	
1810	-----	-----	-----	-----	-----	-----	-----	
1811	-----	-----	-----	-----	-----	-----	9.51	
1833	-----	-----	-----	-----	-----	-----	-----	
1864	0.25	<0.1	<0.1	<0.1	0.62	0.76	-----	
1911	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2	
1953	0	-----	-----	-----	-----	-----	-----	
1967	-----	-----	-----	-----	-----	-----	-----	
1971	<0,2	<0,2	<0,2	<0,2	-----	-----	<0,2	
1984	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	2.475	
1995	0.12 C	-----	-----	-----	0	2.22 C	0.02	Fr. 0.04 and 0 respectively
2129	0	0	0	0	0	0	0	
2130	-----	-----	-----	-----	-----	-----	-----	
6005	-----	-----	-----	-----	-----	-----	-----	
6012	-----	-----	-----	-----	-----	-----	-----	
6018	7.42	-----	0.02	1.53	-----	-----	3.56	
6028	-----	-----	-----	-----	-----	-----	-----	
6034	-----	-----	-----	-----	-----	-----	-----	
6047	-----	-----	-----	-----	-----	<1.0	-----	
6054	-----	-----	-----	-----	-----	-----	-----	
6075	-----	-----	-----	-----	-----	-----	-----	
6103	0	0	0	0	0	0	0	
6141	-----	-----	-----	-----	-----	-----	-----	
6142	-----	-----	-----	-----	-----	-----	9.62	
6143	-----	-----	-----	-----	-----	-----	-----	
6170	<0,2	<0,2	<0,2	<0,2	-----	-----	<0,2	
6184	-----	-----	-----	-----	-----	-----	9.36	
6192	-----	-----	-----	-----	-----	-----	-----	
6201	<0,8	<0,8	<0,8	0.05	<0,8	<0,8	<0,8	
6203	0	0	0	0.03	0	0.02	14.21	
6238	-----	-----	-----	-----	-----	-----	-----	
6249	-----	-----	-----	-----	-----	-----	-----	
6258	0.00	0.00	0.00	0.00	-----	0.00	0.00	
6262	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	
6291	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	
6298	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	9.18	
6317	-----	-----	-----	-----	-----	-----	-----	
6321	-----	-----	-----	-----	-----	-----	-----	
6332	-----	-----	-----	-----	-----	-----	-----	
6344	-----	-----	-----	-----	-----	-----	-----	
6346	-----	-----	-----	-----	-----	-----	-----	

