Institute for
Interlaboratory Studies

Results of Proficiency Test
Gasoline - EN (winter)
October 2023

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

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

In this interlaboratory study registered for participation:
- 148 laboratories in 54 countries for regular analyzes in Gasoline - EN iis23B06EN,
- 115 laboratories in 45 countries for DVPE analyzes in Gasoline iis23B06DVPE,
- 74 laboratories in 43 countries for RON and MON analyzes in Gasoline iis23B06RON.

In total 153 laboratories in 54 countries registered for participation in one or more proficiency tests, see appendix 4 for the number of participants per country. In this report the results of the Gasoline - EN (winter) proficiency tests are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to a laboratory that has performed the testst in accordance with ISO/IEC17043 relevant requirements of ISO/IEC17025.
In this proficiency test the participants received, depending on the registration, from one up to three different samples of Gasoline, see table below.

Sample ID	PT ID	Quantity	Purpose
#23185	iis23B06EN	1x 1 L	Regular analyzes
#23186	iis23B06DVPE	1x 1 L (75% filled)	DVPE
#23187	iis23B06RON	2x 1 L	RON and MON

Table 1: Gasoline samples used in PT iis23B06

Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant’s data. Feedback from the participants on the reported data is encouraged and customer’s satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

All data presented in this report must be regarded as confidential and for use by the participating companies only. Disclosure of the information in this report is only allowed by means of the entire report. Use of the contents of this report for third parties is only allowed by written permission of the Institute for Interlaboratory Studies. Disclosure of the identity of one or more of the participating companies will be done only after receipt of a written agreement of the companies involved.

2.4 SAMPLES

For the preparation of the samples for the regular and RON/MON analyzes in Gasoline a batch of approximately 400 liters of a regular winter grade Gasoline was obtained from a local supplier. After homogenization 180 amber glass bottles of 1 L were filled and labelled #23185 for the regular analyzes in Gasoline and 185 amber glass bottles of 1 L were filled and labelled #23187 for the analyzes of RON and MON.
The homogeneity of the subsamples was checked by the determination of Density at 15 °C in accordance with ISO12185 on 18 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3		Density at 15 °C in kg/m^3
sample 1	744.19	sample 10	744.07
sample 2	744.05	sample 11	744.19
sample 3	744.24	sample 12	744.12
sample 4	744.03	sample 13	744.12
sample 5	744.15	sample 14	744.11
sample 6	743.97	sample 15	744.12
sample 7	744.16	sample 16	744.11
sample 8	744.04	sample 17	744.14
sample 9	744.35	sample 18	744.09

Table 2: homogeneity test results of subsamples #23185 and #23187

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)	0.24
reference test method	ISO12185:96
0.3 x R (reference test method)	0.45

Table 3: evaluation of the repeatability of subsamples #23185 and #23187

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

For the preparation of the sample for the DVPE analysis in Gasoline a batch of approximately 110 liters of a regular winter grade Gasoline was obtained from a local supplier. After homogenization 150 amber glass bottles of 1 L were filled with approximately 750 mL Gasoline and labelled #23186.
The homogeneity of the subsamples was checked by the determination of DVPE in accordance with EN13016 on 8 stratified randomly selected subsamples.

	DVPE in kPa	
sample #23186-1	79.4	
sample #23186-2	79.3	
sample #23186-3	79.9	G(0.05)
sample #23186-4	78.9	
sample #23186-5	79.0	
sample #23186-6	79.2	
sample #23186-7	78.9	
sample #23186-8	78.9	

Table 4: homogeneity test results of subsamples #23186

Subsample 3 is a Grubbs outlier and therefore excluded from statistical evaluation of the homogeneity.

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

	DVPE in kPa
r (observed)	0.6
reference test method	ASTM D5191:22
0.3 x R (reference test method)	0.7

Table 5: evaluation of the repeatability of subsamples #23186

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 13, 2023. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

The stability of Gasoline packed in amber glass bottles was checked. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYZES

The participants were requested to determine on sample #23185: API Gravity, Appearance, Aromatics by FIA and by GC (%V/V and %M/M), Benzene, Copper Corrosion 3 hrs at 50 °C, Density at 15 °C, Distillation at 760 mmHg (Initial Boiling Point, Temperature at 10%, 50% and 90% evaporated, Final Boiling Point, % evaporated at 70 °C, 100 °C and 150 °C, Distillation Residue and Distillation Loss), Doctor test, Gum (solvent washed), Lead as Pb, Manganese as Mn, Olefins by FIA and by GC (%V/V and %M/M), Oxidation Stability, Oxygenates: Methanol, Ethanol, iso-Propyl alcohol, iso-Butyl alcohol, tert-Butyl alcohol, Ethers (C5 or more C atoms), DIPE, ETBE, MTBE, TAME, Sum of Other Oxygenates, Oxygen content and Sulfur.
On sample #23186 it was requested to determine: Air Saturated Vapor Pressure (ASVP) and Dry Vapor Pressure Equivalent (DVPE) according to EN13016-1.
On the samples #23187 it was requested only to determine: RON and MON.

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

To get comparable test results a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the reference test methods (when applicable) that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The participating laboratories are also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website www.iisnl.com.

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendices 1 and 2 of this report. The laboratories are presented by their code numbers.

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalyzes). Additional or corrected test results are used for data analysis and the original test results are placed under 'Remarks' in the result tables in appendices 1 and 2. Test results that came in after the

deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5).
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test, a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.

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

According to ISO13528 all (original received or corrected) results per determination were submitted to outlier tests. In the iis procedure for proficiency tests, outliers are detected prior to calculation of the mean, standard deviation and reproducibility. For small data sets, Dixon (up to 20 test results) or Grubbs (up to 40 test results) outlier tests can be used. For larger data sets (above 20 test results) Rosner's outlier test can be used. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. In this PT, the criterion of ISO13528, paragraph 9.2.1. was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.

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

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test results are plotted. The corresponding laboratory numbers are on the X-axis. The straight horizontal line presents the consensus value (a trimmed mean). The four striped

lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

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

3.3 Z-SCORES

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

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used, like Horwitz or an estimated reproducibility based on former iis proficiency tests.

When a laboratory did use a test method with a reproducibility that is significantly different from the reproducibility of the reference test method used in this report, it is strongly advised to recalculate the z-score, while using the reproducibility of the actual test method used, this in order to evaluate whether the reported test result is fit-for-use.

The z-scores were calculated according to:

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

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. Therefore, the usual interpretation of z-scores is as follows:

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

4 EVALUATION

In this proficiency test some problems were encountered with the dispatch of the samples. For the regular Gasoline PT ten participants reported test results after the final reporting date and seven other participants did not report any test results.

For the DVPE round nine participants reported test results after the final reporting date and seven other participants did not report any test results.
For the RON/MON round five participants reported test results after the final reporting date and eight other participants did not report any test results.
Not all participants were able to report all tests requested.
In total 146 participants reported 2250 numerical test results. Observed were 84 outlying test results, which is 3.7%. In proficiency tests outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER SAMPLE AND PER TEST

In this section the reported test results are discussed per sample and per test. The test methods which were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original data in appendix 1. The abbreviations, used in these tables, are explained in appendix 5.

In the iis PT reports ASTM test methods are referred to with a number (e.g. D1298) and an added designation for the year that the test method was adopted or revised (e.g. D1298:12b). When a method has been reapproved an “R” will be added and the year of approval (e.g. D1298:12bR17).

sample #23185

API Gravity: The group of participants met the target requirements. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1298:12bR17.

Appearance: All reporting participants agreed on the appearance as Pass or Clear & Bright.

Aromatics by FIA: The group of participants met the target requirements. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of EN15553:21.

Aromatics by GC: The group of participants had difficulty to meet the target requirements for the determination in %V/V. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ISO22854-A:21.
Regretfully, for the determination in %M/M no precision data is available. Therefore, no z-scores are calculated. No statistical outliers were observed.

Benzene: The group of participants had difficulty to meet the target requirements. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:21. However, the calculated reproducibility is in agreement with the requirements of EN12177:22.
When the test results from test method ISO22854 are evaluated separately the calculated reproducibility is smaller, but still not in agreement with the requirements of ISO22854-A:21.

Copper Corrosion: All reporting participants agreed on a test result of 1 (1a or 1b).

Density at 15 °C: The group of participants met the target requirements. Nine statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12185:96.

Distillation: The group of participants had difficulty to meet the target requirements. In total over the eight distillation parameters thirty-three statistical outliers were observed and five other test results were excluded. Three of the eight calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ISO3405:19 automatic mode, namely 90% evaporated, Final Boiling Point and % Evaporated at 100 °C.

Doctor Test: All reporting participants agreed on the absence of Mercaptans and reported sweet or negative.

Gum (solvent washed): The group of participants met the target requirements. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO6246:17.

Lead: Almost all reporting participants agreed on a level of <2.5 mg/L, which is near or below limit of detection. Therefore, no z-scores are calculated.

Manganese: All reporting participants agreed on a level of <2 mg/L, which is near or below limit of detection. Therefore, no z-scores are calculated.

Olefins by FIA: The group of participants met the target requirements. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN15553:21.

Olefins by GC: The group of participants met the target requirements for the determination in %V/V. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:21.
Regretfully, for the determination in %M/M no precision data is available. Therefore, no z-scores are calculated. Three statistical outliers were observed.

Oxidation Stability: All reporting participants agreed on an Oxidation Stability ≥360 minutes. Therefore, no z-scores are calculated.

Ethanol: The group of participants had difficulty to meet the target requirements. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:21.

Oxygen content: The group of participants had difficulty to meet the target requirements. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:21.

Sulfur: The group of participants met the target requirements. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO20846:19.

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

sample #23186

ASVP: The group of participants had difficulty to meet the target requirements. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN13016-1:18.

DVPE: The Air Saturated Vapor Pressure (ASVP) can be converted to Dry Vapor Pressure Equivalent (DVPE) according to EN13016-1. The group of participants had difficulty with the conversion to meet the target requirements. Six 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 #23187

RON: The group of participants had difficulty to meet the target requirements. 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 group of participants had difficulty to meet the target requirements. 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 target reproducibility derived from reference methods are presented in the next table.

Parameter	unit	n	average	2.8 * sd	R(lit)
API Gravity		58	58.55	0.27	0.3
Appearance		102	Pass	n.a.	n.a.
Aromatics by FIA	%V/V	46	31.3	4.0	3.7
Aromatics by GC	%V/V	62	29.9	1.8	1.5
Aromatics by GC	%M/M	42	35.1	1.9	n.a.
Benzene	%V/V	86	0.54	0.06	0.03
Copper Corrosion 3 hrs at 50 °C		101	1(1a/1b)	n.a.	n.a.
Density at 15 °C	kg/m^3	126	744.2	0.8	1.5
Initial Boiling Point	°C	126	28.6	5.4	4.7
Temp. at 10% evaporated	°C	125	45.8	4.6	4.0
Temp. at 50% evaporated	°C	125	86.0	10.1	3.9
Temp. at 90% evaporated	°C	119	134.8	3.0	5.3
Final Boiling Point	°C	127	163.7	5.9	7.1
%volume at 70 °C	%V/V	121	42.8	4.1	2.7
%volume at 100 °C	%V/V	122	55.6	2.4	2.2
%volume at 150 °C	%V/V	118	96.7	1.9	1.3
Doctor Test		56	negative	n.a.	n.a.
Gum (solvent washed)	mg/100 mL	43	0.6	0.9	2.1
Lead as Pb	mg/L	51	<2.5	n.e.	n.e.
Manganese as Mn	mg/L	47	<2.0	n.e.	n.e.
Olefins by FIA	%V/V	42	5.4	1.8	2.3
Olefins by GC	%V/V	59	5.3	0.5	1.1
Olefins by GC	%M/M	36	4.8	0.4	n.a.
Oxidation Stability	minutes	56	≥360	n.a.	n.a.
Ethanol	%V/V	77	9.5	0.9	0.4
Oxygen content	%M/M	77	3.5	0.5	0.2
Sulfur	mg/kg	117	4.1	1.5	1.7

Table 6: reproducibilities of tests on sample #23185

Parameter	unit	n	average	2.8 * sd	R(lit)
ASVP	kPa	69	86.2	2.2	1.6
DVPE acc. to EN13016-1	kPa	102	79.4	2.2	1.6

Table 7: reproducibilities of tests on sample #23186

Parameter	unit	n	average	2.8 * sd	R(lit)
RON		62	95.6	0.9	0.7
MON		56	85.6	1.5	0.9

Table 8: reproducibilities of tests on sample #23187

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

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

	October 2023	October 2022	October 2021	October 2020	October 2019
Number of reporting laboratories	146	139	143	140	161
Number of test results	2250	2604	2379	2447	2643
Number of statistical outliers	84	92	79	83	83
Percentage of statistical outliers	3.7%	3.5%	3.3%	3.4%	3.1%

Table 9: comparison with previous proficiency tests

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

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

Parameter	October 2023	October 2022	October 2021	October 2020	October 2019
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.	n.e.
Manganese as Mn	n.e.	n.e.	n.e.	n.e.	n.e.
Olefins by FIA	+	-	-	+/-	+/-
Olefins by GC	++	+	+	+	+/-
Methanol	n.e.	n.e.	n.e.	n.e.	n.e.
Ethanol	--	-	-	+/-	+/-
Ethers (C5 or more C atoms)	n.e.	+	+	+	+
ETBE	n.e.	n.e.	n.e.	+	+
MTBE	n.e.	-	--	+	+
Oxygen content	--	+/-	-	+	+
Sulfur	+	-	+/-	+/-	+/-
ASVP	-	-	-	-	-

Parameter	October 2023	October 2022	October 2021	October 2020	October 2019
DVPE acc. to EN13016-1	-	-	-	-	-
RON	-	+	-	-	+/-
MON	-	+/-	+/-	-	+/-

Table 10: comparison of determinations to the reference test methods on samples #23185, #23186 and #23187

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

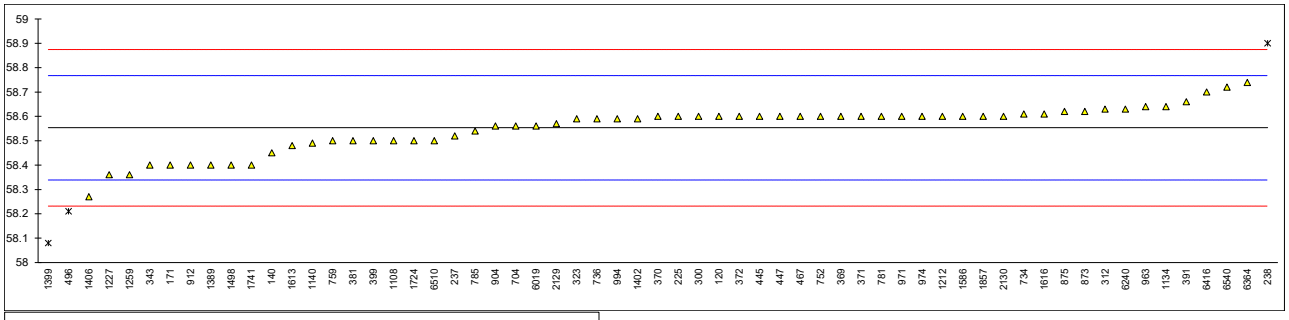
APPENDIX 1

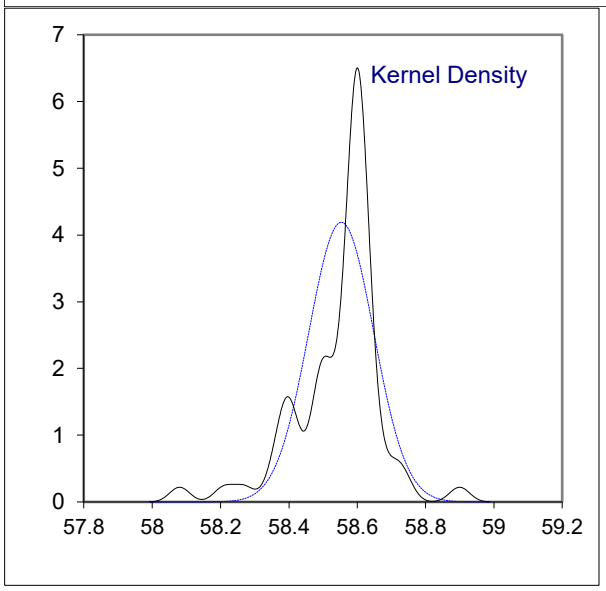
Determination of API Gravity on sample #23185;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	58.6		0.43	1259	ISO12185	58.36		-1.81
140	D4052	58.45		-0.97	1275		-----		-----
171	D4052	58.4		-1.43	1299		-----		-----
225	D4052	58.6		0.43	1357		-----		-----
237	D4052	58.52		-0.31	1389	D1298	58.4	C	-1.43
238	D1298	58.9	R(0.05)	3.23	1397		-----		-----
273		-----		-----	1399	D4052	58.08	R(0.01)	-4.42
300	D1298	58.6		0.43	1402	D4052	58.59		0.34
311		-----		-----	1406	ISO12185	58.27		-2.65
312	ISO12185	58.63		0.71	1438		-----		-----
323	D1298	58.59		0.34	1459		-----		-----
328		-----		-----	1491		-----		-----
333		-----		-----	1498	D4052	58.4		-1.43
334		-----		-----	1538		-----		-----
335		-----		-----	1557		-----		-----
337		-----		-----	1569		-----		-----
338		-----		-----	1575		-----		-----
343	D1298	58.4		-1.43	1586	ISO12185	58.6		0.43
344		-----		-----	1613	D4052	58.48		-0.69
352		-----		-----	1616	Calculation	58.61		0.53
365		-----		-----	1631		-----		-----
369	ISO12185	58.6		0.43	1634		-----		-----
370	ISO12185	58.6		0.43	1635		-----		-----
371	D4052	58.6		0.43	1650		-----		-----
372	D1298	58.6		0.43	1720		-----		-----
381	ISO12185	58.5		-0.50	1724	D1298	58.5		-0.50
391	ISO12185	58.66		0.99	1728		-----		-----
399	D4052	58.5		-0.50	1741	D1298	58.4		-1.43
404		-----		-----	1742		-----		-----
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1810		-----		-----
445	D4052	58.60		0.43	1811		-----		-----
447	D4052	58.6		0.43	1833		-----		-----
467	ISO12185	58.60		0.43	1849		-----		-----
480		-----		-----	1857	D1250	58.60		0.43
496	ISO12185	58.21	R(0.05)	-3.21	1864		-----		-----
704	D1298	58.56		0.06	1884		-----		-----
734	D4052	58.61		0.53	1911		-----		-----
736	D1298	58.59		0.34	1953		-----		-----
752	D1298	58.60		0.43	1958		-----		-----
759	D4052	58.5		-0.50	2129	D1298	58.57		0.15
779		-----		-----	2130	D4052	58.6		0.43
781	D4052	58.6		0.43	2146		-----		-----
782		-----		-----	6012		-----		-----
785	D1298	58.54		-0.13	6018		-----		-----
798		-----		-----	6019	ISO12185	58.56		0.06
873	D1298	58.62		0.62	6028		-----		-----
875	D1250	58.62		0.62	6046		-----		-----
904	ISO12185	58.56		0.06	6054		-----		-----
912	D1298	58.4		-1.43	6075		-----		-----
914		-----		-----	6142		-----		-----
963	D4052	58.64		0.81	6192		-----		-----
971	D1298	58.6		0.43	6203		-----		-----
974	D1298	58.6		0.43	6232		-----		-----
994	D1250	58.59		0.34	6240	D4052	58.63		0.71
1006		-----		-----	6258		-----		-----
1011		-----		-----	6299		-----		-----
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059		-----		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO12185	58.500		-0.50	6359		-----		-----
1126		-----		-----	6364	D1298	58.739		1.73
1134	D4052	58.64		0.81	6406		-----		-----
1140	D287	58.49		-0.59	6416	D4052	58.7		1.37
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446		-----		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	D4052	58.5		-0.50
1205		-----		-----	6514		-----		-----
1212	ISO12185	58.6		0.43	6539		-----		-----
1227	D4052	58.36		-1.81	6540	D4052	58.72		1.55

normality	OK
n	58
outliers	3
mean (n)	58.553
st.dev. (n)	0.0952
R(calc.)	0.267
st.dev.(D1298:12bR17)	0.1071
R(D1298:12bR17)	0.3

Lab 1389 first reported 0.7456





Determination of Appearance on sample #23185;

lab	method	value	lab	method	value
120	Visual	Clear & Bright	1259	Visual	C&B
140	D4176	Clear & Bright	1275	D4176	Clear & Bright
171	Visual	Clear & Bright	1299	Visual	CL&BR
225	Visual	Clear & Bright	1357	Visual	Bright & Clear
237	D4176	C&B	1389	D4176	Clear and Bright
238	Visual	B&C	1397		-----
273		-----	1399	Visual	Pass
300	Visual	bright & clear	1402	D4176	Clear and Bright
311		-----	1406		-----
312	Visual	br&cl	1438		-----
323	Visual	CBL	1459		-----
328	Visual	C&B	1491	Visual	Clear&Bright
333		-----	1498	D4176	B&C
334	Visual	clear and bright	1538		-----
335		-----	1557	In house	Clear and bright
337	Visual	Clear and Bright	1569	D4176	Pass
338	Visual	Clear and limpide	1575	D4176	Clear & Bright
343	Visual	Clear and Bright	1586	Visual	Clear & Bright
344	D4176	C&B	1613	Visual	B&C
352	Visual	Clear and Bright	1616	Visual	Clear
365	D4176	C+B Pass	1631		-----
369	Visual	C & B	1634	Visual	C&B
370	D4176	clear and bright	1635		-----
371	D4176	pass	1650		-----
372	D4176	Pass	1720		-----
381	Visual	clear	1724	Visual	clear&bright
391	Visual	C&B	1728	Visual	Clear
399	Visual	c&b	1741	D4176	clear and bright/pass /pass
404		-----	1742		-----
420	D4176	clear and bright	1753		-----
431		-----	1776		-----
444	E2680	Pass	1810		-----
445	D4176	C&B	1811		-----
447	Visual	Clear & Bright	1833	Visual	Clear and Bright
467	D4176	Clear&Bright	1849	In house	Clear and Bright
480		-----	1857	D4176	clear&bright
496	Visual	c+b	1864		-----
704	Visual	Clear@brihgt	1884	Visual	CLEAR&BRIGHT
734	Visual	Cl&Br	1911	Visual	clear@bright
736	Visual	Clear&Bright	1953		-----
752	Visual	Clear and Bright	1958	Visual	Clear & Bright
759	D4176	pass	2129	D4176	C&B
779	Visual	Clear and Bright	2130	Visual	Clear & Bright
781	D4176	pass[clear&bright]	2146		-----
782		-----	6012	Visual	clear & bright
785	Visual	clear and bright	6018	Visual	Clear&Bright
798		-----	6019	Visual	Clear&bright
873	D4176	pass	6028	D4176	C&B
875	D4176	C&B	6046	Visual	clear and slightly yellow
904	Visual	C&B	6054		-----
912		Clear and Bright	6075	Visual	C&B
914		-----	6142	Visual	C&B
963	Visual	C & B	6192		-----
971	Visual	Clear and Bright	6203	Visual	Clear&Bright
974	Visual	Clear & Bright	6232		-----
994	D4176	c@b	6240	D4176	Pass
1006		-----	6258	Visual	Clear & Bright
1011	Visual	Bright and clear	6299	Visual	Clear and bright
1039	D4176	Clear & Bright	6307		-----
1040		-----	6321		-----
1059	Visual	clear & bright	6331	Visual	clear&bright
1082		-----	6332	Visual	Clear and Bright
1097	Visual	B&C	6346		-----
1108	Visual	Clear and Bright	6359	Visual	clear&bright
1126		-----	6364	Visual	Clear & Bright
1134	D4176	Clear & Bright	6406		Bright & Cl
1140	Visual	C&B	6416	D4176	Clean & Bright
1143	D4176	clear&bright	6444		-----
1191		-----	6446	Visual	clear & bright
1194		-----	6447		-----
1199		-----	6510	Visual	Clear & Bright
1205		-----	6514		-----
1212	Visual	C&B	6539		-----
1227		-----	6540	Visual	Clear and bright

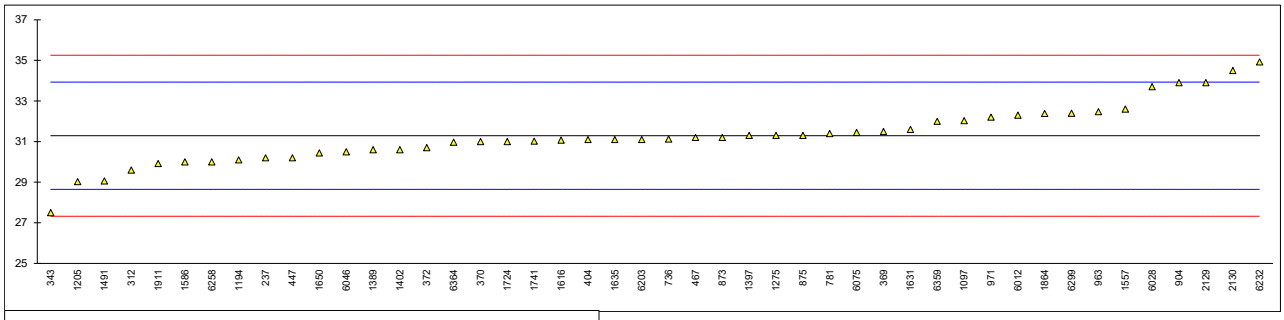
n	102
mean (n)	Pass (Clear & Bright)

