Results of Proficiency Test Gasoline (EN specification) October 2015

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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CONTENTS

1 INTRODUCTION

Since 1995, the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for Gasoline. During the annual proficiency testing program 2015/2016, it was decided to continue the round robin for the analysis of Gasoline in accordance with the latest applicable version of EN228 specification (2012). The interlaboratory study on Gasoline was extended with PTs for the determination of RON/MON and Dry Vapour Pressure Equivalent. New in this round was the inclusion of an Alkylate sample together with the samples of the main PT. In the main PT 150 laboratories in 55 different countries have participated. In the PT for RON/MON, 76 laboratories in 42 different countries participated and in the PT on Dry Vapour Pressure Equivalent, 121 laboratories in 46 different countries participated. Over all rounds 156 laboratories in 57 countries participated. See appendix 3 for the number of participants per country. In this report, the results of the Gasoline 2015 proficiency test are presented and discussed. This report is also available as PDF file from the iis internet site www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. In this proficiency test, the participants received, depending on their registration, 1 litre bottle (labelled #15195) containing regular Gasoline and/or 1 litre bottle (± 750 mL filled) with the same regular Gasoline (labelled #15196) for DVPE PT and/or 1 litre bottle (labelled #15198), containing the same regular Gasoline, for RON/MON PT. All participants of the main Gasoline round received also 1 x 50 ml bottle (± 30 mL filled) with an Alkylate sample (labelled #15199). Participants were requested to report rounded and unrounded results. The unrounded 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/IEC 17043:2010, since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie, R007). This PT falls under the accredited scope, except for the parts on the alkylate sample. The accreditation ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially 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 organisation 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 April 2014 (iis-protocol, version 3.3). This protocol can be downloaded from the iis website http://www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

All data presented in this report must be regarded as confidential and are 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

2.4.1 GASOLINE (MAIN SAMPLE)

The necessary bulk material of approx. 450 litre of regular Gasoline was obtained from a local gasoline station. After homogenisation in a mixing vessel, 270 amber glass bottles of 1 litre were filled. From this bulk 155 bottles were labelled #15195 and remaining part of the bottles were labelled #15198 for the RON/MON round (see further for RON/MON paragraph 2.4.3).
The homogeneity of the subsamples #15195 was checked by determination of Density @15°C in accordance with ASTM D4052 on 9 stratified randomly selected samples.

	Density at 15°C in kg/m^3
Sample #15195-1	732.88
Sample #15195-2	732.90
Sample #15195-3	732.88
Sample #15195-4	732.90
Sample #15195-5	732.87
Sample #15195-6	732.96
Sample #15195-7	732.97
Sample #15195-8	732.93
Sample #15195-9	732.97

Table 1: homogeneity test results of subsamples #15195 (and #15198)

From the above test results, the repeatability (r) was calculated and compared with 0.3 times the reproducibility (R) of the reference method mentioned in EN228 specification in agreement with the procedure of ISO13528, Annex B2 in the next table:

	Density at 15°C in kg/m^3
r (observed)	0.11
reference method	ISO12185:96
0.3 x R (ref. method)	0.45

Table 2: evaluation of repeatability of subsamples #15195 (and #15198)

The calculated repeatability is less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples of #15195 (and #15198) was assumed.

2.4.2 GASOLINE – SAMPLE FOR DVPE

For the preparation of the DVPE samples the same bulk material as for the gasoline main samples #15195 (and for RON/MON samples #15198) was used. After homogenisation, 134 amber glass bottles of 1 litre were filled with approx. 750 mL for the DVPE round and labelled #15196. The homogeneity of the subsamples #15196 was checked by determination of Density at 15°C according to ASTM D4052 and DVPE according to EN 13016-1 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3	DVPE in kPa
Sample #15196-1	732.73	91.8
Sample #15196-2	732.73	92.7
Sample #15196-3	732.74	92.1
Sample #15196-4	732.73	92.7
Sample #15196-5	732.74	92.7
Sample #15196-6	732.74	93.1
Sample #15196-7	732.74	92.5
Sample #15196-8	732.79	92.7

Table 3: homogeneity test results of subsamples #15196

From the above test results, the repeatabilities (r) were calculated and compared with 0.3 times the reproducibilities (R) of the reference methods mentioned in EN228 in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density at 15 °C in kg/m^3	DVPE in kPa
r	0.06	1.139
reference method	ISO12185:96	EN13016-1:07
0.3 x R (ref. method)	0.45	0.825
r (ref. method)	0.40	1.470

Table 4: evaluation of repeatabilities of subsamples #15196

The calculated repeatability of the Density determination is less than 0.3 times the reproducibility of the reference method. The calculated repeatability of the DVPE determination is not less than 0.3 times the reproducibility of the reference method, but less than the repeatability of the reference method. Therefore, homogeneity of the subsamples of #15196 was assumed.

2.4.3 GASOLINE – SAMPLES FOR RON/MON

The same bulk material of the gasoline main sample #15195 is used for the RON/MON samples; the preparation and homogeneity are mentioned in paragraph 2.4.1.

2.4.4 GASOLINE – SAMPLES FOR ALKYLATE

The necessary sample material of approx. 190 litre of Alkylate was made available by a participating laboratory. After homogenisation the bulk and bottles were cooled down. From this cooled batch, 200 amber glass bottles of 50 ml were filled with 30 ml Alkylate and labelled #15199.

The homogeneity of the alkylate subsamples #15199 was checked by determination of Density @15°C in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
Sample #15199-1	701.04
Sample #15199-2	701.01
Sample #15199-3	701.09
Sample #15199-4	700.95
Sample #15199-5	700.94
Sample #15199-6	701.06
Sample #15199-7	701.06
Sample #15199-8	701.01
Sample #15199-9	701.04

Table 5: homogeneity test results of subsamples #15199

From the above test results, the repeatability (r) was calculated and compared with 0.3 times the reproducibility (R) of the reference method mentioned in EN228 specification in agreement with the procedure of ISO13528, Annex B2 in the next table:

	Density at 15°C in kg/m^3
r (observed)	0.15
reference method	ISO12185:96
0.3 x R (ref. method)	0.45

Table 6: evaluation of repeatability of subsamples #15199

The calculated repeatability is in line with 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the alkylate subsamples of #15199 was assumed.

Depending on the registration of each participant the following samples were dispatched on September 30, 2015: 1 litre bottle of sample #15195 for the main round and/or a 1 litre bottle (± 750 ml filled) of sample #15196 for DVPE only and/or 1 litre bottle of sample #15198 for RON/MON only and to all participants of the main round 1 x 50ml bottle (30 ml filled) of alkylate sample #15199.

2.5 STABILITY OF THE SAMPLES

The stability of Gasoline, packed in the brown glass bottles, was checked in the past. The material was found sufficiently stable for the period of the proficiency test. The stability of the alkylate sample was not investigated.

2.6 ANALYSIS

The participants were requested to determine API Gravity, Appearance, Aromatics by FIA and by GC, (%V/V and %M/M), Benzene by GC, Copper Strip Corrosion, Density at 15°C, Distillation at 760 mm Hg, Doctor Test, Existent gum, Lead, Manganese, Olefins by FIA and by GC (%V/V and %M/M), Oxidation Stability, Ethanol, Ethers (C5 or more C atoms), MTBE, ETBE, Methanol,

DIPE, TAME, Iso-Propanol, Iso-Butanol, t-Butanol, sum of other oxygenates, Oxygen content and Sulphur on sample #15195.

The participants were requested to determine Air Saturated Vapour Pressure (ASVP) and Dry Vapour Pressure Equivalent (DVPE) according to EN13016-1 on sample #15196.

The participants were requested to determine RON and MON on sample #15198.

The participants were requested to determine on sample #15199: Aromatics by FIA, by Reformulyzer-PNA and by Reformulyzer-Winterspec method, Olefins by FIA, Reformulyzer-PNA method and by Reformulyzer-Winterspec method and Paraffins by Reformulyzer-PNA method and by Reformulyzer-Winterspec method.

To get comparable results a detailed report form, on which the units were prescribed as well as the required reference methods and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/. A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During four weeks after sample dispatch the results of the laboratories were collected via the data entry portal www.kmpd.co.uk/sgs-iis/. The original reported results are tabulated per determination in appendix 1 of this report. The participants are presented by their code numbers.

Directly after the deadline, a reminder was sent to those participants that had not reported results at that moment. Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The participants that reported these suspect data were asked to check the results. Additional or corrected results are used for data analysis and original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

Statistical calculations were performed as described in the report ‘iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation’ of April 2014 (iis-protocol, version 3.3). For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. 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. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results should be used with due care.

According to ISO 5725 the original results per determination were submitted to Dixon’s and/or Grubbs' and/or Rosner’s outlier tests. Outliers are marked by D(0.01) or D(1) for the Dixon’s

test, by G(0.01), G(1), DG(0.01) or DG(1) for the Grubbs' test and by R(0.01) or R(1) for the Rosner's test. Stragglers are marked by D(0.05), D(5) for the Dixon's test, by G(0.05), G(5), DG(0.05), DG(5) for the Grubbs' test and by R(0.05) or R(5) 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. When the uncertainty passed the evaluation no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

3.2 GRAPHICS

In order to visualise 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 analysis results are plotted. The corresponding laboratory numbers are under 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 standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle. Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ISO/EN reproducibilities, the z-scores were calculated using a target standard deviation. This result was an evaluation independent of the variation of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8.

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 in accordance with:

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

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

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

4 EVALUATION

In this proficiency test, problems were encountered with the despatch of the samples. Participants in Afghanistan, Argentina, Brazil, Egypt, Nigeria, Saudi Arabia, Sudan and Russian Federation received the samples late or not at all.
For the main Gasoline and Alkylate samples, 11 participants reported the results after the final reporting date and 10 participants did not report any result at all.
For the PT DVPE and RON/MON samples, respectively 9 and 7 participants reported the results after the final reporting date and respectively 9 and 7 participants did not report any result at all.
In total, 140 participants of the main and Alkylate rounds, 112 participants of the DVPE round, and 69 participants of the RON/MON round reported in total 2836 numerical results. Observed were 105 outlying results, which is 3.9%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

In this section, the results are discussed per test and sample.

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

For Gasoline sample #15195

API Gravity: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D1298:12b.

Appearance: No problems have been observed. Sixty-six participants agreed on the appearance as Clear and Bright. Other participants reported the appearance as clear, pass or in other types of descriptions.

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

Aromatics by GC: The determination in %V/V was problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ISO22854-A:14.

When the ISO22854 test results are evaluated separately, the reproducibility is almost in agreement with the requirements of ISO22854-A:14.

One statistical outlier was observed for the test results in %M/M. Regretfully for the determination in %M/M no precision data is available. Therefore, no significant conclusions were drawn.

Benzene: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:14. However, when the ISO22854 test results were evaluated separately, the calculated reproducibility is in full agreement with the requirements of ISO22854-A:14.

Copper strip: No problems have been observed, all participants agreed on a result of 1, 1A or 1B.

Density @ 15°C: This determination was problematic for a number of participants. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO12185:96. The results are not normal distributed and small shoulder at the righter side of the Kernel Density graph is visible. A possible cause may be that in these cases volatiles did evaporate before the density was determined.

Distillation The distillation was problematic for two of the eight reported destilation parameters and for a number of the participants. In total twenty-six statistical outliers were observed over eigth parameters. Several test results of one participant were excluded from the statistical evaluation because of the outlying results in the other distillation parameters of this participant.
However, most calculated reproducibilities after rejection of the statistical outliers and suspected results are in agreement with the requirements of ISO3405-A:11 (A=automatic), except for T/°C at 50% evaporated and %V/V evaporated at 150°C.
In general the reproducibility at 50% evaporated should be the smallest based on the theoretical distillation behaviour. This is also expressed by the requirements of ISO3405-A:11. The Kernel Density graph of T/°C at 50% evaporated show clearly a shoulder at the right side of the curve. The cause may be that a number of participants did report $T_{recovered}$ in stead of $T_{evaporated}$.
This problem in reporting was observed in a previous PT on Gasoline (iis14B01ASTM) in 2014 when an extensive study has been done on the distillation parameters after the PT.
When only the 50% evaporated test results using ISO3405-A as method were statistically evaluated, the calculated reproducibility is also not in agreement with the requirements of ISO3405-A:11. Therefore the use of a variety of test methods by the participants is not the cause for the large dispersion.

Doctor Test: No problems have been observed, all participants, except one, agreed on the absence of Mercaptans.

Existent Gum: This determination was problematic for a number of participants. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO6246:95.

Lead: The determination was not problematic and all participants, except two, agreed on a Lead content <2.5 mg/L. Most participants reported a “less than” value and therefore, no significant conclusions were drawn.

Manganese The determination was not problematic and all participants, except one, agreed on a Manganese content < 2 mg/L. Most participants reported a “less than” value and therefore, no significant conclusions were drawn.

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

Olefins by GC: The determination in %V/V was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:14. Regretfully for the determination in %M/M no precision data is available. Therefore, no significant conclusions were drawn.

Oxidation stability: Most participants agreed on an Oxidation Stability >900 minutes.

Ethanol: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with EN1601:14. Remarkable is the variety of methods reported. When the results of some methods are analysed separatively it is found that the calculated reproducibility of methods D5599 and EN/ISO22854 after rejection of the outliers is smaller and in agreement with EN1601:14. Also a small bias is present between D5599 and the other methods.

Ethers (C5 and more): This determination was problematic for a number of participants. One statistical outlier was observed and seventeen participants were excluded for two main reasons; either due to a calculation error of summing up all reported Ethers (C5 and more C atoms) or due to an outlying result in MTBE or ETBE or both components. However, the calculated reproducibility after rejection of the suspect data is in agreement with the requirements of EN1601:14.

MTBE: This determination was problematic for a number of participants. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN1601:14.

ETBE: This determination was problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is almost in agreement with the requirements of EN1601:14.

Other Oxygenates: The concentrations of other oxygenates were all near or below the detection limit of the method used and most of the participants reported a “less then” result. Therefore, no significant conclusions were drawn.

Oxygen content: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN1601:14.

Sulphur: This determination was problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not agreement with the requirements of ISO20846:11.

For Gasoline sample #15196

ASVP: This determination was problematic for a number of participants. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN13016-1:07.

DVPE: The Air Saturated Vapour Pressure (ASVP) can be converted to Dry Vapour Pressure Equivalent (DVPE) according to EN13016-1. This conversion was problematic for a number of participants. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN13016-1:07.

For Gasoline sample #15198

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

MON: The determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements ISO5163:14.

For Alkalyte sample #15199

Aromatics by FIA: The consensus value for Aromatics by FIA was below the application range of ASTM D1319:14 (5-99%V/V), therefore, no significant conclusions were drawn.

Aromatics by Reformulyser-PNA: This determination was very problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ISO22854-A:14. However, when the ISO22854 test results of were evaluated

separately, the calculated reproducibility is smaller than for all test results, but still not in agreement with the requirements of ISO22854-A:14.

Aromatics by Reformulyser-Winterspec: This determination was very problematic. One statistical outlier was observed and the test result of one participant was excluded. The calculated reproducibility after rejection of the suspect data is not at all in agreement with the requirements of ISO22854-A:14. When the ISO22854 test results were evaluated separately, the reproducibility is again not in agreement with the requirements of ISO22854-A:14.

Olefins by FIA: The consensus value for Olefins by FIA was below the application range of ASTM D1319:14 (1-55%V/V), therefore, no significant conclusions were drawn.

Olefins by Reformulyser-PNA: The theoretical value for Olefins by Reformulyser-PNA should be zero as all alkenes are hydrolysed in the PNA method. Therefore, no significant conclusions were drawn. Four participants indeed reported that olefins cannot be determined by Reformulyser-PNA.

Olefins by Reformulyser-Winterspec: The consensus value for Olefins by Reformulyser-Winterspec was below the application range of ISO22854-A:14 (1.5-30%V/V), therefore, no significant conclusions were drawn.

Paraffins by Reformulyser-PNA: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO22854-A:14. However, when the ISO22854 test results were evaluated separately, the calculated reproducibility is still not in agreement with the requirements of ISO22854-A:14.

Paraffins by Reformulyser-PNA: This determination was problematic for a number of participants. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO22854-A:14. When the ISO22854 test results were evaluated separately, the calculated reproducibility remains the same.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of participating laboratories. The target reproducibilities derived from literature standards and the calculated reproducibilities of samples #15195, #15196, #15198 and #15199 are compared in the next table.