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	-----	-----	-----	-----	-----	-----	-----	-----
140	-1.57	-0.67	-0.48	-0.17	0.74	-----	-----	-----
159	-----	-----	-----	-----	-----	-----	-----	-----
171	-1.09	-0.24	-0.34	-0.37	-0.25	0.63	0.48	0.81
225	3.08	1.28	0.91	1.53	0.62	-0.51	0.35	-2.64
237	2.48	2.00	0.91	0.56	1.01	-1.54	-0.92	-5.87
238	-----	-----	-----	-----	-----	-----	-----	-----
273	0.63	-0.09	0.01	-0.95	-0.13	-----	-----	-----
311	-0.80	-0.89	-0.62	-0.47	0.19	0.94	0.61	1.46
312	-0.50	-0.09	-0.06	-0.03	-0.17	0.01	0.10	-0.05
323	-0.38	-1.11	-0.90	-0.13	0.34	1.05	0.74	-0.05
333	-1.27	-0.38	-0.34	-0.56	0.11	-----	-----	-----
334	0.16	0.05	0.49	-0.17	0.70	0.01	-0.79	0.81
335	1.23	0.48	0.70	0.02	-0.17	-0.51	-0.41	-0.48
336	-1.03	0.20	0.42	-0.22	0.03	-0.40	-0.15	0.38
337	-----	-----	-----	-----	-----	-----	-----	-----
338	1.17	1.79	-0.27	0.07	1.76	-0.40	-0.41	-0.70
343	1.59	-1.25	-0.97	-0.71	1.41	0.84	0.61	0.81
344	1.65	1.72	2.17	1.92	-0.88	-2.37	-2.45	-3.07
352	-----	-----	-----	-----	-----	-----	-----	-----
353	-0.26	-0.17	-0.41	-0.27	-0.64	-1.86	-2.06	-4.58
369	0.34	2.08	0.63	0.65	-0.09	-1.44	0.74	-0.27
370	-0.02	-0.53	-0.97	0.21	-0.13	0.84	0.48	0.59
371	-0.26	0.27	-1.25	1.04	0.11	0.32	1.25	-1.34
381	1.05	1.57	1.19	1.48	0.07	-1.13	-1.30	-1.34
391	0.81	-0.38	-0.55	-1.05	-0.09	0.84	0.48	1.67
399	-----	-----	-----	-----	-----	-----	-----	-----
403	0.04	-0.09	-0.27	-0.13	-0.25	0.43	0.10	-0.27
404	-0.68	-1.03	-1.04	-0.61	-0.17	1.15	0.86	0.81
420	-1.03	-2.23	-4.50	-0.56	0.54	2.71	1.88	-1.13
431	1.85	0.12	1.26	3.28	0.54	-0.72	-1.94	-5.44
440	-----	-----	-----	-----	-----	-----	-----	-----
444	1.23	-1.11	-2.09	-0.81	0.54	1.77	2.14	0.16
445	0.22	-0.60	-0.83	-0.71	-0.25	0.84	0.99	0.81
447	-0.50	-0.82	-0.62	-0.32	0.78	0.94	0.23	0.16
463	0.34	-0.60	0.08	-0.22	1.05	0.53	0.61	0.38
485	1.05	-0.20	0.14	-0.05	1.07	0.06	-0.28	-0.16
496	1.05	0.48	-0.13	-0.22	-0.17	0.01	0.35	-0.27
631	0.69	0.92	4.40	4.94	1.41	-3.62	-5.37	-8.02
633	-----	-----	-----	-----	-----	-----	-----	-----
704	-0.80	-0.67	-0.34	-0.03	0.03	-1.23	-1.05	-0.05
732	-0.20	-0.17	0.21	0.07	0.42	0.01	-0.28	0.59
734	-0.72	0.80	1.06	0.24	0.45	-0.92	-1.17	-0.59
752	1.35	1.79	1.75	0.46	1.29	-2.58	-0.28	-0.48
759	0.99	0.92	0.91	1.53	-0.56	0.53	-0.28	-0.48
779	0.10	-0.24	-0.27	0.07	-0.37	0.01	0.35	-0.48
781	-0.80	-0.17	-0.48	-0.47	0.66	0.43	0.86	0.59
782	-----	-----	-----	-----	-----	-----	-----	-----
785	-----	-----	-----	-----	-----	-----	-----	-----
798	-----	-----	-----	-----	-----	-----	-----	-----
824	-0.68	-0.17	0.14	0.12	-1.79	0.32	-0.15	-0.27
846	1.47	-0.17	-0.06	-0.03	0.46	-----	-----	-----
861	0.93	-0.02	0.08	-0.37	0.07	0.01	-0.03	1.24
875	-----	-----	-----	-----	-----	-----	-----	-----
902	-0.14	0.20	0.14	-0.13	-0.13	-0.20	0.10	0.16
912	-----	-----	-----	-----	-----	-----	-----	-----
913	-----	-----	-----	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----	-----	-----	-----
963	-----	-----	-----	-----	-----	-----	-----	-----
971	0.34	0.41	0.14	-0.13	-0.13	-0.30	-0.03	-0.05
994	0.69	0.56	-0.13	0.07	0.23	-1.03	-0.28	-0.48
998	0.99	0.92	0.91	0.31	0.42	-1.54	-0.28	-0.48
1006	0.51	0.77	0.56	0.02	-0.72	-----	-----	-----
1011	-0.32	-0.09	0.28	0.02	0.74	-0.09	-0.28	-0.27
1033	-----	-----	-----	-----	-----	-----	-----	-----
1059	-0.68	-1.25	-0.41	-0.17	-0.13	1.05	0.48	-0.27
1082	-1.27	-0.02	-0.06	-0.17	-0.21	0.22	-0.15	-0.05
1097	-0.20	-0.24	0.28	-0.08	1.09	0.11	-0.41	-0.05
1108	-0.14	-0.46	-0.34	-0.27	0.19	0.63	0.35	0.16
1109	-1.33	-0.17	-0.27	-0.22	0.07	0.43	0.35	0.81
1126	-----	-----	-----	-----	-----	-----	-----	-----
1134	0.45	0.20	0.14	-0.17	0.03	0.01	0.10	0.16
1135	-1.03	-0.89	-0.20	-0.32	0.11	0.63	0.10	1.46
1140	-0.74	1.21	1.82	2.60	0.15	-0.40	-0.28	-1.13
1143	-0.32	-0.96	-0.20	-0.27	0.70	1.05	-0.03	0.59
1167	0.93	-0.38	-0.55	-0.76	-1.39	-0.09	-0.15	0.81