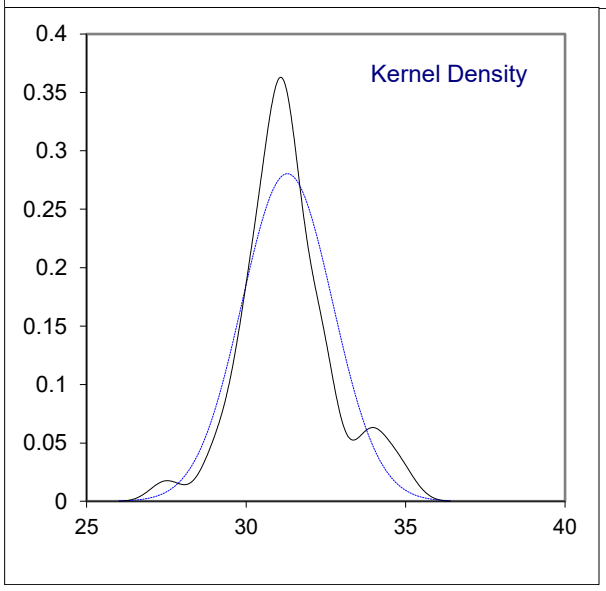
Determination of Aromatics by FIA (without oxygenates correction) on sample #23185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		-----		-----
140		-----		-----	1275	IP156	31.3		0.01
171		-----		-----	1299		-----		-----
225		-----		-----	1357		-----		-----
237	D1319	30.2		-0.83	1389	D1319	30.6		-0.52
238		-----		-----	1397	EN15553	31.3		0.01
273		-----		-----	1399		-----		-----
300		-----		-----	1402	D1319	30.6		-0.52
311		-----		-----	1406		-----		-----
312	EN15553	29.6		-1.28	1438		-----		-----
323		-----		-----	1459		-----		-----
328		-----		-----	1491	In house	29.06		-1.69
333		-----		-----	1498		-----		-----
334		-----		-----	1538		-----		-----
335		-----		-----	1557	In house	32.6		0.99
337		-----		-----	1569		-----		-----
338		-----		-----	1575		-----		-----
343	D1319	27.50	C	-2.87	1586	D1319	30.0		-0.98
344		-----		-----	1613		-----		-----
352		-----		-----	1616	D1319	31.07		-0.17
365		-----		-----	1631	EN15553	31.6		0.23
369	EN15553	31.5		0.16	1634		-----		-----
370	EN15553	31.0		-0.22	1635	ISO3837	31.1		-0.15
371		-----		-----	1650	EN15553	30.44		-0.65
372	EN15553	30.7		-0.45	1720		-----		-----
381		-----		-----	1724	D1319	31.0		-0.22
391		-----		-----	1728		-----		-----
399		-----		-----	1741	EN15553	31.02		-0.21
404	EN15553	31.1		-0.15	1742		-----		-----
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1810		-----		-----
445		-----		-----	1811		-----		-----
447	D1319	30.2		-0.83	1833		-----		-----
467	D1319	31.2		-0.07	1849		-----		-----
480		-----		-----	1857		-----		-----
496		-----		-----	1864	EN15553	32.385		0.83
704		-----		-----	1884		-----		-----
734		-----		-----	1911	EN15553	29.92		-1.04
736	EN15553	31.12		-0.13	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	EN15553	33.9		1.97
779		-----		-----	2130	D1319	34.5		2.43
781	EN15553	31.4		0.08	2146		-----		-----
782		-----		-----	6012	D1319	32.3		0.76
785		-----		-----	6018		-----		-----
798		-----		-----	6019		-----		-----
873	EN15553	31.2		-0.07	6028	D1319	33.7		1.82
875	EN15553	31.3		0.01	6046	D1319	30.5		-0.60
904	EN15553	33.9		1.97	6054		-----		-----
912		-----		-----	6075	D1319	31.45		0.12
914		-----		-----	6142		-----		-----
963	D1319	32.47		0.89	6192		-----		-----
971	D1319	32.2		0.69	6203	D1319	31.1		-0.15
974		-----		-----	6232	D1319	34.92		2.74
994		-----		-----	6240		-----		-----
1006		-----		-----	6258	EN15553	30.0		-0.98
1011		-----		-----	6299	EN15553	32.4		0.84
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059		-----		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097	D1319	32.03		0.56	6346		-----		-----
1108		-----		-----	6359	EN15553	32.0		0.54
1126		-----		-----	6364	D1319	30.9686		-0.25
1134		-----		-----	6406		-----		-----
1140		-----		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446		-----		-----
1194	EN15553	30.1		-0.90	6447		-----		-----
1199		-----		-----	6510		-----		-----
1205	D1319	29.0237		-1.72	6514		-----		-----
1212		-----		-----	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	suspect
n	46
outliers	0
mean (n)	31.293
st.dev. (n)	1.4224
R(calc.)	3.983
st.dev.(EN15553:21)	1.3214
R(EN15553:21)	3.7

Lab 343 first reported 26.6



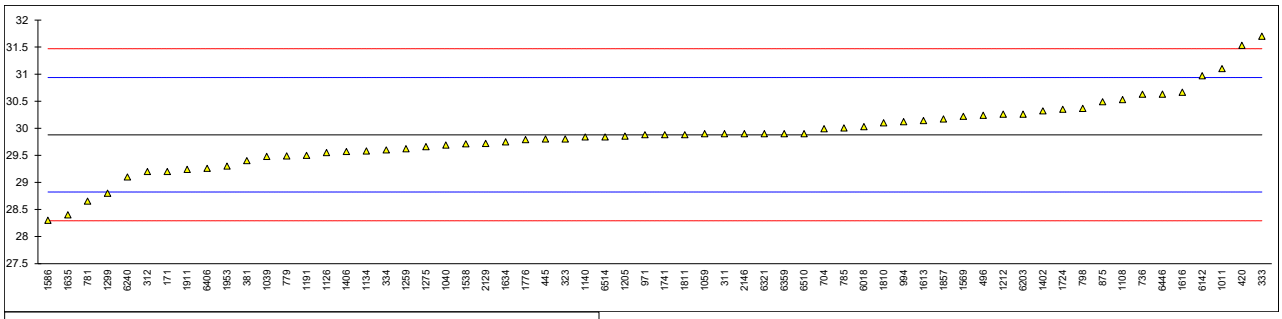


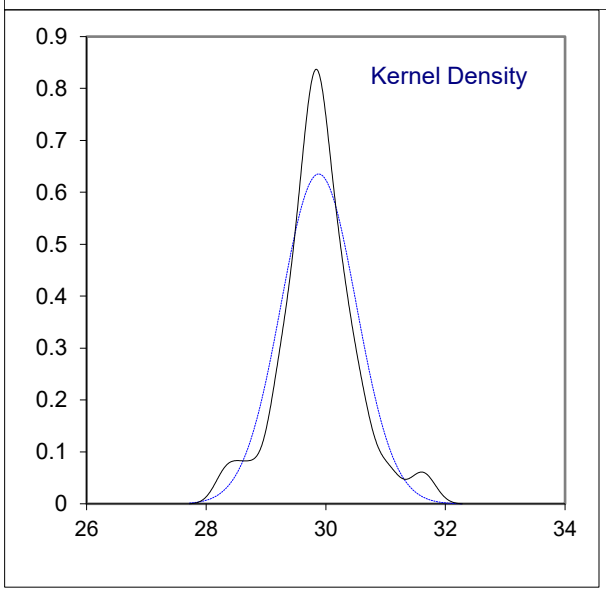
Determination of Aromatics by GC on sample #23185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259	ISO22854-A	29.62		-0.49
140		-----		-----	1275	ISO22854-A	29.66		-0.42
171	ISO22854-A	29.2		-1.28	1299	ISO22854-A	28.8		-2.04
225		-----		-----	1357		-----		-----
237		-----		-----	1389		-----		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399		-----		-----
300		-----		-----	1402	ISO22854-A	30.32		0.83
311	ISO22854-A	29.9		0.04	1406	ISO22854-A	29.57		-0.58
312	ISO22854-A	29.2		-1.28	1438		-----		-----
323	ISO22854-A	29.8		-0.15	1459		-----		-----
328		-----		-----	1491		-----		-----
333	ISO22854-A	31.7		3.44	1498		-----		-----
334	ISO22854-A	29.6		-0.53	1538	ISO22854-A	29.71		-0.32
335		-----		-----	1557		-----		-----
337		-----		-----	1569	EN14517	30.22		0.64
338		-----		-----	1575		-----		-----
343		-----		-----	1586	ISO22854-A	28.3		-2.98
344		-----		-----	1613	D6839	30.14		0.49
352		-----		-----	1616	D6839	30.665		1.48
365		-----		-----	1631		-----		-----
369		-----		-----	1634	ISO22854-A	29.75		-0.25
370		-----		-----	1635	ISO22854-A	28.4		-2.79
371		-----		-----	1650		-----		-----
372		-----		-----	1720		-----		-----
381	EN14517	29.4		-0.91	1724	ISO22854-A	30.35		0.89
391		-----		-----	1728		-----		-----
399		-----		-----	1741	ISO22854-A	29.88		0.00
404		-----		-----	1742		-----		-----
420	ISO22854-A	31.53		3.12	1753		-----		-----
431		-----		-----	1776	ISO22854-A	29.79		-0.17
444		-----		-----	1810	ISO22854-A	30.1		0.42
445	ISO22854-A	29.80		-0.15	1811	ISO22854-A	29.88		0.00
447		-----		-----	1833		-----	W	-----
467		-----		-----	1849		-----		-----
480		-----		-----	1857	ISO22854-A	30.17	C	0.55
496	ISO22854-A	30.24		0.68	1864		-----		-----
704	D5580	29.99		0.21	1884		-----		-----
734		-----		-----	1911	ISO22854-A	29.24		-1.21
736	D6730	30.627		1.41	1953	In house	29.3		-1.09
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	29.72		-0.30
779	D6729	29.488		-0.74	2130		-----		-----
781	D6729	28.652		-2.32	2146	ISO22854-A	29.9		0.04
782		-----		-----	6012		-----		-----
785	D6729	30.004		0.23	6018	ISO22854-A	30.03		0.28
798	D6729	30.366		0.92	6019		-----		-----
873		-----		-----	6028		-----		-----
875	D6729	30.49		1.15	6046		-----		-----
904		-----		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142	ISO22854-A	30.97		2.06
963		-----		-----	6192		-----		-----
971	D6839	29.88		0.00	6203	ISO22854-A	30.26		0.72
974		-----		-----	6232		-----		-----
994	D6729	30.121		0.46	6240	ISO22854-A	29.1		-1.47
1006		-----		-----	6258		-----		-----
1011	ISO22854-A	31.1		2.30	6299		-----		-----
1039	ISO22854-A	29.48		-0.75	6307		-----		-----
1040	ISO22854-A	29.69		-0.36	6321	ISO22854-A	29.9		0.04
1059	ISO22854-A	29.9		0.04	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO22854-A	30.53		1.23	6359	ISO22854-A	29.9		0.04
1126	ISO22854-A	29.55		-0.62	6364		-----		-----
1134	ISO22854-A	29.58		-0.57	6406	ISO22854-A	29.26		-1.17
1140	ISO22854-A	29.84		-0.08	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191	ISO22854-A	29.50		-0.72	6446	ISO22854-A	30.63		1.42
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	29.90		0.04
1205	D8071	29.855		-0.05	6514	ISO22854-A	29.84		-0.08
1212	ISO22854-A	30.26		0.72	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	suspect
n	62
outliers	0
mean (n)	29.880
st.dev. (n)	0.6282
R(calc.)	1.759
st.dev.(ISO22854-A:21)	0.5296
R(ISO22854-A:21)	1.483

Lab 1833 test result withdrawn, reported 30.94
Lab 1857 first reported 30.99



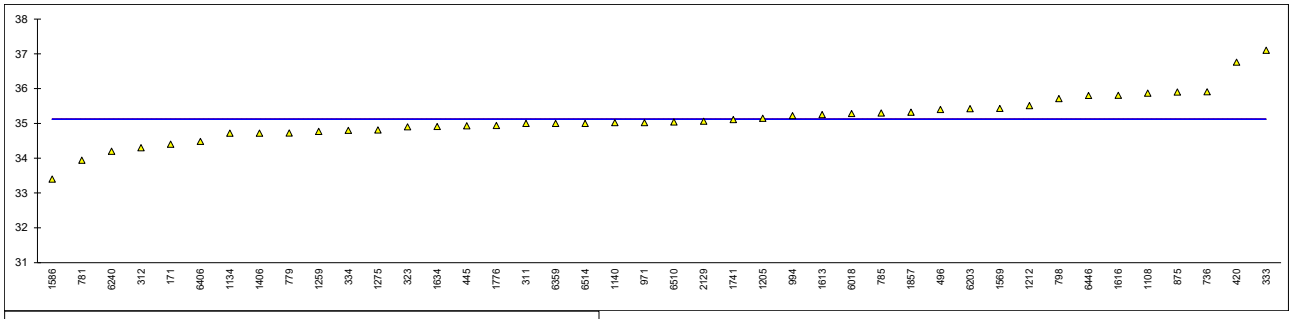


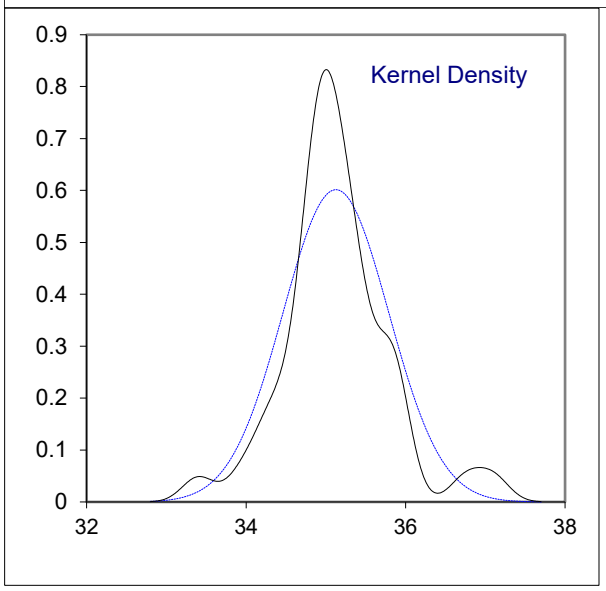
Determination of Aromatics by GC on sample #23185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		34.77		-----
140		-----		-----	1275	ISO22854-A	34.81		-----
171	ISO22854-A	34.4		-----	1299		-----		-----
225		-----		-----	1357		-----		-----
237		-----		-----	1389		-----		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399		-----		-----
300		-----		-----	1402		-----		-----
311	ISO22854-A	35.0		-----	1406	ISO22854-A	34.72		-----
312	ISO22854-A	34.3		-----	1438		-----		-----
323	ISO22854-A	34.9		-----	1459		-----		-----
328		-----		-----	1491		-----		-----
333	ISO22854-A	37.1		-----	1498		-----		-----
334	ISO22854-A	34.8		-----	1538		-----		-----
335		-----		-----	1557		-----		-----
337		-----		-----	1569	EN14517	35.43		-----
338		-----		-----	1575		-----		-----
343		-----		-----	1586	ISO22854-A	33.4		-----
344		-----		-----	1613	D6839	35.25		-----
352		-----		-----	1616	D6839	35.805		-----
365		-----		-----	1631		-----		-----
369		-----		-----	1634	ISO22854-A	34.91		-----
370		-----		-----	1635		-----		-----
371		-----		-----	1650		-----		-----
372		-----		-----	1720		-----		-----
381		-----		-----	1724		-----		-----
391		-----		-----	1728		-----		-----
399		-----		-----	1741	ISO22854-A	35.11		-----
404		-----		-----	1742		-----		-----
420	ISO22854-A	36.76		-----	1753		-----		-----
431		-----		-----	1776	ISO22854-A	34.94		-----
444		-----		-----	1810		-----		-----
445	ISO22854-A	34.93		-----	1811		-----		-----
447		-----		-----	1833		-----		-----
467		-----		-----	1849		-----		-----
480		-----		-----	1857	ISO22854-A	35.32	C	-----
496	ISO22854-A	35.4		-----	1864		-----		-----
704		-----		-----	1884		-----		-----
734		-----		-----	1911		-----		-----
736	D6730	35.907		-----	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	35.06		-----
779	D6729	34.725		-----	2130		-----		-----
781	D6729	33.942		-----	2146		-----		-----
782		-----		-----	6012		-----		-----
785	D6729	35.298		-----	6018	ISO22854-A	35.28		-----
798	D6729	35.715		-----	6019		-----		-----
873		-----		-----	6028		-----		-----
875	D6729	35.90		-----	6046		-----		-----
904		-----		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142		-----		-----
963		-----		-----	6192		-----		-----
971	D6839	35.02		-----	6203	ISO22854-A	35.42		-----
974		-----		-----	6232		-----		-----
994	D6729	35.223		-----	6240	ISO22854-A	34.2		-----
1006		-----		-----	6258		-----		-----
1011		-----		-----	6299		-----		-----
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059		-----		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO22854-A	35.87		-----	6359	ISO22854-A	35.0		-----
1126		-----		-----	6364		-----		-----
1134	ISO22854-A	34.72		-----	6406		34.48		-----
1140	ISO22854-A	35.02		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446	ISO22854-A	35.80		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	35.04		-----
1205	D8071	35.145		-----	6514	ISO22854-A	35.00		-----
1212	ISO22854-A	35.51		-----	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	not OK
n	42
outliers	0
mean (n)	35.127
st.dev. (n)	0.6635
R(calc.)	1.858
st.dev.(lit)	unknown
R(lit)	unknown

Lab 1857 first reported 36.47



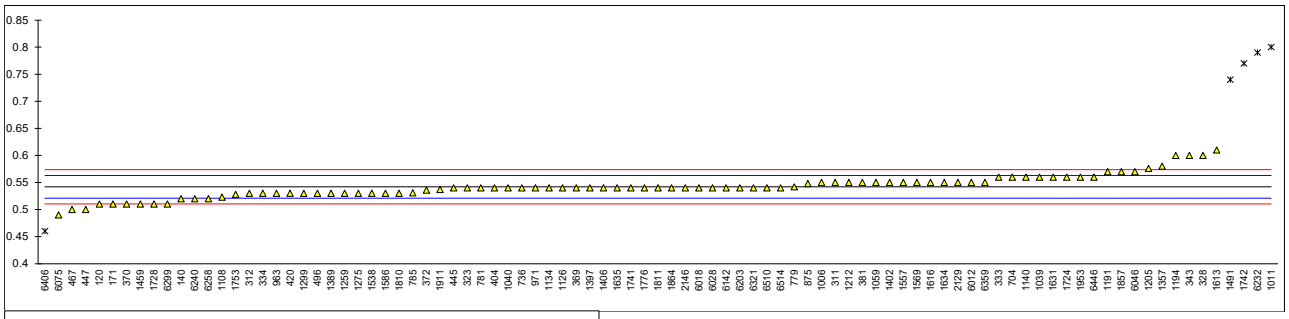


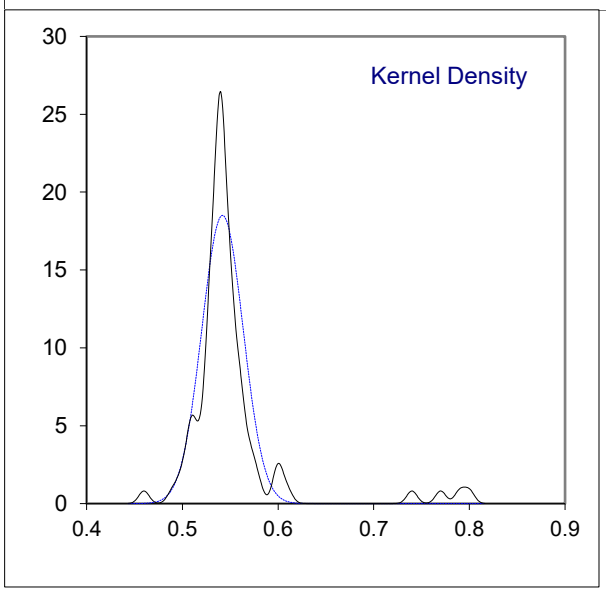
Determination of Benzene on sample #23185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D3606	0.51		-3.05	1259	ISO22854-A	0.53		-1.15
140	D3606	0.52		-2.10	1275	ISO22854-A	0.53		-1.15
171	ISO22854-A	0.51		-3.05	1299	ISO22854-A	0.53		-1.15
225		-----		-----	1357	D6839	0.58		3.60
237		-----		-----	1389	EN12177	0.53		-1.15
238		-----		-----	1397	EN238	0.54		-0.20
273		-----		-----	1399		-----		-----
300		-----		-----	1402	ISO22854-A	0.55		0.75
311	ISO22854-A	0.55		0.75	1406	ISO22854-A	0.54		-0.20
312	D3606	0.53		-1.15	1438		-----		-----
323	ISO22854-A	0.54		-0.20	1459	In house	0.51		-3.05
328	EN238	0.6		5.50	1491	EN238	0.74	R(0.01)	18.79
333	ISO22854-A	0.56		1.70	1498		-----		-----
334	ISO22854-A	0.53		-1.15	1538	EN238	0.53		-1.15
335		-----		-----	1557	EN238	0.55		0.75
337		-----		-----	1569	EN14517	0.55		0.75
338		-----		-----	1575		-----		-----
343	EN238	0.6		5.50	1586	ISO22854-A	0.53		-1.15
344		-----		-----	1613	D6839	0.61		6.45
352		-----		-----	1616	D6839	0.550		0.75
365		-----		-----	1631	EN12177	0.56		1.70
369	EN238	0.54		-0.20	1634	ISO22854-A	0.55		0.75
370	EN238	0.51		-3.05	1635	ISO22854-A	0.54		-0.20
371		-----		-----	1650		-----		-----
372	EN12177	0.536		-0.58	1720		-----		-----
381	ISO22854-A	0.55		0.75	1724	ISO22854-A	0.56		1.70
391		-----		-----	1728	EN238	0.51		-3.05
399		-----		-----	1741	EN12177	0.54		-0.20
404	EN238	0.54		-0.20	1742	ISO22854-A	0.77	R(0.01)	21.64
420	ISO22854-A	0.53		-1.15	1753	EN12177	0.5281		-1.33
431		-----		-----	1776	ISO22854-A	0.54		-0.20
444		-----		-----	1810	ISO22854-A	0.53		-1.15
445	ISO22854-A	0.54		-0.20	1811	ISO22854-A	0.54		-0.20
447	IP429	0.5		-4.00	1833		-----	W	-----
467	EN238	0.5	C	-4.00	1849		-----		-----
480		-----		-----	1857	ISO22854-A	0.57		2.65
496	ISO22854-A	0.53		-1.15	1864	EN12177	0.54		-0.20
704	D5580	0.56		1.70	1884		-----		-----
734		-----		-----	1911	EN12177	0.537		-0.48
736	D6730	0.540		-0.20	1953	In house	0.56		1.70
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	0.55		0.75
779	D6729	0.542		-0.01	2130		-----		-----
781	EN12177	0.54		-0.20	2146	ISO22854-A	0.54		-0.20
782		-----		-----	6012	D6277	0.55		0.75
785	D6729	0.5308		-1.07	6018	ISO22854-A	0.54		-0.20
798		-----		-----	6019		-----		-----
873		-----		-----	6028	EN238	0.54		-0.20
875	D6729	0.548		0.56	6046	D6277	0.57		2.65
904		-----		-----	6054		-----		-----
912		-----		-----	6075	EN238	0.49	C	-4.95
914		-----		-----	6142	ISO22854-A	0.54		-0.20
963	D5580	0.53		-1.15	6192		-----		-----
971	D5580	0.54		-0.20	6203	ISO22854-A	0.54		-0.20
974		-----		-----	6232	D6277	0.79	C,R(0.01)	23.54
994		-----		-----	6240	ISO22854-A	0.52		-2.10
1006	D5580	0.55		0.75	6258	EN12177	0.52	C	-2.10
1011	ISO22854-A	0.80	C,R(0.01)	24.49	6299	EN238	0.51		-3.05
1039	ISO22854-A	0.56		1.70	6307		-----		-----
1040	ISO22854-A	0.54		-0.20	6321	ISO22854-A	0.54		-0.20
1059	ISO22854-A	0.55		0.75	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	EN238	0.523		-1.81	6359	EN238	0.55	C	0.75
1126	ISO22854-A	0.54		-0.20	6364		-----		-----
1134	ISO22854-A	0.54		-0.20	6406	ISO22854-A	0.46	R(0.05)	-7.80
1140	ISO22854-A	0.56		1.70	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191	ISO22854-A	0.57		2.65	6446	ISO22854-A	0.56		1.70
1194	EN12177	0.6		5.50	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	0.54		-0.20
1205	D8071	0.576		3.22	6514	ISO22854-A	0.54		-0.20
1212	ISO22854-A	0.55		0.75	6539		-----		-----
1227		-----		-----	6540		-----		-----

		ISO22854 Only
normality	suspect	OK
n	86	39
outliers	5	3
mean (n)	0.5421	0.5423
st.dev. (n)	0.02156	0.01287
R(calc.)	0.0604	0.0360
st.dev.(ISO22854-A:21)	0.01053	0.01053
R(ISO22854-A:21)	0.0295	0.0295
Compare		
R(EN12177:22)	0.10	-----

Lab 467 first reported 0.6
Lab 1011 first reported 1.10
Lab 1833 test result withdrawn, reported 0.59
Lab 6075 first reported 0.494
Lab 6232 first reported 0.74
Lab 6258 first reported 0.71
Lab 6359 first reported 0.60





Determination of Copper Corrosion 3 hrs at 50 °C on sample #23185;