Parameter		unit	n	mean	2.8 * sd	R (lit)
API Gravity			56	61.4	0.3	0.3
Appearance			83	Pass*)	n.a.	n.a.
Aromatics by FIA		%V/V	54	28.5	4.5	3.7
Aromatics by GC		%V/V	54	26.7	1.7	1.3
Aromatics by GC		%M/M	29	31.7	2.5	n.a.
Benzene by GC		%V/V	83	0.88	0.08	0.04
Copper Strip 3 hrs @ 50°C			113	1	n.a.	n.a.
Density at 15°C		kg/m^3	126	733.3	0.9	1.5
Distillation	IBP	ºC	134	28.0	5.0	4.7
	10%-evap.	ºC	131	40.4	3.1	3.2
	50%-evap.	ºC	127	79.3	4.3	1.9
	90%-evap.	ºC	126	144.8	2.9	3.9
	FBP	ºC	132	179.9	6.0	6.8
	%vol at 70ºC	%V/V	125	44.8	2.9	2.7
	%vol at 100ºC	%V/V	125	61.8	2.3	2.2
	%vol at 150ºC	%V/V	123	92.6	1.5	1.3
Doctor Test			65	Negative	n.a.	n.a.
Existent gum (washed)		mg/100mL	62	0.5	1.0	1.4
Lead as Pb		mg/L	52	<2.5	n.a.	n.a.
Manganese as Mn		mg/L	34	<2	n.a.	n.a.
Olefins by FIA		%V/V	52	11.5	4.6	3.6
Olefins by GC		%V/V	45	11.5	1.6	1.9
Olefins by GC		%M/M	22	10.2	1.6	n.a.
Oxidation Stability		min	67	>900	n.a.	n.a.
Ethanol		%V/V	82	4.7	0.5	0.4
Ethers C5 or more C atoms		%V/V	36	3.6	0.6	0.6
MTBE		%V/V	79	3.4	0.4	0.4
ETBE		%V/V	44	0.2	0.1	0.1
Oxygen content		%M/M	77	2.4	0.3	0.3
Sulphur		mg/kg	111	6.6	2.5	2.1

Table 7: performance evaluation sample #15195

*) in various descriptions

Parameter	Unit	n	mean	2.8 * sd	R (lit)
ASVP	kPa	86	99.3	2.4	2.6
DVPE acc. to EN13016	kPa	104	92.0	2.3	2.6

Table 8: performance evaluation sample #15196

Parameter	unit	n	mean	2.8 * sd	R (lit)
RON		67	95.8	0.7	0.7
MON		59	85.2	1.3	0.9

Table 9: performance evaluation sample #15198

Parameter	unit	n	mean	2.8 * sd	R (lit)
Aromatics by FIA	%V/V	32	(0.9)	(0.8)	(1.1)
Aromatics by Reformulyser-PNA	%V/V	31	1.2	0.5	0.2
Aromatics by Reformulyser-Winterspec	%V/V	31	1.4	0.4	0.2
Olefins by FIA	%V/V	36	(0.6)	(0.6)	(1.6)
Olefins by Reformulyser-PNA	%V/V	10	(0.4)	n.a.	n.a.
Olefins by Reformulyser-Winterspec	%V/V	28	(0.4)	(0.2)	(0.6)
Paraffins by Reformulyser-PNA	%V/V	26	97.8	2.7	1.6
Paraffins by Reformulyser-Winterspec	%V/V	29	97.5	1.8	1.6

Table 10: performance evaluation sample #15199

Note: Results between brackets should be used with care, because the consensus value was below the application range

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF OCTOBER 2015 WITH PREVIOUS PTS

	October 2015	*October 2014*	*October 2013*	*October 2012*
Number of rep. participants	146	128	126	95
Number of results reported	2836	2945	2425	1709
Statistical outliers	105	92	74	55
Percentage outliers	3.9%	3.1%	3.1%	3.2%

Table 11: comparison with previous proficiency tests

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

The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given the following table:

Determination	*October 2015*	*October 2014*	*October 2013*	*October 2012*
API Gravity	+/-	+	+/-	+
Aromatics by FIA	-	-	-	+
Aromatics by GC	-	+/-	-	+
Benzene	--	--	--	--
Density @ 15°C	+	-	--	--
Distillation	+/-	+/-	+	-
Existent gum (washed)	+	+	+/-	(+)
Lead as Pb	n.e.	--	(+)	(++)
Manganese	n.e.	+	--	(+/-)
Olefins by FIA	-	-	-	(-)
Olefins by GC	+	+/-	++	(++)
Ethanol	-	-	-	-
Ethers C5 or more C atoms	+/-	-	-	n.e.
MTBE	+/-	+/-	--	-
Oxygen content	+/-	+/-	+	+
Sulphur	-	-	+/-	-
ASVP	+	+	-	+/-
DVPE EN13016-1	+	+	-	+/-
RON	+/-	+	+/-	+/-
MON	-	-	-	+

Table 12: comparison determinations against the standard

* Results between brackets do not meet the application range of the test method.

The performance of the determinations against the requirements of the respective standards is listed in the above table. The following performance categories were used:

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

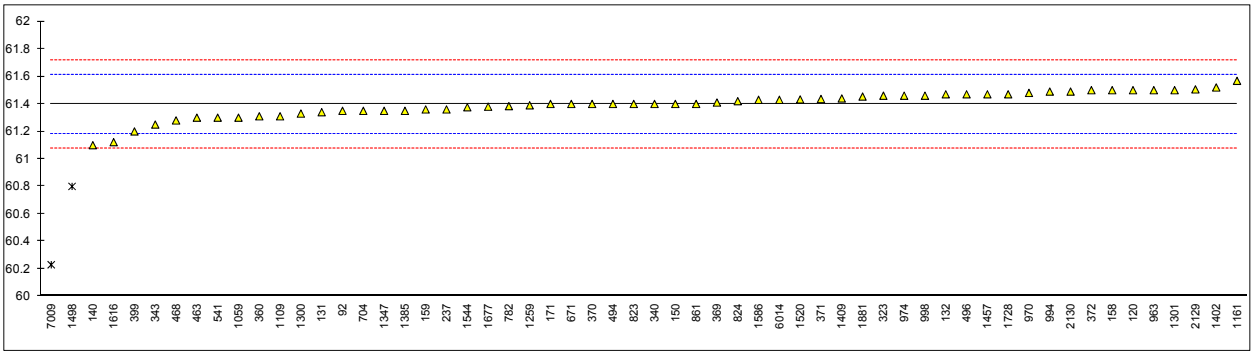
APPENDIX 1

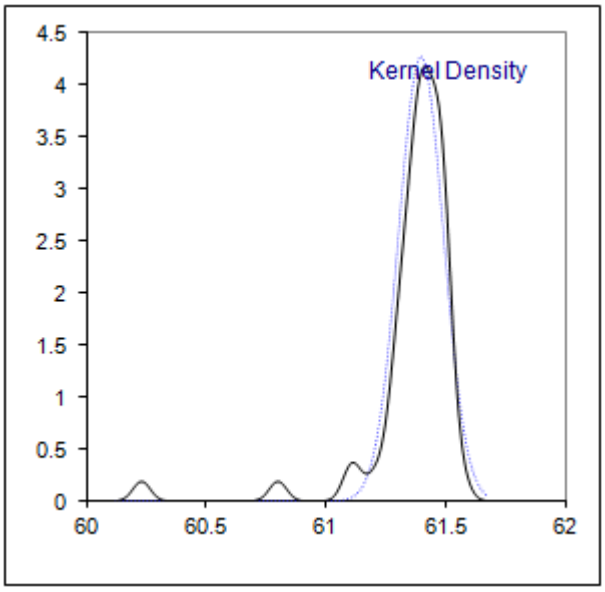
Determination of API Gravity on sample #15195;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92	D4052	61.35		-0.44	1126		-----		-----
120	D4052	61.5		0.96	1161	D1298	61.568		1.59
131	D4052	61.34		-0.54	1167		-----		-----
132	D4052	61.47		0.68	1191		-----		-----
140	D4052	61.1	C	-2.78	1194		-----		-----
150	D4052	61.4		0.02	1199		-----		-----
158	D4052	61.5		0.96	1203		-----		-----
159	D4052	61.36		-0.35	1229		-----		-----
171	D4052	61.4		0.02	1257		-----		-----
194		-----		-----	1259	Calc.	61.39		-0.07
228		-----		-----	1299		-----		-----
237	D4052	61.36		-0.35	1300	D4052	61.33		-0.63
238		-----		-----	1301	D1298	61.5		0.96
311		-----		-----	1346		-----		-----
312		-----		-----	1347	D4052	61.35		-0.44
323	D4052	61.46		0.58	1348		-----		-----
333		-----		-----	1385	D4052	61.35		-0.44
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402	D4052	61.52		1.14
337		-----		-----	1404		-----		-----
338		-----		-----	1409	D4052	61.44		0.40
340	D1250	61.40		0.02	1428		-----		-----
343	D1298	61.25		-1.38	1457	D4052	61.47		0.68
344		-----		-----	1459		-----		-----
350		-----		-----	1498	D1298	60.8	C,R(0.01)	-5.58
353		-----		-----	1520	D4052	61.433		0.33
360	D4052	61.31		-0.82	1538		-----		-----
369	D4052	61.41		0.12	1544	D4052	61.376		-0.20
370	D4052	61.4		0.02	1556		-----		-----
371	D1298	61.436		0.36	1569		-----		-----
372	D4052	61.5		0.96	1586	D1298	61.43		0.30
381		-----		-----	1616	Calc.	61.122		-2.57
399	D4052	61.20		-1.84	1634		-----		-----
402		-----		-----	1635		-----		-----
403		-----		-----	1636		-----		-----
420		-----		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D4052	61.38		-0.16
444		-----		-----	1710		-----		-----
445		-----		-----	1720		-----		-----
447		-----		-----	1724		-----		-----
453		-----		-----	1728	D4052	61.47		0.68
463	D1298	61.30		-0.91	1740		-----		-----
468	D1298	61.28		-1.10	1742		-----		-----
485		-----		-----	1751		-----		-----
494	D1298	61.4		0.02	1776		-----		-----
496	D4052	61.47		0.68	1807		-----		-----
541	D1298	61.3		-0.91	1810		-----		-----
556		-----		-----	1811		-----		-----
671	D4052	61.4		0.02	1813		-----		-----
704	D1250	61.35		-0.44	1833		-----		-----
782	D4052	61.384		-0.13	1842		-----		-----
785		-----		-----	1849		-----		-----
823	D4052	61.4		0.02	1881	D4052	61.454		0.53
824	D4052	61.42		0.21	1911		-----		-----
861	D4052	61.4		0.02	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963	D4052	61.5		0.96	1953		-----		-----
970	D4052	61.48		0.77	1961		-----		-----
974	Calc.	61.46		0.58	1979		-----		-----
994	D4052	61.49		0.86	1995		-----		-----
998	D4052	61.46		0.58	2129	Calc.	61.506		1.01
1006		-----		-----	2130	D4052	61.49		0.86
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	D4052	61.30		-0.91	6013		-----		-----
1067		-----		-----	6014	D4052	61.43		0.30
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009	D1298	60.23	R(0.01)	-10.90
1109	D287	61.31		-0.82	7013		-----		-----

normality	suspect
n	56
outliers	2
mean (n)	61.397
st.dev. (n)	0.0933
R(calc.)	0.261
R(D1298:12b)	0.300

Lab 140 first reported: 60.9
Lab 1498 first reported: 60.0





Determination of Appearance on sample #15195;

lab	method	value	lab	method	value
62		-----	1124		-----
92	D4176	Pass	1126		-----
120	Visual	C&B	1161	Visual	bright and clear
131		-----	1167		-----
132	D4176	C&B	1191	E2680	1
140	Visual	pass	1194		-----
150	E2680	Pass	1199		-----
158	D4176	Clear & Bright	1203		-----
159	D4176	Pass	1229	D4176	1
171	D4176	Clear and Bright	1257		-----
194	D4176	Clear & Bright	1259	Visual	Clear, transparent, free of water and mechanical
228	Visual	Clear & Bright	1299	Visual	Pass (CUMPLE)
237	D4176	Clear and Brigth	1300	D4176	C and B
238		-----	1301	Visual	Clear & Bright
311		-----	1346		-----
312		-----	1347		-----
323	Visual	clear and bright liquid	1348		-----
333		-----	1385		-----
334		-----	1395		-----
335		-----	1397		-----
336	Visual	C&B	1402	D4176	Clear and bright
337	Visual	Clear and Bright	1404	Visual	clear & bright
338	Visual	Clear and Bright	1409		-----
340	Visual	clear	1428	Visual	C&B
343	Visual	C&B	1457	Visual	bright & clear
344	D4176	C&B	1459		-----
350	D4176	Clear and Bright	1498		-----
353	D4176	C+B	1520	Visual	Clear and Bright
360	Visual	Clear and Bright	1538		-----
369	Visual	C & B	1544	Visual	clear & bright
370	Visual	Clear & Bright	1556		-----
371	Visual	C&B	1569	D4176	PASS
372	Visual	C&B	1586	Visual	Clear & Bright
381	Visual	Clear	1616	Visual	B&C
399	Visual	c&b	1634	Visual	C&B
402		-----	1635	Visual	clear
403		-----	1636		-----
420		-----	1650		-----
431		-----	1654		-----
440	Visual	C+B	1677	Visual	clear & bright
444		-----	1710		-----
445	Visual	Clear & Bright	1720		-----
447	Visual	Clear & Bright	1724		-----
453	D4176	Clear & Bright	1728	Visual	C&B
463	D4176	Pass	1740		-----
468	D4176	pass	1742		-----
485		-----	1751		-----
494	Visual	clear and bright	1776		-----
496	Visual	bright+clear	1807	Visual	C&b
541	D4176	PASS	1810		-----
556		-----	1811		-----
671		-----	1813	D4176	Clear & bright and free from water and particulate
704	Visual	Clear&Bright	1833	Visual	clear & bright
782	D4176	clear&bright	1842		-----
785	D4176	Clear and Bright	1849		-----
823	D4176	Clear and Bright	1881	Visual	C&B
824	Visual	Clear & Bright	1911		-----
861	Visual	Clear & Bright	1936	Visual	Clear & bright
875	Visual	C&B	1937		-----
962		-----	1938		-----
963	E2680	Pass	1953	D4176	Clear & Bright
970	Visual	clear and bright	1961		-----
974	Visual	C & B	1979	Visual	C&B
994	D4176	c@b	1995		-----
998	D4176	C&B	2129	Visual	Clear & Bright
1006		-----	2130	Visual	Clear and Bright
1011	Visual	B&C	2146		-----
1026	Visual	bright and clear	6005		-----
1033	Visual	Clear and bright	6012		-----
1059	Visual	Clear & Bright	6013	D4176	clear bright
1067		-----	6014	Visual	CLEAR&BRIGHT
1081		-----	6016		-----
1082	D4176	1	7003		-----
1108		-----	7009	Visual	Clear
1109	D4176	Pass	7013		-----

n	83
mean (n)	Pass (in various descriptions)

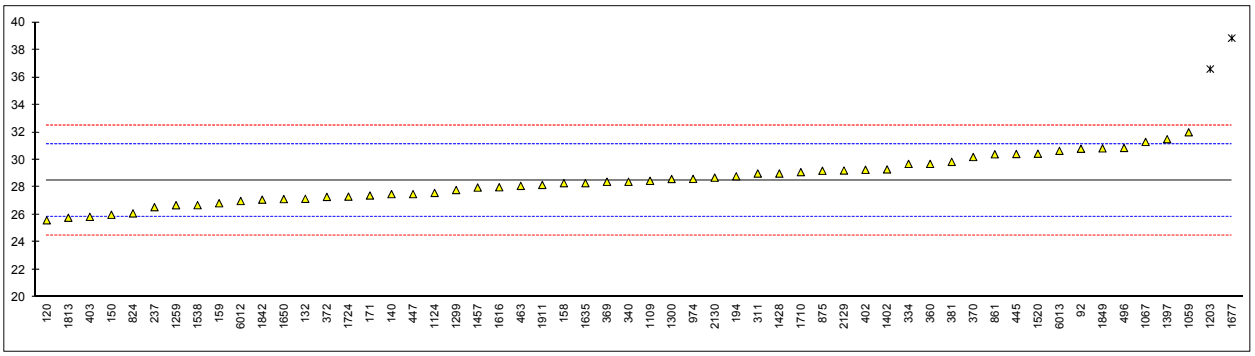
11 reported:	Pass
66 reported:	Clear&Bright in various ways
4 reported:	Clear
2 reported:	various descriptions indicating that the liquid is clear and free of suspended matter
3 reported:	1

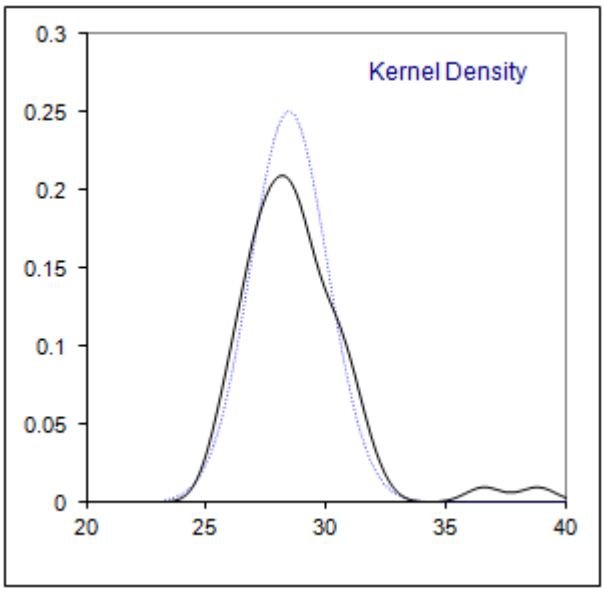
Determination of Aromatics by FIA without oxygenates correction on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN15553	27.59		-0.68
92	D1319	30.8		1.75	1126		-----		-----
120	D1319	25.6		-2.19	1161		-----		-----
131		-----		-----	1167		-----		-----
132	D1319	27.16		-1.01	1191		-----		-----
140	D1319	27.5		-0.75	1194		-----		-----
150	D1319	26.0		-1.88	1199		-----		-----
158	D1319	28.3		-0.14	1203	EN15553	36.6	R(0.01)	6.14
159	D1319	26.84		-1.25	1229		-----		-----
171	D1319	27.4		-0.83	1257		-----		-----
194	D1319	28.8		0.23	1259	EN15553	26.695		-1.36
228		-----		-----	1299	D1319	27.8		-0.52
237	D1319	26.55		-1.47	1300	EN15553	28.6		0.08
238		-----		-----	1301		-----		-----
311	D1319	29.0		0.39	1346		-----		-----
312		-----		-----	1347		-----		-----
323		-----		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334	EN15553	29.7		0.92	1395		-----		-----
335		-----		-----	1397	EN15553	31.5		2.28
336		-----		-----	1402	D1319	29.3		0.61
337		-----		-----	1404		-----		-----
338		-----		-----	1409		-----		-----
340	EN15553	28.4		-0.07	1428	EN15553	29.0		0.39
343		-----		-----	1457	D1319	27.98		-0.39
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520	EN15553	30.44		1.48
360	EN15553	29.7		0.92	1538	EN15553	26.7		-1.36
369	EN15553	28.4		-0.07	1544		-----		-----
370	D1319	30.2		1.29	1556		-----		-----
371		-----		-----	1569		-----		-----
372	EN15553	27.3		-0.90	1586		-----		-----
381	EN15553	29.85		1.03	1616	D1319	28.0		-0.37
399		-----		-----	1634		-----		-----
402	D1319	29.27		0.59	1635	D1319	28.3		-0.14
403	EN15553	25.85		-2.00	1636		-----	C	-----
420		-----		-----	1650	EN15553	27.14		-1.02
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D1319	38.85	R(0.01)	7.84
444		-----		-----	1710	D1319	29.1		0.46
445	EN15553	30.42		1.46	1720		-----		-----
447	D1319	27.5		-0.75	1724	EN15553	27.32		-0.89
453		-----		-----	1728		-----		-----
463	D1319	28.1		-0.30	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496	D1319	30.86		1.79	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D1319	25.7821		-2.05
704		-----		-----	1833		-----		-----
782		-----		-----	1842	D1319	27.1		-1.05
785		-----		-----	1849	EN15553	30.8305	C	1.77
823		-----		-----	1881		-----		-----
824	D1319	26.1		-1.81	1911	EN15553	28.17		-0.24
861	D1319	30.4		1.44	1936		-----		-----
875	D1319	29.2		0.54	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D1319	28.61		0.09	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	EN15553	29.22		0.55
1006		-----		-----	2130	D1319	28.7		0.16
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012	D1319	27.0		-1.13
1059	D1319	32.0		2.66	6013	EN15553	30.65		1.63
1067	D1319	31.3		2.13	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009		-----		-----
1109	D1319	28.47		-0.02	7013		-----		-----

normality	OK
n	54
outliers	2
mean (n)	28.49
st.dev. (n)	1.601
R(calc.)	4.48
R(EN15553:07)	3.70