lab	IBP	10% eva	50% eva	90% eva	FBP	E70%V/V	E100%V/V	E150%V/V
1171	0.30	0.01	1.23	0.99	2.90	-0.37	-0.75	-1.82
1191	-0.68	-0.24	-0.55	-0.52	-0.37	0.74	0.74	0.38
1194	-----	-----	-----	-----	-----	-----	-----	-----
1205	-0.32	-0.53	-0.20	0.07	-0.09	0.63	-0.03	-0.27
1212	-1.03	-0.60	-0.62	-0.56	0.46	0.84	0.74	0.81
1227	0.69	0.85	0.28	-0.37	-0.13	-0.51	0.41	1.07
1229	-1.39	-0.75	-0.48	-0.03	-0.05	0.94	0.61	-0.05
1237	1.11	-1.03	-0.69	-0.27	0.07	0.74	0.61	0.16
1266	-0.56	1.50	0.84	-0.42	2.24	-1.34	0.48	-2.21
1275	-0.62	1.21	1.54	2.02	-2.34	0.43	0.74	0.16
1299	0.34	-0.46	-0.27	0.60	0.42	0.32	0.10	-1.13
1340	-1.47	-1.71	-1.27	-0.31	0.10	-1.51	-2.15	2.75
1394	-0.20	0.70	0.77	0.02	-0.13	-0.61	-0.54	0.16
1397	0.45	-0.38	0.01	-0.22	0.58	0.63	-0.15	-0.48
1398	-----	-----	-----	-----	-----	-0.72	-0.79	-0.91
1402	-1.51	-0.46	0.56	-0.22	0.34	0.01	-0.41	0.59
1433	0.22	0.99	2.38	3.43	0.74	-2.17	-3.21	-5.65
1441	1.88	1.72	0.42	-0.17	-0.05	-----	-----	-----
1457	-1.69	-0.75	-0.13	-0.22	-0.92	0.53	0.23	0.38
1459	-1.03	-0.46	-0.13	-0.17	-1.08	0.43	-0.15	-0.05
1498	0.57	-0.24	-0.34	-0.13	-1.12	0.53	-0.28	-0.48
1528	0.39	0.12	-0.20	-0.27	-0.48	-2.17	-2.45	-0.27
1544	-1.03	-0.02	-0.06	-0.15	-0.64	0.37	0.04	-0.16
1556	-1.63	-1.76	-0.90	-0.32	0.15	1.36	0.86	0.16
1569	-1.69	-0.46	-0.34	0.02	-0.21	0.43	0.61	-0.27
1575	-----	-----	-----	-----	-----	-----	-----	-----
1586	-0.74	1.14	2.52	1.92	0.54	-2.58	-3.08	-3.50
1613	-0.02	-0.02	0.21	-0.17	0.50	-1.34	-1.55	-0.27
1631	-----	-----	-----	-----	-----	-----	-----	-----
1635	1.11	0.63	0.21	-0.13	0.97	-0.51	-0.15	-0.05
1636	-0.44	0.27	-1.32	-0.27	-1.27	0.53	0.99	0.16
1667	0.63	-0.46	-0.34	0.12	-0.48	0.43	0.48	-0.05
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	0.16	-0.46	-0.90	-0.66	-0.96	0.74	1.12	0.59
1728	0.10	-0.53	-0.13	0.31	-0.17	0.01	-0.28	-0.91
1740	-0.44	-0.67	-0.90	-0.52	0.03	0.94	0.86	0.38
1742	0.34	-1.11	-1.04	-0.37	0.42	1.15	0.99	0.38
1776	-0.62	-0.09	-0.55	-0.37	-0.84	0.43	0.99	0.16
1810	-0.32	1.14	-1.18	0.07	-0.13	0.22	0.48	-0.70
1811	-0.02	0.77	0.21	-0.17	0.19	0.94	1.37	1.89
1833	-1.75	0.48	0.21	-0.42	0.30	-0.51	-0.15	0.16
1864	1.05	-0.67	-0.83	0.02	-0.84	0.84	0.61	-0.48
1911	0.54	-0.67	-0.69	-0.17	-0.41	0.89	0.74	-0.05
1953	1.11	-0.89	-0.83	-0.08	-1.39	1.05	2.26	-1.99
1967	-----	-----	-----	-----	-----	-----	-----	-----
1971	-0.38	-1.11	-0.34	-0.42	0.11	0.01	-1.94	0.16
1984	-1.72	-0.02	-0.13	-0.27	0.48	0.32	0.10	0.27
1995	0.39	0.56	0.91	0.41	-1.94	-1.06	-1.33	-0.48
2129	-0.14	0.34	-0.13	-0.42	-1.31	0.32	0.61	0.38
2130	-0.68	-0.38	-0.48	-0.13	0.74	0.74	0.61	-0.27
6005	-1.15	-0.38	-0.62	-0.61	-1.47	0.53	0.74	0.16
6012	1.47	0.05	-0.90	-0.03	0.03	1.05	0.35	0.59
6018	-0.80	-0.38	-0.34	-0.27	-0.17	0.53	0.35	-0.05
6028	-0.56	0.63	2.38	1.63	0.62	0.01	-1.17	-0.05
6034	0.22	-1.90	-3.21	-1.29	-0.92	2.91	3.54	1.46
6047	1.65	-0.09	0.01	0.21	-0.29	0.11	-0.15	-0.48
6054	0.10	1.28	2.03	3.09	-1.31	-1.96	-2.45	-5.22
6075	-0.68	-0.09	0.28	-0.27	0.26	0.22	-0.28	0.16
6103	0.16	1.14	3.08	3.87	0.11	-2.79	-3.97	-5.87
6141	1.88	4.18	3.01	4.94	3.77	-----	-----	-----
6142	-0.17	-0.75	-0.73	-0.64	-0.25	0.94	1.18	0.27
6143	-----	-----	-----	-----	-----	-----	-----	-----
6170	1.59	0.92	0.91	1.77	0.23	-2.06	-1.55	-2.64
6184	0.72	1.53	-0.83	3.28	0.58	0.32	-0.15	0.06
6192	2.84	2.22	2.66	4.11	-0.25	-3.20	-3.08	-6.30
6201	-1.21	-0.75	-0.27	-0.08	0.23	0.43	0.48	-0.48
6203	0.10	1.06	1.26	1.14	0.34	-0.30	-0.15	-0.27
6238	-----	-----	-----	-----	-----	-----	-----	-----
6249	-----	-----	-----	-----	-----	-----	-----	-----
6258	-0.32	0.85	-0.83	-0.52	-0.17	-0.82	0.86	0.38
6262	-1.57	-0.60	-0.27	-0.47	0.26	0.43	-0.28	1.24
6291	-1.33	-1.47	-0.97	-0.66	-0.37	1.67	0.86	1.67
6298	0.45	0.27	0.01	-0.27	-0.45	0.11	-0.15	0.59
6317	-----	-----	-----	-----	-----	-----	-----	-----
6321	-1.09	-0.67	-0.90	-0.71	0.19	1.36	1.12	0.59
6332	-----	-----	-----	-----	-----	-----	-----	-----
6344	-0.26	-0.53	-0.83	-0.32	-0.52	0.94	1.12	0.16
6346	-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX 4 Analytical Details