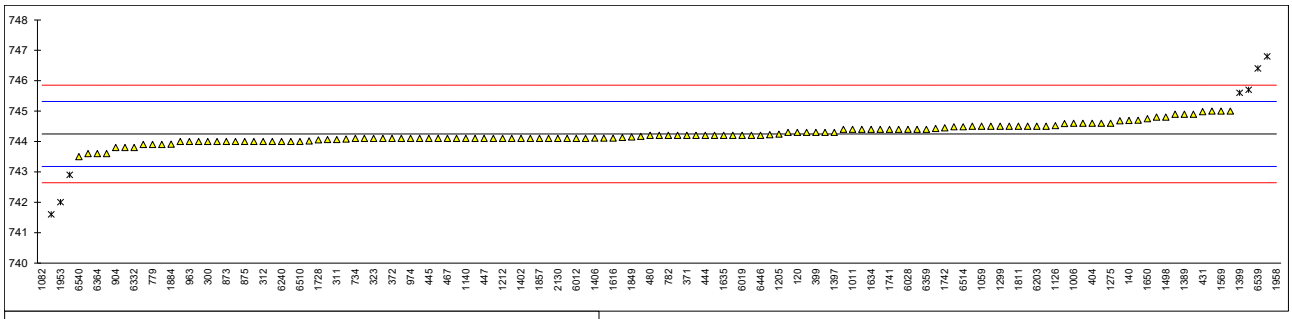
lab	method	value	lab	method	value
120		-----	1259		-----
140	D130	1A	1275	IP154	1A
171	D130	1A	1299	D130	1A
225	D130	1A	1357	D130	1a
237	D130	1A	1389	D130	1A
238	D130	1A	1397		-----
273		-----	1399	D130	1
300	D130	1A	1402	IP154	1A
311	ISO2160	1A	1406		-----
312	ISO2160	1a	1438		-----
323	ISO2160	1A	1459		-----
328	ISO2160	1	1491	ISO2160	1a
333		-----	1498		-----
334	ISO2160	1 <	1538		-----
335	ISO2160	1a	1557	ISO2160	1a
337		-----	1569	ISO2160	1a
338		-----	1575	D130	1A
343	D130	1a	1586	IP154	1A
344	D130	1a	1613	D130	1a
352	ISO2160	1a	1616	D130	1a
365	IP154	1a	1631		-----
369		-----	1634	ISO2160	1a
370	ISO2160	1A	1635	D130	1a
371	ISO2160	1a	1650	ISO2160	1a
372	ISO2160	1A	1720		-----
381	ISO2160	1	1724	D130	1a
391	D130	1a	1728	D130	1a
399	D130	1A	1741	ISO2160	Class 1
404	ISO2160	clasa 1	1742		-----
420	ISO2160	class 1a	1753	ISO2160	1a
431		-----	1776		-----
444		-----	1810		-----
445	D130	1a	1811		-----
447	D130	1a	1833	ISO2160	1a
467	ISO2160	1a	1849	ISO2160	1a
480		-----	1857	ISO2160	1a
496	D130	1a	1864	ISO2160	1a
704	ISO2160	1a	1884	D130	1a
734		-----	1911	ISO2160	1
736	D130	1a	1953		-----
752		-----	1958		-----
759		-----	2129	ISO2160	1A
779	D130	1a	2130	D130	1a
781	D130	1a	2146		-----
782		-----	6012	D130	1A
785	ISO2160	1a	6018	ISO2160	1a
798	D130	1a	6019	ISO2160	1a
873	D130	1a	6028	ISO2160	1a
875	D130	1a	6046	ISO2160	1 a
904	ISO2160	1a	6054		-----
912		1A	6075	ISO2160	1A
914		-----	6142		-----
963	D130	1a	6192		-----
971	ISO2160	1a	6203	ISO2160	1a
974	D130	1a	6232	D130	1a
994	D130	1a	6240	D130	1a
1006	D130	1a	6258	ISO2160	1a
1011	ISO2160	1a	6299	ISO2160	1A
1039	ISO2160	1A	6307		-----
1040		-----	6321	IP154	1A
1059	ISO2160	1a	6331		-----
1082		-----	6332	D130	1a
1097	ISO2160	1a	6346		-----
1108	ISO2160	1	6359	D130	1
1126		-----	6364	D130	1A
1134	D130	1a	6406		1A
1140	IP154	1A	6416	D130	1A
1143		-----	6444		-----
1191		-----	6446	D130	1A
1194		-----	6447		-----
1199		-----	6510	D130	1a
1205		-----	6514		-----
1212	ISO2160	1A	6539	D130	1a
1227	D130	1A	6540	D130	1A

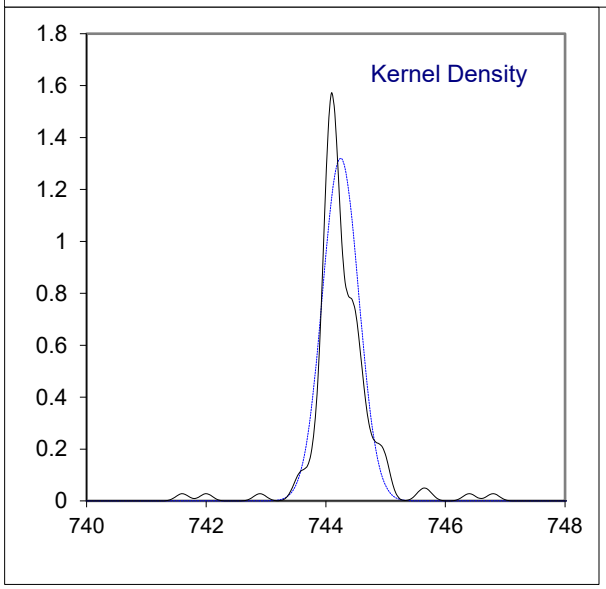
n	101
mean (n)	1 (1a/1b)

Determination of Density at 15 °C on sample #23185; results in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	744.3		0.10	1259	ISO12185	744.7		0.84
140	D4052	744.69		0.82	1275	IP365	744.6		0.66
171	D4052	744.8		1.03	1299	D4052	744.5		0.47
225	D4052	744.2		-0.09	1357	D4052	744.1		-0.28
237	D4052	743.9		-0.65	1389	D4052	744.9		1.22
238	D4052	742.9	R(0.01)	-2.52	1397	ISO12185	744.3		0.10
273		-----		-----	1399	D4052	745.6	R(0.01)	2.52
300	D1298	744.0		-0.46	1402	IP365	744.1		-0.28
311	ISO12185	744.06		-0.35	1406	ISO12185	744.11		-0.26
312	ISO12185	744.0		-0.46	1438		-----		-----
323	ISO12185	744.1		-0.28	1459	ISO12185	744.02		-0.43
328	ISO12185	744.0		-0.46	1491	ISO12185	744.11		-0.26
333	ISO12185	744.1		-0.28	1498	D4052	744.8		1.03
334	ISO12185	744.1		-0.28	1538		-----		-----
335	ISO12185	743.8		-0.84	1557	ISO12185	744.0		-0.46
337	ISO12185	744.9		1.22	1569	ISO12185	745.0		1.40
338	ISO12185	744.1		-0.28	1575		-----		-----
343	ISO12185	744.5		0.47	1586	ISO12185	744.1		-0.28
344	D4052	744.4		0.28	1613	D4052	744.5		0.47
352	ISO12185	744.06		-0.35	1616	D4052	744.11		-0.26
365	IP365	745.0		1.40	1631	D4052	744.2		-0.09
369	ISO12185	744.1		-0.28	1634	ISO12185	744.4		0.28
370	ISO12185	744.0		-0.46	1635	ISO12185	744.2		-0.09
371	ISO12185	744.2		-0.09	1650	ISO12185	744.75		0.94
372	ISO12185	744.1		-0.28	1720		-----		-----
381	ISO12185	744.68		0.80	1724	D1298	744.4		0.28
391	ISO12185	743.9		-0.65	1728	D4052	744.05		-0.37
399	D4052	744.3		0.10	1741	ISO12185	744.4		0.28
404	ISO12185	744.6		0.66	1742	ISO12185	744.45		0.38
420	ISO12185	746.8	R(0.01)	4.76	1753	ISO12185	744.4		0.28
431	ISO12185	744.98		1.36	1776	ISO12185	744.22		-0.05
444	D4052	744.2		-0.09	1810	ISO12185	744.2		-0.09
445	ISO12185	744.1		-0.28	1811	ISO12185	744.5		0.47
447	D4052	744.1		-0.28	1833	ISO12185	744.5		0.47
467	ISO12185	744.1		-0.28	1849	ISO12185	744.15		-0.18
480	ISO12185	744.2		-0.09	1857	ISO12185	744.1		-0.28
496	ISO12185	744.17		-0.15	1864	ISO12185	744.43		0.34
704	D4052	744.3		0.10	1884	D4052	743.91		-0.63
734	D4052	744.1		-0.28	1911	ISO12185	744.08		-0.32
736	D4052	744.4		0.28	1953	In house	742.0	R(0.01)	-4.20
752	ISO12185	744.1		-0.28	1958	D1298	752.5	R(0.01)	15.40
759	D4052	744.1		-0.28	2129	D4052	744.1		-0.28
779	D4052	743.9		-0.65	2130	D4052	744.1		-0.28
781	ISO12185	744.3		0.10	2146	ISO12185	744.1		-0.28
782	D4052	744.2		-0.09	6012	ISO3675	744.1		-0.28
785	ISO12185	744.3		0.10	6018	ISO12185	744.1		-0.28
798	D4052	744.0		-0.46	6019	ISO12185	744.2		-0.09
873	ISO12185	744.0		-0.46	6028	ISO12185	744.4		0.28
875	D4052	744.0		-0.46	6046	ISO3675	743.6		-1.21
904	ISO12185	743.8		-0.84	6054		-----		-----
912	ISO12185	744.6		0.66	6075	ISO12185	744.90		1.22
914		-----		-----	6142	ISO12185	745.7	R(0.01)	2.71
963	D4052	744.0		-0.46	6192		-----		-----
971	ISO12185	744.1		-0.28	6203	ISO12185	744.5		0.47
974	D1298	744.1		-0.28	6232	ISO12185	744.4		0.28
994	ISO12185	744.2		-0.09	6240	ISO12185	744.0		-0.46
1006	D4052	744.6		0.66	6258	ISO12185	744.5		0.47
1011	ISO12185	744.4		0.28	6299	ISO12185	744.48		0.43
1039	ISO12185	744.2		-0.09	6307	IP365	745.00		1.40
1040	ISO12185	744.13		-0.22	6321	IP365	744.2		-0.09
1059	ISO12185	744.5		0.47	6331		-----		-----
1082	ISO12185	738.6	R(0.01)	-10.54	6332	D4052	743.8		-0.84
1097	ISO12185	744.59		0.64	6346		-----		-----
1108	ISO12185	744.5		0.47	6359	D4052	744.4		0.28
1126	ISO12185	744.52		0.51	6364	D4052	743.6		-1.21
1134	ISO12185	744.0		-0.46	6406	ISO12185	744.0		-0.46
1140	IP365	744.1		-0.28	6416	D4052	743.6		-1.21
1143	ISO12185	744.1		-0.28	6444		-----		-----
1191	ISO12185	744.0		-0.46	6446	ISO12185	744.2		-0.09
1194		-----		-----	6447	D4052	741.6	R(0.01)	-4.94
1199		-----		-----	6510	D4052	744.0		-0.46
1205	ISO12185	744.24		-0.02	6514	ISO12185	744.48		0.43
1212	ISO12185	744.1		-0.28	6539	D4052	746.4	R(0.01)	4.02
1227	D4052	744.6		0.66	6540	D4052	743.5		-1.40

normality	OK
n	126
outliers	9
mean (n)	744.249
st.dev. (n)	0.3020
R(calc.)	0.846
st.dev.(ISO12185:96)	0.5357
R(ISO12185:96)	1.5





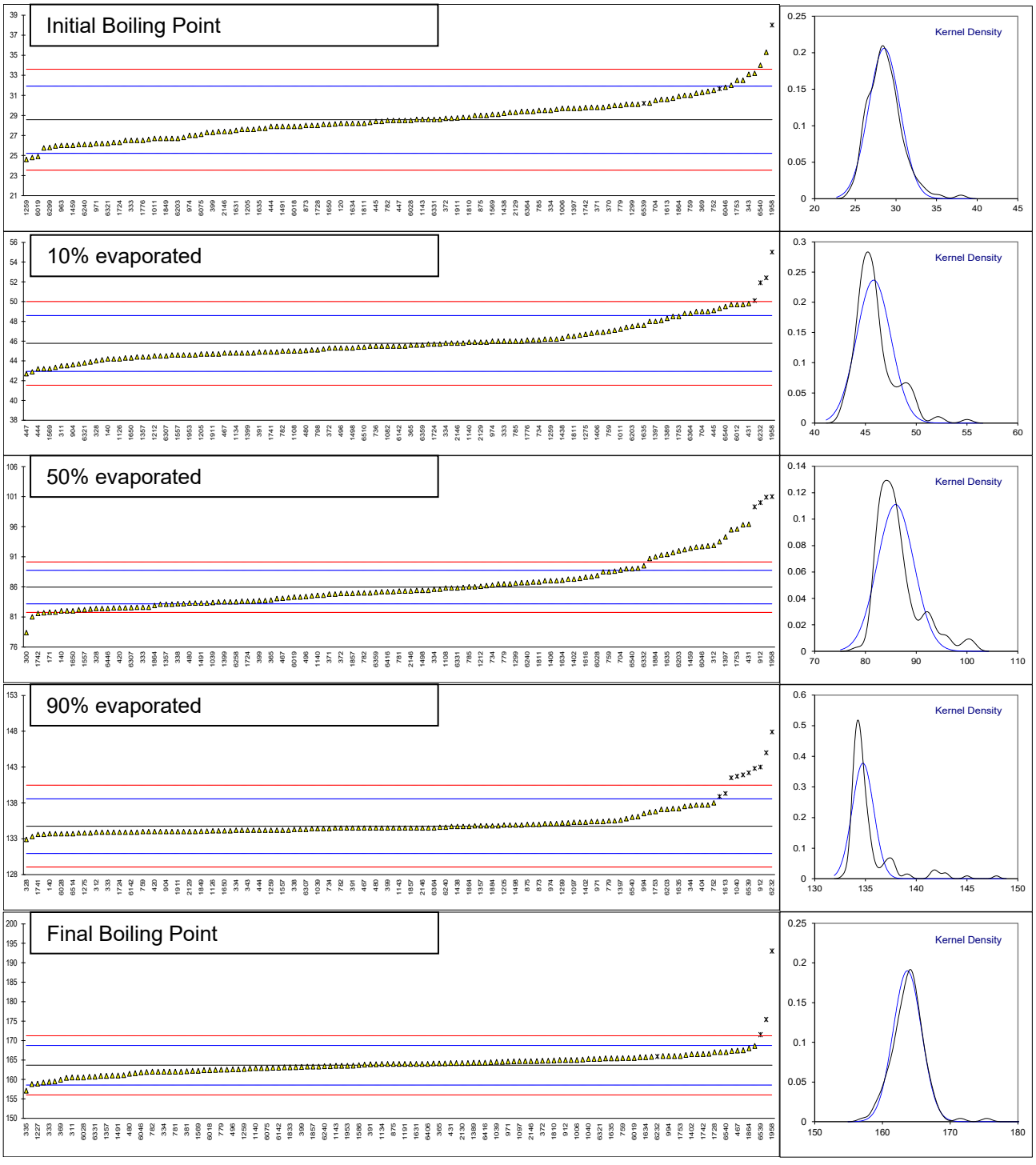
Determination of Distillation at 760 mmHg on sample #23185; results in °C

lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
120		28.2		45.3		85.2		134.5		164.0	
140	D86-automated	24.8		44.2		82.0		133.7		158.8	
171	D86-automated	26.5		43.7		81.8		134.5		160.7	
225		-----		-----		-----		-----		-----	
237	D86-manual	32.0		48.8		93.5		137.7		166.0	
238		-----		-----		-----		-----		-----	
273		-----		-----		-----		-----		-----	
300	ISO3405-automated	30.23		43.34		78.4		134.9		165.1	
311	D86-automated	26.6		43.5		83.1		134.0		160.5	
312	ISO3405-automated	26.1		47.1		92.9		133.9		162.4	
323	ISO3405-automated	29.5		44.6		83.5		134.5		163.1	
328	ISO3405-automated	26.2		44.0		82.4		132.9		159.2	
333	ISO3405-automated	26.5		46.0		82.6		133.9		159.4	
334	ISO3405-automated	29.5		45.8		85.6		134.2		162.0	
335	D86-automated	26.7		44.2		82.5		133.7		157.1	
337		-----		-----		-----		-----		-----	
338	ISO3405-automated	29.0		44.5		83.2		134.3		160.4	
343	ISO3405	33.1	C	42.9		82.6		134.2		165.0	
344	D86-automated	28.1		47.6		91.7		137.6		161.0	
352		-----		-----		-----		-----		-----	
365	D86-automated	35.3		45.6		83.8		135.4		164.1	
369	ISO3405-automated	31.3		48.0		88.6		136.7		159.9	
370	ISO3405-automated	29.9		45.3		85.4		134.7		160.5	
371	ISO3405-automated	29.8		46.0		84.8		134.5		160.9	
372	ISO3405-automated	28.7		45.3		84.9		134.4		164.8	
381	D86-automated	30.6		46.2		84.8		134.0		162.1	
391	ISO3405	27.3		44.9		84.2		134.5		163.9	
399	D86-automated	27.3		44.8		83.7		134.5		163.2	
404	D86-automated	30.1		49.3		92.8	C	137.7	C	163.8	
420	ISO3405-automated	29.8		43.2	C	82.5	C	134.0	C	168.6	
431	D86-automated	33.2		49.8		96.4		142.8	R(1)	164.2	
444	D86-automated	27.9		43.2		82.6		134.2		165.4	
445	IP123-automated	28.4		49.1		96.3		141.9	R(1)	164.2	
447	D86-automated	28.5		42.7		81.0		133.9		164.1	
467	ISO3405-automated	30.7		44.8		84.1		134.5		167.4	
480	D86-automated	28.15		45.05		83.30		134.50		161.45	
496	ISO3405-automated	28.6		45.3		84.4		133.8		162.6	
704	D86-manual	30.5		49.0		88.8	C	135.3	C	165.0	C
734	D86-automated	25.75		46.12		86.30		134.42		163.15	
736	ISO3405-manual	28.5		45.5		85.0		134.5		164.0	
752	ISO3405-manual	31.5		48.5		89.0		138.0		166.0	
759	D86-manual	31.0		47.0		88.5		134.0		165.5	
779	D86-manual	30.0		46.0		86.5		135.5		162.5	
781	ISO3405-automated	26.8		45.1		85.3		134.2		162.0	
782	GOST2177	28.5		45.0		85.0		134.5		162.0	
785	ISO3405-manual	29.5		46.0		86.0		135.5		162.0	
798	D86-automated	31.0		45.1		88.5		136.1		164.0	
873	ISO3405-manual	28.0		45.5		86.0		135.0		162.0	
875	ISO3405-manual	29.0		45.5		86.5		135.0		164.0	
904	ISO3405	28.4		43.6		83.3		134.0		162.8	
912	ISO3405	29.0		49.0		100	R(5)	143	R(1)	165	
914		-----		-----		-----		-----		-----	
963	ISO3405-automated	26.0		47.4		87.7		134.2		163.0	
971	D86-automated	26.2		45.9		86.7		135.4		164.6	
974	D86-automated	27.0		46.0		86.8		135.1		164.1	
994	D86-manual	30.0		45.0		91.3		136.5		166.0	
1006	D86-automated	29.7		46.5		86.5		134.8		165.0	
1011	ISO3405-automated	26.7		47.2		89.1		135.8		162.2	
1039	ISO3405-automated	27.9		44.8		83.4		134.4		164.5	
1040		-----		44.9		82.0		141.7	R(1)	165.3	
1059		-----		-----		-----		-----		-----	
1082	ISO3405-automated	28.3		45.5		92.2		141.5	R(1)	175.4	R(1)
1097	ISO3405-automated	26.5		45.7		87.0		135.3		164.7	
1108	ISO3405-automated	26.3		45.0		85.8		135.0		161.9	
1126		28.0		44.2		82.2		134.1		163.9	
1134	ISO3405-automated	28.8		44.8		83.7		134.5		164.0	
1140	IP123-automated	29.7		45.9		84.6		134.1		162.9	
1143	ISO3405-automated	28.6		44.4		83.6		134.5		163.5	
1191		27.6		44.3		83.2		134.2		164.0	
1194		-----		-----		-----		-----		-----	
1199		-----		-----		-----		-----		-----	
1205	D86-automated	27.6		44.7		84.6		134.9		164.4	
1212	D86-automated	27.6		44.5		86.1		135.1		167.5	
1227	D86-automated	31.2		45.6		81.7		133.3		158.9	
1259	ISO3405-automated	24.6		46.2		87.3		134.2		162.7	
1275	IP123-automated	28.2		46.7		85.9		133.8		162.5	

lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
1299	D86-automated	30.1		45.8		86.6		135.2		164.7	
1357	D86-automated	-----		44.4		83.1		134.8		160.9	
1389	D86-automated	26.0		48.3		90.7		137.2		164.3	
1397	ISO3405-automated	29.7		48.0		94.3		135.6	C	167.3	
1399	D86-automated	29.8		44.8		83.5		134.2		164.5	
1402	ISO3405-automated	28.7		46.2		87.3		135.3		166.5	
1406	ISO3405-automated	30.1		46.9		87.0		135.2		166.6	C
1438	D86-automated	29.2		46.3		87.0		134.7		164.8	
1459	ISO3405-automated	26.0		48.1		92.4		138.9	R(5)	162.9	
1491	ISO3405-automated	27.9		44.8		83.3		133.8		161.0	
1498	D86-automated	29.3		45.3		85.4		134.9		163.3	
1538		-----		-----		-----		-----		-----	
1557	ISO3405-automated	29.6		44.6		82.2		134.2		166.5	
1569	ISO3405-automated	29.1		43.2		84.9		134.6		162.2	
1575		-----		-----		-----		-----		-----	
1586	D86-automated	27.9		44.7		83.5		133.9		163.7	
1613	D86-automated	30.6		49.7		95.5		139.3	R(5)	166.3	
1616	D86-automated	27.4		46.8		87.6		134.8		165.7	
1631		27.5		-----		-----		-----		164.0	
1634	ISO3405-automated	28.2		44.6		87.1		135.4		165.7	
1635	ISO3405	27.7		47.6		91.4		137.2		165.4	
1650	ISO3405-automated	28.1		44.3		82.0		134.1		159.5	
1720		-----		-----		-----		-----		-----	
1724	D86-automated	26.3		45.7		83.6		133.9		162.6	
1728	D86-manual	28		45		84.5		134		167	
1741	ISO3405-automated	28.2		44.9		82.5		133.6		164.3	
1742	ISO3405-automated	29.78		43.52		81.59		134.06		166.54	
1753	ISO3405-manual	32.5		48.5	C	95.6	C	136.8	C	166.0	
1776	ISO3405-automated	26.5		46.1		86.2		134.4		161.1	
1810	D86-automated	28.8		46.1		85.3		134.7		164.9	
1811	D86-automated	28.2		46.5		86.8		134.5		165.5	
1833	ISO3405-automated	27		-----		-----		-----		163.1	
1849	ISO3405-automated	26.7		44.1		82.4		134.05		163.55	
1857	ISO3405-automated	29.4		46.6		84.9		134.5		163.3	
1864	ISO3405-automated	30.9		43.9		82.9		134.7		168.0	
1884	ISO3405-automated	31.4		52.4	C,R(5)	91.0		134.8		163.5	
1911	ISO3405-automated	28.75		44.70		84.05		134.00		162.45	
1953		27.7		44.6		81.8		134.0		163.5	
1958	D86-manual	38	R(1)	55	R(1)	101	R(5)	145	R(1)	193	R(1)
2129	ISO3405-automated	29.3		45.9		85.8		134.0		161.6	
2130	D86-automated	28.5		46.9		85.6		134.5		164.2	
2146	D86-automated	27.4		45.8		85.3		134.5		164.7	
6012	D86-manual	29.7		49.7		92.6	C	137.1	C	164.2	
6018	ISO3405-automated	27.9		45.5		83.1		133.9		162.4	
6019	ISO3405-automated	24.9		45.4		84.3		133.6		165.5	
6028		28.5		46.0		87.9		133.7		160.5	
6046	ISO3405-manual	31.8		49.7		92.7	C	137.7	C	161.8	
6054		-----		-----		-----		-----		-----	
6075		27.10		44.70		83.60		133.70		162.90	
6142		26.7		45.5		84.3		133.9		163.0	
6192		-----		-----		-----		-----		-----	
6203	ISO3405-automated	26.7		47.5		92.0		137.1		163.3	
6232	D86-manual	31.65	ex	51.9	C,R(5)	100.9	C,R(5)	147.9	C,R(1)	165.90	ex
6240	ISO3405-automated	26.1		45.7		86.7		134.6		163.4	
6258	ISO3405-automated	28.6		44.6		83.5		134.5		165.3	C
6299	ISO3405-automated	25.8		45.5		85.0		134.3		163.4	
6307	IP123-automated	25.95		44.50		82.55		134.30		164.65	
6321	IP123-automated	26.2		43.8		82.3		134.1		165.3	
6331	ISO3405-automated	28.6		45.9		85.8		133.9		160.7	
6332	D86-manual	32.5		49		89.5		137.5		167	
6346		-----		-----		-----		-----		-----	
6359	D86-automated	28.6		45.6		85.1		134.8		165.4	
6364	D86-automated	29.4		48.8		87.4		134.5		164.0	
6406	ISO3405-automated	27.9		44.9		83.3		134.2		164.0	
6416	D86-automated	29.4		45.2		85.2		135.1		164.3	
6444		-----		-----		-----		-----		-----	
6446	ISO3405-automated	27.4		44.4		82.4		134.0		162.0	
6447		-----		-----		-----		-----		-----	
6510	D86-automated	29.1		45.4		85.2		134.9		165.8	
6514	ISO3405-automated	26.1		45.8		85.4		133.7		164.7	
6539	D86-automated	30.2	ex	50.1	ex	99.3	R(5)	142.2	R(1)	171.5	R(5)
6540	D86-manual	34.0		49.5	C	89.0		136.0		167.0	

	IBP	10% eva	50% eva	90% eva	FBP
normality	OK	OK	suspect	not OK	OK
n	126	125	125	119	127
outliers	1(+2ex)	3(+1ex)	4	10	3(+1ex)
mean (n)	28.57	45.78	85.95	134.76	163.65
st.dev. (n)	1.934	1.646	3.590	1.057	2.097
R(calc.)	5.42	4.61	10.05	2.96	5.87
st.dev.(ISO3405-A:19)	1.679	1.412	1.397	1.908	2.536
R(ISO3405-A:19)	4.70	3.95	3.91	5.34	7.1
Compare					
R(ISO3405-M:19)	5.6	3.99	3.92	3.47	7.2