Lab 1636 first reported result for Alkylate sample (#15199)
Lab 1849 first reported: 34.3375



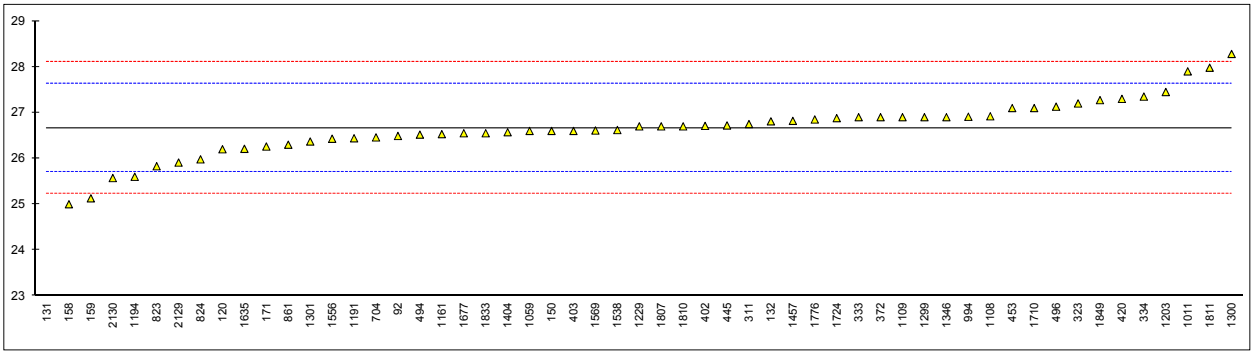


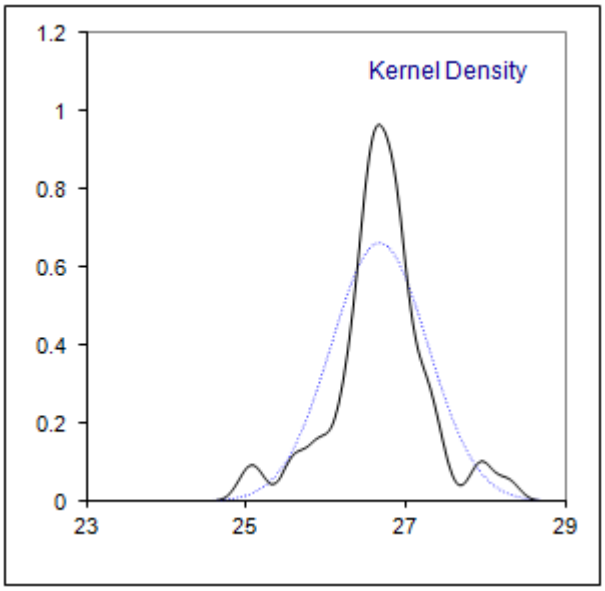
Determination of Aromatics by GC on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92	INH-14.3	26.49		-0.37	1126		-----		-----
120	D5769	26.2	C	-0.97	1161	ISO22854	26.53		-0.28
131	D6730	17.6186	R(0.01)	-18.93	1167		-----		-----
132	D5769	26.81		0.30	1191	ISO22854	26.44		-0.47
140		-----		-----	1194	ISO22854	25.6		-2.23
150	D5769	26.6	C	-0.14	1199		-----		-----
158	D5769	25.0		-3.49	1203	ISO22854	27.45		1.64
159	D5769	25.13		-3.21	1229	ISO22854	26.7		0.07
171	D5580	26.26		-0.85	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	ISO22854	26.9		0.49
237		-----		-----	1300	ISO22854	28.28		3.38
238		-----		-----	1301	D6730	26.37		-0.62
311	ISO22854	26.75		0.18	1346	ISO22854	26.9		0.49
312		-----		-----	1347		-----		-----
323	ISO22854	27.2		1.12	1348		-----		-----
333	ISO22854	26.9		0.49	1385		-----		-----
334	ISO22854	27.35		1.43	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	D6730	26.5721		-0.20
338		-----		-----	1409		-----		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	26.82		0.32
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	26.62		-0.10
369		-----		-----	1544		-----		-----
370		-----		-----	1556	ISO22854	26.43		-0.49
371		-----		-----	1569	ISO22854	26.61		-0.12
372		26.90		0.49	1586		-----		-----
381		-----		-----	1616		-----		-----
399		-----		-----	1634		-----		-----
402	ISO22854	26.71		0.09	1635	ISO22854	26.21		-0.95
403	ISO22854	26.6		-0.14	1636		-----		-----
420	ISO22854	27.3		1.33	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	26.55		-0.24
444		-----		-----	1710	ISO22854	27.1		0.91
445	ISO22854	26.72		0.11	1720		-----		-----
447		-----		-----	1724	ISO22854	26.88		0.45
453	ISO22854	27.10		0.91	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	26.52		-0.31	1776	ISO22854	26.85		0.38
496	ISO22854	27.13		0.97	1807	ISO22854	26.7		0.07
541		-----		-----	1810	ISO22854	26.7		0.07
556		-----		-----	1811	ISO22854	27.98		2.75
671		-----		-----	1813		-----		-----
704	D5580	26.459		-0.43	1833	ISO22854	26.55		-0.24
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO22854	27.272		1.27
823	D5580	25.83	C	-1.75	1881		-----		-----
824	D5580	25.98		-1.44	1911		-----		-----
861	D5580	26.30		-0.77	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994	D6729	26.91		0.51	1995		-----		-----
998		-----		-----	2129	D6730	25.91	C	-1.58
1006		-----		-----	2130	D6730	25.572		-2.29
1011	ISO22854	27.9		2.58	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	26.6		-0.14	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	26.92		0.53	7009		-----		-----
1109	D6839	26.90		0.49	7013		-----		-----

		ISO22854 results only
normality	suspect	suspect
n	54	36
outliers	1	0
mean (n)	26.666	26.883
st.dev. (n)	0.6052	0.5007
R(calc.)	1.695	1.402
R(ISO22854-A:14)	1.338	1.338

Lab 120 first reported: 25.2
Lab 150 first reported: 25.2
Lab 823 first reported: 25.83
Lab 2129 first reported: 25.95



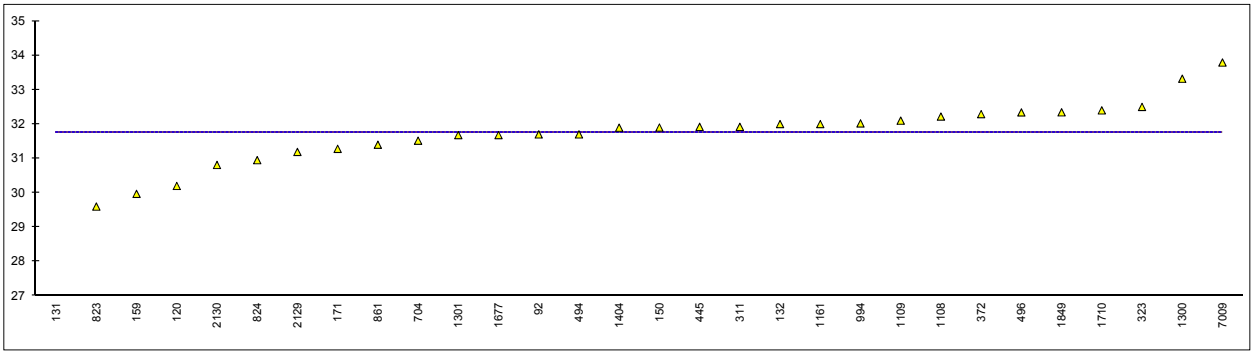


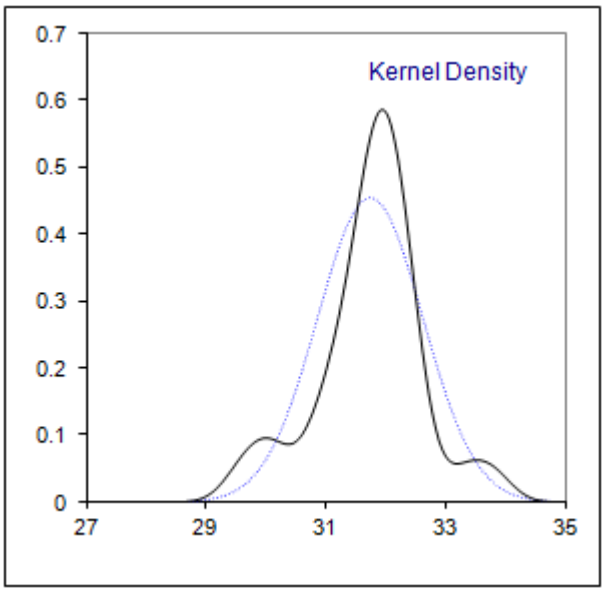
Determination of Aromatics by GC on sample #15195; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92	INH-14.3	31.70		-----	1126		-----		-----
120	D5769	30.2		-----	1161	ISO22854	32.0		-----
131	D6730	21.6022	R(0.01)	-----	1167		-----		-----
132	D5769	32.00		-----	1191		-----		-----
140		-----		-----	1194		-----		-----
150	D5769	31.9	C	-----	1199		-----		-----
158		-----		-----	1203		-----		-----
159	D5769	29.97		-----	1229		-----		-----
171	D5580	31.28		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299		-----		-----
237		-----		-----	1300	ISO22854	33.32		-----
238		-----		-----	1301	D6730	31.68		-----
311	D6839	31.92		-----	1346		-----		-----
312		-----		-----	1347		-----		-----
323	D5580	32.5		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	D6730	31.8950		-----
338		-----		-----	1409		-----		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457		-----		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538		-----		-----
369		-----		-----	1544		-----		-----
370		-----		-----	1556		-----		-----
371		-----		-----	1569		-----		-----
372		32.29		-----	1586		-----		-----
381		-----		-----	1616		-----		-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635		-----		-----
403		-----		-----	1636		-----		-----
420		-----		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D6839	31.68		-----
444		-----		-----	1710	ISO22854	32.4		-----
445	ISO22854	31.92		-----	1720		-----		-----
447		-----		-----	1724		-----		-----
453		-----		-----	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		31.70		-----	1776		-----		-----
496	ISO22854	32.34		-----	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813		-----		-----
704	D5580	31.517		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO22854	32.342		-----
823	D5580	29.6		-----	1881		-----		-----
824	D5580	30.95		-----	1911		-----		-----
861	D5580	31.40		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994	D6729	32.02		-----	1995		-----		-----
998		-----		-----	2129	D6730	31.19	C	-----
1006		-----		-----	2130	D6730	30.811		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059		-----		-----	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	EN14517	32.22		-----	7009	D5134	33.792		-----
1109	D6839	32.10		-----	7013		-----		-----

normality	suspect	
n	29	
outliers	1	
mean (n)	31.746	
st.dev. (n)	0.8802	
R(calc.)	2.464	
R(lit)	unknown	Compare R(iis14B05EN)=1.630

Lab 150 first reported: 30.22
Lab 2129 first reported: 31.24



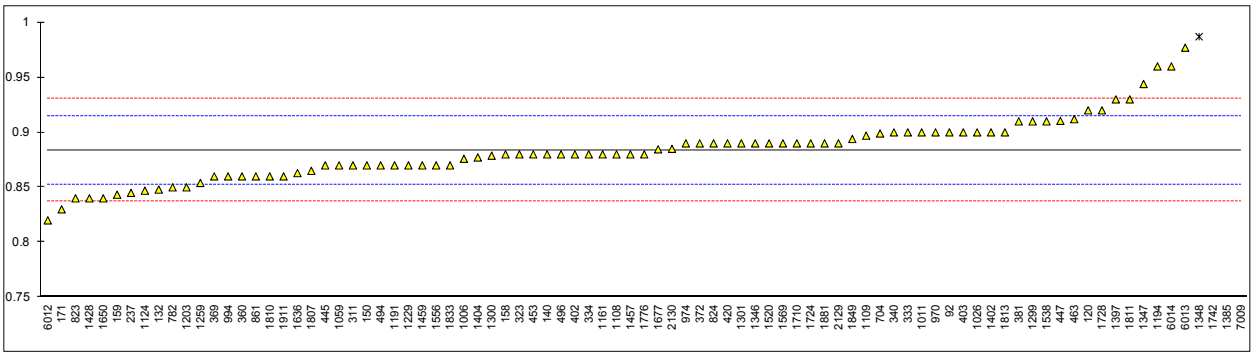


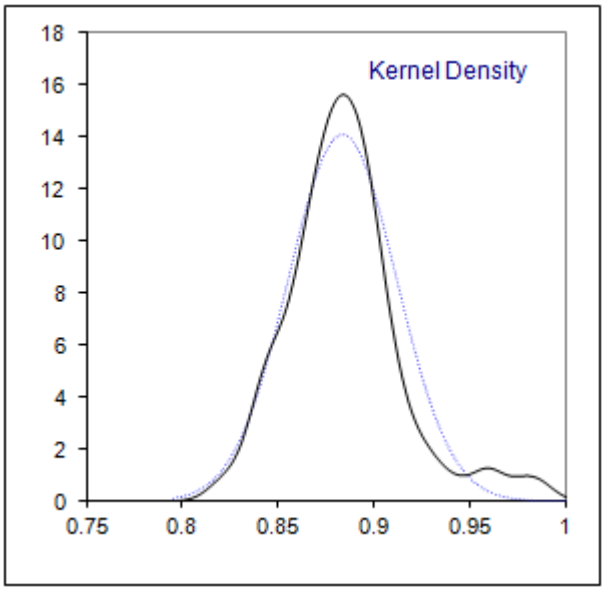
Determination of Benzene on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN12177	0.847		-2.35
92	INH-14.3	0.90		1.05	1126		-----		-----
120	D3606	0.92		2.33	1161	ISO22854	0.88		-0.23
131		-----		-----	1167		-----		-----
132	D3606	0.848		-2.28	1191	ISO22854	0.87		-0.87
140	D3606	0.88		-0.23	1194	D6277	0.96		4.90
150	D3606	0.87		-0.87	1199		-----		-----
158	D3606	0.88		-0.23	1203	ISO22854	0.85		-2.16
159	D3606	0.8433		-2.59	1229	ISO22854	0.87		-0.87
171	D3606	0.83		-3.44	1257		-----		-----
194		-----		-----	1259	EN12177	0.854		-1.90
228		-----		-----	1299	ISO22854	0.91		1.69
237	D5580	0.845		-2.48	1300	ISO22854	0.8788		-0.31
238		-----		-----	1301	D6730	0.89		0.41
311	ISO22854	0.87		-0.87	1346	ISO22854	0.89		0.41
312		-----		-----	1347	D4815	0.944		3.87
323	ISO22854	0.88		-0.23	1348	D5580	0.987	R(0.05)	6.63
333	ISO22854	0.9		1.05	1385	D4815	1.127	R(0.01)	15.61
334	ISO22854	0.88		-0.23	1395		-----		-----
335		-----		-----	1397	EN238	0.93		2.97
336		-----		-----	1402	EN238	0.9		1.05
337		-----		-----	1404	D6730	0.8772		-0.41
338		-----		-----	1409		-----		-----
340	EN238	0.9		1.05	1428	EN12177	0.84		-2.80
343		-----		-----	1457	ISO22854	0.88		-0.23
344		-----		-----	1459	in house	0.87		-0.87
350		-----		-----	1498		-----		-----
353		-----		-----	1520	EN238	0.89		0.41
360	EN12177	0.86		-1.51	1538	EN238	0.91		1.69
369	EN238	0.86		-1.51	1544		-----		-----
370		-----		-----	1556	ISO22854	0.87		-0.87
371		-----		-----	1569	ISO22854	0.89		0.41
372	D3606	0.89		0.41	1586		-----		-----
381	EN12177	0.91		1.69	1616		-----		-----
399		-----		-----	1634		-----		-----
402	ISO22854	0.88		-0.23	1635		-----		-----
403	ISO22854	0.90		1.05	1636	EN238	0.863		-1.32
420	ISO22854	0.89		0.41	1650	D6277	0.84		-2.80
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D3606	0.8846		0.06
444		-----		-----	1710	ISO22854	0.89		0.41
445	ISO22854	0.87		-0.87	1720		-----		-----
447	IP429	0.9105		1.72	1724	ISO22854	0.89		0.41
453	ISO22854	0.88		-0.23	1728	EN238	0.92		2.33
463	EN238	0.912		1.82	1740		-----		-----
468		-----		-----	1742	EN238	1.1	R(0.01)	13.88
485		-----		-----	1751		-----		-----
494	ISO22854	0.87		-0.87	1776	ISO22854	0.88		-0.23
496	ISO22854	0.88		-0.23	1807	ISO22854	0.865		-1.19
541		-----		-----	1810	ISO22854	0.86		-1.51
556		-----		-----	1811	ISO22854	0.93		2.97
671		-----		-----	1813	D6839	0.90		1.05
704	D5580	0.899		0.99	1833	ISO22854	0.87		-0.87
782	D6277	0.85	C	-2.16	1842		-----		-----
785		-----		-----	1849	ISO22854	0.894		0.67
823	D5580	0.84		-2.80	1881	IP429	0.89		0.41
824	D5580	0.89		0.41	1911	EN12177	0.860		-1.51
861	D5580	0.86		-1.51	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970	D5580	0.90		1.05	1961		-----		-----
974	D5580	0.89		0.41	1979		-----		-----
994	D6729	0.86		-1.51	1995		-----		-----
998		-----		-----	2129	D6730	0.89		0.41
1006	D5580	0.876		-0.49	2130	D6730	0.885		0.09
1011	ISO22854	0.90		1.05	2146		-----		-----
1026	EN12177	0.90		1.05	6005		-----		-----
1033		-----		-----	6012	D6277	0.82		-4.08
1059	ISO22854	0.87		-0.87	6013	D3606	0.977		5.99
1067		-----		-----	6014	D3606	0.96		4.90
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	0.88		-0.23	7009	D5134	1.2	R(0.01)	20.29
1109	D3606	0.897		0.86	7013		-----		-----

		ISO22854 results only
normality	suspect	OK
n	83	32
outliers	4	0
mean (n)	0.8836	0.8818
st.dev. (n)	0.02832	0.01557
R(calc.)	0.0793	0.0436
R(ISO22854-A:14)	0.0436	0.0436