lab	Lotnummer fluorescent indicator	Mark of distillation device	type of distillation device
120	-----		
140	-----	PAC	Opti Dist
159	-----		
171	-----		
225	-----		
237	-----		
238	-----		
273	-----		
311	-----		
312	-----	PAC	Optidist
323	3000000970		
333	-----	PAC	OPTIDIST
334	-----	PAC - ISL	OPTIDIST v
335	-----		
336	-----		
337	-----		
338	-----	PAC	AUTOMATED
343	-----		
344	-----		
352	-----		
353	-----	Manufacturer: Hertzog by PAC	Automatic type. model is the Optidist
369	3000000985		
370	3000000957	TANAKA, JAPAN	AD-6
371	-----		
381	-----		
391	-----		
399	-----		
403	-----	HERZOG BY PAC	OPTIDIST
404	-----		
420	-----		
431	-----	HERZOG	HDA 627/628
440	-----		
444	-----	PAC	OptiDist
445	3000000969	Herzog	Optidist (V 2.36)
447	N1103	PAC	Optidist
463	300000 0870	Herzog	HDA627
485	-----	Herzog	HDA 627
496	-----	PAC / Herzog	OptiDist
631	3000000934		
633	-----		
704	-----		
732	-----		
734	-----	Walter Herzog GmbH	OptiDist
752	-----		
759	-----		
779	-----		
781	-----	Walter Herzog	OptiDist
782	-----		
785	-----		
798	-----		
824	-----	PAC	OPTIDIST
846	-----		
861	-----	PAC	Optidist
875	-----		
902	-----	PAC	OPTIDIST
912	-----		
913	-----		
914	-----		
963	-----		
971	3000000852		
994	-----		
998	-----		
1006	-----		
1011	-----	PAC	Optidist
1033	-----		
1059	3000000933	Herzog by PAC	OptiDist
1082	-----	PAC	ISL Optidist
1097	3000000943	ISL	AD 86 5G
1108	-----		
1109	3000000941	PAC Walter Herzog	OptiDist
1126	-----		
1134	-----	Herzog by PAC	OptiDist
1135	-----	Optidist - PAC Optidist: Optimus	PAC Optidist
1140	-----	PAC	PAC Optidist
1143	-----	PAC Walter Herzog	HDA 627
1167	-----	TANAKA AD-6 ISO 3405	