Lab 343 first reported 35.9
Lab 404 first reported 94.8, 140.6
Lab 420 first reported 47.8, 97.0, 142.8
Lab 704 first reported 96.0, 140.5, 156.5
Lab 1399 first reported 139.6
Lab 1406 first reported 170.6
Lab 1753 first reported 52.4, 98.0, 140.2
Lab 1884 first reported 50.9
Lab 6012 first reported 96.2, 140.2
Lab 6046 first reported 97.7, 141.7
Lab 6232 first reported 51.15, 101.4, 148.9, 156.3.
Lab 6540 first reported 53.0
Lab 6232 and 6539: test results excluded as three or more other test results are statictical outliers



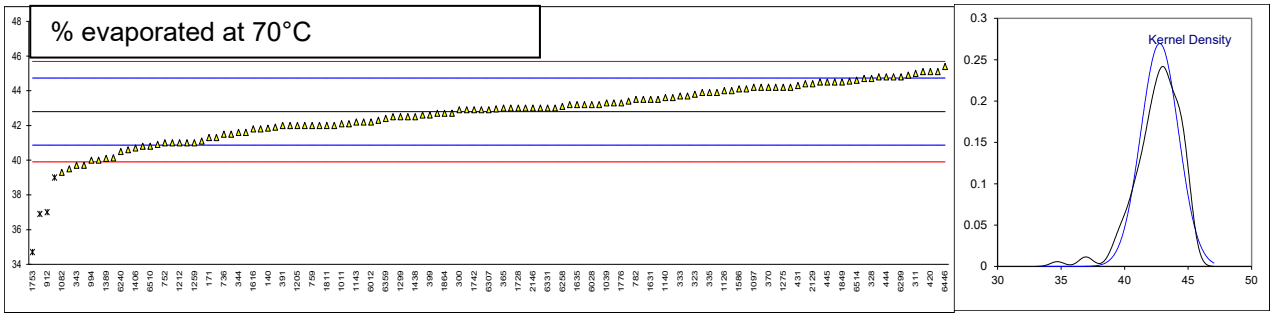
Determination of Distillation at 760 mmHg on sample #23185; results in %V/V

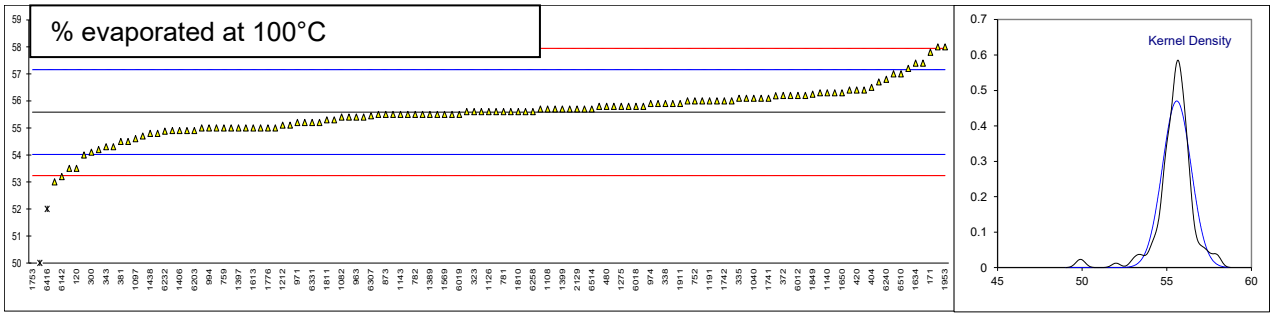
lab	method	%E70 °C	mark	%E100 °C	mark	%E150 °C	mark	%residue	%loss
120		42.0		53.5		95.1		1.0	2.0
140	D86-automated	41.84		58.00		95.65		1.0	2.2
171	D86-automated	41.3		57.8		95.1		1.0	3.4
225		-----		-----		-----		-----	-----
237	D86-manual	-----		-----		-----		1.0	1.0
238		-----		-----		-----		-----	-----
273		-----		-----		-----		-----	-----
300	ISO3405-automated	42.9		54.1		94.8		0.8	3.7
311	D86-automated	45.0		55.9		97.2		1.0	3.2
312	ISO3405-automated	44.5		56.0		97.1		1.0	3.0
323	ISO3405-automated	43.8		55.6		96.9		1.0	3.2
328	ISO3405-automated	44.7		56.1		97.8		0.4	2.9
333	ISO3405-automated	43.7		56.4		97.2		1.0	2.2
334	ISO3405-automated	42.1		55.5		97.0		1	2.8
335	D86-automated	43.9		56.1		96.2		1.0	-----
337		-----		-----		-----		-----	-----
338	ISO3405-automated	44.2		55.9		97.0		1.0	4.3
343	ISO3405	39.7		54.3		97.0		1.0	3.9
344	D86-automated	41.6		53.5		95.2		1.0	1.6
352		-----		-----		-----		-----	-----
365	D86-automated	43.0		56.7		97.0		0.9	3.6
369	ISO3405-automated	39.7		55.0		96.7		1.1	3.0
370	ISO3405-automated	44.2		55.6		97.0		1.0	2.0
371	ISO3405-automated	44.5		55.6		96.8		1.0	2.0
372	ISO3405-automated	41.3		56.2		95.8		1.0	2.1
381	D86-automated	41.6		54.5		95.5		0.8	1.9
391	ISO3405	42.0		55.7		95.4		0.7	2.8
399	D86-automated	42.6		55.5		97.0		0.8	2.8
404	D86-automated	43.9		56.5		97.4		0.7	3.4
420	ISO3405-automated	45.1		56.4		97.0		1.0	-----
431	D86-automated	44.3		56.2		96.9		1.0	3.7
444	D86-automated	44.8		55.6		96.8		1.0	4.0
445	IP123-automated	44.5		55.8		97.0		1.0	4.1
447	D86-automated	45.1		56.3		97.2		1.0	4.7
467	ISO3405-automated	42.6		55.4		96.8		0.9	2.3
480	D86-automated	44.55		55.80		96.95		1.0	2.0
496	ISO3405-automated	44.9		55.7		97.2		1.0	2.6
704	D86-manual	42.5		55.5		96.5		1.25	3.3
734	D86-automated	42.95		54.90		97.10		1.0	1.8
736	ISO3405-manual	41.5		55.0	C	94.5		1.0	2.5
752	ISO3405-manual	41.0		56.0		96.5		1.0	1.0
759	D86-manual	42.0		55.0		97.0		1.0	1.0
779	D86-manual	41.0		55.5		96.0		0.9	1.6
781	ISO3405-automated	44.2		55.6		96.8		1.2	1.8
782	GOST2177	43.5		55.5		96.0		1.0	3.0
785	ISO3405-manual	42.0		55.0		96.5		1.2	2.3
798	D86-automated	42.0		56.0		96.0		1.0	2.0
873	ISO3405-manual	44.0		55.5		97.5		0.8	1.7
875	ISO3405-manual	41.0		54.5		96.0		1.0	2.0
904	ISO3405	44.7		56.1		97.0		1.0	1.3
912	ISO3405	37	R(0.05)	50	R(0.01)	93	R(0.01)	1.2	0.8
914		-----		-----		-----		-----	-----
963	ISO3405-automated	42.3		55.4		97.7		0.7	0.3
971	D86-automated	41.5		55.2		96.7		1.1	1.7
974	D86-automated	40.9		55.9		96.0		1.1	1.7
994	D86-manual	40.0		55.0		96.5		-----	-----
1006	D86-automated	-----		-----		-----		1.0	2.3
1011	ISO3405-automated	42.1		54.2		96.3		1.4	0.8
1039	ISO3405-automated	43.3		55.9		97.1		1.0	3.3
1040		44.8		56.1		98.1		0.3	4.5
1059		-----		-----		-----		-----	-----
1082	ISO3405-automated	39.3		55.4		94.2	R(0.05)	1.0	-----
1097	ISO3405-automated	44.2		54.6		96.4		1.6	1.9
1108	ISO3405-automated	42.9		55.7		96.6		1.0	2.0
1126		44.0		55.6		94.1	R(0.05)	0.9	3.0
1134	ISO3405-automated	44.4		55.8		96.9		1.0	2.6
1140	IP123-automated	43.6		56.3		97.2		1.0	3.0
1143	ISO3405-automated	42.2		55.5		96.0		0.8	2.9
1191		42.7		56.0		97.0		1.0	-----
1194		-----		-----		-----		-----	-----
1199		-----		-----		-----		-----	-----
1205	D86-automated	42.0		55.1		96.8		1.0	3.3
1212	D86-automated	41.0		55.1		96.9		1.0	4.5
1227	D86-automated	42.71		56.19		95.02		0.4	3.63
1259	ISO3405-automated	41.0		54.0		95.6		1.0	1.5
1275	IP123-automated	44.2		55.8		97.2		1.0	2.6

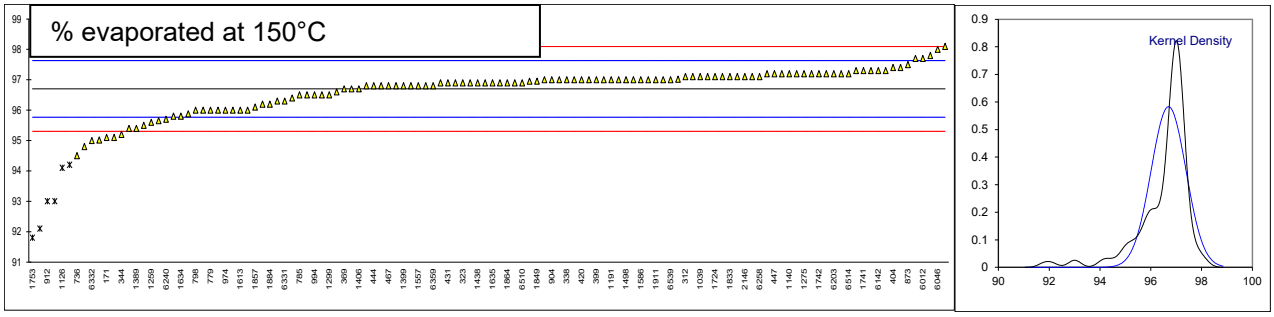
lab	method	%E70 °C	mark	%E100 °C	mark	%E150 °C	mark	%residue	%loss
1299	D86-automated	42.5		55.2		96.5		1.3	1.6
1357	D86-automated	-----		-----		-----		0.9	1.0
1389	D86-automated	40.1		55.5		95.4		1.0	1.3
1397	ISO3405-automated	42.5		55.0		96.9		1.0	2.5
1399	D86-automated	43.3		55.7		96.8		1.0	1.7
1402	ISO3405-automated	42.2		54.3		96.8		1.2	2.4
1406	ISO3405-automated	40.7		54.9		96.7		0.9	2.7
1438	D86-automated	42.5		54.8		96.9		1.0	3.0
1459	ISO3405-automated	44.2		55.5		96.9		1.0	2.4
1491	ISO3405-automated	43.5		56.0		97.3		0.9	2.9
1498	D86-automated	43		55		97		1.0	2.1
1538		-----		-----		-----		-----	-----
1557	ISO3405-automated	43.2		56.3		96.8		1.0	3.7
1569	ISO3405-automated	41.9		55.5		97.0		1.0	4.0
1575		-----		-----		-----		-----	-----
1586	D86-automated	44.1		55.8		97.0		1.0	4.1
1613	D86-automated	40.0		55.0		96.0		1.0	1.2
1616	D86-automated	41.8		54.8		96.8		1.0	0.7
1631		43.5		55.6		97.1		1.0	-----
1634	ISO3405-automated	40.6		57.4		95.8		1.1	2.9
1635	ISO3405	43.2		54.9		96.9		1.0	1.5
1650	ISO3405-automated	45.1		56.3		97.2		0.9	2.5
1720		-----		-----		-----		-----	-----
1724	D86-automated	43.9		56.4		97.1		1.0	1.8
1728	D86-manual	43		55		96		1	1
1741	ISO3405-automated	43.0		56.1		97.3		0.3	3.0
1742	ISO3405-automated	42.9		56.0		97.2		1.0	4.2
1753	ISO3405-manual	34.7	C,R(0.01)	49.8	C,R(0.01)	91.8	C,R(0.01)	0.9	1.1
1776	ISO3405-automated	43.3		55.0		97.1		-----	-----
1810	D86-automated	43.4		55.6		97		1	-----
1811	D86-automated	42.0		55.3		96.9		1.0	1.5
1833	ISO3405-automated	43.5		55.6		97.1		1	1
1849	ISO3405-automated	44.5		56.25		96.95		1	-----
1857	ISO3405-automated	41.1		55.4		96.1		1.0	1.8
1864	ISO3405-automated	42.7		55.7		96.9		1.0	2.7
1884	ISO3405-automated	36.9	C,R(0.05)	57.4		96.2		0.7	1.0
1911	ISO3405-automated	42.00		55.90		97.00		0.95	3.45
1953		41.8		58		96.9		1	3.40
1958	D86-manual	-----		-----		-----		0.5	2.5
2129	ISO3405-automated	44.4		55.7		97.0		1.2	2.3
2130	D86-automated	43.2		55.7		97.1		1.0	1.9
2146	D86-automated	43.0		55.5		97.1		1.0	1.7
6012	D86-manual	42.2		56.2		97.7		0.8	3.7
6018	ISO3405-automated	43.7		55.8		97.1		0.7	3.5
6019	ISO3405-automated	43.6		55.5		97.2		0.7	2.7
6028		43.2		54.7		97.3		0.7	0.9
6046	ISO3405-manual	43.0		57.0		98.0		1.0	4.9
6054		-----		-----		-----		-----	-----
6075		-----		-----		-----		0.70	2.70
6142		44.8		53.2		97.3		1.0	2.9
6192		-----		-----		-----		-----	-----
6203	ISO3405-automated	42.9		54.9		97.2		1.0	1.5
6232	D86-manual	40.13		54.88		95.88		1.13	5.88
6240	ISO3405-automated	40.5		56.8		95.7		1.0	1.5
6258	ISO3405-automated	43.1		55.6		97.1		1.0	3.6
6299	ISO3405-automated	44.8		55.3		97.4		0.7	1.9
6307	IP123-automated	42.90		55.45		>95		0.65	2.95
6321	IP123-automated	43.2		55.8		97.2		0.7	3.1
6331	ISO3405-automated	43.0		55.2		96.3		1.2	1.6
6332	D86-manual	39.5		55		95		0.9	1.1
6346		-----		-----		-----		-----	-----
6359	D86-automated	42.4		55.2		96.8		1.0	2.5
6364	D86-automated	40.8		57.2		93.0	C,R(0.01)	1.1	0.6
6406	ISO3405-automated	44.1		56.2		97.02		1.0	3.5
6416	D86-automated	39	ex	52	R(0.01)	92.1	R(0.01)	1.0	1.0
6444		-----		-----		-----		-----	-----
6446	ISO3405-automated	45.4		56.0		97.3		1.0	3.5
6447		-----		-----		-----		-----	-----
6510	D86-automated	40.8		57.0		96.9		1.0	3.0
6514	ISO3405-automated	44.6		55.7		97.2		1.0	1.9
6539	D86-automated	43		53		97		0.0	2.6
6540	D86-manual	-----		-----		-----		-----	-----

	%eva. at 70°C	%eva. at 100°C	%eva. at 150°C	
normality	OK	suspect	OK	
n	121	122	118	
outliers	3(+1ex)	3	6	
mean (n)	42.80	55.59	96.70	
st.dev. (n)	1.445	0.848	0.685	
R(calc.)	4.05	2.38	1.92	
st.dev.(ISO3405-A:19)	0.964	0.786	0.464	
R(ISO3405-A:19)	2.70	2.20	1.30	
Compare				
R(ISO3405-M:19)	n.a.	n.a.	n.a.	

Lab 736 first reported 53.0
Lab 1753 first reported 37.0, 51.5, 93.1
Lab 1884 first reported 35.4
Lab 6364 first reported 89.8
Lab 6416 test result excluded as the other two test results are statistical outliers







Determination of Doctor Test on sample #23185;

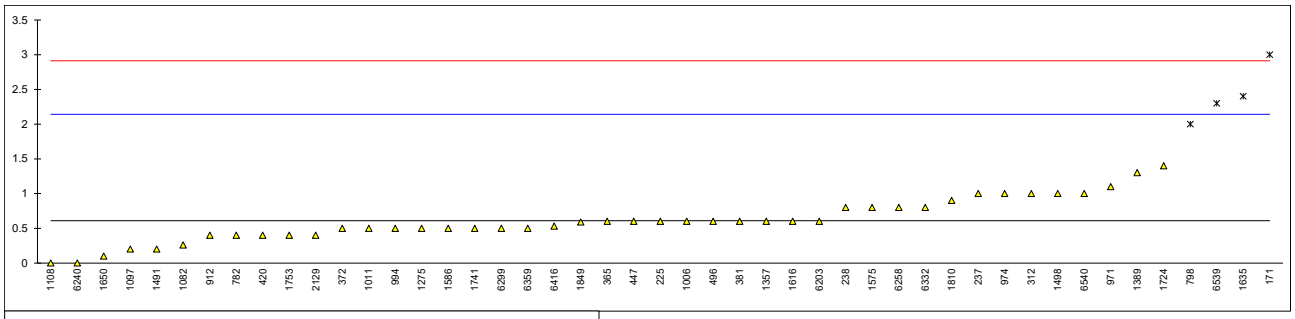
lab	method	value	lab	method	value
120	D4952	negative	1259		-----
140	D4952	Negative	1275	IP30	Doctor negative mercaptans [thiols] absent
171	D4952	Negative	1299		-----
225	D4952	Negative	1357	D4952	Negative
237	D4952	NEGATIVE	1389	IP30	Negative
238	D4952	Negative	1397		-----
273		-----	1399	IP30	Negative
300		-----	1402	IP30	Negative
311	D4952	neg	1406		-----
312	IP30	negative	1438		-----
323	D4952	negative	1459		-----
328	D4952	Negative	1491		-----
333		-----	1498		-----
334	D4952	Negative	1538		-----
335		-----	1557		-----
337		-----	1569		-----
338		-----	1575		-----
343		-----	1586	IP30	NEGATIVE
344		-----	1613	D4952	negative
352		-----	1616	D4952	Negative
365		-----	1631		-----
369		-----	1634		-----
370		-----	1635		-----
371		-----	1650		-----
372	ISO5275	Negative	1720		-----
381		-----	1724		-----
391	D4952	NEGATIVE	1728	D4952	Negative
399	D4952	NEGATIVE	1741		-----
404		-----	1742		-----
420		-----	1753		-----
431		-----	1776		-----
444		-----	1810		-----
445	IP30	-ve	1811		-----
447	D4952	Negative	1833	D4952	Negative
467	IP30	negative	1849		-----
480		-----	1857		-----
496	D4952	negative	1864		-----
704	D4952	negative	1884		-----
734		-----	1911		-----
736	D4952	negative	1953		-----
752		-----	1958		-----
759		-----	2129	IP30	Negative
779		-----	2130	IP30	Negative
781	IP30	negative	2146		-----
782		-----	6012		-----
785	D4952	negative	6018		-----
798		-----	6019		-----
873	D4952	sweet	6028		-----
875	D4952	negative	6046	D4952	neg.
904		-----	6054		-----
912		Negative	6075		-----
914		-----	6142	IP30	Neg
963	IP30	Negative	6192		-----
971	IP30	Negative	6203		-----
974	D4952	Negative	6232		-----
994	D4952	negative	6240	D4952	Negative
1006		-----	6258	IP30	Negative
1011		-----	6299		-----
1039	D4952	negative	6307		-----
1040		-----	6321		-----
1059	ISO5275	negative	6331		-----
1082		-----	6332		-----
1097		-----	6346		-----
1108		-----	6359	D4952	negative
1126		-----	6364	D4952	-VE
1134	D4952	Negative	6406		Negative
1140	IP30	Negative	6416		-----
1143	ISO5275	negative	6444		-----
1191		-----	6446		-----
1194		-----	6447		-----
1199		-----	6510	D4952	Negative
1205		-----	6514		-----
1212	D4952	Neg.	6539		-----
1227		-----	6540	IP30	Negative

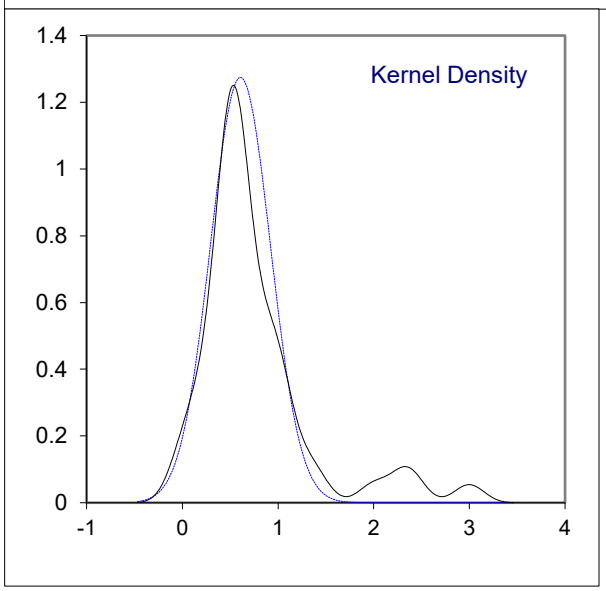
n	56
mean (n)	negative

Determination of Gum (solvent washed) on sample #23185; results in mg/100 mL

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		-----		-----
140	D381	<0.5		-----	1275	IP131	0.5		-0.14
171	D381	3.0	R(0.01)	3.12	1299	D381	<0.5		-----
225	D381	0.6		-0.01	1357	D381	0.6		-0.01
237	D381	1.0		0.51	1389	ISO6246	1.3		0.90
238	D381	0.8		0.25	1397		-----		-----
273		-----		-----	1399		-----		-----
300		-----		-----	1402	ISO6246	<0.5		-----
311	D381	<0.5		-----	1406		-----		-----
312	ISO6246	1.0		0.51	1438		-----		-----
323	D381	< 0.5		-----	1459		-----		-----
328		-----		-----	1491	ISO6246	0.2		-0.53
333		-----		-----	1498	D381	1		0.51
334	ISO6246	<0.5		-----	1538		-----		-----
335	ISO6246	< 0.5		-----	1557		-----		-----
337		-----		-----	1569		-----		-----
338		-----		-----	1575	D381	0.8		0.25
343	D381	<0.5		-----	1586	ISO6246	0.5		-0.14
344		-----		-----	1613	D381	<0.5		-----
352		-----		-----	1616	D381	0.6		-0.01
365	IP131	0.6		-0.01	1631		-----		-----
369	ISO6246	<0.5		-----	1634		-----		-----
370	ISO6246	<0.5		-----	1635	ISO6246	2.4	R(0.01)	2.33
371		-----		-----	1650	ISO6246	0.1		-0.66
372	ISO6246	0.5		-0.14	1720		-----		-----
381	ISO6246	0.6		-0.01	1724	D381	1.4		1.03
391		-----		-----	1728		-----		-----
399	D381	<0.5		-----	1741	ISO6246	0.5		-0.14
404		-----		-----	1742		-----		-----
420	ISO6246	0.4		-0.27	1753	ISO6246	0.4		-0.27
431		-----		-----	1776		-----		-----
444		-----		-----	1810	ISO6246	0.9		0.38
445	ISO6246	<0.5		-----	1811		-----		-----
447	D381	0.6		-0.01	1833	ISO6246	<1		-----
467	ISO6246	<1		-----	1849	ISO6246	0.59		-0.02
480		-----		-----	1857	ISO6246	< 0.5		-----
496	ISO6246	0.6		-0.01	1864	ISO6246	<0,5		-----
704		-----		-----	1884		-----		-----
734		-----		-----	1911		-----		-----
736	D381	<0.5		-----	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	ISO6246	0.4		-0.27
779		-----		-----	2130	IP131	<1		-----
781		-----		-----	2146		-----		-----
782	D381	0.4		-0.27	6012		-----		-----
785		-----		-----	6018		-----		-----
798	D381	2.0	R(0.01)	1.81	6019		-----		-----
873		-----		-----	6028	ISO6246	<0.5		-----
875	D381	<0.5		-----	6046		-----		-----
904		-----		-----	6054		-----		-----
912	ISO6246	0.40		-0.27	6075		<0.5		-----
914		-----		-----	6142		-----		-----
963	D381	<0.5		-----	6192		-----		-----
971	D381	1.1		0.64	6203	ISO6246	0.6		-0.01
974	D381	1.0		0.51	6232		-----		-----
994	D381	0.5		-0.14	6240	D381	0		-0.79
1006	D381	0.6		-0.01	6258	ISO6246	0.8		0.25
1011	ISO6246	0.5		-0.14	6299	ISO6246	0.5		-0.14
1039	ISO6246	<1		-----	6307		-----		-----
1040		-----		-----	6321	IP131	<0.5		-----
1059	ISO6246	<0,5		-----	6331		-----		-----
1082	ISO6246	0.26		-0.45	6332	D381	0.8		0.25
1097	ISO6246	0.2		-0.53	6346		-----		-----
1108	ISO6246	0.0		-0.79	6359	ISO6246	0.5		-0.14
1126		-----		-----	6364		-----		-----
1134		-----		-----	6406	ISO6246	<0.5		-----
1140	IP131	<0.5		-----	6416	D381	0.53		-0.10
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446	ISO6246	<0,5		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	D381	<0.5		-----
1205		-----		-----	6514		-----		-----
1212	ISO6246	<0,5		-----	6539	D381	2.3	R(0.01)	2.20
1227		-----		-----	6540	D381	1.0		0.51

normality	OK
n	43
outliers	4
mean (n)	0.609
st.dev. (n)	0.3131
R(calc.)	0.877
st.dev.(ISO6246:17)	0.7675
R(ISO6246:17)	2.149





Determination of Lead as Pb on sample #23185; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		-----		-----
140	D3237	<2.5		-----	1275		-----		-----
171	D3237	0.0		-----	1299		-----		-----
225		-----		-----	1357		-----		-----
237	IP352	<2.5		-----	1389	EN237	<2.5		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399	D5059C	<0.29		-----
300		-----		-----	1402	EN237	<2.5		-----
311		-----		-----	1406		-----		-----
312	EN237	<2.5		-----	1438		-----		-----
323	EN237	< 2.5		-----	1459	EN13723	0.000		-----
328		-----		-----	1491		-----		-----
333		-----		-----	1498		-----		-----
334	EN237	<2.5		-----	1538		-----		-----
335		-----		-----	1557		-----		-----
337		-----		-----	1569	In house	<1		-----
338		-----		-----	1575	D3237	<3		-----
343		-----		-----	1586	EN237	<0.1		-----
344		-----		-----	1613	D3237	<2.5		-----
352		-----		-----	1616		-----		-----
365		-----		-----	1631	EN237	<3.0		-----
369		-----		-----	1634		-----		-----
370		-----		-----	1635		-----		-----
371	EN237	<2.5		-----	1650		-----		-----
372	EN237	<2.5		-----	1720		-----		-----
381	EN237	<2,5		-----	1724	IP428	<3,0		-----
391		-----		-----	1728	EN237	<2.5		-----
399		-----		-----	1741	EN237	<2,5		-----
404	EN237	<2.5		-----	1742		-----		-----
420	EN237	0.2		-----	1753	EN237	<2.5		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1810		-----		-----
445		-----		-----	1811		-----		-----
447	IP428	0.13		-----	1833	EN237	<3		-----
467	INH-16136	<1,4		-----	1849		-----		-----
480		-----		-----	1857	EN237	< 2.5		-----
496	EN237	0		-----	1864	EN237	<2,5		-----
704	EN237	<2.5		-----	1884	In house	<0.01		-----
734		-----		-----	1911		-----		-----
736	EN237	<2.5		-----	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	EN237	0.0		-----
779		-----		-----	2130		-----		-----
781	EN237	less 2.5		-----	2146	In house	<2		-----
782		-----		-----	6012	D3237	<2,5		-----
785		-----		-----	6018		-----		-----
798		-----		-----	6019		-----		-----
873	EN237	Less 2.5		-----	6028	EN237	<0.1		-----
875	EN237	<2.5		-----	6046	D3237	<2,5		-----
904		-----		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142		-----		-----
963	D3237	<2.5		-----	6192		-----		-----
971	D3237	<2.5		-----	6203	EN237	<0.23		-----
974		-----		-----	6232	D5059	<2,5		-----
994	EN237	<2.5		-----	6240	EN237	0		-----
1006	D3237	<2.5		-----	6258	D3237	0.14		-----
1011		-----		-----	6299		-----		-----
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059	EN13723	<2,5		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108		-----		-----	6359	EN237	<2,5		-----
1126		-----		-----	6364		-----		-----
1134		-----		-----	6406		-----		-----
1140	In house	<0.5		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191	D8110	0		-----	6446		-----		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	D3237	<2.5		-----
1205		-----		-----	6514		-----		-----
1212	EN237	<2,5		-----	6539	D5059-A	36.40	f+?	-----
1227		-----		-----	6540		-----		-----

n	51
mean (n)	<2.5

Lab 6539 possibly a false positive test result?