Lab 782 first reported: 0.79





Determination of Copper strip 3hrs/50°C on sample #15195;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D130	1B		-----	1124	ISO2160	1A		-----
92	D130	1A		-----	1126		-----		-----
120	D130	1A		-----	1161	D130	1A		-----
131		-----		-----	1167	ISO2160	1A		-----
132	D130	1A		-----	1191	ISO2160	1A		-----
140	D130	1A		-----	1194		-----		-----
150	D130	1A		-----	1199		-----		-----
158	D130	1A		-----	1203	ISO2160	1		-----
159	D130	1A		-----	1229	ISO2160	1A		-----
171	D130	1A		-----	1257	D130	1A		-----
194	D130	1A		-----	1259	ISO2160	1A		-----
228		-----		-----	1299	D130	1A		-----
237	D130	1A		-----	1300	ISO2160	1A		-----
238		-----		-----	1301	D130	1A		-----
311	D130	1A		-----	1346	ISO2160	1A		-----
312		-----		-----	1347	D130	1A		-----
323	D130	1A		-----	1348	D130	1A		-----
333	ISO2160	1		-----	1385	D130	1A		-----
334	ISO2160	1		-----	1395	D130	1A		-----
335		1		-----	1397	ISO2160	1		-----
336	D130	1		-----	1402	IP154	1A		-----
337	D130	1A		-----	1404	ISO2160	1A		-----
338		-----		-----	1409	D130	1A		-----
340	ISO2160	1		-----	1428	ISO2160	1A		-----
343	D130	1A		-----	1457	ISO2160	1A		-----
344	D130	1A		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353	IP154	1A		-----	1520	ISO2160	1A		-----
360	D130	1A		-----	1538	ISO2160	1		-----
369	ISO2160	1A		-----	1544	ISO2160	1A		-----
370	ISO2160	1A		-----	1556	ISO2160	1		-----
371	ISO2160	1A		-----	1569	ISO2160	1A		-----
372	ISO2160	1A		-----	1586	D130	1A		-----
381	ISO2160	1		-----	1616	D130	1A		-----
399	D130	1A		-----	1634	D130	1A		-----
402		-----		-----	1635	ISO2160	1A		-----
403		-----		-----	1636	ISO2160	1A		-----
420	ISO2160	1A		-----	1650	ISO2160	1A		-----
431		-----		-----	1654		-----		-----
440	IP154	1A		-----	1677	D130	1A		-----
444		-----		-----	1710	ISO2160	1A		-----
445	IP154	1A		-----	1720		-----		-----
447	D130	1A		-----	1724	D130	1A		-----
453	IP154	1A		-----	1728	D130	1A		-----
463	ISO2160	1A		-----	1740	D130	1A		-----
468	D130	1A		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	D130	1A		-----	1776		-----		-----
496	ISO2160	1A		-----	1807	D130	1A		-----
541	D130	1A		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671	D130	1A		-----	1813	D130	1A		-----
704	D130	1A		-----	1833		-----		-----
782	D130	1A		-----	1842	IP154	1A		-----
785		-----		-----	1849	ISO2160	1A		-----
823	D130	1A		-----	1881	ISO2160	1A		-----
824		-----		-----	1911	ISO2160	1A		-----
861	D130	1A		-----	1936		-----		-----
875	D130	1A		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963	D130	1A		-----	1953	ISO2160	1A		-----
970	D130	1A		-----	1961	ISO2160	1A		-----
974	D130	1A		-----	1979	ISO2160	1A		-----
994	D130	1A		-----	1995		-----		-----
998	D130	1A		-----	2129	ISO2160	1A		-----
1006	D130	1A		-----	2130	D130	1A		-----
1011	ISO2160	1A		-----	2146		-----		-----
1026	ISO2160	1A		-----	6005	ISO2160	1A		-----
1033	IP154	1A		-----	6012	D130	1A		-----
1059	ISO2160	1A		-----	6013	ISO2160	1A		-----
1067		-----		-----	6014	ISO2160	1A		-----
1081		-----		-----	6016		-----		-----
1082	ISO2160	1A		-----	7003		-----		-----
1108	D130	1A		-----	7009	D130	1B		-----
1109	D130	1A		-----	7013	D130	1A		-----

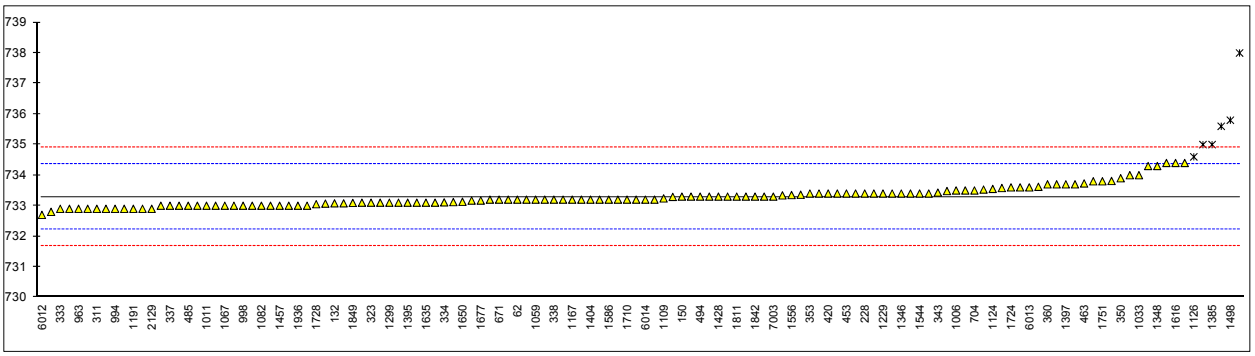
n	113		
mean (n)	1		
		101 reported:	1A
		2 reported:	1B
		10 reported:	1

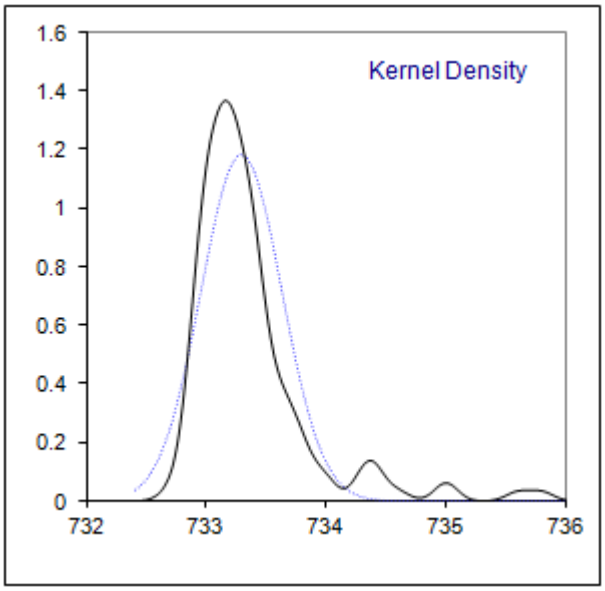
Determination of Density at 15°C on sample #15195; results in kg/m^3

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4052	733.2		-0.17	1124	ISO12185	733.550		0.48
92	D4052	733.4		0.20	1126	ISO12185	734.60	R(0.05)	2.44
120	D4052	732.9		-0.73	1161	ISO12185	732.90		-0.73
131	D4052	733.53		0.44	1167	ISO12185	733.2		-0.17
132	D4052	733.08		-0.40	1191	ISO12185	732.9		-0.73
140	D4052	734.4	C	2.07	1194		-----		-----
150	D4052	733.3		0.02	1199		-----		-----
158		-----		-----	1203	ISO12185	734.3		1.88
159	D4052	733.5		0.39	1229	ISO12185	733.4		0.20
171	D4052	733.29		0.00	1257	D4052	733.2	C	-0.17
194		-----		-----	1259	ISO12185	733.4		0.20
228	D4052	733.4		0.20	1299	D4052	733.1		-0.36
237	D4052	733.0		-0.54	1300	ISO12185	733.1		-0.36
238		-----		-----	1301	D4052	733.0		-0.54
311	ISO12185	732.9		-0.73	1346	ISO12185	733.4		0.20
312		-----		-----	1347	D4052	733.48		0.35
323	ISO12185	733.1		-0.36	1348	D4052	734.3		1.88
333	ISO12185	732.9		-0.73	1385	D4052	735.0	R(0.01)	3.19
334	ISO12185	733.11		-0.34	1395	D4052	733.1		-0.36
335	ISO12185	733.7		0.76	1397	ISO12185	733.7		0.76
336	ISO12185	733.0		-0.54	1402	IP365	732.9		-0.73
337	ISO12185	733.0		-0.54	1404	ISO12185	733.2		-0.17
338	ISO12185	733.2		-0.17	1409	ISO12185	733.4		0.20
340	ISO12185	733.36		0.13	1428	ISO12185	733.3		0.02
343	ISO12185	733.43		0.26	1457	ISO12185	733.0		-0.54
344	D4052	735.0	R(0.01)	3.19	1459	ISO12185	733.1		-0.36
350	ISO3675	733.9		1.14	1498	D1298	735.8	C,R(0.01)	4.68
353	IP365	733.4		0.20	1520	ISO12185	733.20		-0.17
360	ISO12185	733.7		0.76	1538		-----		-----
369	ISO12185	733.3		0.02	1544	ISO12185	733.4		0.20
370	ISO12185	733.2		-0.17	1556	ISO12185	733.35		0.11
371	ISO12185	733.2		-0.17	1569	ISO12185	733.12		-0.32
372	ISO12185	733.0		-0.54	1586	D1298	733.2		-0.17
381		-----		-----	1616	D4052	734.4		2.07
399	D4052	734.0		1.32	1634	ISO12185	733.4		0.20
402	ISO12185	732.8		-0.92	1635	ISO12185	733.1		-0.36
403		-----		-----	1636	ISO12185	733.20		-0.17
420	ISO12185	733.4		0.20	1650	ISO12185	733.13		-0.30
431	ISO12185	735.6	R(0.01)	4.31	1654		-----		-----
440	D4052	733.0		-0.54	1677	D4052	733.17		-0.23
444	D4052	733.17		-0.23	1710	ISO12185	733.2		-0.17
445	ISO12185	732.9		-0.73	1720		-----		-----
447	D4052	733.3		0.02	1724	ISO12185	733.6		0.58
453	IP365	733.4		0.20	1728	ISO12185	733.05		-0.45
463	ISO12185	733.73		0.82	1740	ISO12185	733.2		-0.17
468	ISO12185	733.81		0.97	1742	ISO12185	733.8		0.95
485	ISO12185	733.0		-0.54	1751	ISO12185	733.8		0.95
494	ISO12185	733.3		0.02	1776	ISO12185	733.0		-0.54
496	ISO12185	733.07		-0.41	1807	D4052	733.6		0.58
541	ISO12185	733.1		-0.36	1810	ISO12185	733.3		0.02
556		-----		-----	1811	ISO12185	733.3		0.02
671	D4052	733.2		-0.17	1813	D4052	733.3		0.02
704	ISO12185	733.50		0.39	1833	ISO12185	733.7		0.76
782	D4052	733.4		0.20	1842	D4052	733.3		0.02
785	D4052	733.0		-0.54	1849	ISO12185	733.092		-0.37
823	ISO12185	733.4		0.20	1881	ISO12185	733.08		-0.40
824		733.2		-0.17	1911	ISO12185	733.34		0.09
861	D4052	733.2		-0.17	1936	ISO12185	733.0		-0.54
875	D4052	732.9		-0.73	1937	ISO12185	733.1		-0.36
962		-----		-----	1938	ISO12185	733.3		0.02
963	ISO12185	732.9		-0.73	1953		-----		-----
970	D4052	733.0		-0.54	1961		-----		-----
974	D1298	733.1		-0.36	1979	ISO12185	733.62		0.61
994	D4052	732.9		-0.73	1995		-----		-----
998	D4052	733.0	C	-0.54	2129	D4052	732.90		-0.73
1006	D4052	733.5		0.39	2130	ISO12185	733.0		-0.54
1011	ISO12185	733.0		-0.54	2146	ISO12185	733.58		0.54
1026	D4052	733.4		0.20	6005	ISO12185	734.4		2.07
1033	IP365	734.0		1.32	6012	ISO3675	732.7		-1.10
1059	ISO12185	733.2		-0.17	6013	ISO12185	733.6		0.58
1067	D4052	733.0		-0.54	6014	ISO12185	733.2		-0.17
1081		-----		-----	6016		-----		-----
1082	ISO12185	733.0		-0.54	7003	D4052	733.3		0.02
1108	ISO12185	733.2		-0.17	7009	D4052	738.0	R(0.01)	8.79
1109	D4052	733.24		-0.10	7013	D4052	733.2		-0.17

normality	not OK
n	126
outliers	6
mean (n)	733.292
st.dev. (n)	0.3379
R(calc.)	0.946
R(ISO12185:96)	1.500

Lab 140 first reported: 735
Lab 998 reported: 0.7330 kg/m^3, converted by iis
Lab 1257 first reported: 0.7332 kg/L
Lab 1498 first reported: 738.8





Determination of Distillation at 760 mmHg on sample #15195; results in °C

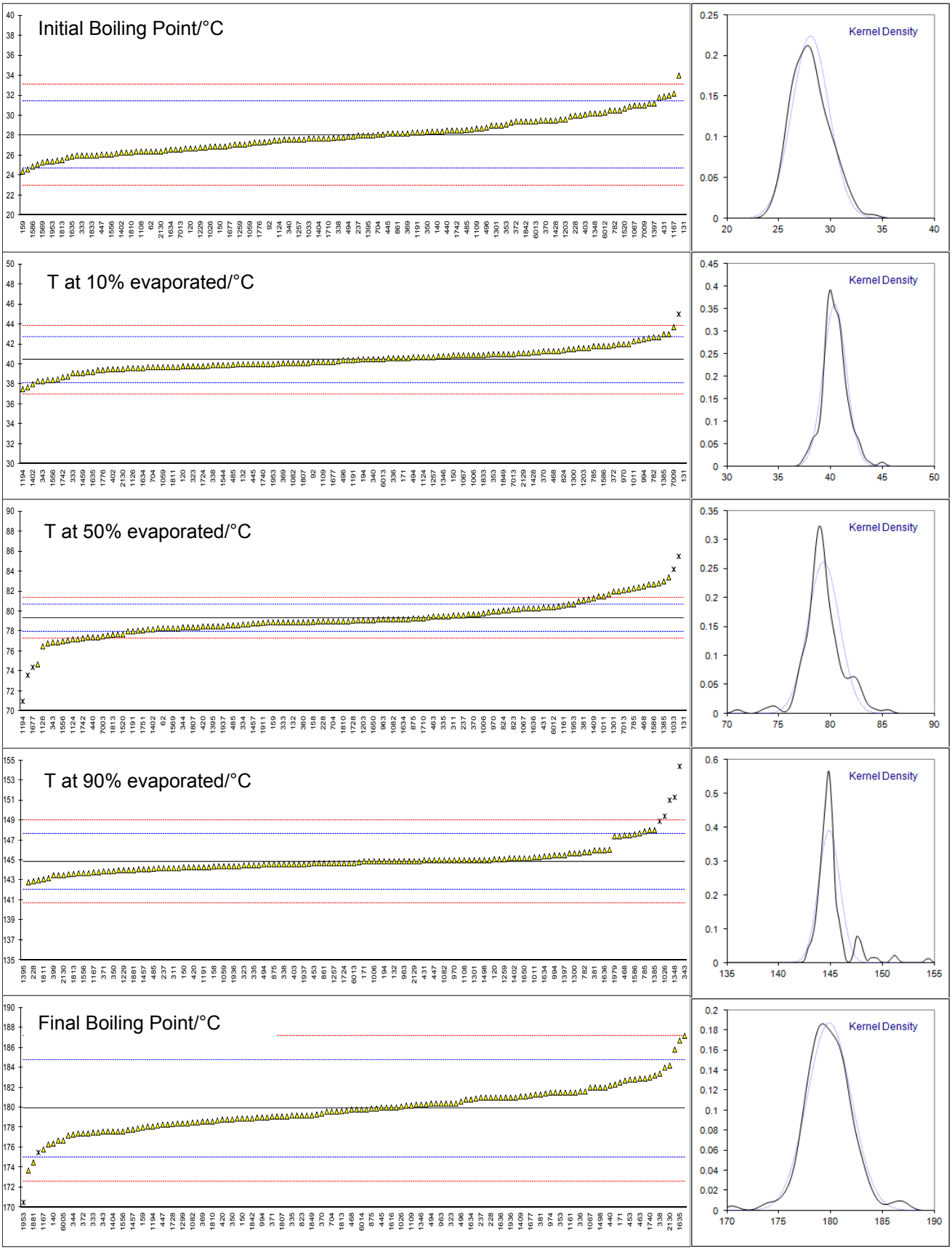
lab	method	mode	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
62	D86	Automated	26.4		38.3		78.3	C	144.3		-----	
92	D86	Automated	27.4		40.2		80.2		145.5		183.2	
120	D86	Automated	26.7		39.8		78.9		145.1		178.1	
131	D86	Automated	78.61	R(1)	87.89	R(1)	111.33	R(1)	154.39	R(1)	175.50	ex
132	D86	Automated	28.2		40.0		78.9		144.9		181.3	
140	D86	Automated	28.4		40.0	C	82.7		144.0		176.4	
150	D86	Automated	26.9		40.9		79.2		144.3		178.9	
158	D86	Automated	27.33		39.83		78.94		144.39		187.17	
159	D86	Automated	24.4		39.9		78.9		144.6		178.0	
171	D86	Automated	26.0		40.6		79.0		144.9		182.5	
194	D86	Automated	29.9		40.5		78.9		144.9		179.7	
228	D86	Manual	30.0		40.6		79.0		142.9		181.0	
237	D86	Manual	28.0		40.7		79.6		144.2		181.0	
238			-----		-----		-----		-----		-----	
311	ISO3405	Automated	25.8		40.8		79.6		144.2		179.6	
312			-----		-----		-----		-----		-----	
323	ISO3405	Automated	29.3		39.8		77.7		144.5		180.4	
333	ISO3405	Automated	26.0		39.1		78.9		145.0		177.5	
334	ISO3405	Automated	26.7		39.7		78.7		143.7		178.8	
335	ISO3405	Automated	25.5		39.6		79.5		144.5		179.2	
336	ISO3405	Automated	27.5		40.6		79.7		144.1		181.6	
337			-----		-----		-----		-----		-----	
338	ISO3405	Automated	27.8		39.9		78.0		144.6		183.4	
340	ISO3405	Automated	27.6		40.5		79.3		144.7		178.4	
343	ISO3405	Automated	28.3		38.3	C	76.9	C	172.0	R(1)	177.6	
344	D86	Automated	28.2		40.97		78.4		145.7		177.3	
350	ISO3405	Manual	28.37		39.48		78.07		143.91		178.81	
353	IP123	Automated	29.1		41.0		79.9		144.9		181.5	
360	ISO3405	Automated	27.7		40.4		78.9		144.3		177.2	
369	ISO3405	Automated	28.2		40.1		79.0		145.1		178.6	
370	ISO3405	Automated	29.5		41.3		79.7		143.0		179.4	
371	ISO3405	Automated	27.6		41.5		79.5		143.9		179.1	
372	ISO3405	Automated	29.4		41.9		80.7		144.9		177.4	
381	ISO3405	Automated	29.5		41.8		81.1		146.0		181.3	
399	D86	Automated	30.5		41.0		79.2		143.5		180.3	
402	ISO3405	Automated	30.9		39.5		77.4		142.8		177.9	
403	ISO3405	Automated	30.1		40.5		78.2		144.6		179.2	
420	ISO3405	Automated	27.8		39.5		78.5		144.3		178.8	
431	ISO3405	Automated	31.9		41.3		80.4		145.0		180.4	
440	IP123	Automated	28.5		39.2		77.4		144.4		182.2	
444			-----		-----		-----		-----		-----	
445	IP123	Automated	28.2		40.0	C	78.3	C	144.2	C	180.0	
447	D86	Automated	26.1		40.2		79.0		145.0		178.3	
453	IP123	Automated	25.4		40.0		78.9		144.7		182.8	
463	ISO3405	Automated	28.6		40.1		79.5		144.5		182.9	
468	D86	Automated	26.9		41.3		82.5		147.5		179.8	
485	ISO3405	Automated	28.55		39.95		78.60		144.15		180.20	
494	ISO3405	Automated	27.9		40.7		78.9		144.6		180.4	
496	D86	Automated	28.8		40.4		78.6		144.9		180.6	
541	ISO3405	Automated	27.6		40.1		78.4		144.4		181.0	
556			-----		-----		-----		-----		-----	
671			-----		-----		-----		-----		-----	
704	D86	Manual	28.1		39.7		79.0		145.0		179.6	
782	ISO3405	Manual	30.5		42.7		81.7		145.8		181.5	
785	D86	Automated	27.1		41.8		82.3		147.9		181.6	
823	ISO3405	Automated	29.5		40.9	C	80.2	C	144.6		179.2	
824		Automated	30.2		41.4		80.1		145.0		180.0	
861	D86	Automated	28.2		40.6		79.2		144.7		179.8	
875	ISO3405	Automated	26.4		39.7		79.3		144.6		179.9	
962		Manual	-----		-----		-----		-----		-----	
963	D86	Automated	26.4		39.8		79.2		144.9		180.4	
970	D86	Manual	32.0		42.0		80.0		145.0		178.5	
974	D86	Automated	26.1		40.3		79.6		144.6		181.5	
994	D86	Manual	30.5		42.5		81.5		145.5		179.0	
998	D86	Manual	30.0		42.0		81.0		145.0		179.0	
1006	D86	Automated	28.0		40.9		79.8		144.9		178.9	
1011	ISO3405	Automated	26.7		42.3		81.5		145.3		185.8	
1026	ISO3405	Automated	26.9		41.6		83.4		149.4	R(1)	180.1	
1033	IP123	Automated	27.7		42.4		84.2	DG(5)	151.0	R(1)	182.3	
1059	ISO3405	Automated	27.2		39.7		78.5		144.4		177.4	
1067	D86	Automated	31.0		40.9		80.3		144.9		182.0	
1081			-----		-----		-----		-----		-----	
1082	ISO3405	Automated	25.1		40.1		79.2		145.0		178.5	
1108	ISO3405	Automated	26.4		40.9		79.4		145.0		180.4	
1109	D86	Automated	28.7		40.2		79.1		144.2		180.2	
1124	ISO3405	Automated	27.5		40.7		77.2		144.7		181.5	
1126	ISO3405	Automated	29.6		39.6		76.5		145.0		182.9	