lab	Lotnummer fluorescent indicator	Mark of distillation device	type of distillation device
1171	-----		
1191	-----	PAC	Optidist
1194	-----		
1205	-----		
1212	N1117	Herzog	Optidist
1227	-----	ORBIS BV	STAR DIST
1229	-----		
1237	-----	PAC	OPTIDIST
1266	-----	ISO 3405 / TANAKA	TANAKA AD7
1275	3000000984	Herzog by PAC	Optidist
1299	-----		
1340	3000000892	PAC, ISL	OptiDist
1394	-----	OptiDist	Herzog, Germany
1397	3000000894		
1398	-----	Walter Herzog GMBH	PAC OptiDist
1402	-----	PAC/ISL	ISL AC86 5G
1433	-----	ISO3405 - PAC OPTIDIST	ISO3405 - PAC OPTIDIST
1441	-----	PAC	OptiDist
1457	3000000925	PAC, Optidist	
1459	-----	ISL/PAC	Optidist
1498	-----		
1528	3000000937		
1544	3000000927	HERZOG BY PAC	OptiDist tm/PAC
1556	-----	PAC	OptiDist
1569	-----	HERZOG. iso 3405	MP 626 HDA 627/628 Optidist.
1575	-----		
1586	3000000988		
1613	--	ASTM D86 manufacturer name : PAC	OptiDist Optimal Automated distillation
1631	-----		
1635	-----	Herzog	Optidist
1636	3000000935	Pac	Optidist
1667	-----	Herzog Pac	OptiDist
1720	-----		
1724	-----		
1728	-----		
1740	-----	PAC	Optidist
1742	-----	PAC	Optidist
1776	-----		
1810	-----	ISL Pac	OptiDist
1811	-----		
1833	-----	PAC	Optidist
1864	Lot No:3000000870	HERZOG	OPTIDIST
1911	-----	PAC Walter Herzog GmbH	OptiDist 0101-004-001
1953	-----		
1967	-----		
1971	-----	Walter Herzog/ISL OptiDist	
1984	-----		
1995	-----	ISL/PAC	ISL/PAC
2129	3000000881	Herzog by Pac	Optidist
2130	H1366		
6005	-----	PAC	PAC (OPTIDIST)
6012	-----		
6018	-----		
6028	-----		
6034	-----		
6047	-----	HERZOG	OptiDist
6054	-----	PAC	OptiDist
6075	3000000955		
6103	-----	HERZOG BY PAC	OPTIDIST
6141	-----		
6142	-----		
6143	-----		
6170	-----		
6184	-----	Anton Paar ADU 4+	ADU 4+
6192	-----		
6201	-----	PAC	
6203	-----	Herzog/PAC	Optidist
6238	-----		
6249	-----		
6258	P1002	ISL PAC	analytical instrumentation provider
6262	-----		
6291	-----		
6298	-----	NORMALAB	NDI 450
6317	-----		
6321	-----	PAC	OptiDist
6332	-----		
6344	-----		
6346	-----		