Determination of Manganese as Mn on sample #23185; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		-----		-----
140	D3831	<0.5		-----	1275		-----		-----
171	D3831	0.0		-----	1299		-----		-----
225		-----		-----	1357		-----		-----
237	EN16136	<0.5		-----	1389	D3831	<0.25		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399	D5059D	<0.26		-----
300		-----		-----	1402	EN16135	<2		-----
311		-----		-----	1406		-----		-----
312	EN16136	<0.5		-----	1438		-----		-----
323	EN16136	< 0.50		-----	1459		-----		-----
328		-----		-----	1491		-----		-----
333	EN16135	<2		-----	1498		-----		-----
334	EN16135	<0.5		-----	1538		-----		-----
335		-----		-----	1557		-----		-----
337		-----		-----	1569	In house	<0,1		-----
338		-----		-----	1575	D3831	<0.25		-----
343		-----		-----	1586	EN16135	0.09		-----
344		-----		-----	1613	EN16135	<0.5		-----
352		-----		-----	1616		-----		-----
365		-----		-----	1631	EN16135	<2.0		-----
369	EN16136	<0.5		-----	1634		-----		-----
370		-----		-----	1635		-----		-----
371	EN16135	<2.0		-----	1650		-----		-----
372	EN16135	<2.0		-----	1720		-----		-----
381	EN16135	<2,0		-----	1724	EN16135	<2,0		-----
391		-----		-----	1728		-----		-----
399		-----		-----	1741	EN16135	<2,0		-----
404	EN16135	<2		-----	1742		-----		-----
420	EN16135	<0,5		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1810		-----		-----
445	EN16135	<0.2		-----	1811		-----		-----
447	IP588	0		-----	1833	EN16135	<2		-----
467	EN16136	<0,5		-----	1849		-----		-----
480		-----		-----	1857	EN16135	< 0.025		-----
496		-----		-----	1864	EN16135	<2,0		-----
704	EN16136	<0.50		-----	1884		-----		-----
734		-----		-----	1911		-----		-----
736	EN16135	<2.0		-----	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	EN16135	<0.1		-----
779		-----		-----	2130		-----		-----
781	EN16136	less 0.5		-----	2146	In house	<1		-----
782		-----		-----	6012		-----		-----
785		-----		-----	6018		-----		-----
798		-----		-----	6019		-----		-----
873		-----		-----	6028	EN16135	nul		-----
875	GOST P51925	<0.25		-----	6046		-----		-----
904	EN16136	<0,5		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142		-----		-----
963	EN16136	<0.5		-----	6192		-----		-----
971	D3831	<0.25		-----	6203	EN16135	<0.2		-----
974		-----		-----	6232		-----		-----
994	EN16135	<0.5		-----	6240	EN16136	0		-----
1006		-----		-----	6258	EN16136	0.13		-----
1011		-----		-----	6299		-----		-----
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059		-----		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108		-----		-----	6359	EN16135	<0,20		-----
1126		-----		-----	6364		-----		-----
1134		-----		-----	6406		-----		-----
1140	EN16136	<0.5		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191	D8110	0.0006696		-----	6446		-----		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	D3831	<0.25		-----
1205		-----		-----	6514		-----		-----
1212		-----		-----	6539		-----		-----
1227		-----		-----	6540		-----		-----

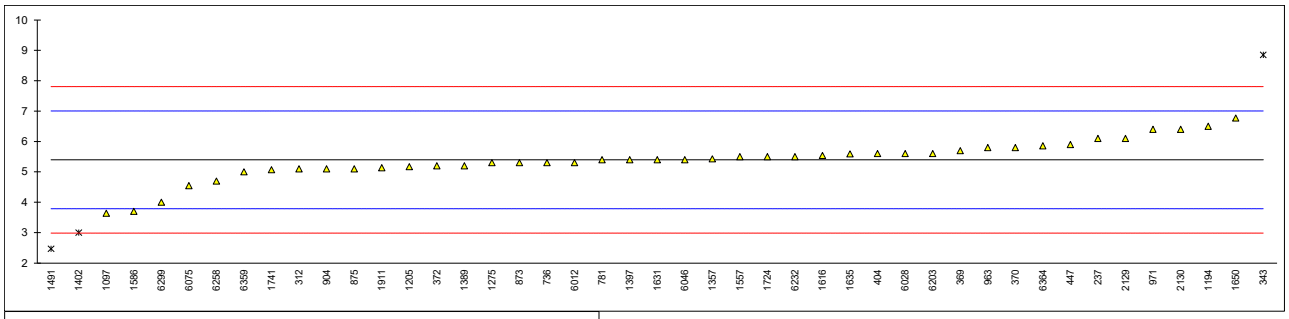
n	47
mean (n)	<2

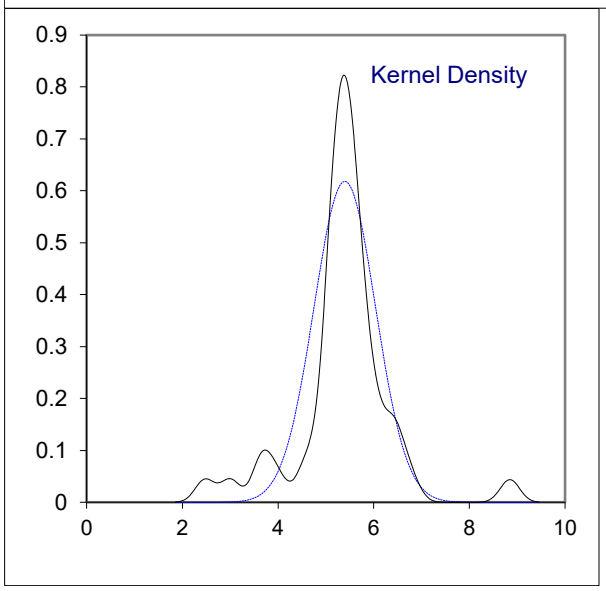
Determination of Olefins by FIA (without oxygenates correction) on sample #23185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		-----		-----
140		-----		-----	1275	IP156	5.3		-0.12
171		-----		-----	1299		-----		-----
225		-----		-----	1357	D1319	5.43		0.04
237	D1319	6.1		0.87	1389	D1319	5.2	C	-0.24
238		-----		-----	1397	EN15553	5.4		0.00
273		-----		-----	1399		-----		-----
300		-----		-----	1402	D1319	3.0	R(0.05)	-2.98
311		-----		-----	1406		-----		-----
312	EN15553	5.1		-0.37	1438		-----		-----
323		-----		-----	1459		-----		-----
328		-----		-----	1491	In house	2.47	R(0.05)	-3.64
333		-----		-----	1498		-----		-----
334		-----		-----	1538		-----		-----
335		-----		-----	1557	In house	5.5		0.13
337		-----		-----	1569		-----		-----
338		-----		-----	1575		-----		-----
343	D1319	8.85	C,R(0.01)	4.30	1586	D1319	3.7		-2.11
344		-----		-----	1613		-----		-----
352		-----		-----	1616	D1319	5.54		0.18
365		-----		-----	1631	EN15553	5.4		0.00
369	EN15553	5.7		0.38	1634		-----		-----
370	EN15553	5.8		0.50	1635	ISO3837	5.59		0.24
371		-----		-----	1650	EN15553	6.77		1.71
372	EN15553	5.2		-0.24	1720		-----		-----
381		-----		-----	1724	D1319	5.5		0.13
391		-----		-----	1728		-----		-----
399		-----		-----	1741	EN15553	5.07		-0.41
404	EN15553	5.6		0.25	1742		-----		-----
420		-----		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1810		-----		-----
445		-----		-----	1811		-----		-----
447	D1319	5.9		0.63	1833		-----		-----
467	D1319	<4		-----	1849		-----		-----
480		-----		-----	1857		-----		-----
496		-----		-----	1864		-----	W	-----
704		-----		-----	1884		-----		-----
734		-----		-----	1911	EN15553	5.14		-0.32
736	EN15553	5.3		-0.12	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	EN15553	6.1		0.87
779		-----		-----	2130	D1319	6.4	C	1.25
781	EN15553	5.4		0.00	2146		-----		-----
782		-----		-----	6012	D1319	5.3		-0.12
785		-----		-----	6018		-----		-----
798		-----		-----	6019		-----		-----
873	EN15553	5.3		-0.12	6028	D1319	5.6		0.25
875	EN15553	5.1		-0.37	6046	D1319	5.4		0.00
904	EN15553	5.1		-0.37	6054		-----		-----
912		-----		-----	6075	D1319	4.55		-1.05
914		-----		-----	6142		-----		-----
963	D1319	5.8	C	0.50	6192		-----		-----
971	D1319	6.4		1.25	6203	D1319	5.6		0.25
974		-----		-----	6232	D1319	5.50		0.13
994		-----		-----	6240		-----		-----
1006		-----		-----	6258	EN15553	4.7		-0.87
1011		-----		-----	6299	EN15553	4.0	C	-1.74
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059		-----		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097	D1319	3.64	C	-2.19	6346		-----		-----
1108		-----		-----	6359	EN15553	5.0		-0.49
1126		-----		-----	6364	D1319	5.8603		0.58
1134		-----		-----	6406		-----		-----
1140		-----		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446		-----		-----
1194	D1319	6.5		1.37	6447		-----		-----
1199		-----		-----	6510		-----		-----
1205	D1319	5.1729		-0.28	6514		-----		-----
1212		-----		-----	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	suspect
n	42
outliers	3
mean (n)	5.397
st.dev. (n)	0.6455
R(calc.)	1.807
st.dev.(EN15553:21)	0.8038
R(EN15553:21)	2.251

Lab 343 first reported 8.6
Lab 963 first reported 2.3
Lab 1097 first reported 2.77
Lab 1389 first reported 6.95
Lab 1864 test result withdrawn, reported 3.055
Lab 2130 first reported 9.6
Lab 6299 first reported 2.7



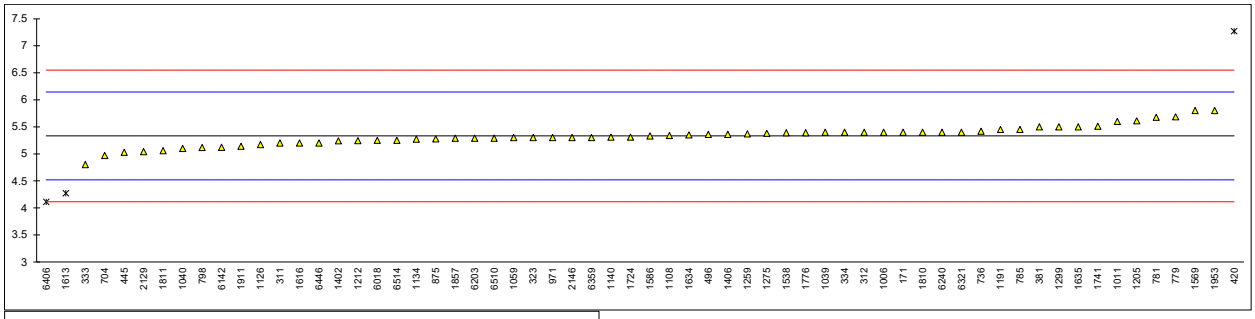


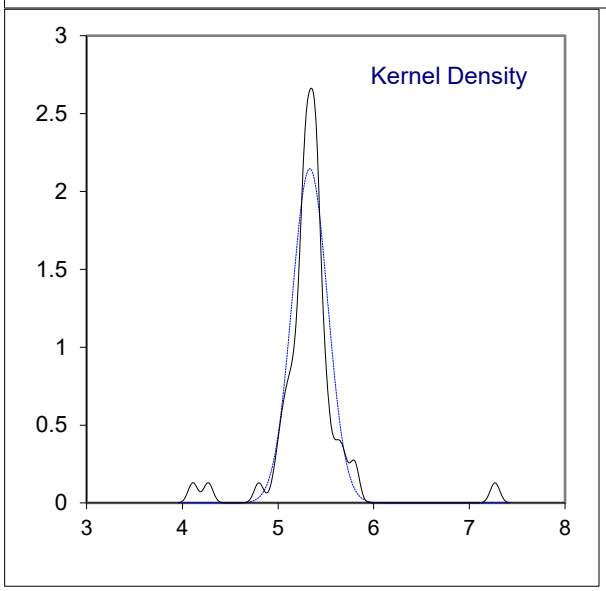
Determination of Olefins by GC on sample #23185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259	ISO22854-A	5.37		0.09
140		-----		-----	1275	ISO22854-A	5.38		0.12
171	ISO22854-A	5.4		0.17	1299	ISO22854-A	5.5		0.41
225		-----		-----	1357		-----		-----
237		-----		-----	1389		-----		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399		-----		-----
300		-----		-----	1402	ISO22854-A	5.24		-0.23
311	ISO22854-A	5.2		-0.33	1406	ISO22854-A	5.36		0.07
312	ISO22854-A	5.4		0.17	1438		-----		-----
323	ISO22854-A	5.3		-0.08	1459		-----		-----
328		-----		-----	1491		-----		-----
333	ISO22854-A	4.8		-1.31	1498		-----		-----
334	ISO22854-A	5.4		0.17	1538	ISO22854-A	5.39		0.14
335		-----		-----	1557		-----		-----
337		-----		-----	1569	EN14517	5.80		1.15
338		-----		-----	1575		-----		-----
343		-----		-----	1586	ISO22854-A	5.33		-0.01
344		-----		-----	1613	D6839	4.27	R(0.01)	-2.61
352		-----		-----	1616	D6839	5.200		-0.33
365		-----		-----	1631		-----		-----
369		-----		-----	1634	ISO22854-A	5.35		0.04
370		-----		-----	1635	ISO22854-A	5.5		0.41
371		-----		-----	1650		-----		-----
372		-----		-----	1720		-----		-----
381	ISO22854-A	5.5		0.41	1724	ISO22854-A	5.31		-0.06
391		-----		-----	1728		-----		-----
399		-----		-----	1741	ISO22854-A	5.51		0.44
404		-----		-----	1742		-----		-----
420	ISO22854-A	7.27	R(0.01)	4.76	1753		-----		-----
431		-----		-----	1776	ISO22854-A	5.39		0.14
444		-----		-----	1810	ISO22854-A	5.4		0.17
445	ISO22854-A	5.03		-0.74	1811	ISO22854-A	5.06		-0.67
447		-----		-----	1833		-----	W	-----
467		-----		-----	1849		-----		-----
480		-----		-----	1857	ISO22854-A	5.29	C	-0.11
496	ISO22854-A	5.36		0.07	1864		-----		-----
704	D6730	4.970		-0.89	1884		-----		-----
734		-----		-----	1911	ISO22854-A	5.14		-0.47
736	D6730	5.418		0.21	1953	In house	5.8		1.15
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	5.04		-0.72
779	D6729	5.683		0.86	2130		-----		-----
781	D6729	5.677		0.85	2146	ISO22854-A	5.3		-0.08
782		-----		-----	6012		-----		-----
785	D6729	5.450		0.29	6018	ISO22854-A	5.25		-0.20
798	D6729	5.115		-0.54	6019		-----		-----
873		-----		-----	6028		-----		-----
875	D6729	5.275		-0.14	6046		-----		-----
904		-----		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142	ISO22854-A	5.12		-0.52
963		-----		-----	6192		-----		-----
971	D6839	5.30		-0.08	6203	ISO22854-A	5.29		-0.11
974		-----		-----	6232		-----		-----
994		-----		-----	6240	ISO22854-A	5.4		0.17
1006	D6730	5.4		0.17	6258		-----		-----
1011	ISO22854-A	5.6		0.66	6299		-----		-----
1039	ISO22854-A	5.4		0.17	6307		-----		-----
1040	ISO22854-A	5.10		-0.57	6321	ISO22854-A	5.4		0.17
1059	ISO22854-A	5.3		-0.08	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO22854-A	5.34		0.02	6359	ISO22854-A	5.3		-0.08
1126	ISO22854-A	5.17		-0.40	6364		-----		-----
1134	ISO22854-A	5.27		-0.15	6406	ISO22854-A	4.11	R(0.01)	-3.01
1140	ISO22854-A	5.31		-0.06	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191	ISO22854-A	5.45		0.29	6446	ISO22854-A	5.2		-0.33
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	5.29		-0.11
1205	D8071	5.612		0.69	6514	ISO22854-A	5.25		-0.20
1212	ISO22854-A	5.245		-0.22	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	suspect
n	59
outliers	3
mean (n)	5.333
st.dev. (n)	0.1859
R(calc.)	0.521
st.dev.(ISO22854-A:21)	0.4068
R(ISO22854-A:21)	1.139

Lab 1833 test result withdrawn, reported 5.38
Lab 1857 first reported 5.40



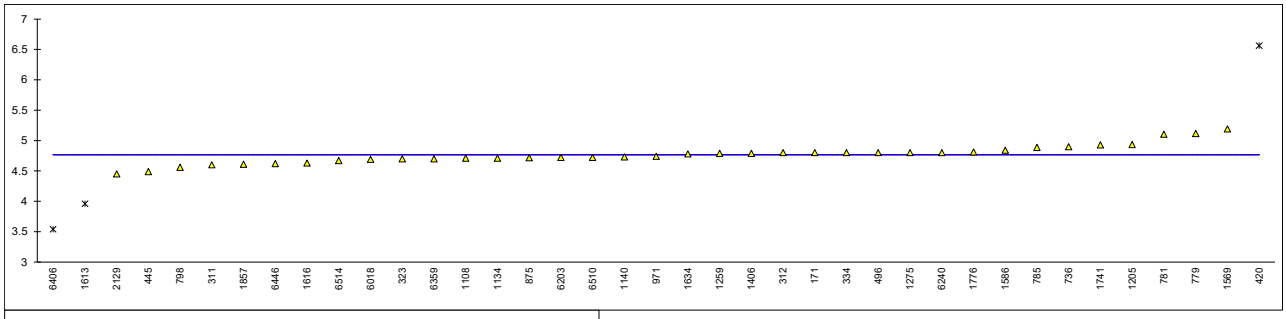


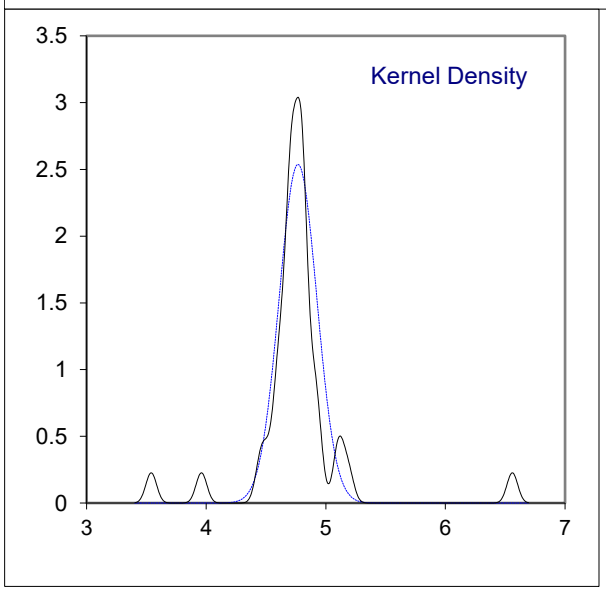
Determination of Olefins by GC on sample #23185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259	ISO22854-A	4.79		-----
140		-----		-----	1275	ISO22854-A	4.80		-----
171	ISO22854-A	4.8		-----	1299		-----		-----
225		-----		-----	1357		-----		-----
237		-----		-----	1389		-----		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399		-----		-----
300		-----		-----	1402		-----		-----
311	ISO22854-A	4.6		-----	1406	ISO22854-A	4.79		-----
312	ISO22854-A	4.8		-----	1438		-----		-----
323	ISO22854-A	4.7		-----	1459		-----		-----
328		-----		-----	1491		-----		-----
333		-----		-----	1498		-----		-----
334	ISO22854-A	4.8		-----	1538		-----		-----
335		-----		-----	1557		-----		-----
337		-----		-----	1569	EN14517	5.19		-----
338		-----		-----	1575		-----		-----
343		-----		-----	1586	ISO22854-A	4.84		-----
344		-----		-----	1613	D6839	3.96	R(0.01)	-----
352		-----		-----	1616	D6839	4.63		-----
365		-----		-----	1631		-----		-----
369		-----		-----	1634	ISO22854-A	4.78		-----
370		-----		-----	1635		-----		-----
371		-----		-----	1650		-----		-----
372		-----		-----	1720		-----		-----
381		-----		-----	1724		-----		-----
391		-----		-----	1728		-----		-----
399		-----		-----	1741	ISO22854-A	4.93		-----
404		-----		-----	1742		-----		-----
420	ISO22854-A	6.56	R(0.01)	-----	1753		-----		-----
431		-----		-----	1776	ISO22854-A	4.81		-----
444		-----		-----	1810		-----		-----
445	ISO22854-A	4.49		-----	1811		-----		-----
447		-----		-----	1833		-----		-----
467		-----		-----	1849		-----		-----
480		-----		-----	1857	ISO22854-A	4.61	C	-----
496	ISO22854-A	4.8		-----	1864		-----		-----
704		-----		-----	1884		-----		-----
734		-----		-----	1911		-----		-----
736	D6730	4.898		-----	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	4.45		-----
779	D6729	5.115		-----	2130		-----		-----
781	D6729	5.102		-----	2146		-----		-----
782		-----		-----	6012		-----		-----
785	D6729	4.886		-----	6018	ISO22854-A	4.69		-----
798	D6729	4.558		-----	6019		-----		-----
873		-----		-----	6028		-----		-----
875	D6729	4.716		-----	6046		-----		-----
904		-----		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142		-----		-----
963		-----		-----	6192		-----		-----
971	D6839	4.74		-----	6203	ISO22854-A	4.72		-----
974		-----		-----	6232		-----		-----
994		-----		-----	6240	ISO22854-A	4.8		-----
1006		-----		-----	6258		-----		-----
1011		-----		-----	6299		-----		-----
1039		-----		-----	6307		-----		-----
1040		-----		-----	6321		-----		-----
1059		-----		-----	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO22854-A	4.71		-----	6359	ISO22854-A	4.7		-----
1126		-----		-----	6364		-----		-----
1134	ISO22854-A	4.71		-----	6406		3.54	R(0.01)	-----
1140	ISO22854-A	4.73		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446	ISO22854-A	4.62		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	4.72		-----
1205	D8071	4.933		-----	6514	ISO22854-A	4.67		-----
1212		-----		-----	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	suspect
n	36
outliers	3
mean (n)	4.767
st.dev. (n)	0.1573
R(calc.)	0.441
st.dev.(lit)	unknown
R(lit)	unknown