lab	method	mode	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	mark
1161	ISO3405	Automated	28.5		40.7		80.6		146.0	C	181.5	
1167	ISO3405		32.2		38.4		76.8		143.8		175.8	
1191	ISO3405	Automated	28.3		40.4		78.0		144.3		177.6	
1194	INH-86	Automated	31.2		37.5		71	R(1)	145.3		178.1	
1199			-----		-----		-----		-----		-----	
1203	ISO3405	Automated	29.6		41.6		79.1		145.2		177.4	
1229	ISO3405	Automated	26.8		39.1		77.4		144.0		179.0	
1257	D86		27.6		40.7		79.1		144.7		180.8	
1259	ISO3405	Automated	27.1		41.1		80.3		145.1		180.9	
1299	D86	Automated	28.4		-----		-----		-----		178.4	
1300	ISO3405		29.0		41.5		79.7		145.7		179.3	
1301	D86	Manual	29.0		42.0	C	82.0		145.0		181.0	
1346	ISO3405	Automated	29.4		40.8		80.4		145.0		180.3	
1347	D86	Manual	31		45	R(1)	82		148		184	
1348	D86	Automated	30.2		41.6		85.5	DG(5)	151.3	R(1)	182.8	
1385	D86	Manual	34		43		83		148		182	
1395	D86	Automated	28.0		39.8		78.5		87.7	R(1)	178.7	
1397	ISO3405		31.2		42.6		82.4		145.5		182.7	
1402	ISO3405	Automated	26.3		38.0		78.2		145.2		179.1	
1404	ISO3405	Automated	27.7		42.7		74.7		143.5		177.6	
1409	ISO3405	Automated	27.3		41.3		81.3		147.5		181.1	
1428	ISO3405	Automated	29.5		41.2		80.1		145.2		181.5	
1457	ISO3405	Automated	26.0	C	39.6		78.8		144.1		177.8	
1459	ISO3405	Automated	27.7		39.1		77.1		144.6		178.9	
1498	D86		29.0		40.2		78.5		145.0		182.0	
1520	ISO3405	Manual	30.7		38.5		77.7		143.9		177.6	
1538			-----		-----		-----		-----		-----	
1544	ISO3405	Automated	28.3		39.9		78.3		144.5		178.6	
1556	ISO3405	Automated	26.1		38.4		77.0		143.7		177.6	
1569	ISO3405	Automated	25.3		39.7		78.3		144.0		182.0	
1586	D86		24.9		41.8		82.7		147.6		179.9	
1616	D86	Manual	28.0		41.2		73.6	DG(5)	143.2		180.0	
1634	ISO3405	Automated	26.6		39.6		79.2		145.4		180.8	
1635	ISO3405	Automated	25.9		39.2		78.3		145.8		186.7	
1636	ISO3405	Automated	26.3		40.9		80.3		146.0		181.0	
1650	ISO3405		28.7		40.0		79.1		145.2		181.1	
1654			-----		-----		-----		-----		-----	
1677	D86	Automated	27.0		40.2		74.4	DG(5)	145.2		181.2	
1710	ISO3405	Automated	27.7		40.6		79.3		144.7		179.2	
1720			-----		-----		-----		-----		-----	
1724	D86	Automated	24.6		39.8		78.7		144.7		180.4	
1728	ISO3405	Manual	28.395		40.46		79.08		146.06		178.34	
1740	ISO3405		27.9		40		78.9		145		183	
1742	ISO3405	Automated	28.5		38.7		77.3		144.3		181.0	
1751	ISO3405	Automated	28.1		39.4		78.1		144.7		177.5	
1776	ISO3405	Automated	27.3		39.4		76.9		144.1		178.2	
1807	ISO3405	Automated	26.9		40.1		78.4		144.9		179.1	
1810	ISO3405	Automated	26.3		40.5		79.0		144.8		178.6	
1811	ISO3405	Automated	26.2		39.7		77.2		143.1		179.1	
1813	D86	Automated	25.54		38.77		77.67		143.63		179.63	
1833	ISO3405	Automated	26.0		40.9		79.5		144.2		178.3	
1842	D86	Automated	29.4		-----		-----		-----		178.9	
1849	D86		27.1		41.0		78.8		143.7		179.2	
1881	ISO3405	Manual	26.0		41.0		80.5		144.0		174.5	
1911	ISO3405	Automated	27.75		40.05		78.85		144.65		177.75	
1936	ISO3405	Automated	26.5		39.9		78.6		144.4		181.0	
1937	ISO3405	Automated	27.6		40.1		78.5		144.6		180.3	
1938	ISO3405	Automated	26.4		40.0		77.6		143.8		176.7	
1953	ISO3405	Automated	25.4		40.0		80.7		147.7		170.5	R(1)
1961			-----		-----		-----		-----		-----	
1979	ISO3405	Automated	31.80		41.80		78.40		147.40		176.30	
1995			-----		-----		-----		-----		-----	
2129	ISO3405	Automated	26.8		41.10		79.00		144.90		181.40	
2130	ISO3405	Automated	26.4		39.5		79.2		143.5		184.2	
2146	ISO3405		29.4		43.0		81.2		145.7		181.0	
6005	ISO3405	Automated	26.6		37.7		82.2		148.9	R(5)	176.7	
6012	D86	Manual	30.3		41.1		80.42		145.42		178.4	C
6013	ISO3405	Automated	29.4		40.5		80.0		144.7		180.0	
6014	ISO3405	Automated	30.2		40.8		80.3		144.9		179.8	
6016			-----		-----		-----		-----		-----	
7003	D86	Automated	28.5		39.7		77.5		144.4		173.7	
7009	D86		31.0		43.7		82.8		143.6		179.6	
7013	D86	Automated	26.6		41.0		82.1		147.4		179.8	

	IBP	10% evaporated	50% evaporated	90% evaporated	FBP
normality	OK	OK	OK	not OK	suspect
n	134	131	127	126	132
outliers	1	2	6	7	2
mean (n)	28.05	40.44	79.32	144.84	179.89
st.dev. (n)	1.782	1.111	1.530	1.023	2.130
R(calc.)	4.99	3.11	4.28	2.86	5.96
R(ISO3405-A:11)	4.71	3.20	1.88	3.89	6.78

	ISO3405-A results only
normality	OK
n	80
outliers	0
mean (n)	78.05
st.dev. (n)	1.468
R(calc.)	4.11
R(ISO3405-A:11)	1.88

Lab 62 first reported 78.3 for 50% evaporated
Lab 131 FPB excluded due to outlying results in other destillation parameters
Lab 140 first reported 44.4 for 10% evaporated
Lab 343 first reported 37.0 for 10% evaporated and 73.6 for 50% evaporated
Lab 445 first reported 42.2 for 10% evaporated, 84.2 for 50% evaporated and 151.3 for 90% evaporated
Lab 823 first reported 44.6 for 10% evaporated and 83.8 for 50% evaporated
Lab 1161 first reported 149.2 for 90% evaporated
Lab 1301 first reported 44.0 for 10% evaporated
Lab 1457 first reported 23 for IBP
Lab 6012 first reported 173.4 for FBP


Initial Boiling Point/°C
Kernel Density
T at 10% evaporated/°C
Kernel Density
T at 50% evaporated/°C
Kernel Density
T at 90% evaporated/°C
Kernel Density
Final Boiling Point/°C
Kernel Density

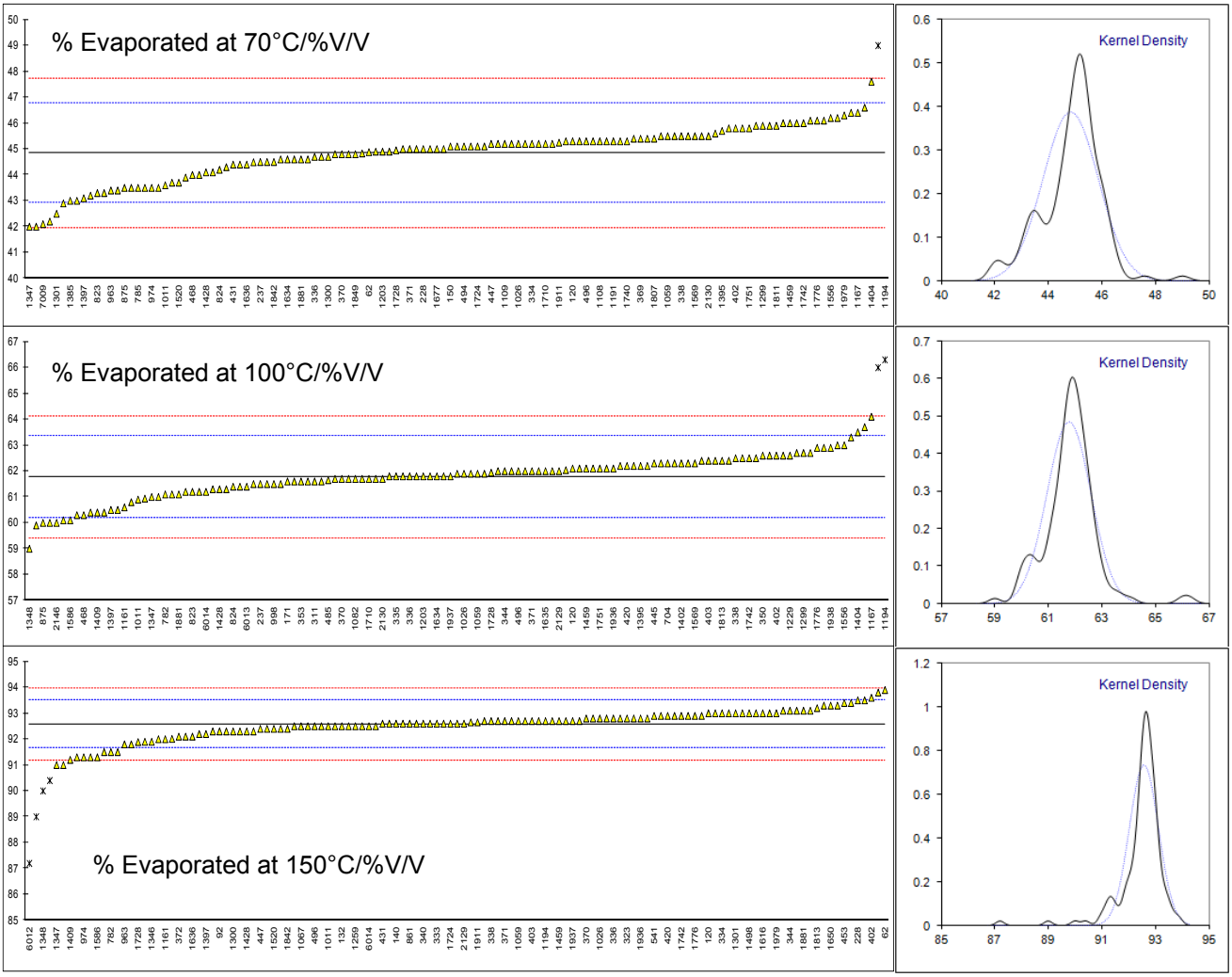
Determination of Distillation at 760 mmHG on sample #15195; results in %V/V ---continued---

lab	method	mode	%E70°C	mark	%E100°C	mark	%E150°C	mark	%residue	mark	% loss	mark
62	D86	Automated	44.88		61.5		93.9		-----		-----	
92	D86	Automated	45.0		61.2		92.3		0.9		2.0	
120	D86	Automated	45.3		62.1		93.0		1.2		2.2	
131	D86	Automated	-----		-----		-----		***98.6***		1.4	
132	D86	Automated	44.8		61.9		92.5		1.0		2.2	
140	D86	Automated	44.9	C	63.7		92.6		1.3		1.4	
150	D86	Automated	45.1		61.8		92.8		1.0		2.4	
158	D86	Automated	-----		-----		-----		0.9		1.7	
159	D86	Automated	44.83		62.04		92.65		1.0		1.6	
171	D86	Automated	45.4		61.6		92.8		1.0		1.4	
194	D86	Automated	-----		-----		-----		-----		-----	
228	D86	Manual	45.0		63.0		93.5		0.5		0.5	
237	D86	Manual	44.5		61.5		92.5		1.0		0.5	
238			-----		-----		-----		-----		-----	
311	ISO3405	Automated	44.7		61.6		93.0		1.0		0.4	
312			-----		-----		-----		-----		-----	
323	ISO3405	Automated	45.9		62.1		92.8		1.5		2.0	
333	ISO3405	Automated	45.5		62.0		92.6		-----		-----	
334	ISO3405	Automated	45.2		62.2		93.0		1.0		2.0	
335	ISO3405	Automated	45.4		61.8		92.7		0.9		2.2	
336	ISO3405	Automated	44.7		61.8		92.8		0.9		1.7	
337			-----		-----		-----		-----		-----	
338	ISO3405	Automated	45.5		62.5		92.7		1.0		3.3	
340	ISO3405	Automated	45.0		61.8		92.6		1.1		1.5	
343	ISO3405	Automated	46.4	C	62.7	C	93.8		1.0		1.8	
344	D86	Automated	45.5		62.0		93.1		1.0		-----	
350	ISO3405	Manual	45.30		62.60		92.60		0.9		2.2	
353	IP123	Automated	44.8		61.6		92.4		1.0		1.3	
360	ISO3405	Automated	45.2		62.0		92.7		1.0		2.1	
369	ISO3405	Automated	45.4		62.3		92.6		1.2		1.7	
370	ISO3405	Automated	44.8		61.7		92.8		1.0		2.0	
371	ISO3405	Automated	45.0		62.0		92.7		1.1		1.1	
372	ISO3405	Automated	43.5		61.8		92.1		1.1		1.1	
381	ISO3405	Automated	44.49		60.94		92.01		1.2		1.7	
399	D86	Automated	43.4		60.3		91.9		0.5		0.8	
402	ISO3405	Automated	45.8		62.6		93.6		1.0		2.6	
403	ISO3405	Automated	45.2		62.4		92.7		1.0		2.8	
420	ISO3405	Automated	45.3		62.2		92.9		1.0		1.9	
431	ISO3405	Automated	44.4		61.3		92.6		0.9		2.3	
440	IP123	Automated	46.1		62.4		92.8		0.7		2.8	
444			-----		-----		-----		-----		-----	
445	IP123	Automated	45.5		62.3		92.7		1.0		3.2	
447	D86	Automated	45.2		61.7		92.4		1.4		1.7	
453	IP123	Automated	45.3		61.9		93.4		1.0		1.6	
463	ISO3405	Automated	45.1		61.6		92.7		0.9		2.4	
468	D86	Automated	44.0		60.3		89.0	C,R(1)	1.0		1.0	
485	ISO3405	Automated	45.30		61.65		92.90		0.9		3.7	
494	ISO3405	Automated	45.1		62.2		92.6		1.0		1.9	
496	D86	Automated	45.3		62.0		92.5		0.9		2.7	
541	ISO3405	Automated	45.2		62.4		92.9		1.0		1.8	
556			-----		-----		-----		-----		-----	
671			-----		-----		-----		-----		-----	
704	D86	Manual	45.8		62.3		92.3		1.2		2.3	
782	ISO3405	Manual	43.2		61.1		91.5		1.0		2.0	
785	D86	Automated	43.5		60.1		91.5		0.9		1.2	
823	ISO3405	Automated	43.3	C	61.2		91.3		1.0		1.0	
824		Automated	44.2		61.4		92.6		1.0		1.5	
861	D86	Automated	45.1		61.6		92.6		1.0		2.2	
875	ISO3405	Automated	43.5		60.0		91.3		1.0		1.2	
962		Manual	-----		-----		-----		-----		-----	
963	D86	Automated	43.4		59.9		91.8	C	0.8		1.2	
970	D86	Manual	44.5		62.0		92.5		0.5		0.5	
974	D86	Automated	43.5		60.4		91.3		1.0		1.3	
994	D86	Manual	43.5		61.5		92.0		1.0		1.5	
998	D86	Manual	43.5		61.5		92.5		1.0		1.5	
1006	D86	Automated	-----		-----		-----		1.3		-----	
1011	ISO3405	Automated	43.6		60.9		92.5		0.8		0.5	
1026	ISO3405	Automated	45.2		61.9		92.8		1.0		2.5	
1033	IP123	Automated	-----		-----		-----		1.0		2.5	
1059	ISO3405	Automated	45.5		61.9		92.7		1.0		2.4	
1067	D86	Automated	44.0		61.4		92.5		1.1		2.0	
1081			-----		-----		-----		-----		-----	
1082	ISO3405	Automated	45.2		61.7		92.5		1.1		2.6	
1108	ISO3405	Automated	45.3		61.5		93.1		0.9		1.3	
1109	D86	Automated	45.2		61.7		92.8		1.0		2.1	
1124	ISO3405	Automated	44.6		62.6		92.5		1.1		3.3	
1126	ISO3405	Automated	46.6		62.3		92.3		0.9		3.3	