APPENDIX 5

Number of participants per country

1 lab in AFGHANISTAN
1 lab in ARGENTINA
1 lab in AUSTRALIA
1 lab in AUSTRIA
1 lab in AZERBAIJAN
4 labs in BELGIUM
4 labs in BOSNIA and HERZEGOVINA
1 lab in BRAZIL
4 labs in BULGARIA
1 lab in CHILE
3 labs in CHINA, People's Republic
1 lab in CONGO Brazzaville
1 lab in COSTA RICA
2 labs in COTE D'IVOIRE
3 labs in CROATIA
1 lab in CYPRUS
3 labs in CZECH REPUBLIC
1 lab in EGYPT
4 labs in FINLAND
9 labs in FRANCE
1 lab in GERMANY
6 labs in GREECE
3 labs in INDIA
1 lab in IRAQ
2 labs in IRELAND
2 labs in ITALY
1 lab in JORDAN
2 labs in KAZAKHSTAN
1 lab in KENYA
2 labs in LATVIA
1 lab in LITHUANIA
1 lab in MALTA
1 lab in MARTINIQUE
1 lab in MONTENEGRO
1 lab in MOROCCO
6 labs in NETHERLANDS
2 labs in NIGERIA
1 lab in NORTH MACEDONIA, Republic of
2 labs in PHILIPPINES
4 labs in POLAND
4 labs in PORTUGAL
5 labs in ROMANIA
11 labs in RUSSIAN FEDERATION
3 labs in SAUDI ARABIA
2 labs in SERBIA
1 lab in SLOVAKIA
2 labs in SLOVENIA
1 lab in SOUTH AFRICA
1 lab in SOUTH KOREA
6 labs in SPAIN
1 lab in SUDAN
4 labs in SWEDEN
1 lab in TAIWAN
2 labs in TANZANIA
1 lab in TUNISIA
7 labs in TURKEY
1 lab in UKRAINE
2 labs in UNITED ARAB EMIRATES
13 labs in UNITED KINGDOM
4 labs in UNITED STATES OF AMERICA
1 lab in ZAMBIA

APPENDIX 6

Abbreviations

C	= final test result after checking of first reported suspect test result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
R(0.01)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
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 false positive test result?
f-?	= possibly false negative test result?
SDS	= Safety Data Sheet

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