Lab 1857 first reported 4.78





Determination of Oxidation Stability on sample #23185; results in minutes

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1259		-----		-----
140	D525	>900		-----	1275		-----		-----
171	D525	>900		-----	1299	D525	>900		-----
225		-----		-----	1357	D525	>360		-----
237	D525	>900		-----	1389	D525	>360		-----
238		-----		-----	1397		-----		-----
273		-----		-----	1399		-----		-----
300		-----		-----	1402	D525	>900		-----
311	D525	>900		-----	1406		-----		-----
312	ISO7536	>900		-----	1438		-----		-----
323	D525	>900		-----	1459		-----		-----
328	ISO7536	>900		-----	1491		-----		-----
333		-----		-----	1498		-----		-----
334	ISO7536	> 360		-----	1538		-----		-----
335		-----		-----	1557		-----		-----
337		-----		-----	1569	ISO7536	>900		-----
338		-----		-----	1575		-----		-----
343	D525	>360		-----	1586	D525	>900		-----
344		-----		-----	1613	D525	>900		-----
352		-----		-----	1616	D525	>900		-----
365		-----		-----	1631		-----		-----
369		-----		-----	1634		-----		-----
370		-----		-----	1635	ISO7536	>360		-----
371	ISO7536	>900		-----	1650		-----		-----
372	ISO7536	>900		-----	1720		-----		-----
381		-----		-----	1724		-----		-----
391	ISO7536	>360		-----	1728	D525	>900		-----
399	D525	>360		-----	1741	ISO7536	>985		-----
404		-----		-----	1742		-----		-----
420	ISO7536	>600		-----	1753		-----		-----
431		-----		-----	1776		-----		-----
444		-----		-----	1810		-----		-----
445		-----		-----	1811		-----		-----
447	D525	>900		-----	1833	ISO7536	>360		-----
467	D525	>900		-----	1849	ISO7536	>900		-----
480		-----		-----	1857	D525	>900		-----
496	ISO7536	>900		-----	1864	ISO7536	>360		-----
704		-----		-----	1884	D525	>900		-----
734		-----		-----	1911		-----		-----
736	ISO7536	> 900		-----	1953		-----		-----
752		-----		-----	1958		-----		-----
759		-----		-----	2129	ISO7536	>900		-----
779		-----		-----	2130	IP40	>900		-----
781	ISO7536	more 900		-----	2146		-----		-----
782		-----		-----	6012		-----		-----
785		-----		-----	6018		-----		-----
798	D525	>360		-----	6019		-----		-----
873		-----		-----	6028		-----		-----
875		-----		-----	6046		-----		-----
904		-----		-----	6054		-----		-----
912		-----		-----	6075		-----		-----
914		-----		-----	6142		-----		-----
963	D525	>480		-----	6192		-----		-----
971	D525	>360		-----	6203	ISO7536	>900		-----
974		-----		-----	6232		-----		-----
994		-----		-----	6240	ISO7536	>900		-----
1006		-----		-----	6258	ISO7536	>900		-----
1011	ISO7536	>400		-----	6299		-----		-----
1039	ISO7536	>900		-----	6307		-----		-----
1040		-----		-----	6321	IP40	>1000		-----
1059	ISO7536	>900		-----	6331		-----		-----
1082	ISO7536	>1500		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO7536	> 900		-----	6359		-----		-----
1126		-----		-----	6364	D525	>720		-----
1134		-----		-----	6406	ISO7536	>900		-----
1140	IP40	360		-----	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191		-----		-----	6446	ISO7536	>1000		-----
1194		-----		-----	6447		-----		-----
1199		-----		-----	6510	D525	>900		-----
1205		-----		-----	6514		-----		-----
1212	ISO7536	>900		-----	6539	D525	360		-----
1227		-----		-----	6540		-----		-----

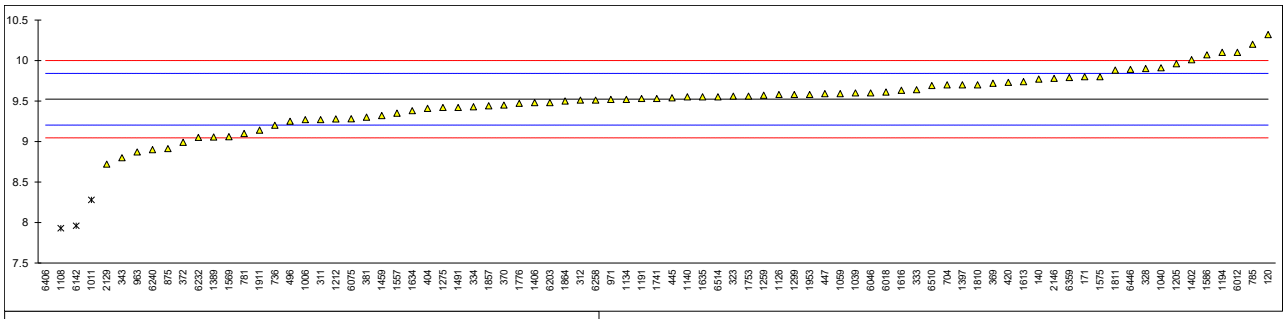
n	56
mean (n)	≥360

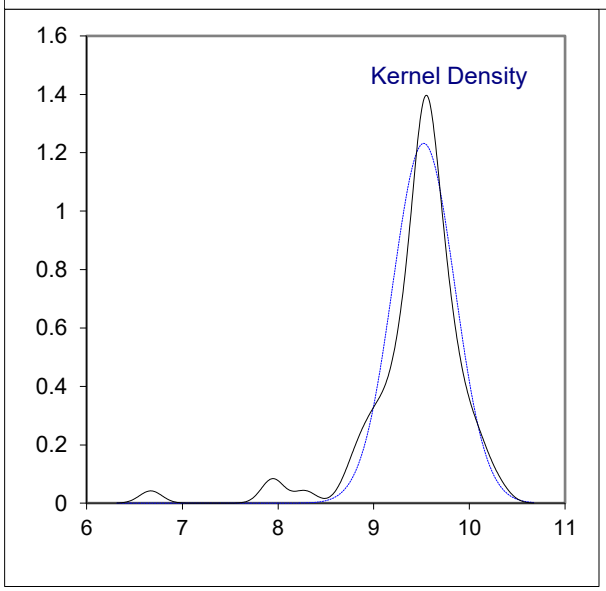
Determination of Ethanol on sample #23185; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	10.32		5.00	1259	ISO22854-A	9.57		0.30
140	D5599	9.77		1.55	1275	ISO22854-A	9.42		-0.65
171	ISO22854-A	9.80		1.74	1299	ISO22854-A	9.58		0.36
225		-----		-----	1357		-----		-----
237		-----		-----	1389	EN13132	9.055		-2.93
238		-----		-----	1397	EN13132	9.7		1.11
273		-----		-----	1399		-----		-----
300		-----		-----	1402	ISO22854-A	10.01		3.06
311	ISO22854-A	9.27		-1.59	1406		9.48		-0.27
312	ISO22854-A	9.51		-0.08	1438		-----		-----
323	ISO22854-A	9.56		0.23	1459	In house	9.32		-1.27
328	EN1601	9.9		2.37	1491	In house	9.42		-0.65
333	ISO22854-A	9.64		0.73	1498		-----		-----
334	ISO22854-A	9.43		-0.58	1538		-----		-----
335		-----		-----	1557	In house	9.35		-1.08
337		-----		-----	1569	EN14517	9.06		-2.90
338		-----		-----	1575	D4815	9.8		1.74
343	EN13132	8.8	C	-4.53	1586	ISO22854-A	10.07		3.43
344		-----		-----	1613	D6839	9.74		1.36
352		-----		-----	1616	D4815	9.633		0.69
365		-----		-----	1631		-----	W	-----
369	EN13132	9.72		1.24	1634	ISO22854-A	9.38		-0.90
370	EN13132	9.45		-0.46	1635	ISO22854-A	9.55		0.17
371		-----		-----	1650		-----		-----
372	EN13132	8.99		-3.34	1720		-----		-----
381	ISO22854-A	9.3	C	-1.40	1724		-----	W	-----
391		-----		-----	1728		-----		-----
399		-----		-----	1741	EN13132	9.53	C	0.04
404	D5845	9.41		-0.71	1742		-----		-----
420	ISO22854-A	9.73		1.30	1753	EN13132	9.56		0.23
431		-----		-----	1776	ISO22854-A	9.47		-0.33
444		-----		-----	1810	ISO22854-A	9.7		1.11
445	ISO22854-A	9.54		0.11	1811		9.88		2.24
447	IP466	9.59		0.42	1833		-----		-----
467		-----		-----	1849		-----		-----
480		-----		-----	1857	ISO22854-A	9.44	C	-0.52
496	ISO22854-A	9.25		-1.71	1864	EN13132	9.50		-0.14
704	D4815	9.70		1.11	1884		-----		-----
734		-----		-----	1911	ISO22854-A	9.140		-2.40
736	EN13132	9.2		-2.03	1953		9.58		0.36
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	8.72		-5.04
779		-----		-----	2130		-----		-----
781	EN13132	9.1		-2.65	2146	ISO22854-A	9.78		1.61
782		-----		-----	6012	D5845	10.1		3.62
785	D6729	10.2		4.25	6018	ISO22854-A	9.61		0.55
798		-----		-----	6019		-----		-----
873		-----		-----	6028		-----		-----
875	D6729	8.912		-3.83	6046	D5845	9.6		0.48
904		-----		-----	6054		-----		-----
912		-----		-----	6075		9.28		-1.52
914		-----		-----	6142		7.96	R(0.01)	-9.80
963	D4815	8.87	C	-4.10	6192		-----		-----
971	D4815	9.52		-0.02	6203	ISO22854-A	9.48		-0.27
974		-----		-----	6232	D5845	9.05		-2.97
994		-----		-----	6240	ISO22854-A	8.9		-3.91
1006		9.27		-1.59	6258	EN13132	9.51		-0.08
1011	ISO22854-A	8.28	C,R(0.05)	-7.80	6299		-----		-----
1039	ISO22854-A	9.6		0.48	6307		-----		-----
1040	ISO22854-A	9.91		2.43	6321		-----		-----
1059	ISO22854-A	9.59		0.42	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108		7.93	C,R(0.01)	-9.99	6359	D4815	9.79		1.68
1126		9.58		0.36	6364		-----		-----
1134	ISO22854-A	9.52		-0.02	6406	ISO22854-A	6.67	R(0.01)	-17.90
1140	ISO22854-A	9.55		0.17	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191		9.53		0.04	6446	ISO22854-A	9.89		2.30
1194	D5845	10.1		3.62	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	9.69		1.05
1205	D8071	9.961		2.75	6514	ISO22854-A	9.55		0.17
1212	EN13132	9.279		-1.53	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	OK
n	77
outliers	4
mean (n)	9.5229
st.dev. (n)	0.32377
R(calc.)	0.9066
st.dev.(ISO22854-A:21)	0.15942
R(ISO22854-A:21)	0.4464

Lab 343 first reported 11.0
Lab 381 first reported 8.34
Lab 963 first reported 10.74
Lab 1011 first reported 6.94
Lab 1108 first reported 7.61
Lab 1631 test result withdrawn, reported 7.13
Lab 1724 test result withdrawn, reported 7.68
Lab 1741 first reported 8.27
Lab 1857 first reported 6.05



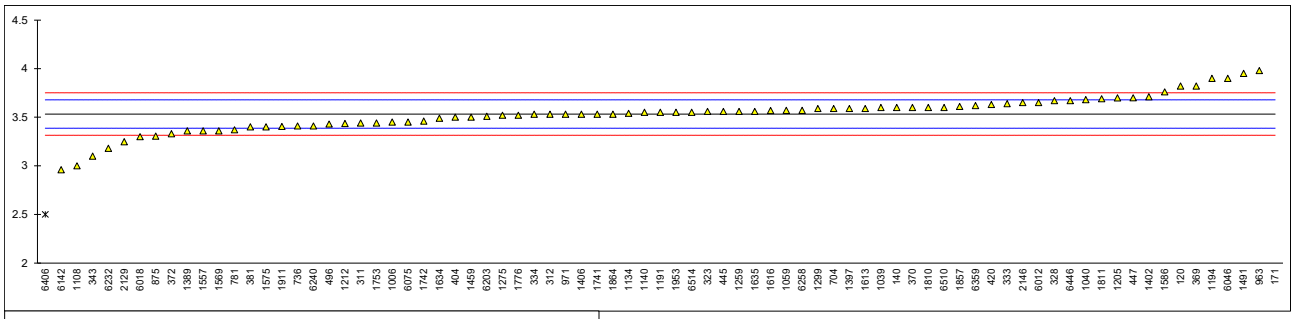


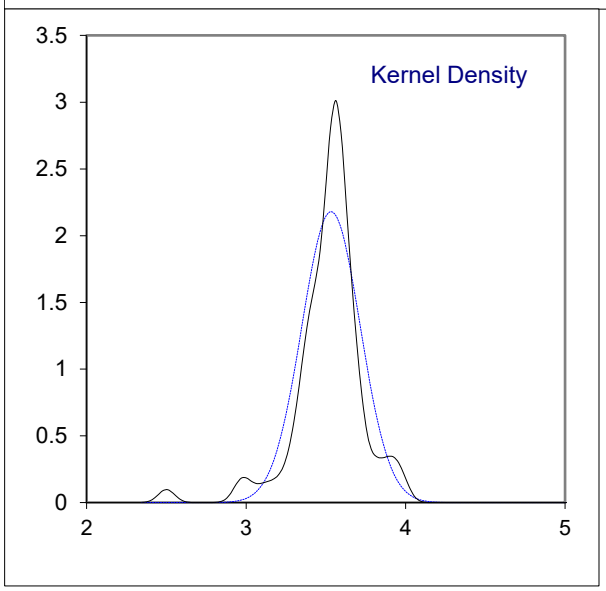
Determination of Oxygen content on sample #23185; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5599	3.82		3.94	1259	ISO22854-A	3.56		0.37
140	D5599	3.6		0.92	1275	ISO22854-A	3.52		-0.17
171	ISO22854-A	10.58	R(0.01)	96.62	1299	ISO22854-A	3.59		0.78
225		-----		-----	1357		-----		-----
237		-----		-----	1389	EN13132	3.36		-2.37
238		-----		-----	1397	EN13132	3.59		0.78
273		-----		-----	1399		-----		-----
300		-----		-----	1402	ISO22854-A	3.71		2.43
311	ISO22854-A	3.44		-1.27	1406	ISO22854-A	3.53		-0.04
312	ISO22854-A	3.53		-0.04	1438		-----		-----
323	ISO22854-A	3.56		0.37	1459	In house	3.5		-0.45
328	EN1601	3.67		1.88	1491	In house	3.95		5.72
333	ISO22854-A	3.64		1.47	1498		-----		-----
334	ISO22854-A	3.53		-0.04	1538		-----		-----
335		-----		-----	1557	In house	3.36		-2.37
337		-----		-----	1569	EN14517	3.36		-2.37
338		-----		-----	1575	In house	3.4		-1.82
343	EN13132	3.1	C	-5.93	1586	ISO22854-A	3.76		3.12
344		-----		-----	1613	D6839	3.59		0.78
352		-----		-----	1616	D4815	3.569		0.50
365		-----		-----	1631		-----	W	-----
369	EN13132	3.82		3.94	1634	ISO22854-A	3.49		-0.59
370	EN13132	3.60		0.92	1635	ISO22854-A	3.56		0.37
371		-----		-----	1650		-----		-----
372	EN13132	3.33		-2.78	1720		-----		-----
381	ISO22854-A	3.40	C	-1.82	1724		-----	W	-----
391		-----		-----	1728		-----		-----
399		-----		-----	1741	EN13132	3.53	C	-0.04
404	D5845	3.50		-0.45	1742	D5622	3.46	C	-1.00
420	EN13132	3.63		1.33	1753	EN13132	3.44		-1.27
431		-----		-----	1776	ISO22854-A	3.52		-0.17
444		-----		-----	1810	ISO22854-A	3.60		0.92
445	ISO22854-A	3.56		0.37	1811	ISO22854-A	3.69		2.16
447	IP466	3.70		2.29	1833		-----	W	-----
467		-----		-----	1849		-----		-----
480		-----		-----	1857	ISO22854-A	3.61	C	1.06
496	ISO22854-A	3.43		-1.41	1864	EN13132	3.53		-0.04
704	D4815	3.59		0.78	1884		-----		-----
734		-----		-----	1911	ISO22854-A	3.405		-1.75
736	EN13132	3.41		-1.68	1953	In house	3.55		0.24
752		-----		-----	1958		-----		-----
759		-----		-----	2129	D6730	3.248		-3.90
779		-----		-----	2130		-----		-----
781	EN13132	3.37		-2.23	2146	ISO22854-A	3.65		1.61
782		-----		-----	6012	D5845	3.65		1.61
785		-----		-----	6018	ISO22854-A	3.30		-3.19
798		-----		-----	6019		-----		-----
873		-----		-----	6028		-----		-----
875	D6729	3.306		-3.11	6046	D5845	3.9		5.04
904		-----		-----	6054		-----		-----
912		-----		-----	6075		3.45		-1.13
914		-----		-----	6142	ISO22854-A	2.96		-7.85
963	D4815	3.98		6.13	6192		-----		-----
971	D4815	3.53		-0.04	6203	ISO22854-A	3.51		-0.31
974		-----		-----	6232	D5845	3.18		-4.84
994		-----		-----	6240	ISO22854-A	3.41		-1.68
1006	D4815	3.45		-1.13	6258	EN13132	3.57		0.51
1011		-----		-----	6299		-----		-----
1039	ISO22854-A	3.6		0.92	6307		-----		-----
1040	ISO22854-A	3.68		2.02	6321		-----		-----
1059	ISO22854-A	3.57		0.51	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097		-----		-----	6346		-----		-----
1108	ISO22854-A	3.00	C	-7.30	6359	D4815	3.62		1.20
1126		-----		-----	6364		-----		-----
1134	ISO22854-A	3.54		0.10	6406	ISO22854-A	2.50	R(0.01)	-14.16
1140	ISO22854-A	3.55		0.24	6416		-----		-----
1143		-----		-----	6444		-----		-----
1191	ISO22854-A	3.55		0.24	6446	ISO22854-A	3.67		1.88
1194	D5845	3.9		5.04	6447		-----		-----
1199		-----		-----	6510	ISO22854-A	3.60		0.92
1205	D8071	3.698		2.27	6514		3.55		0.24
1212	EN13132	3.436		-1.33	6539		-----		-----
1227		-----		-----	6540		-----		-----

normality	suspect
n	77
outliers	2
mean (n)	3.5328
st.dev. (n)	0.18308
R(calc.)	0.5126
st.dev.(ISO22854-A:21)	0.07293
R(ISO22854-A:21)	0.2042

Lab 343 first reported >3.7
Lab 381 first reported 3.01
Lab 1108 first reported 2.95
Lab 1631 test result withdrawn, reported 2.65
Lab 1724 test result withdrawn, reported 2.86
Lab 1741 first reported 3.10
Lab 1742 first reported 4.42
Lab 1833 test result withdrawn, reported 2.37
Lab 1857 first reported 2.26



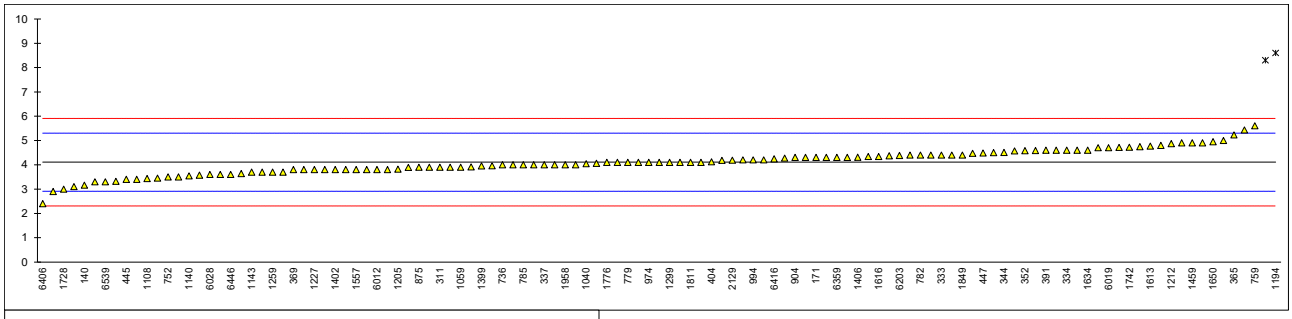


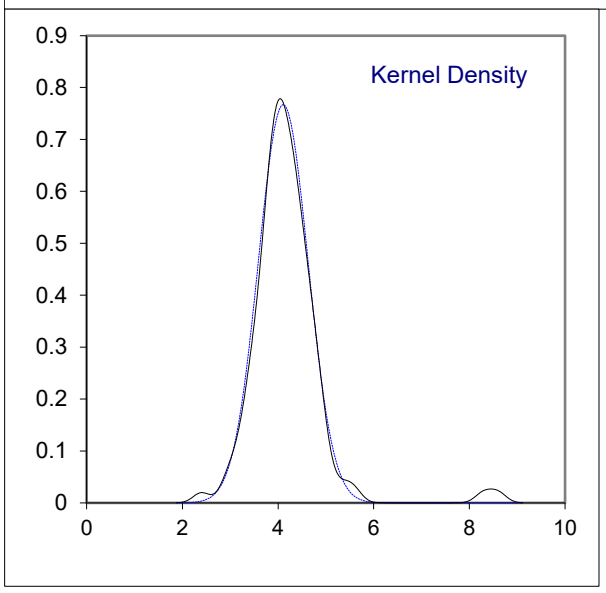
Determination of Sulfur on sample #23185; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D2622	4.6		0.82	1259	ISO20846	3.7		-0.68
140	D2622	3.16		-1.58	1275	IP490	4.57		0.77
171	D5453	4.3		0.32	1299	D7039	4.1		-0.02
225		-----		-----	1357	D5453	4.6		0.82
237	D5453	4.9		1.32	1389	ISO20846	<3.0	C	-----
238		-----		-----	1397	ISO20846	3.8		-0.52
273		-----		-----	1399	D5453	3.95		-0.27
300		-----		-----	1402	IP490	3.8		-0.52
311	ISO20846	3.9		-0.35	1406	ISO20846	4.31		0.33
312	ISO20884	4.1		-0.02	1438		-----		-----
323	ISO20846	3.9		-0.35	1459	ISO20884	4.9		1.32
328	ISO20846	4.4		0.48	1491	ISO20846	3.91		-0.33
333	ISO20846	4.4		0.48	1498	D5453	3.7		-0.68
334	ISO20846	4.6		0.82	1538	ISO20846	3.8		-0.52
335	ISO20846	4.716		1.01	1557	ISO20846	3.8		-0.52
337	ISO20846	4		-0.18	1569	ISO20846	4.4		0.48
338	ISO20846	5.433		2.21	1575		-----		-----
343	ISO20846	<3.0		-----	1586	D5453	4.3		0.32
344	D5453	4.51		0.67	1613	D5453	4.77		1.10
352	ISO20846	4.58		0.78	1616	D5453	4.3417		0.39
365	IP490	5.23		1.87	1631		-----		-----
369	ISO20846	3.8		-0.52	1634	ISO20846	4.6		0.82
370	ISO20846	3.57		-0.90	1635	ISO20846	3.8		-0.52
371		-----		-----	1650	ISO20846	4.95		1.40
372	ISO20846	4.2		0.15	1720		-----		-----
381	ISO20846	3.8		-0.52	1724	D5453	4.0		-0.18
391	ISO20846	4.6		0.82	1728	D5453	3		-1.85
399	D5453	3.9		-0.35	1741	ISO20846	3.89		-0.37
404	D5453	4.12		0.02	1742	ISO20846	4.72		1.02
420	ISO20846	4.1		-0.02	1753		-----		-----
431		-----		-----	1776	ISO20846	4.098		-0.02
444	D5453	4.0		-0.18	1810	D5453	4.1		-0.02
445	ISO20846	3.4		-1.18	1811	ISO20846	4.1		-0.02
447		4.485		0.63	1833	ISO20846	4.1		-0.02
467	ISO20846	3.5		-1.02	1849	ISO20846	4.4		0.48
480	ISO20846	4.34		0.38	1857	ISO20846	4.06		-0.08
496	ISO20846	3.32		-1.32	1864	ISO20846	4.80		1.15
704	ISO20846	4.4		0.48	1884		-----		-----
734	D5453	4.37		0.43	1911	ISO20846	3.96		-0.25
736	ISO20884	4.0		-0.18	1953	D4294	8.3	R(0.01)	6.99
752	ISO20884	3.5		-1.02	1958	D4294	4		-0.18
759	ISO20884	5.6		2.49	2129	ISO20846	4.19		0.13
779	ISO20884	4.1		-0.02	2130	IP490	4.9		1.32
781	ISO20846	3.7		-0.68	2146	ISO20846	3.3		-1.35
782	ISO20884	4.4		0.48	6012	ISO20846	3.8		-0.52
785	ISO20846	4.0		-0.18	6018	ISO20846	2.90		-2.02
798	ISO20846	3.1		-1.68	6019	ISO20846	4.7		0.98
873	ISO20846	4.1		-0.02	6028	ISO20846	3.6		-0.85
875	ISO20846	3.9		-0.35	6046	ISO20846	3.6		-0.85
904	ISO20846	4.3		0.32	6054		-----		-----
912	ISO20846	3.45		-1.10	6075	ISO20846	3.64		-0.78
914		-----		-----	6142	ISO20846	4.27		0.27
963	D5453	4.3		0.32	6192		-----		-----
971	ISO20846	4.0		-0.18	6203	D5453	4.38		0.45
974	D5453	4.1		-0.02	6232	D2622	4.59		0.80
994	D5453	4.2		0.15	6240	ISO20846	4.0		-0.18
1006	D5453	4.2		0.15	6258	ISO20846	4.18		0.12
1011		-----		-----	6299	ISO20846	3.8		-0.52
1039	ISO20846	4.7		0.98	6307		-----		-----
1040	ISO20846	4.04		-0.12	6321	ISO20846	3.4		-1.18
1059	ISO20846	3.9		-0.35	6331		-----		-----
1082		-----		-----	6332		-----		-----
1097	D5453	4.47		0.60	6346		-----		-----
1108	ISO20846	3.43		-1.13	6359	D2622	4.3		0.32
1126	ISO20846	4.5		0.65	6364		-----		-----
1134		-----		-----	6406	ISO20846	2.40		-2.85
1140	D5453	3.544		-0.94	6416	D5453	4.24		0.22
1143	ISO20846	3.7		-0.68	6444	ISO20846	4.3		0.32
1191	ISO20846	4.745		1.06	6446	D2622	3.6		-0.85
1194	D7220/IP532	8.6	R(0.01)	7.49	6447		-----		-----
1199		-----		-----	6510	ISO20846	5.0		1.49
1205	ISO20846	3.82		-0.48	6514		-----		-----
1212	ISO20846	4.872		1.27	6539	D5453	3.3		-1.35
1227	D5453	3.8		-0.52	6540		-----		-----

normality	OK
n	117
outliers	2
mean (n)	4.110
st.dev. (n)	0.5201
R(calc.)	1.456
st.dev.(ISO20846:19)	0.5996
R(ISO20846:19)	1.679