lab	method	mode	%E70°C	mark	%E100°C	mark	%E150°C	mark	%residue	mark	% loss	mark
1161	ISO3405	Automated	43.9		60.6		92.0	C	1.0		2.8	
1167	ISO3405		46.4		64.1		93.3		1.0		3.0	
1191	ISO3405	Automated	45.3		62.6		92.7		1.0		2.4	
1194	INH-86	Automated	50.8	R(1)	66.3	R(1)	92.7		1.1		-----	
1199			-----		-----		-----		-----		-----	
1203	ISO3405	Automated	44.9		61.8		92.2		1.0		-----	
1229	ISO3405	Automated	46.0		62.6		93.0		0.9		2.4	
1257	D86		-----		-----		-----		-----		-----	
1259	ISO3405	Automated	44.4		61.2		92.5		1.0		0.3	
1299	D86	Automated	45.9		62.7		92.7		1.1		1.8	
1300	ISO3405		44.7		61.6		92.3		1.0		1.1	
1301	D86	Manual	42.5		62.5		93.0		1.0		0.5	
1346	ISO3405	Automated	44.9		61.1		91.9		1.1		1.8	
1347	D86	Manual	42		61		91		1.2		1.8	
1348	D86	Automated	42		59		90	R(1)	1		2	
1385	D86	Manual	43		60		91		1		1	
1395	D86	Automated	45.7		62.2		92.9		1		2.6	
1397	ISO3405		43.1		60.5		92.2		0.9		1.1	
1402	ISO3405	Automated	45.9		62.3		92.3		1.3		4.5	
1404	ISO3405	Automated	47.6		63.5		93.4		1.0		1.5	
1409	ISO3405	Automated	43.7		60.4		91.2		1.1		1.3	
1428	ISO3405	Automated	44.1		61.3		92.3		1.1		0.8	
1457	ISO3405	Automated	45.3		61.8		93.0		1.1		1.5	
1459	ISO3405	Automated	46.0		62.1		92.7		1.0		3.6	
1498	D86		46		62		93		1.0		1.8	
1520	ISO3405	Manual	43.7		62.3		92.4		1.4		2.6	
1538			-----		-----		-----		-----		-----	
1544	ISO3405	Automated	45.0		62.2		92.4		0.9		2.8	
1556	ISO3405	Automated	46.2		63.0		93.1		1.0		3.5	
1569	ISO3405	Automated	45.5		62.3		93.0		1.0		1.5	
1586	D86		43.0		60.1		91.3		1.0		1.7	
1616	D86	Manual	49.0	R(5)	66.0	R(1)	93.0		1.0		1.0	
1634	ISO3405	Automated	44.6		61.8		91.8		1.1		1.8	
1635	ISO3405	Automated	45.5		62.0		92.1		2.6		-----	
1636	ISO3405	Automated	44.4		61.0		92.1		1.0		1.5	
1650	ISO3405		45.8		61.7		93.3		1.1		1.7	
1654			-----		-----		-----		-----		-----	
1677	D86	Automated	45.0		62.1		92.6		1.0		3.0	
1710	ISO3405	Automated	45.2		61.7		92.7		0.8		1.4	
1720			-----		-----		-----		-----		-----	
1724	D86	Automated	45.1		62		92.6		1.2		1.6	
1728	ISO3405	Manual	44.95		61.94		91.89		1.2		1.5	
1740	ISO3405		45.3		61.7		92.5		1.1		2.4	
1742	ISO3405	Automated	46.0		62.5		92.9		1		4.3	
1751	ISO3405	Automated	45.8		62.1		92.9		1.0		3.4	
1776	ISO3405	Automated	46.1		62.9		92.9		1.0		3.1	
1807	ISO3405	Automated	45.4		62.1		92.6		1.2		1.9	
1810	ISO3405	Automated	44.1		60.8		91.5		1.0		1.1	
1811	ISO3405	Automated	45.9		62.9		93.5		1		1.2	
1813	D86	Automated	46.2		62.4		93.2		1.0		2.5	
1833	ISO3405	Automated	44.6		61.8		92.9		1.0		1.6	
1842	D86	Automated	44.5		61.3		92.4		1.2		1.1	
1849	D86		44.8		62.4		93.0		1.1		3.2	
1881	ISO3405	Manual	44.6		61.1		93.1		0.9		1.1	
1911	ISO3405	Automated	45.25		61.90		92.65		1.00		2.35	
1936	ISO3405	Automated	45.2		62.1		92.8		1.0		2.5	
1937	ISO3405	Automated	45.1		61.8		92.7		1.0		2	
1938	ISO3405	Automated	45.6		62.9		93.1		1.0		1.2	
1953	ISO3405	Automated	-----		-----		-----		1		2.6	
1961			-----		-----		-----		-----		-----	
1979	ISO3405	Automated	46.30		63.30		93.00		1.20		1.50	
1995			-----		-----		-----		-----		-----	
2129	ISO3405	Automated	45.00		62.00		92.60		1.15		1.40	
2130	ISO3405	Automated	45.5		61.7		93.3		0.8		2.3	
2146	ISO3405		42.9		60.0		92.3		1.1		1.0	
6005	ISO3405	Automated	43.3		60.4		90.4	R(5)	2.3		2.3	
6012	D86	Manual	42.2		62.7	C	87.2	C,R(1)	1.2		1.4	
6013	ISO3405	Automated	44.6		61.4		92.7		1.0		1.4	
6014	ISO3405	Automated	44.3	C	61.2		92.5		1.0		1.3	
6016			-----		-----		-----		-----		-----	
7003	D86	Automated	46.1		62.5		92.8		1		2.7	
7009	D86		42.1		60.5		92.5		0.9		1.8	
7013	D86	Automated	-----		-----		-----		1.0		2.1	

	% evap. 70°C	% evap. 100°C	% evap. 150°C
normality	OK	OK	suspect
n	125	125	123
outliers	2	2	4
mean (n)	44.835	61.771	92.577
st.dev. (n)	1.0302	0.8253	0.5463
R(calc.)	2.885	2.311	1.530
R(ISO3405-A:11)	2.700	2.200	1.300

Lab 131 excluded due to outlying results in other destillation parameters and a very odd result in %residue
Lab 140 first reported 40.6 for % evap. at 70°C
Lab 343 first reported 48.2 for % evap. at 70°C and 64.2 for % evap. at 100°C
Lab 468 first reported 91.0 for % evap. at 150°C
Lab 823 first reported 38.7 for % evap. at 70°C
Lab 963 first reported 90.8 for % evap. at 150°C
Lab 1161 first reported 90.6 for % evap. at 150°C
Lab 6012 first reported 59.7 for % evap. at 100°C and 91.2 for % evap. at 150°C
Lab 6014 first reported 113.4 for % evap. at 70°C



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Determination of Doctor Test on sample #15195;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120	D4952	Negative		-----	1161		-----		-----
131		-----		-----	1167		-----		-----
132	D4952	Negative		-----	1191		-----		-----
140	D4952	Negative		-----	1194		-----		-----
150	D4952	Negative		-----	1199		-----		-----
158	D4952	Negative		-----	1203	ISO5275	Negative		-----
159	D4952	Negative		-----	1229		-----		-----
171	D4952	Negative		-----	1257	D4952	Negative		-----
194	D4952	Negative		-----	1259	D4952	Negative		-----
228		-----		-----	1299	IP30	Negative		-----
237	D4952	Negative		-----	1300	D4952	Negative		-----
238		-----		-----	1301	IP30	Negative		-----
311	D4952	Negative		-----	1346		-----		-----
312		-----		-----	1347	D4952	Negative		-----
323	D4952	Negative		-----	1348	D4952	Negative		-----
333	D4952	Negative		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336	D4952	Negative		-----	1402	IP30	Negative		-----
337		-----		-----	1404	D4952	Negative		-----
338		-----		-----	1409		-----		-----
340	D4952	Negative		-----	1428	D4952	Negative		-----
343		-----		-----	1457	IP30	Negative		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520	D4952	Negative		-----
360	D4952	Negative		-----	1538		-----		-----
369	D4952	Negative		-----	1544	D4952	Negative		-----
370	D4952	Negative		-----	1556	D4952	Negative		-----
371	D4952	Negative		-----	1569		-----		-----
372	D4952	Negative		-----	1586	IP30	Negative		-----
381		-----		-----	1616	**D4950**	**Positive**		-----
399	D4952	Negative		-----	1634		-----		-----
402	D4952	Negative		-----	1635		-----		-----
403		-----		-----	1636	D4952	Negative		-----
420		-----		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440	IP30	Negative		-----	1677	IP30	Negative		-----
444		-----		-----	1710	ISO5275	Negative		-----
445	IP30	Negative		-----	1720		-----		-----
447		-----		-----	1724		-----		-----
453		-----		-----	1728	D4952	Negative		-----
463	IP30	Negative		-----	1740	IP30	Negative		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496		-----		-----	1807		-----		-----
541	IP30	Negative		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	IP30	Negative		-----
704	D4952	Negative		-----	1833	D4952	Negative		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849	INH-2284	Negative		-----
823	D4952	Negative		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861	D4952	Negative		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963	IP30	Negative		-----	1953		-----		-----
970	D4952	Negative		-----	1961	D4952	Negative		-----
974	IP30	Negative		-----	1979		-----		-----
994	D4952	Negative		-----	1995		-----		-----
998		-----		-----	2129	IP30	Negative		-----
1006		-----		-----	2130	IP30	Negative		-----
1011		-----		-----	2146		-----		-----
1026	D4952	Negative		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO5275	Negative		-----	6013	D4952	Negative		-----
1067		-----		-----	6014	D4952	Negative		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009	D4952	Negative		-----
1109	IP30	Negative		-----	7013		-----		-----

n	65
mean (n)	Negative

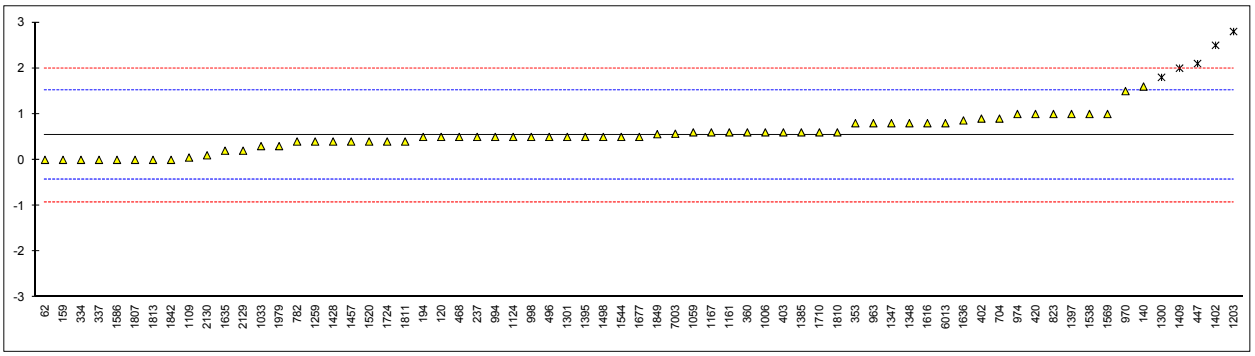
Lab 1616 reported as method D4950 which is a method for Grease and not for Gasoline.

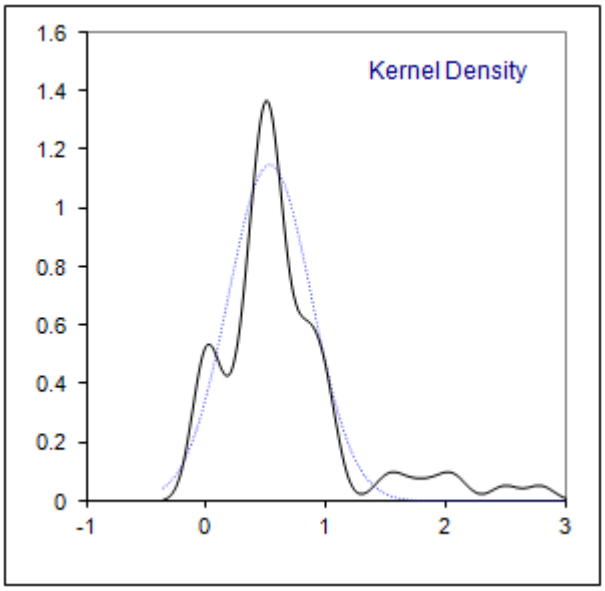
Determination of Existent Gum (washed) on sample #15195; results in mg/100mL

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D381	0		-1.11	1124	ISO6246	0.5		-0.08
92		-----		-----	1126		-----		-----
120	D381	0.5		-0.08	1161	ISO6246	0.6		0.12
131		-----		-----	1167	ISO6246	0.6		0.12
132	D381	<0.5		-----	1191		-----		-----
140	D381	1.6		2.18	1194		-----		-----
150	D381	<0.5		-----	1199		-----		-----
158		-----		-----	1203	ISO6246	2.8	R(0.01)	4.65
159	D381	0.0		-1.11	1229		-----		-----
171	D381	<0.5		-----	1257		-----		-----
194	D381	0.50		-0.08	1259	ISO6246	0.4		-0.29
228		-----		-----	1299	D381	<0.5		-----
237	D381	0.5		-0.08	1300	ISO6246	1.8	R(0.05)	2.59
238		-----		-----	1301	D381	0.5		-0.08
311	D381	<1		-----	1346		-----		-----
312		-----		-----	1347	D381	0.8		0.53
323	ISO6246	<1		-----	1348	D381	0.8		0.53
333		-----		-----	1385	D381	0.6		0.12
334	ISO6246	0		-1.11	1395	D381	0.5		-0.08
335		-----		-----	1397	ISO6246	1.0		0.94
336		-----		-----	1402	ISO6246	2.5	C,R(0.01)	4.03
337	ISO6246	0		-1.11	1404	ISO6246	<1		-----
338		-----		-----	1409	ISO6246	2	R(0.05)	3.00
340	ISO6246	<1		-----	1428	ISO6246	0.4		-0.29
343	D381	<0.5		-----	1457	D381	0.4		-0.29
344		-----		-----	1459		-----		-----
350		-----		-----	1498	D381	0.5		-0.08
353	IP131	0.8		0.53	1520	ISO6246	0.4		-0.29
360	ISO6246	0.6		0.12	1538	ISO6246	1.0		0.94
369	ISO6246	<0.5		-----	1544	ISO6246	0.50		-0.08
370	ISO6246	<1		-----	1556	ISO6246	<1		-----
371		-----		-----	1569	ISO6246	1		0.94
372	ISO6246	<1		-----	1586	D381	0		-1.11
381		-----		-----	1616	D381	0.8		0.53
399	D381	<0.5		-----	1634		-----		-----
402	ISO6246	0.9		0.74	1635	ISO6246	0.2		-0.70
403	ISO6246	0.6		0.12	1636	ISO6246	0.86		0.66
420	ISO6246	1		0.94	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D381	0.5		-0.08
444		-----		-----	1710	ISO6246	0.6		0.12
445	IP131	<0.5		-----	1720		-----		-----
447	D381	2.1	R(0.05)	3.21	1724	ISO6246	0.4		-0.29
453	IP131	<1		-----	1728		-----		-----
463	ISO6246	<0.5		-----	1740		-----		-----
468	D381	0.5		-0.08	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO6246	<1		-----	1776		-----		-----
496	ISO6246	0.5		-0.08	1807	ISO6246	0		-1.11
541		-----		-----	1810	ISO6246	0.6		0.12
556		-----		-----	1811	ISO6246	0.4		-0.29
671	D381	<0.5		-----	1813	D381	0		-1.11
704	ISO6246	0.9		0.74	1833	ISO6246	<1		-----
782	D381	0.40		-0.29	1842	D381	0.0		-1.11
785		-----		-----	1849	ISO6246	0.56		0.04
823	D381	1.0		0.94	1881		-----		-----
824		-----		-----	1911		-----		-----
861	D381	<0.5		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963	D381	0.8		0.53	1953		-----		-----
970	D381	1.5		1.97	1961		-----		-----
974	D381	1.0		0.94	1979	D381	0.3		-0.50
994	D381	0.5		-0.08	1995		-----		-----
998	D381	0.5		-0.08	2129	ISO6246	0.2		-0.70
1006	D381	0.6		0.12	2130	ISO6246	0.1		-0.91
1011	ISO6246	<1		-----	2146		-----		-----
1026	ISO6246	<0.5	C	-----	6005		-----		-----
1033	IP131	0.3		-0.50	6012		-----		-----
1059	ISO6246	0.6		0.12	6013	ISO6246	0.8		0.53
1067		-----		-----	6014	ISO6246	<1		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003	D381	0.57		0.06
1108		-----		-----	7009		-----		-----
1109	D381	0.05		-1.01	7013	D381	<0.5		-----

normality	OK
n	62
outliers	5
mean (n)	0.54
st.dev. (n)	0.348
R(calc.)	0.97
R(ISO6246:95)	1.36

Lab 1026 first reported: 3
Lab 1402 first reported: 17





Determination of Lead as Pb on sample #15195; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D3237	0		-----	1124	EN237	<2.5		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	EN237	<2.5		-----
131		-----		-----	1167	EN237	<2.5		-----
132	D3237	<2.5		-----	1191	in house	0.32		-----
140		-----		-----	1194		-----		-----
150	D3237	<2.5		-----	1199		-----		-----
158		-----		-----	1203	in house	<1		-----
159		-----		-----	1229		0		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259	EN237	<2.5		-----
228		-----		-----	1299	EN237	<2.5		-----
237	IP352	<2.5		-----	1300	EN237	0.01		-----
238		-----		-----	1301		-----		-----
311		-----		-----	1346		-----		-----
312		-----		-----	1347	D5059	<0.1	C	-----
323	EN237	<2.5		-----	1348	D3237	<0.1	C	-----
333		-----		-----	1385	D3237	0.1	C	-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402	EN237	<2.5		-----
337		-----		-----	1404	EN237	<2.5		-----
338		-----		-----	1409		-----		-----
340		-----		-----	1428	EN237	<2.5		-----
343		-----		-----	1457	IP428	<2.5		-----
344		-----		-----	1459	EN13723	<5		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520	EN237	3.93	**+?**	-----
360	in house	<2.5		-----	1538	EN237	<2.5		-----
369		-----		-----	1544	EN237	0.855		-----
370		-----		-----	1556		-----		-----
371	EN237	<2.5		-----	1569	EN237	<0.5		-----
372	EN237	<2.5		-----	1586	D3237	<2.5		-----
381	EN237	<2.5		-----	1616	IP224	0.054		-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635	EN237	0		-----
403	EN237	<0.2		-----	1636		-----		-----
420	EN237	<2.5		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D3237	0.0061	U	-----
444		-----		-----	1710	EN237	<2.5		-----
445	IP428	0.40		-----	1720		-----		-----
447	IP428	<2.5		-----	1724		-----		-----
453		-----		-----	1728	EN237	<2.5		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496	EN237	0		-----	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D5059	1.95		-----
704	EN237	<2.5		-----	1833	EN237	<3.0		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849	EN237	<2.5		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861	D3237	<2.5		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D3237	0.14		-----
1006	D3237	0.0025	U	-----	2130	IP352	<2.5		-----
1011	EN237	<3		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012	D3237	1.2		-----
1059	EN13723	1.474		-----	6013	EN237	<2.5		-----
1067		-----		-----	6014	D5059	<2.5		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003	D3919	<0.004		-----
1108		-----		-----	7009		-----		-----
1109	D3237	4.81	**+?**	-----	7013		-----		-----

+?: false positive test result

normality	n.a.
n	52
outliers	n.a.
mean (n)	<2.5
st.dev. (n)	n.a.
R(calc.)	n.a.
R(EN237:04)	n.a.