Lab 1389 first reported 1.69



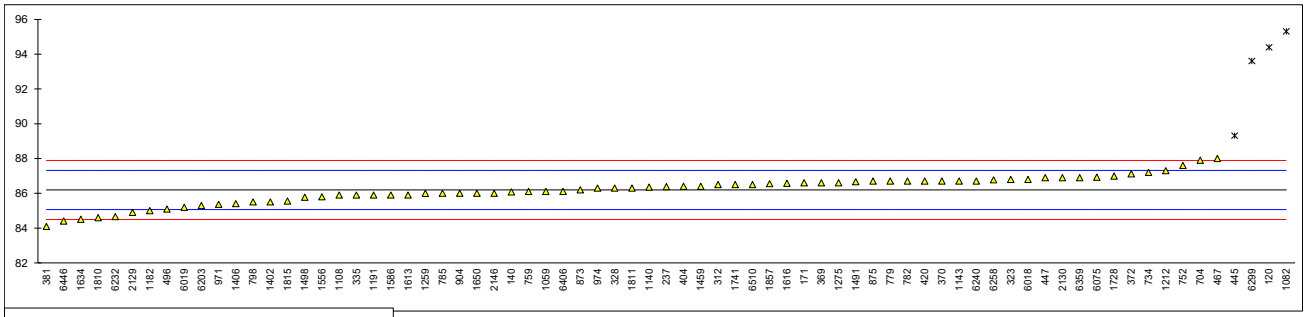


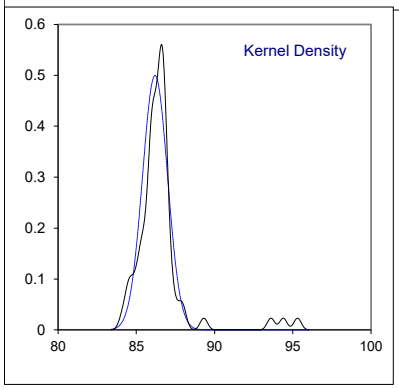
Determination of ASVP on sample #23186; results in kPa

lab	method	value	mark	z(targ)	remarks
120	D5191	94.39	R(0.01)	14.53	
140	D5191	86.081		-0.20	
171	D5191	86.6		0.72	
225		-----		-----	
237	D5191	86.38		0.33	
238		-----		-----	
311		-----		-----	
312	EN13016-1	86.5		0.55	
323	D5191	86.8		1.08	
328	EN13016-1	86.3		0.19	
333		-----		-----	
334		-----		-----	
335	EN13016-1	85.9		-0.52	
337		-----		-----	
338		-----		-----	
344		-----		-----	
365		-----		-----	
369	EN13016-1	86.6		0.72	
370	EN13016-1	86.7		0.90	
372	EN13016-1	87.12		1.64	
381	EN13016-1	84.1		-3.71	
391		-----		-----	
399		-----		-----	
404	EN13016-1	86.4		0.37	
420	EN13016-1	86.7	C	0.90	First reported 79.9
444		-----		-----	
445	EN13016-1	89.31	R(0.05)	5.53	
447	D5191	86.9		1.25	
467	EN13016-1	88.0		3.20	
480		-----		-----	
496	D5191	85.1		-1.94	
704	EN13016-1	87.9		3.03	
734	D5191	87.2		1.79	
752	EN13016-1	87.6		2.50	
759	EN13016-1	86.1		-0.16	
779	D5191	86.7		0.90	
782	EN13016-1	86.7		0.90	
785	EN13016-1	86.0		-0.34	
798	EN13016-1	85.5		-1.23	
873	EN13016-1	86.2		0.01	
875	EN13016-1	86.7		0.90	
904	EN13016-1	86.0		-0.34	
962		-----		-----	
963		-----		-----	
971	D5191	85.37		-1.46	
974	D5191	86.30		0.19	
1006		-----		-----	
1011		-----		-----	
1039		-----		-----	
1040		-----		-----	
1059	EN13016-1	86.1		-0.16	
1082	EN13016-1	95.3	R(0.01)	16.14	
1108	EN13016-1	85.9		-0.52	
1134		-----		-----	
1140	D5191	86.36		0.30	
1143	EN13016-1	86.7		0.90	
1182	D5191	85.0		-2.11	
1191	EN13016-1	85.9		-0.52	
1194		-----		-----	
1212	EN13016-1	87.3		1.96	
1227		-----		-----	
1259	EN13016-1	85.99		-0.36	
1275	EN13016-1	86.6	C	0.72	First reported 89.5
1299		-----		-----	
1357		-----		-----	
1399		-----		-----	
1402	EN13016-1	85.5		-1.23	
1406	EN13016-1	85.4		-1.40	
1459	EN13016-1	86.4		0.37	
1491	EN13016-1	86.66		0.83	
1498	D5191	85.77		-0.75	
1556	EN13016-1	85.8		-0.69	
1586	EN13016-1	85.9		-0.52	
1613	EN13016-1	85.9		-0.52	
1616	D5191	86.58		0.69	

lab	method	value	mark	z(targ)	remarks
1631		-----		-----	
1634	EN13016-1	84.5		-3.00	
1650	EN13016-1	86.0	C	-0.34	First reported 82.9
1720		-----		-----	
1724		-----		-----	
1728	EN13016-1	86.99		1.41	
1730		-----		-----	
1741	EN13016-1	86.5		0.55	
1776		-----		-----	
1810	EN13016-1	84.6		-2.82	
1811	EN13016-1	86.3		0.19	
1815	EN13016-1	85.55		-1.14	
1833		-----		-----	
1849		-----		-----	
1857	EN13016-1	86.55		0.63	
1953		-----		-----	
2129	EN13016-1	84.9		-2.29	
2130	D5191	86.9		1.25	
2146	EN13016-1	86.0		-0.34	
6012		-----		-----	
6018	EN13016-1	86.8		1.08	
6019	EN13016-1	85.2		-1.76	
6028		-----		-----	
6054		-----		-----	
6075	EN13016-1	86.92		1.29	
6142		-----		-----	
6203	EN13016-1	85.3		-1.58	
6232	EN13016-1	84.66		-2.72	
6240		86.7		0.90	
6258	EN13016-1	86.77		1.02	
6299	EN13016-1	93.6	R(0.01)	13.13	
6321		-----		-----	
6332		-----		-----	
6346		-----		-----	
6359	EN13016-1	86.9		1.25	
6406	EN13016-1	86.1		-0.16	
6416		-----		-----	
6446	EN13016-1	84.4		-3.18	
6510	EN13016-1	86.5		0.55	
6539		-----		-----	

normality	OK
n	69
outliers	4
mean (n)	86.192
st.dev. (n)	0.7984
R(calc.)	2.235
st.dev.(EN13016-1:18)	0.5643
R(EN13016-1:18)	1.58



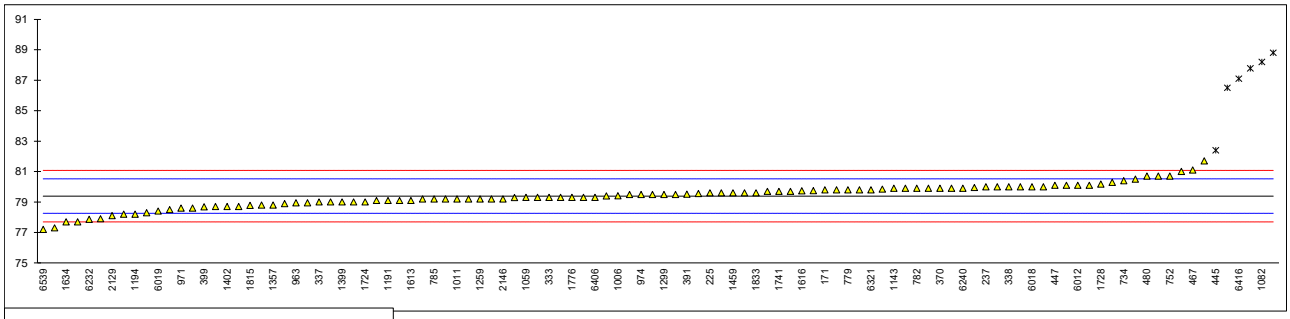


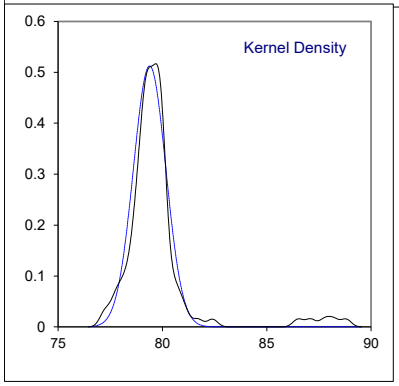
Determination of DVPE acc. to EN13016-1 on sample #23186; results in kPa

lab	method	value	mark	z(targ)	remarks
120	D5191	87.77	R(0.01)	14.85	
140	D5191	79.2897		-0.17	
171	D5191	79.8		0.73	
225	D5191	79.60		0.38	
237	D5191	80.0		1.08	
238	D5191	81.7		4.10	
311	D5191	79.2		-0.33	
312	EN13016-1	79.7		0.55	
323	D5191	80.0		1.08	
328	EN13016-1	79.5		0.20	
333	EN13016-1	79.3		-0.16	
334	EN13016-1	79.0		-0.69	
335	EN13016-1	79.1		-0.51	
337	EN13016-1	79		-0.69	
338	EN13016-1	80.0		1.08	
344		-----		-----	
365		-----		-----	
369	EN13016-1	79.8		0.73	
370	EN13016-1	79.9		0.91	
372	EN13016-1	80.29		1.60	
381	EN13016-1	77.3		-3.70	
391	EN13016-1	79.52		0.23	
399	EN13016-1	78.68		-1.26	
404	EN13016-1	79.5		0.20	
420	EN13016-1	79.9	C	0.91	First reported 86.7
444	D5191	77.9		-2.64	
445	EN13016-1	82.4	R(0.05)	5.34	
447	D5191	80.1		1.26	
467	EN13016-1	81.1		3.03	
480	EN13016-1	80.7		2.32	
496	D5191	78.3		-1.93	
704	EN13016-1	81.0		2.86	
734	D5191	80.4		1.79	
752	EN13016-1	80.7		2.32	
759	EN13016-1	79.3		-0.16	
779	D5191	79.8		0.73	
782	EN13016-1	79.9		0.91	
785	EN13016-1	79.2		-0.33	
798	EN13016-1	78.8		-1.04	
873	EN13016-1	79.4		0.02	
875	EN13016-1	79.9		0.91	
904	EN13016-1	79.2		-0.33	
962	D5191	78.7		-1.22	
963	D5191	78.94		-0.79	
971	D5191	78.60		-1.40	
974	D5191	79.50		0.20	
1006	D5191	79.41		0.04	
1011	EN13016-1	79.2		-0.33	
1039	EN13016-1	79.6		0.38	
1040	EN13016-1	80.7		2.32	
1059	EN13016-1	79.3		-0.16	
1082	EN13016-1	88.2	R(0.01)	15.62	
1108	EN13016-1	79.2		-0.33	
1134		-----		-----	
1140	D5191	79.55		0.29	
1143	EN13016-1	79.9		0.91	
1182	D5191	78.2		-2.11	
1191	EN13016-1	79.1		-0.51	
1194	EN13016-1	78.2		-2.11	
1212	EN13016-1	80.5		1.97	
1227	D5191	78.94		-0.79	
1259	EN13016-1	79.2		-0.33	
1275	EN13016-1	79.8	C	0.73	First reported 82.6
1299	D5191	79.5		0.20	
1357	D5191	78.8		-1.04	
1399	D5191	79.0		-0.69	
1402	EN13016-1	78.7		-1.22	
1406	EN13016-1	78.7		-1.22	
1459	EN13016-1	79.6		0.38	
1491	EN13016-1	79.84		0.80	
1498	D5191	78.60		-1.40	
1556	EN13016-1	79.0		-0.69	
1586	EN13016-1	79.1		-0.51	
1613	EN13016-1	79.1		-0.51	
1616	D5191	79.74		0.62	

lab	method	value	mark	z(targ)	remarks
1631	EN13016-1	78.9		-0.87	
1634	EN13016-1	77.7		-2.99	
1650	EN13016-1	79.2	C	-0.33	First reported 76.2
1720		-----		-----	
1724	IP394	79.0		-0.69	
1728	EN13016-1	80.17		1.39	
1730	EN13016-1	79.3		-0.16	
1741	EN13016-1	79.7		0.55	
1776	EN13016-1	79.3		-0.16	
1810	EN13016-1	79.6	E	0.38	Calculation difference, iis calculated 77.9
1811	EN13016-1	79.5		0.20	
1815	EN13016-1	78.78		-1.08	
1833	EN13016-1	79.6		0.38	
1849	EN13016-1	80		1.08	
1857	EN13016-1	79.75		0.64	
1953	EN13016-1	79.9		0.91	
2129	EN13016-1	78.1		-2.28	
2130	D5191	80.1		1.26	
2146	EN13016-1	79.2		-0.33	
6012	EN13016-1	80.1		1.26	
6018	EN13016-1	80.0		1.08	
6019	EN13016-1	78.4		-1.75	
6028	EN13016-1	79.3		-0.16	
6054		-----		-----	
6075	EN13016-1	80.10		1.26	
6142	EN13016-1	88.8	R(0.01)	16.68	
6203	EN13016-1	78.5		-1.57	
6232	EN13016-1	77.86		-2.71	
6240		79.9		0.91	
6258	EN13016-1	79.95		1.00	
6299	EN13016-1	86.5	R(0.01)	12.60	
6321	IP394	79.8		0.73	
6332		-----		-----	
6346		-----		-----	
6359	EN13016-1	80.0		1.08	
6406	EN13016-1	79.3		-0.16	
6416	D5191	87.1	R(0.01)	13.67	
6446	EN13016-1	77.7		-2.99	
6510	EN13016-1	79.7		0.55	
6539	D5191	77.2		-3.88	

normality	OK
n	102
outliers	6
mean (n)	79.388
st.dev. (n)	0.7784
R(calc.)	2.180
st.dev.(EN13016-1:18)	0.5643
R(EN13016-1:18)	1.58

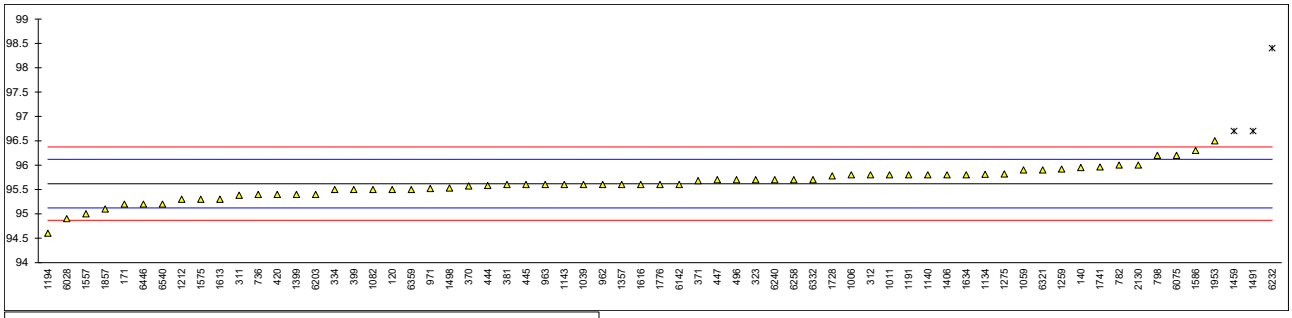


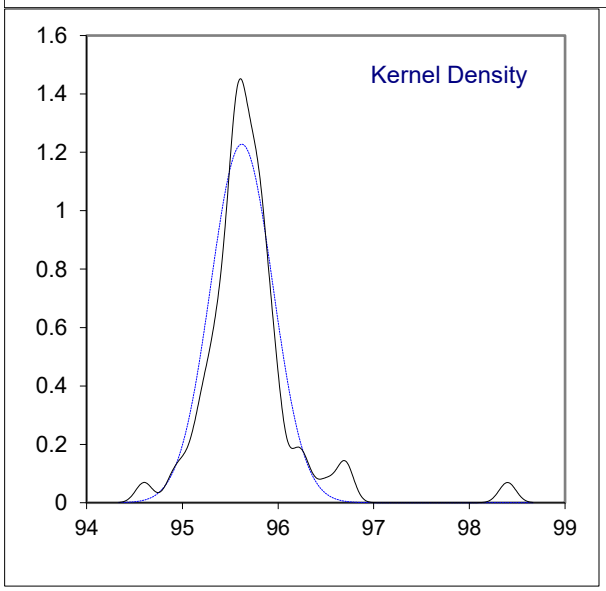


Determination of RON on sample #23187;

lab	method	value	mark	z(targ)	remarks
120	D2699	95.5		-0.48	
140	D2699	95.95		1.32	
171	D2699	95.2		-1.68	
237		-----		-----	
273		-----		-----	
311	ISO5164	95.38		-0.96	
312	ISO5164	95.8		0.72	
323	D2699	95.7	C	0.32	First reported 85.7
334	ISO5164	95.5		-0.48	
370	ISO5164	95.57		-0.20	
371	ISO5164	95.68		0.24	
381	ISO5164	95.6		-0.08	
399	ISO5164	95.5		-0.48	
420	ISO5164	95.4		-0.88	
444	D2699	95.58		-0.16	
445	ISO5164	95.6		-0.08	
447	D2699	95.7		0.32	
496	ISO5164	95.7		0.32	
736	ISO5164	95.4		-0.88	
779		-----		-----	
782	GOST8226	96.0		1.52	
798	GOST8226	96.2		2.32	
962	D2699	95.6		-0.08	
963	ISO5164	95.6		-0.08	
971	D2699	95.52		-0.40	
1006	D2699	95.8		0.72	
1011	ISO5164	95.8		0.72	
1039	ISO5164	95.60		-0.08	
1059	ISO5164	95.9		1.12	
1082	ISO5164	95.5		-0.48	
1134	ISO5164	95.81		0.76	
1140	D2699	95.8		0.72	
1143	ISO5164	95.6		-0.08	
1191	ISO5164	95.8		0.72	
1194	D2699	94.6		-4.08	
1212	ISO5164	95.3		-1.28	
1259	ISO5164	95.92		1.20	
1275	IP237	95.82		0.80	
1299		-----		-----	
1357	D2699	95.6		-0.08	
1399	D2699	95.4		-0.88	
1406	ISO5164	95.8		0.72	
1459	In house	96.7	DG(0.05)	4.32	
1491	In house	96.7	DG(0.05)	4.32	
1498	D2699	95.53		-0.36	
1557	In house	95.0		-2.48	
1575	In house	95.3		-1.28	
1586	D2699	96.3		2.72	
1613	D2699	95.3		-1.28	
1616	D2699	95.6		-0.08	
1634		95.8		0.72	
1650		-----	W	-----	Test result withdrawn, reported 94.5
1720		-----		-----	
1728	ISO5164	95.78		0.64	
1741	ISO5164	95.96		1.36	
1776	ISO5164	95.6		-0.08	
1857	ISO5164	95.1		-2.08	
1953	In house	96.5		3.52	
2130	IP237	96.0		1.52	
6028	ISO5164	94.9	C	-2.88	First reported 94.6
6054		-----		-----	
6075	ISO5164	96.20		2.32	
6142	ISO5164	95.6		-0.08	
6203	ISO5164	95.4		-0.88	
6232	D2699	98.4	C,R(0.01)	11.12	First reported 97.83
6240	ISO5164	95.7		0.32	
6258	ISO5164	95.7		0.32	
6321	D2699	95.9		1.12	
6332	D2699	95.7		0.32	
6359	ISO5164	95.5		-0.48	
6406		-----		-----	
6416		-----		-----	
6446	D2699	95.2		-1.68	
6540	In house	95.2		-1.68	

normality	suspect
n	62
outliers	3
mean (n)	95.62
st.dev. (n)	0.325
R(calc.)	0.91
st.dev.(ISO5164:14)	0.250
R(ISO5164:14)	0.7

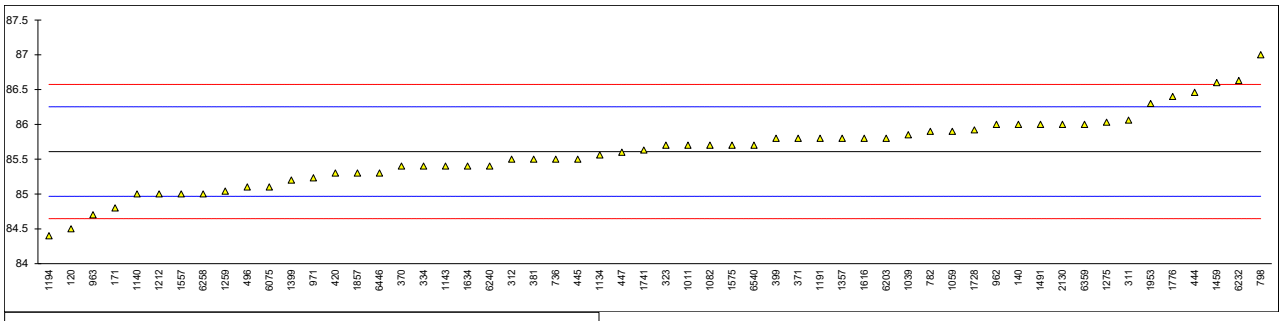


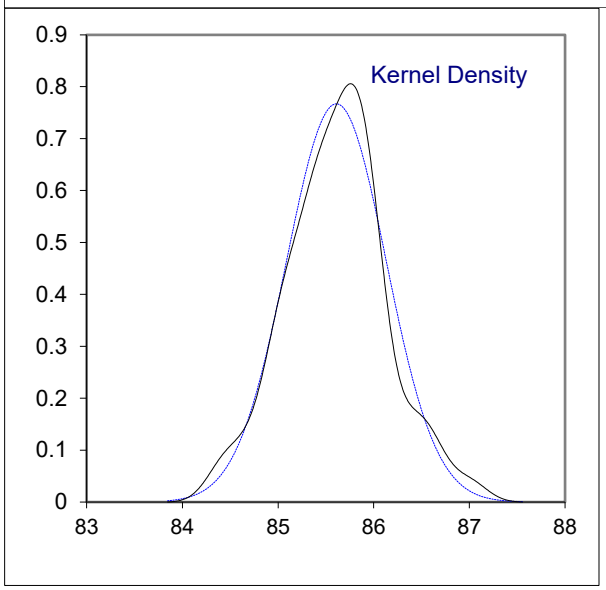


Determination of MON on sample #23187;

lab	method	value	mark	z(targ)	remarks
120	D2700	84.5		-3.45	
140	D2700	86.0		1.22	
171	D2700	84.8		-2.52	
237		-----		-----	
273		-----		-----	
311	ISO5163	86.06		1.40	
312	ISO5163	85.5		-0.34	
323	D2700	85.7	C	0.28	First reported 95.7
334	ISO5163	85.4		-0.65	
370	ISO5163	85.4		-0.65	
371	ISO5163	85.8		0.59	
381	ISO5163	85.5		-0.34	
399	ISO5163	85.8		0.59	
420	ISO5163	85.3		-0.96	
444	D2700	86.46		2.65	
445	ISO5163	85.5		-0.34	
447	D2700	85.6		-0.03	
496	ISO5163	85.1		-1.58	
736	ISO5163	85.5		-0.34	
779		-----		-----	
782	GOST511	85.9		0.91	
798	GOST511	87.0		4.33	
962	D2700	86.0		1.22	
963	ISO5163	84.7		-2.83	
971	D2700	85.23		-1.18	
1006		-----		-----	
1011	ISO5163	85.7		0.28	
1039	ISO5163	85.85		0.75	
1059	ISO5163	85.9		0.91	
1082	ISO5163	85.7		0.28	
1134	ISO5163	85.56		-0.15	
1140	D2700	85.0		-1.89	
1143	ISO5163	85.4		-0.65	
1191	ISO5163	85.8		0.59	
1194	D2700	84.4		-3.76	
1212	ISO5163	85.0		-1.89	
1259	ISO5163	85.04		-1.77	
1275	IP236	86.03		1.31	
1299		-----		-----	
1357	D2700	85.8		0.59	
1399	D2700	85.2		-1.27	
1406		-----		-----	
1459	In house	86.6		3.08	
1491	In house	86.0		1.22	
1498		-----		-----	
1557	In house	85.0		-1.89	
1575	In house	85.7		0.28	
1586		-----		-----	
1613		-----		-----	
1616	D2700	85.8		0.59	
1634		85.4		-0.65	
1650		-----	W	-----	Test result withdrawn, reported 83.8
1720		-----		-----	
1728	ISO5163	85.92		0.97	
1741	ISO5163	85.63		0.07	
1776	ISO5163	86.4		2.46	
1857	ISO5163	85.3		-0.96	
1953	ISO5163	86.3		2.15	
2130	IP236	86.0		1.22	
6028		-----		-----	
6054		-----		-----	
6075	ISO5163	85.10		-1.58	
6142		-----		-----	
6203	ISO5163	85.8		0.59	
6232	D2700	86.63		3.18	
6240	ISO5163	85.4		-0.65	
6258	ISO5163	85.0		-1.89	
6321		-----		-----	
6332		-----		-----	
6359	ISO5163	86.0		1.22	
6406		-----		-----	
6416		-----		-----	
6446	D2700	85.3		-0.96	
6540	In house	85.7		0.28	

normality	OK
n	56
outliers	0
mean (n)	85.61
st.dev. (n)	0.520
R(calc.)	1.46
st.dev.(ISO5163:14)	0.321
R(ISO5163:14)	0.9





APPENDIX 2: Determination of Other Oxygenates on sample #23185; results in %V/V

lab	MeOH	i-PrOH	i-BuOH	t-BuOH	DIPE	ETBE	MTBE	TAME	Sum of Other Oxygenates
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
171	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.03
225	-----	-----	-----	-----	-----	-----	-----	-----	-----
237	-----	-----	-----	-----	-----	-----	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----	-----
273	-----	-----	-----	-----	-----	-----	-----	-----	-----
300	-----	-----	-----	-----	-----	-----	-----	-----	-----
311	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10
312	<0.10	<0.10	<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	< 0.10	< 0.10
328	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	9.9
333	<0.50	<0.61	<0.61	<0.61	-----	<0.80	<0.80	-----	<0.61
334	<0.50	<0.61	<0.61	<0.61	<0.61	<0.80	<0.60	<0.80	9.59
335	-----	-----	-----	-----	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----	-----
343	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
344	-----	-----	-----	-----	-----	-----	-----	-----	-----
352	-----	-----	-----	-----	-----	-----	-----	-----	-----
365	-----	-----	-----	-----	-----	-----	-----	-----	-----
369	0.42	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
370	<0.17	<0.17	<0.17	<0.17	-----	<0.17	<0.17	<0.17	<0.17
371	-----	-----	-----	-----	-----	-----	-----	-----	-----
372	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	-----
381	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8	<0,8
391	-----	-----	-----	-----	-----	-----	-----	-----	-----
399	-----	-----	-----	-----	-----	-----	-----	-----	-----
404	-----	-----	-----	-----	-----	-----	-----	-----	-----
420	0.02	<0,1	<0,1	<0,1	-----	<0,1	-----	-----	<0,1
431	-----	-----	-----	-----	-----	-----	-----	-----	-----
444	-----	-----	-----	-----	-----	-----	-----	-----	-----
445	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.04	<0.1	0.05
447	0.26	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
467	-----	-----	-----	-----	-----	-----	-----	-----	-----
480	-----	-----	-----	-----	-----	-----	-----	-----	-----
496	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
704	not detected	not detected	not detected	not detected	not detected	not detected	not detected	not detected	not detected
734	-----	-----	-----	-----	-----	-----	-----	-----	-----
736	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
752	-----	-----	-----	-----	-----	-----	-----	-----	-----
759	-----	-----	-----	-----	-----	-----	-----	-----	-----
779	-----	-----	-----	-----	-----	-----	-----	-----	-----
781	Less 0.17	Less 0.17	Less 0.17	Less 0.17	Less 0.17	Less 0.17	Less 0.17	Less 0.17	Less 0.17
782	-----	-----	-----	-----	-----	-----	-----	-----	-----
785	-----	-----	-----	-----	-----	-----	-----	-----	-----
798	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
873	-----	-----	-----	-----	-----	-----	-----	-----	-----
875	<1	<1	<1	<1	<1	<1	<1	<1	<1
904	-----	-----	-----	-----	-----	-----	-----	-----	-----
912	-----	-----	-----	-----	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----	-----	-----	-----	-----
963	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-----
971	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
974	-----	-----	-----	-----	-----	-----	-----	-----	-----
994	-----	-----	-----	-----	-----	-----	-----	-----	-----
1006	<0.1	-----	-----	-----	<0.1	<0.1	<0.1	<0.1	-----
1011	<0.61	-----	-----	-----	<0.61	<0.61	<0.61	<0.61	-----
1039	-----	-----	-----	-----	-----	<0.1	<0.1	-----	-----
1040	0.00	-----	-----	0.00	-----	-----	0.04	-----	-----
1059	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20	<0,20
1082	-----	-----	-----	-----	-----	-----	-----	-----	-----
1097	-----	-----	-----	-----	-----	-----	-----	-----	-----
1108	0	0	0	0	0	0	0.04	0	-----
1126	-----	-----	-----	-----	-----	-----	0.07	-----	-----
1134	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01
1140	-----	-----	-----	-----	-----	-----	0.04	-----	-----
1143	-----	-----	-----	-----	-----	-----	-----	-----	-----
1191	0.00	0	0	0	-----	0	0.06	0	9.60
1194	0	-----	-----	0.0	0.2	0.0	0.4	0.1	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----	-----
1205	-----	-----	-----	-----	-----	-----	-----	-----	-----
1212	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	<0,1	9.279

lab	MeOH	i-PrOH	i-BuOH	t-BuOH	DIPE	ETBE	MTBE	TAME	Sum of Other Oxygenates
1227	-----	-----	-----	-----	-----	-----	-----	-----	-----
1259	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01	0.03	<0,01	<0,01
1275	0	0	0	0	-----	0.01	0	0	0.06
1299	<0.8	<0.8	<0.8	<0.8	-----	<0.8	<0.8	-----	<0.8
1357	-----	-----	-----	-----	-----	-----	0.03	-----	-----
1389	0	0	0	0	0	0	0.03	0	0
1397	-----	-----	-----	-----	-----	<0,2	<0,2	-----	-----
1399	-----	-----	-----	-----	-----	-----	-----	-----	-----
1402	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01
1406	-----	not detected	not detected	not detected	not detected	not detected	0.03	not detected	-----
1438	-----	-----	-----	-----	-----	-----	-----	-----	-----
1459	-----	-----	-----	-----	-----	0.00	0.02	-----	-----
1491	-----	-----	-----	-----	-----	-----	-----	-----	-----
1498	-----	-----	-----	-----	-----	-----	-----	-----	-----
1538	-----	-----	-----	-----	-----	-----	-----	-----	-----
1557	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01	-----
1569	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	0.04	Not detected	0
1575	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-----
1586	0	0	0	0	0	0	0.04	0	0
1613	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.0	-----
1616	-----	-----	-----	-----	-----	-----	0.04	-----	-----
1631	<0.17	<0.17	<0.17	<0.17	-----	-----	<0.17	-----	-----
1634	0	0	0	0	0	0	0.04	0	0
1635	-----	-----	-----	<0.01	-----	<0.01	<0.01	<0.01	-----
1650	-----	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----	-----
1724	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17
1728	-----	-----	-----	-----	-----	-----	-----	-----	-----
1741	-----	-----	-----	-----	-----	-----	-----	-----	-----
1742	-----	-----	-----	-----	-----	-----	-----	-----	-----
1753	-----	-----	-----	-----	-----	-----	0.05	-----	-----
1776	-----	-----	-----	-----	-----	-----	-----	-----	-----
1810	-----	-----	-----	-----	-----	-----	-----	-----	-----
1811	-----	-----	-----	-----	-----	-----	-----	-----	-----
1833	-----	-----	-----	-----	-----	-----	<0.61	-----	-----
1849	-----	-----	-----	-----	-----	-----	-----	-----	-----
1857	-----	-----	-----	-----	-----	-----	<0.99	-----	-----
1864	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	<0,17	-----
1884	-----	-----	-----	-----	-----	-----	-----	-----	-----
1911	<1,000	<0,610	<0,610	<0,610	-----	<0,980	<0,980	-----	9.140
1953	0	-----	-----	-----	-----	-----	-----	-----	-----
1958	-----	-----	-----	-----	-----	-----	-----	-----	-----
2129	0	0	0	0	0	0	0	0	0
2130	-----	-----	-----	-----	-----	-----	-----	-----	-----
2146	<0,10	<0,10	<0,10	<0,10	<0,10	<0,10	<0,10	<0,10	<0,10
6012	-----	-----	-----	-----	-----	-----	0.1	-----	-----
6018	0.03	<0,01	<0,01	<0,01	<0,01	<0,01	0.04	<0,01	-----
6019	-----	-----	-----	-----	-----	-----	-----	-----	-----
6028	-----	-----	-----	-----	-----	-----	-----	-----	-----
6046	0.4	-----	-----	-----	-----	-----	<0.1	-----	-----
6054	-----	-----	-----	-----	-----	-----	-----	-----	-----
6075	<0.10	<0.10	<0.10	<0.10	-----	-----	-----	-----	-----
6142	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	<0.01	<0.01
6192	-----	-----	-----	-----	-----	-----	-----	-----	-----
6203	-----	-----	-----	-----	-----	-----	0.04	-----	-----
6232	0	-----	-----	-----	-----	0.002	0	0	-----
6240	0	0	0	0	0	0.02	0	0	0
6258	0.0	0.0	0.0	0.0	0.0	0.0	<0.2	0.0	0.0
6299	-----	-----	-----	-----	-----	-----	-----	-----	-----
6307	-----	-----	-----	-----	-----	-----	-----	-----	-----
6321	-----	-----	-----	-----	-----	-----	-----	-----	-----
6331	-----	-----	-----	-----	-----	-----	-----	-----	-----
6332	-----	-----	-----	-----	-----	-----	-----	-----	-----
6346	-----	-----	-----	-----	-----	-----	-----	-----	-----
6359	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2	<0,2
6364	-----	-----	-----	-----	-----	-----	-----	-----	-----
6406	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.03	6.74
6416	-----	-----	-----	-----	-----	-----	-----	-----	-----
6444	-----	-----	-----	-----	-----	-----	-----	-----	-----
6446	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02
6447	-----	-----	-----	-----	-----	-----	-----	-----	-----
6510	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01
6514	0	0	0	0	0	0	0.03	0	0
6539	-----	-----	-----	-----	-----	-----	-----	-----	-----
6540	-----	-----	-----	-----	-----	-----	-----	-----	-----

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

lab	IBP	10% eva	50% eva	90% eva	FBP	E70 %V/V	E100 %V/V	E150 %V/V
120	-0.22	-0.34	-0.54	-0.14	0.14	-0.83	-2.66	-3.44
140	-2.25	-1.12	-2.83	-0.55	-1.91	-0.99	3.07	-2.26
171	-1.23	-1.47	-2.97	-0.14	-1.16	-1.55	2.81	-3.44
225	-----	-----	-----	-----	-----	-----	-----	-----
237	2.04	2.14	5.40	1.54	0.93	-----	-----	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
273	-----	-----	-----	-----	-----	-----	-----	-----
300	0.99	-1.73	-5.41	0.07	0.57	0.11	-1.89	-4.09
311	-1.17	-1.61	-2.04	-0.40	-1.24	2.28	0.40	1.08
312	-1.47	0.94	4.97	-0.45	-0.49	1.76	0.52	0.86
323	0.55	-0.83	-1.76	-0.14	-0.22	1.04	0.01	0.43
328	-1.41	-1.26	-2.54	-0.97	-1.76	1.97	0.65	2.37
333	-1.23	0.16	-2.40	-0.45	-1.68	0.94	1.03	1.08
334	0.55	0.02	-0.25	-0.29	-0.65	-0.72	-0.11	0.65
335	-1.11	-1.12	-2.47	-0.55	-2.58	1.14	0.65	-1.07
337	-----	-----	-----	-----	-----	-----	-----	-----
338	0.26	-0.90	-1.97	-0.24	-1.28	1.45	0.40	0.65
343	2.70	-2.04	-2.40	-0.29	0.53	-3.21	-1.64	0.65
344	-0.28	1.29	4.11	1.49	-1.05	-1.24	-2.66	-3.23
352	-----	-----	-----	-----	-----	-----	-----	-----
365	4.01	-0.12	-1.54	0.34	0.18	0.21	1.41	0.65
369	1.63	1.57	1.89	1.02	-1.48	-3.21	-0.75	0.00
370	0.79	-0.34	-0.40	-0.03	-1.24	1.45	0.01	0.65
371	0.73	0.16	-0.83	-0.14	-1.08	1.76	0.01	0.22
372	0.08	-0.34	-0.75	-0.19	0.45	-1.55	0.78	-1.94
381	1.21	0.30	-0.83	-0.40	-0.61	-1.24	-1.39	-2.58
391	-0.76	-0.62	-1.26	-0.14	0.10	-0.83	0.14	-2.80
399	-0.76	-0.69	-1.61	-0.14	-0.18	-0.21	-0.11	0.65
404	0.91	2.50	4.90	1.54	0.06	1.14	1.16	1.51
420	0.73	-1.82	-2.47	-0.40	1.95	2.39	1.03	0.65
431	2.76	2.85	7.48	4.21	0.22	1.56	0.78	0.43
444	-0.40	-1.82	-2.40	-0.29	0.69	2.08	0.01	0.22
445	-0.10	2.35	7.41	3.74	0.22	1.76	0.27	0.65
447	-0.04	-2.18	-3.55	-0.45	0.18	2.39	0.91	1.08
467	1.27	-0.69	-1.33	-0.14	1.48	-0.21	-0.24	0.22
480	-0.25	-0.51	-1.90	-0.14	-0.87	1.82	0.27	0.54
496	0.02	-0.34	-1.11	-0.50	-0.41	2.18	0.14	1.08
704	1.15	2.28	2.04	0.28	0.53	-0.31	-0.11	-0.43
734	-1.68	0.24	0.25	-0.18	-0.20	0.16	-0.88	0.86
736	-0.04	-0.20	-0.68	-0.14	0.14	-1.35	-0.75	-4.74
752	1.75	1.93	2.18	1.70	0.93	-1.86	0.52	-0.43
759	1.45	0.87	1.82	-0.40	0.73	-0.83	-0.75	0.65
779	0.85	0.16	0.39	0.39	-0.45	-1.86	-0.11	-1.51
781	-1.05	-0.48	-0.47	-0.29	-0.65	1.45	0.01	0.22
782	-0.04	-0.55	-0.68	-0.14	-0.65	0.73	-0.11	-1.51
785	0.55	0.16	0.03	0.39	-0.65	-0.83	-0.75	-0.43
798	1.45	-0.48	1.82	0.70	0.14	-0.83	0.52	-1.51
873	-0.34	-0.20	0.03	0.13	-0.65	1.25	-0.11	1.73
875	0.26	-0.20	0.39	0.13	0.14	-1.86	-1.39	-1.51
904	-0.10	-1.54	-1.90	-0.40	-0.34	1.97	0.65	0.65
912	0.26	2.28	10.06	4.32	0.53	-6.01	-7.11	-7.97
914	-----	-----	-----	-----	-----	-----	-----	-----
963	-1.53	1.15	1.25	-0.29	-0.26	-0.52	-0.24	2.16
971	-1.41	0.09	0.53	0.34	0.37	-1.35	-0.49	0.00
974	-0.93	0.16	0.61	0.18	0.18	-1.97	0.40	-1.51
994	0.85	-0.55	3.83	0.91	0.93	-2.90	-0.75	-0.43
1006	0.67	0.51	0.39	0.02	0.53	-----	-----	-----
1011	-1.11	1.01	2.25	0.55	-0.57	-0.72	-1.77	-0.86
1039	-0.40	-0.69	-1.83	-0.19	0.34	0.52	0.40	0.86
1040	-----	-0.62	-2.83	3.64	0.65	2.08	0.65	3.02
1059	-----	-----	-----	-----	-----	-----	-----	-----
1082	-0.16	-0.20	4.47	3.53	4.63	-3.63	-0.24	-5.38
1097	-1.23	-0.05	0.75	0.28	0.41	1.45	-1.26	-0.64
1108	-1.35	-0.55	-0.11	0.13	-0.69	0.11	0.14	-0.21
1126	-0.34	-1.12	-2.69	-0.34	0.10	1.25	0.01	-5.60
1134	0.14	-0.69	-1.61	-0.14	0.14	1.66	0.27	0.43
1140	0.67	0.09	-0.97	-0.34	-0.30	0.83	0.91	1.08
1143	0.02	-0.97	-1.69	-0.14	-0.06	-0.62	-0.11	-1.51
1191	-0.58	-1.05	-1.97	-0.29	0.14	-0.10	0.52	0.65
1194	-----	-----	-----	-----	-----	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----
1205	-0.58	-0.76	-0.97	0.07	0.30	-0.83	-0.62	0.22
1212	-0.58	-0.90	0.10	0.18	1.52	-1.86	-0.62	0.43
1227	1.57	-0.12	-3.05	-0.76	-1.87	-0.09	0.77	-3.62
1259	-2.36	0.30	0.96	-0.29	-0.37	-1.86	-2.02	-2.37
1275	-0.22	0.65	-0.04	-0.50	-0.45	1.45	0.27	1.08

lab	IBP	10% eva	50% eva	90% eva	FBP	E70 %V/V	E100 %V/V	E150 %V/V
1299	0.91	0.02	0.46	0.23	0.41	-0.31	-0.49	-0.43
1357	-----	-0.97	-2.04	0.02	-1.08	-----	-----	-----
1389	-1.53	1.79	3.40	1.28	0.26	-2.80	-0.11	-2.80
1397	0.67	1.57	5.98	0.44	1.44	-0.31	-0.75	0.43
1399	0.73	-0.69	-1.76	-0.29	0.34	0.52	0.14	0.22
1402	0.08	0.30	0.96	0.28	1.12	-0.62	-1.64	0.22
1406	0.91	0.80	0.75	0.23	1.16	-2.18	-0.88	0.00
1438	0.38	0.37	0.75	-0.03	0.45	-0.31	-1.00	0.43
1459	-1.53	1.65	4.62	2.17	-0.30	1.45	-0.11	0.43
1491	-0.40	-0.69	-1.90	-0.50	-1.05	0.73	0.52	1.29
1498	0.44	-0.34	-0.40	0.07	-0.14	0.21	-0.75	0.65
1538	-----	-----	-----	-----	-----	-----	-----	-----
1557	0.61	-0.83	-2.69	-0.29	1.12	0.42	0.91	0.22
1569	0.32	-1.82	-0.75	-0.08	-0.57	-0.93	-0.11	0.65
1575	-----	-----	-----	-----	-----	-----	-----	-----
1586	-0.40	-0.76	-1.76	-0.45	0.02	1.35	0.27	0.65
1613	1.21	2.78	6.84	2.38	1.04	-2.90	-0.75	-1.51
1616	-0.70	0.72	1.18	0.02	0.81	-1.04	-1.00	0.22
1631	-0.64	-----	-----	-----	0.14	0.73	0.01	0.86
1634	-0.22	-0.83	0.82	0.34	0.81	-2.28	2.31	-1.94
1635	-0.52	1.29	3.90	1.28	0.69	0.42	-0.88	0.43
1650	-0.28	-1.05	-2.83	-0.34	-1.64	2.39	0.91	1.08
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-1.35	-0.05	-1.69	-0.45	-0.41	1.14	1.03	0.86
1728	-0.34	-0.55	-1.04	-0.40	1.32	0.21	-0.75	-1.51
1741	-0.22	-0.62	-2.47	-0.61	0.26	0.21	0.65	1.29
1742	0.72	-1.60	-3.12	-0.37	1.14	0.11	0.52	1.08
1753	2.34	1.93	6.91	1.07	0.93	-8.40	-7.37	-10.55
1776	-1.23	0.23	0.18	-0.19	-1.01	0.52	-0.75	0.86
1810	0.14	0.23	-0.47	-0.03	0.49	0.62	0.01	0.65
1811	-0.22	0.51	0.61	-0.14	0.73	-0.83	-0.37	0.43
1833	-0.93	-----	-----	-----	-0.22	0.73	0.01	0.86
1849	-1.11	-1.19	-2.54	-0.37	-0.04	1.76	0.84	0.54
1857	0.49	0.58	-0.75	-0.14	-0.14	-1.76	-0.24	-1.29
1864	1.39	-1.33	-2.19	-0.03	1.72	-0.10	0.14	0.43
1884	1.69	4.69	3.61	0.02	-0.06	-6.12	2.31	-1.07
1911	0.11	-0.76	-1.36	-0.40	-0.47	-0.83	0.40	0.65
1953	-0.52	-0.83	-2.97	-0.40	-0.06	-1.04	3.07	0.43
1958	5.62	6.53	10.77	5.37	11.57	-----	-----	-----
2129	0.44	0.09	-0.11	-0.40	-0.81	1.66	0.14	0.65
2130	-0.04	0.80	-0.25	-0.14	0.22	0.42	0.14	0.86
2146	-0.70	0.02	-0.47	-0.14	0.41	0.21	-0.11	0.86
6012	0.67	2.78	4.76	1.23	0.22	-0.62	0.78	2.16
6018	-0.40	-0.20	-2.04	-0.45	-0.49	0.94	0.27	0.86
6019	-2.19	-0.27	-1.18	-0.61	0.73	0.83	-0.11	1.08
6028	-0.04	0.16	1.39	-0.55	-1.24	0.42	-1.13	1.29
6046	1.92	2.78	4.83	1.54	-0.73	0.21	1.80	2.80
6054	-----	-----	-----	-----	-----	-----	-----	-----
6075	-0.88	-0.76	-1.69	-0.55	-0.30	-----	-----	-----
6142	-1.11	-0.20	-1.18	-0.45	-0.26	2.08	-3.04	1.29
6192	-----	-----	-----	-----	-----	-----	-----	-----
6203	-1.11	1.22	4.33	1.23	-0.14	0.11	-0.88	1.08
6232	1.84	4.34	10.70	6.89	0.89	-2.77	-0.90	-1.76
6240	-1.47	-0.05	0.53	-0.08	-0.10	-2.38	1.54	-2.15
6258	0.02	-0.83	-1.76	-0.14	0.65	0.31	0.01	0.86
6299	-1.65	-0.20	-0.68	-0.24	-0.10	2.08	-0.37	1.51
6307	-1.56	-0.90	-2.44	-0.24	0.39	0.11	-0.18	-----
6321	-1.41	-1.40	-2.62	-0.34	0.65	0.42	0.27	1.08
6331	0.02	0.09	-0.11	-0.45	-1.16	0.21	-0.49	-0.86
6332	2.34	2.28	2.54	1.44	1.32	-3.42	-0.75	-3.66
6346	-----	-----	-----	-----	-----	-----	-----	-----
6359	0.02	-0.12	-0.61	0.02	0.69	-0.41	-0.49	0.22
6364	0.49	2.14	1.04	-0.14	0.14	-2.07	2.05	-7.97
6406	-0.40	-0.62	-1.90	-0.29	0.14	1.35	0.78	0.69
6416	0.49	-0.41	-0.54	0.18	0.26	-3.94	-4.57	-9.91
6444	-----	-----	-----	-----	-----	-----	-----	-----
6446	-0.70	-0.97	-2.54	-0.40	-0.65	2.70	0.52	1.29
6447	-----	-----	-----	-----	-----	-----	-----	-----
6510	0.32	-0.27	-0.54	0.07	0.85	-2.07	1.80	0.43
6514	-1.47	0.02	-0.40	-0.55	0.41	1.87	0.14	1.08
6539	0.97	3.06	9.56	3.90	3.10	0.21	-3.29	0.65
6540	3.24	2.64	2.18	0.65	1.32	-----	-----	-----

APPENDIX 4

Number of participants per country

1 lab in	AUSTRIA	1 lab in	MARTINIQUE
1 lab in	AZERBAIJAN	7 labs in	NETHERLANDS
2 labs in	BELGIUM	2 labs in	NIGERIA
3 labs in	BOSNIA and HERZEGOVINA	1 lab in	NORTH MACEDONIA, Republic of
2 labs in	CHILE	1 lab in	OMAN
1 lab in	COSTA RICA	5 labs in	POLAND
2 labs in	COTE D'IVOIRE	6 labs in	PORTUGAL
3 labs in	CROATIA	1 lab in	QATAR
1 lab in	CYPRUS	4 labs in	ROMANIA
3 labs in	CZECH REPUBLIC	10 labs in	RUSSIAN FEDERATION
1 lab in	ESTONIA	2 labs in	SAUDI ARABIA
4 labs in	FINLAND	4 labs in	SERBIA
10 labs in	FRANCE	1 lab in	SLOVAKIA
1 lab in	GEORGIA	1 lab in	SLOVENIA
3 labs in	GERMANY	1 lab in	SOMALIA
8 labs in	GREECE	2 labs in	SOUTH AFRICA
1 lab in	HONG KONG	8 labs in	SPAIN
2 labs in	INDIA	1 lab in	SUDAN
2 labs in	IRELAND	4 labs in	SWEDEN
1 lab in	ISRAEL	1 lab in	TAIWAN
2 labs in	ITALY	1 lab in	TANZANIA
1 lab in	JORDAN	1 lab in	TUNISIA
2 labs in	KAZAKHSTAN	6 labs in	TURKEY
2 labs in	KENYA	1 lab in	UKRAINE
2 labs in	LATVIA	3 labs in	UNITED ARAB EMIRATES
1 lab in	LITHUANIA	12 labs in	UNITED KINGDOM
1 lab in	MALTA	3 labs in	UNITED STATES OF AMERICA

APPENDIX 5

Abbreviations

C	= final test result after checking of first reported suspect test result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
R(0.01)/R(1)	= outlier in Rosner's outlier test
R(0.05)/R(5)	= straggler in Rosner's outlier test
E	= calculation difference between reported test result and result calculated by iis
W	= test result withdrawn on request of participant
ex	= test result excluded from statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported
f+?	= possibly a false positive test result?
f-?	= possibly a false negative test result?
SDS	= Safety Data Sheet

Literature

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, June 2018
2 ISO5725:86
3 ISO5725 parts 1-6:94
4 ISO13528:05
5 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
6 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
7 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
8 J.N. Miller, Analyst, 118, 455, (1993)
9 Analytical Methods Committee, Technical Brief, No 4, January 2001
10 P.J. Lowthian and M. Thompson, The Royal Society of Chemistry, Analyst, 127, 1359-1364, (2002)
11 W. Horwitz and R. Albert, J. AOAC Int, 79.3, 589-621, (1996)
12 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)