Application range: 2.5-10 mg/L

Lab 1006 possibly a unit error?
Lab 1109 false positive test result?
Lab 1347 first reported less 0.0001 mg/L
Lab 1348 first reported < 0.0001 mg/L
Lab 1385 first reported 0.0001 mg/L
Lab 1520 false positive test result?
Lab 1677 first reported 6.1 mg/L

Determination of Manganese as Mn on sample #15195; results in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN16136	<0.25		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	D3831	4.801	C, **+?**	-----
131		-----		-----	1167		-----		-----
132	D3831	<0.25		-----	1191	EN16136	0.04		-----
140		-----		-----	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203	EN16136	<0.5		-----
159		-----		-----	1229		-----		-----
171	D3831	0.3		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	EN16135	<2.0		-----
237		-----		-----	1300	EN16135	0.60		-----
238		-----		-----	1301		-----		-----
311		-----		-----	1346		-----		-----
312		-----		-----	1347		-----		-----
323	EN16135	<2.0		-----	1348		-----		-----
333	EN16135	<2.00		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402	EN16135	<2.0		-----
337		-----		-----	1404	EN16135	<0.8		-----
338		-----		-----	1409		-----		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457	D3831	<0.25		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520	D3831	0.298		-----
360	EN16136	<0.50		-----	1538	EN16135	<2.0		-----
369	EN16136	<1		-----	1544	EN16135	<2.0	C	-----
370		-----		-----	1556		-----		-----
371	EN16135	<2.0		-----	1569	EN16135	<0.3		-----
372		-----		-----	1586	EN16136	<0.1		-----
381	EN16135	<2		-----	1616		-----		-----
399		-----		-----	1634		-----		-----
402	EN16135	0.16		-----	1635		-----		-----
403	EN16135	<0.2		-----	1636		-----		-----
420	EN16135	<1.0		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D3831	0.20		-----
444		-----		-----	1710		-----		-----
445	EN16136	<0.2		-----	1720		-----		-----
447	EN16135	<2		-----	1724		-----		-----
453		-----		-----	1728		-----		-----
463	EN16135	0.71	C	-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496	EN16136	0.08		-----	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813		-----		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842	INH-01	<1		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861	D3831	<0.25		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D3831	0.04		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059		-----		-----	6013	EN16135	<2.0		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082	in house	0.0097		-----	7003		-----		-----
1108		-----		-----	7009		-----		-----
1109		-----		-----	7013		-----		-----

+?: false positive test result?

normality	n.a.
n	34
outliers	n.a.
mean (n)	<2
st.dev. (n)	n.a.
R(calc.)	n.a.
R(EN16135:11)	n.a.

Application range EN16135:11: 2-8 mg/L
Application range EN16135:15: 0.5-7.5 mg/L

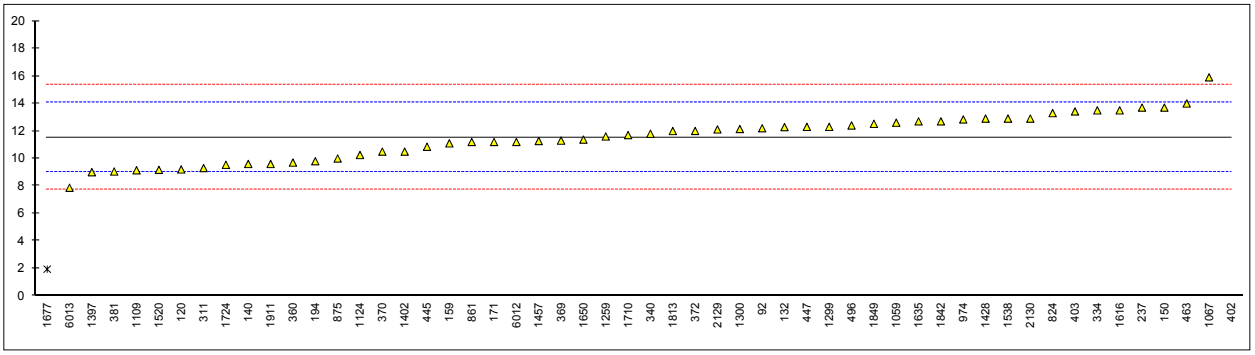
Lab 463 first reported:1.28
Lab 1161 first reported: 3.419 which may be a false positive test result?
Lab 1544 first reported: 1.2

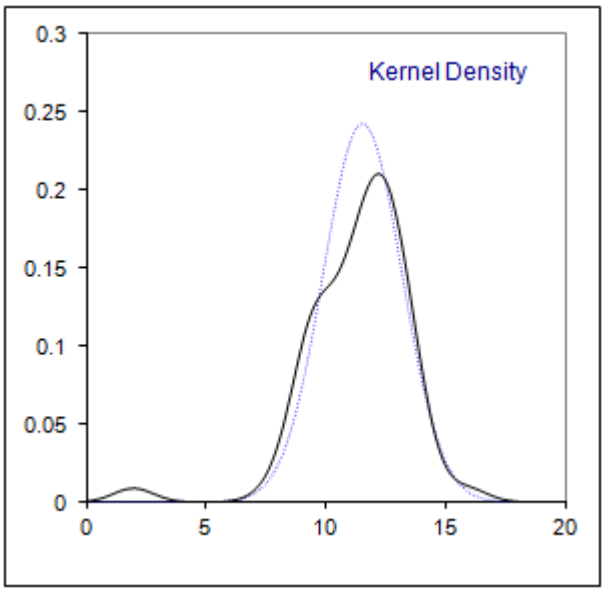
Determination of Olefins by FIA without oxygenates correction on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN15553	10.25		-1.01
92	D1319	12.2		0.53	1126		-----		-----
120	D1319	9.2		-1.84	1161		-----		-----
131		-----		-----	1167		-----		-----
132	D1319	12.28		0.59	1191		-----		-----
140	D1319	9.6		-1.52	1194		-----		-----
150	D1319	13.7		1.71	1199		-----		-----
158		-----		-----	1203		-----		-----
159	D1319	11.10		-0.34	1229		-----		-----
171	D1319	11.2		-0.26	1257		-----		-----
194	D1319	9.8		-1.37	1259	EN15553	11.599		0.05
228		-----		-----	1299	D1319	12.3		0.61
237	D1319	13.7		1.71	1300	EN15553	12.14		0.48
238		-----		-----	1301		-----		-----
311	D1319	9.3		-1.76	1346		-----		-----
312		-----		-----	1347		-----		-----
323		-----		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334	EN15553	13.5		1.55	1395		-----		-----
335		-----		-----	1397	EN15553	9.0		-2.00
336		-----		-----	1402	D1319	10.5		-0.81
337		-----		-----	1404		-----		-----
338		-----		-----	1409		-----		-----
340	EN15553	11.8		0.21	1428	EN15553	12.9		1.08
343		-----		-----	1457	D1319	11.27		-0.21
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520	EN15553	9.17		-1.86
360	EN15553	9.7		-1.44	1538	EN15553	12.9		1.08
369	EN15553	11.3		-0.18	1544		-----		-----
370	D1319	10.5		-0.81	1556		-----		-----
371		-----		-----	1569		-----		-----
372	EN15553	12.0		0.37	1586		-----		-----
381	EN15553	9.05		-1.96	1616	D1319	13.5		1.55
399		-----		-----	1634		-----		-----
402	D1319	27.42	R(0.01)	12.53	1635	D1319	12.7		0.92
403	EN15553	13.42		1.49	1636		-----	C	-----
420		-----		-----	1650	EN15553	11.37		-0.13
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D1319	1.946	R(0.01)	-7.56
444		-----		-----	1710	D1319	11.7		0.13
445	EN15553	10.85		-0.54	1720		-----		-----
447	D1319	12.3		0.61	1724	EN15553	9.54		-1.57
453		-----		-----	1728		-----		-----
463	D1319	14.0		1.95	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496	D1319	12.40		0.69	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D1319	11.9977		0.37
704		-----		-----	1833		-----		-----
782		-----		-----	1842	D1319	12.7		0.92
785		-----		-----	1849	EN15553	12.5212	C	0.78
823		-----		-----	1881		-----		-----
824	D1319	13.3		1.40	1911	EN15553	9.60		-1.52
861	D1319	11.2		-0.26	1936		-----		-----
875	D1319	10.0		-1.21	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D1319	12.84		1.03	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	EN15553	12.11		0.46
1006		-----		-----	2130	D1319	12.9		1.08
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012	D1319	11.2		-0.26
1059	D1319	12.6		0.84	6013	EN15553	7.87		-2.89
1067	D1319	15.9		3.45	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009		-----		-----
1109	D1319	9.14		-1.89	7013		-----		-----

normality	OK
n	52
outliers	2
mean (n)	11.53
st.dev. (n)	1.646
R(calc.)	4.61
R(EN15553:07)	3.55

Lab 1636 reported result Alkylate sample (#15199)
Lab 1849 first reported: 13.035



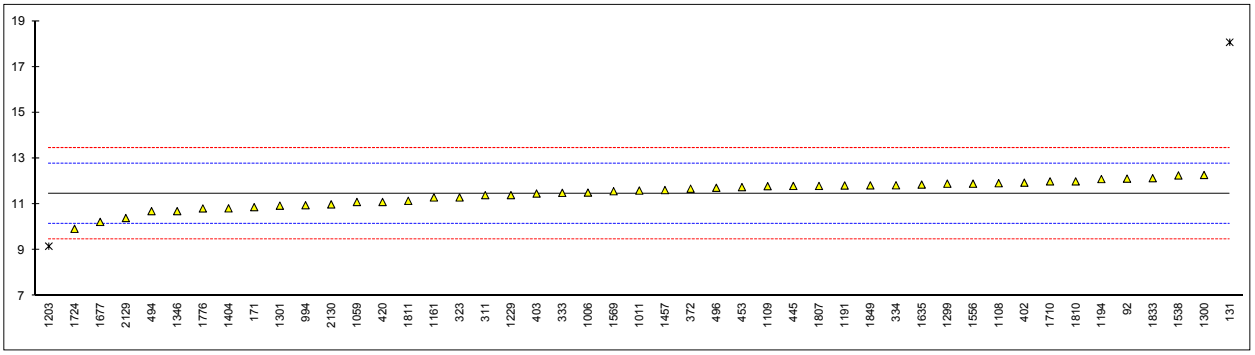


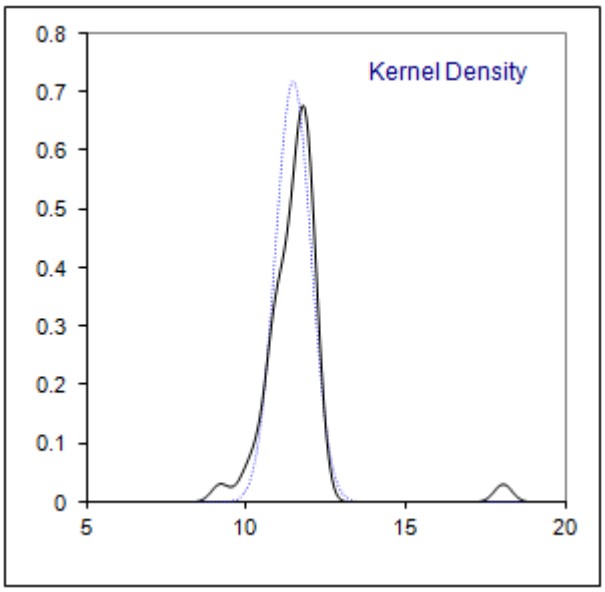
Determination of Olefins by GC on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92	INH-14.3	12.12		0.99	1126		-----		-----
120		-----		-----	1161	ISO22854	11.30		-0.25
131	D6730	18.0718	R(0.01)	9.95	1167		-----		-----
132		-----		-----	1191	ISO22854	11.82		0.54
140		-----		-----	1194	ISO22854	12.1		0.96
150		-----		-----	1199		-----		-----
158		-----		-----	1203	ISO22854	9.17	C,R(0.01)	-3.45
159		-----		-----	1229	ISO22854	11.4		-0.09
171	D6730	10.875		-0.89	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	ISO22854	11.9		0.66
237		-----		-----	1300	ISO22854	12.28		1.23
238		-----		-----	1301	D6730	10.94		-0.79
311	ISO22854	11.4		-0.09	1346	ISO22854	10.7		-1.15
312		-----		-----	1347		-----		-----
323	ISO22854	11.3		-0.25	1348		-----		-----
333	ISO22854	11.5		0.06	1385		-----		-----
334	ISO22854	11.83		0.55	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	D6730	10.8224		-0.96
338		-----		-----	1409		-----		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	11.62		0.24
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	12.26		1.20
369		-----		-----	1544		-----		-----
370		-----		-----	1556	ISO22854	11.90		0.66
371		-----		-----	1569	ISO22854	11.57		0.16
372		11.68		0.33	1586		-----		-----
381		-----		-----	1616		-----		-----
399		-----		-----	1634		-----		-----
402	ISO22854	11.945		0.73	1635	ISO22854	11.86		0.60
403	ISO22854	11.47		0.01	1636		-----		-----
420	ISO22854	11.1		-0.55	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	10.23		-1.86
444		-----		-----	1710	ISO22854	12.0		0.81
445	ISO22854	11.80		0.51	1720		-----		-----
447		-----		-----	1724	ISO22854	9.93		-2.31
453	ISO22854	11.75		0.43	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	10.7		-1.15	1776	ISO22854	10.82		-0.97
496	ISO22854	11.72		0.39	1807	ISO22854	11.8		0.51
541		-----		-----	1810	ISO22854	12.0		0.81
556		-----		-----	1811	ISO22854	11.15		-0.47
671		-----		-----	1813		-----		-----
704		-----		-----	1833	ISO22854	12.14		1.02
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO22854	11.826		0.55
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		-----		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994	D6729	10.96		-0.76	1995		-----		-----
998		-----		-----	2129	D6730	10.40	C	-1.60
1006	D6730	11.51		0.07	2130	D6730	10.996		-0.70
1011	ISO22854	11.6		0.21	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	11.1		-0.55	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	11.92		0.69	7009		-----		-----
1109	D6839	11.79		0.49	7013		-----		-----

normality	OK
n	45
outliers	2
mean (n)	11.463
st.dev. (n)	0.5568
R(calc.)	1.559
R(ISO22854-A:14)	1.860

Lab 1203 first reported: 9.17
Lab 2129 first reported: 10.90



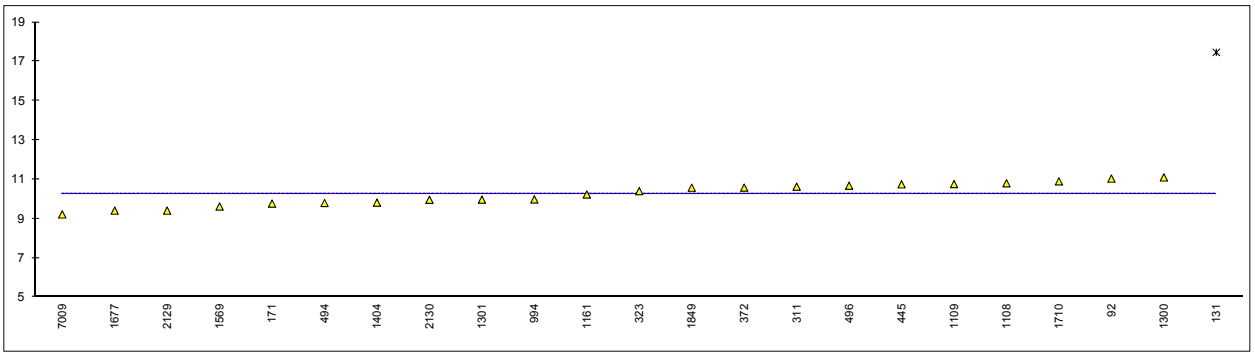


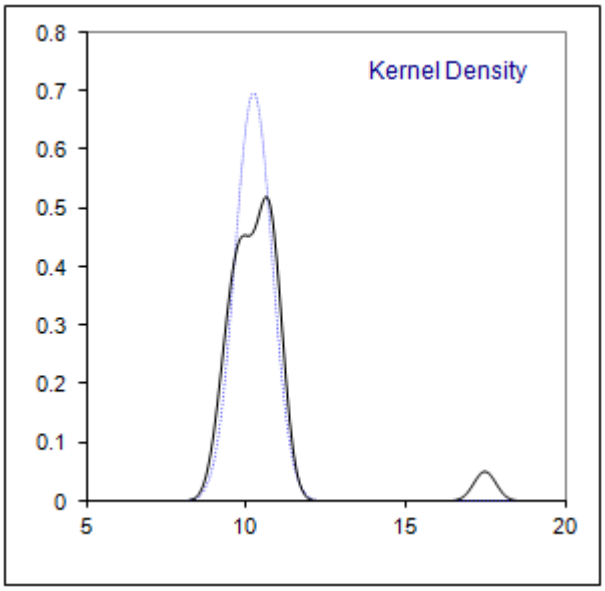
Determination of Olefins by GC on sample #15195; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92	INH-14.3	11.04		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	10.23		-----
131	D6730	17.4698	R(0.01)	-----	1167		-----		-----
132		-----		-----	1191		-----		-----
140		-----		-----	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203		-----		-----
159		-----		-----	1229		-----		-----
171	D6730	9.767		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299		-----		-----
237		-----		-----	1300	ISO22854	11.1		-----
238		-----		-----	1301	D6730	9.97		-----
311	D6839	10.63		-----	1346		-----		-----
312		-----		-----	1347		-----		-----
323	ISO22854	10.4		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	D6730	9.8142		-----
338		-----		-----	1409		-----		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457		-----		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538		-----		-----
369		-----		-----	1544		-----		-----
370		-----		-----	1556		-----		-----
371		-----		-----	1569	ISO22854	9.62		-----
372		10.58		-----	1586		-----		-----
381		-----		-----	1616		-----		-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635		-----		-----
403		-----		-----	1636		-----		-----
420		-----		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D6839	9.41		-----
444		-----		-----	1710	ISO22854	10.9		-----
445	EN14517	10.75		-----	1720		-----		-----
447		-----		-----	1724		-----		-----
453		-----		-----	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		9.8		-----	1776		-----		-----
496	ISO22854	10.68		-----	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813		-----		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO22854	10.576		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		-----		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994	D6729	9.98		-----	1995		-----		-----
998		-----		-----	2129	D6730	9.41	C	-----
1006		-----		-----	2130	D6730	9.960		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059		-----		-----	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	EN14517	10.80		-----	7009	D5134	9.218		-----
1109	D6839	10.76		-----	7013		-----		-----

normality	OK	
n	22	
outliers	1	
mean (n)	10.245	
st.dev. (n)	0.5725	
R(calc.)	1.603	
R(lit)	unknown	Compare R(iis14B05EN)=1.851

Lab 2129 first reported: 9.90





Determination of Oxidation Stability on sample #15195; results in minutes

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	ISO7536	>900		-----
92		-----		-----	1126		-----		-----
120	D525	>240		-----	1161	ISO7536	>900		-----
131		-----		-----	1167	ISO7536	>900		-----
132	D525	>1176		-----	1191		-----		-----
140	D525	>240		-----	1194		-----		-----
150	D525	>900		-----	1199		-----		-----
158		-----		-----	1203	ISO7536	>900		-----
159		-----		-----	1229		-----		-----
171	D525	>300		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	D525	>960		-----
237	D525	>420		-----	1300	ISO7536	>900		-----
238		-----		-----	1301	D525	>720		-----
311	D525	>900		-----	1346		-----		-----
312		-----		-----	1347	D525	>360		-----
323	ISO7536	>900		-----	1348	D525	>480		-----
333		-----		-----	1385	D525	>360		-----
334		-----		-----	1395	D525	>2880		-----
335		-----		-----	1397		-----		-----
336	ISO7536	>600		-----	1402	D525	>360		-----
337	ISO7536	1166		-----	1404	ISO7536	>1140		-----
338		-----		-----	1409	ISO7536	>360		-----
340	ISO7536	>960		-----	1428	ISO7536	>900		-----
343	D525	>900		-----	1457	D525	>2400		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520	ISO7536	>1380		-----
360	ISO7536	>900		-----	1538	ISO7536	>360		-----
369		-----		-----	1544	ISO7536	>360		-----
370		-----		-----	1556	ISO7536	>900		-----
371	ISO7536	>900		-----	1569	ISO7536	>500		-----
372	ISO7536	>900		-----	1586	D525	>360		-----
381		-----		-----	1616	D525	>900		-----
399	D525	>900		-----	1634		-----		-----
402	ISO7536	>900		-----	1635	ISO7536	>1000		-----
403	ISO7536	>900		-----	1636	ISO7536	>795		-----
420	ISO7536	>900		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D525	>1000		-----
444		-----		-----	1710	ISO7536	>900		-----
445	IP40	>360		-----	1720		-----		-----
447	IP40	>360		-----	1724		-----		-----
453	IP40	>1000		-----	1728	D525	>900		-----
463	ISO7536	>360		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	D525	1365		-----	1776		-----		-----
496	ISO7536	>360		-----	1807	ISO7536	>380		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D525	>840		-----
704		-----		-----	1833	ISO7536	>360		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO7536	>900		-----
823	D525	>720		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861	D525	>900		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963	D525	>360		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D525	>900		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	ISO7536	>900		-----
1006	D525	>900		-----	2130	ISO7536	>900		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO7536	>360		-----	6013	ISO7536	>1440		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009		-----		-----
1109	D525	>900		-----	7013		-----		-----

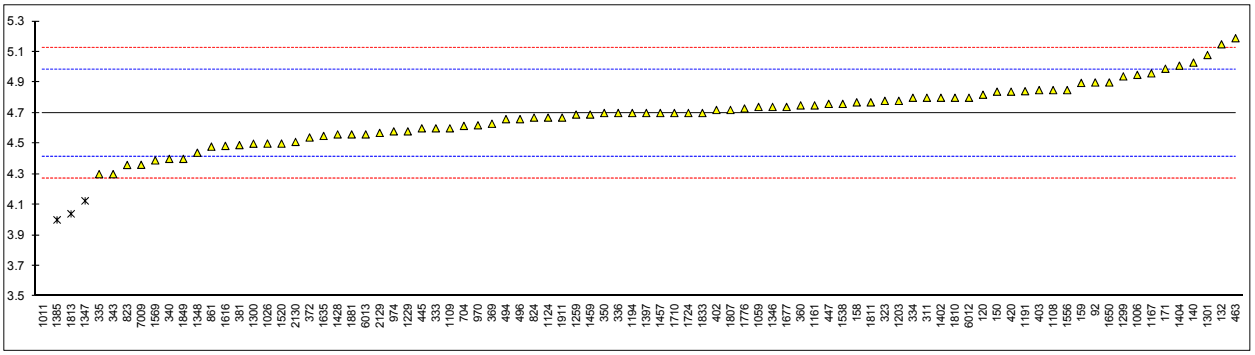
normality	n.a.
n	67
outliers	n.a.
mean (n)	>900.
st.dev. (n)	n.a.
R(calc.)	n.a.
R(ISO7536:94)	n.a.

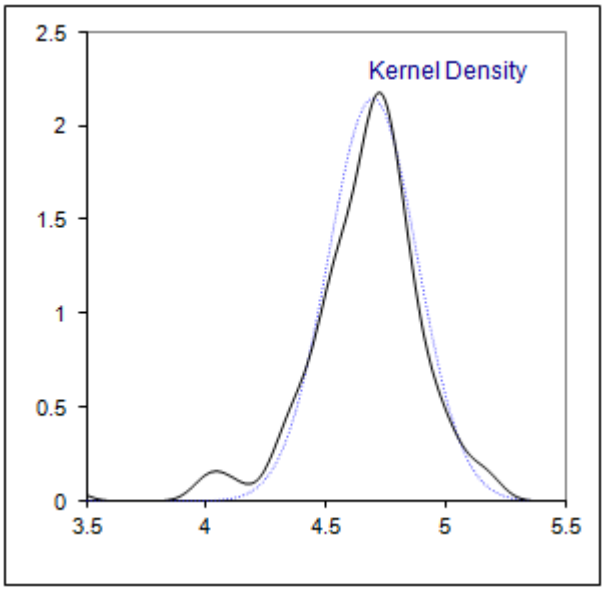
Determination of Ethanol on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN13132	4.67		-0.20
92	INH-14.3	4.90		1.41	1126		-----		-----
120	D5599	4.82		0.85	1161	EN13132	4.75		0.36
131		-----		-----	1167	ISO13132	4.96		1.83
132	D5599	5.15		3.16	1191	EN1601	4.843		1.01
140	D5599	5.03		2.32	1194	D5845	4.7		0.01
150	D5599	4.84		0.99	1199		-----		-----
158	D5599	4.77		0.50	1203	ISO22854	4.78		0.57
159	D5599	4.897		1.39	1229	ISO22854	4.58		-0.83
171	D5599	4.99		2.04	1257		-----		-----
194		-----		-----	1259	EN13132	4.69		-0.06
228		-----		-----	1299	ISO22854	4.94		1.69
237		-----		-----	1300	EN1601	4.4995		-1.39
238		-----		-----	1301	D4815	5.08		2.67
311	ISO22854	4.8		0.71	1346	ISO22854	4.74		0.29
312		-----		-----	1347	D4815	4.125	DG(0.05)	-4.02
323	ISO22854	4.78		0.57	1348	D4815	4.44		-1.81
333	ISO22854	4.6		-0.69	1385	D4815	4.00	DG(0.05)	-4.89
334	EN1601	4.8		0.71	1395		-----		-----
335	EN1601	4.3		-2.79	1397	EN13132	4.7		0.01
336	EN1601	4.7		0.01	1402	IP466	4.8		0.71
337		-----		-----	1404	ISO22854	5.01		2.18
338		-----		-----	1409		-----		-----
340	EN1601	4.4		-2.09	1428	EN13132	4.56		-0.97
343	EN13132	4.3		-2.79	1457	EN1601	4.70		0.01
344		-----		-----	1459	in house	4.69		-0.06
350	EN13132	4.70		0.01	1498		-----		-----
353		-----		-----	1520	EN13132	4.50		-1.39
360	EN13132	4.75		0.36	1538	EN13132	4.76		0.43
369	EN13132	4.63		-0.48	1544		-----		-----
370		-----		-----	1556	ISO22854	4.85		1.06
371		-----		-----	1569	EN22854	4.39		-2.16
372	EN13132	4.54		-1.11	1586		-----		-----
381	EN13132	4.49		-1.46	1616	D4815	4.485		-1.50
399		-----		-----	1634		-----		-----
402	EN22854	4.72		0.15	1635	EN22854	4.55		-1.04
403	EN1601	4.85		1.06	1636		-----		-----
420	ISO22854	4.84		0.99	1650	D5845	4.9		1.41
431		-----		-----	1654		-----		-----
440		-----		-----	1677	EN13132	4.74		0.29
444		-----		-----	1710	ISO22854	4.7		0.01
445	ISO22854	4.60		-0.69	1720		-----		-----
447	IP466	4.76		0.43	1724	EN22854	4.70		0.01
453		-----		-----	1728		-----		-----
463	EN13132	5.19		3.44	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		4.66		-0.27	1776	ISO22854	4.73		0.22
496	EN1601	4.66		-0.27	1807	EN22854	4.72		0.15
541		-----		-----	1810	EN22854	4.80		0.71
556		-----		-----	1811	ISO22854	4.77		0.50
671		-----		-----	1813	D6839	4.04	DG(0.05)	-4.61
704	D4815	4.616		-0.58	1833	ISO22854	4.7		0.01
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO22854	4.40		-2.09
823	D4815	4.36		-2.37	1881	D4815	4.56		-0.97
824	D4815	4.67		-0.20	1911	EN13132	4.67		-0.20
861	D4815	4.48		-1.53	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970	D4815	4.62		-0.55	1961		-----		-----
974	D4815	4.58		-0.83	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D6730	4.57		-0.90
1006	D4815	4.95		1.76	2130	D6730	4.511		-1.31
1011	ISO22854	3.42	R(0.01)	-8.95	2146		-----		-----
1026	EN13132	4.5		-1.39	6005		-----		-----
1033		-----		-----	6012	D5845	4.8		0.71
1059	ISO22854	4.74		0.29	6013	D4815	4.560	C	-0.97
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	EN22854	4.85		1.06	7009	D5134	4.361		-2.36
1109	D6839	4.60		-0.69	7013		-----		-----

	all results	results only of method:				
		EN1601	D4815	EN13132	ISO22854	D5599
normality	OK	OK	not OK	not OK	OK	OK
n	82	9	12	18	24	7
outliers	4	0	2	0	1	0
mean (n)	4.6987	4.6392	4.6168	4.6722	4.7204	4.9281
st.dev. (n)	0.18630	0.19731	0.20660	0.19405	0.14654	0.13470
R(calc.)	0.5216	0.5525	0.5785	0.5433	0.4103	0.3772
R(EN1601:14)	0.4000					

Lab 6013 first reported: 5.385





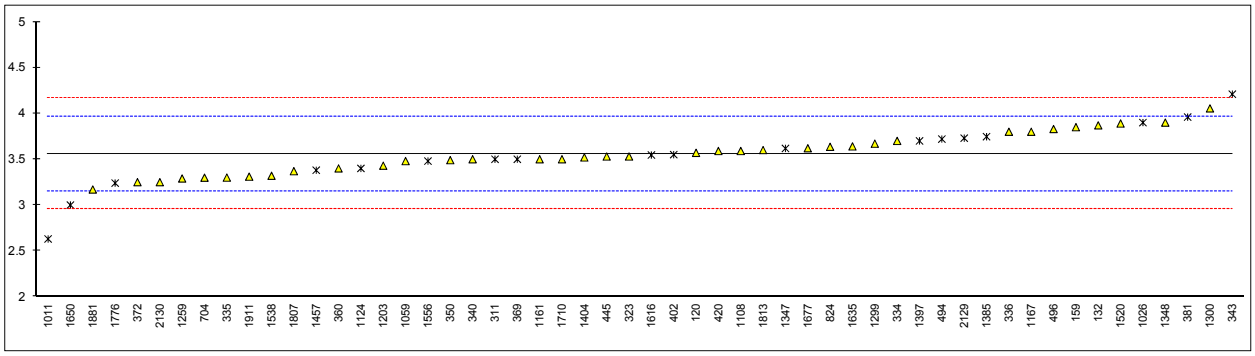
Determination of Ethers (C5 or more C atoms) on sample #15195; results in %V/V

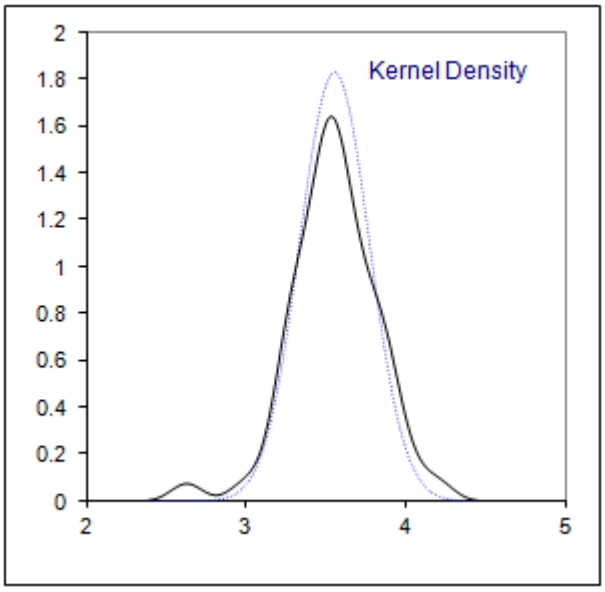
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN13132	3.40	ex, E	-0.78
92		-----		-----	1126		-----		-----
120	D5599	3.57		0.06	1161	EN13132	3.5		-0.28
131		-----		-----	1167	ISO13132	3.80		1.20
132	D5599	3.87		1.55	1191		-----		-----
140	D5599	<0.05	**-?**	<-17.36	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203	ISO22854	3.43		-0.63
159	D5599	3.85		1.45	1229		-----		-----
171	D5599	<0.10	**-?**	<-17.11	1257		-----		-----
194		-----		-----	1259	EN13132	3.29		-1.32
228		-----		-----	1299	EN22854	3.67		0.56
237		-----		-----	1300	EN1601	4.055		2.47
238		-----		-----	1301	D4815	<0.2	**-?**	<-16.62
311	ISO22854	3.5	ex,E, C	-0.28	1346		-----		-----
312		-----		-----	1347	D4815	3.618	ex, E	0.30
323	ISO22854	3.53		-0.13	1348	D4815	3.9		1.70
333		-----		-----	1385	D4815	3.746	ex, E	0.94
334	EN1601	3.7		0.71	1395		-----		-----
335	EN1601	3.3		-1.27	1397	EN13132	3.7	ex, E	0.71
336	EN1601	3.8		1.20	1402	IP466	<0.2	**-?**	<-16.62
337		-----		-----	1404	EN22854	3.52		-0.18
338		-----		-----	1409		-----		-----
340	EN1601	3.5		-0.28	1428		-----		-----
343	EN13132	4.21	ex, C	3.23	1457	EN1601	3.38	ex, E	-0.88
344		-----		-----	1459		-----		-----
350	EN13132	3.49		-0.33	1498		-----		-----
353		-----		-----	1520	EN13132	3.89		1.65
360	EN13132	3.40		-0.78	1538	EN13132	3.32	C	-1.17
369	EN13132	3.50	ex, E	-0.28	1544		-----		-----
370		-----		-----	1556	ISO22854	3.48	ex, E	-0.38
371		-----		-----	1569		-----		-----
372	EN13132	3.25		-1.52	1586		-----		-----
381	EN13132	3.96	ex	2.00	1616	D4815	3.546	ex, E	-0.05
399		-----		-----	1634		-----		-----
402	EN22854	3.55	ex, E	-0.03	1635	EN22854	3.64		0.41
403		-----		-----	1636		-----		-----
420	ISO22854	3.59		0.16	1650	D5845	3.0	ex	-2.76
431		-----		-----	1654		-----		-----
440		-----		-----	1677	EN13132	3.62		0.31
444		-----		-----	1710	ISO22854	3.5		-0.28
445	ISO22854	3.53		-0.13	1720		-----		-----
447		-----		-----	1724		-----		-----
453		-----		-----	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	3.72	ex, E	0.81	1776	ISO22854	3.24	ex, E	-1.57
496	EN1601	3.83		1.35	1807	ISO22854	3.37		-0.93
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D6839	3.6		0.21
704	D4815	3.299		-1.28	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881	D4815	3.17		-1.92
824	D4815	3.6358	C	0.39	1911	EN13132	3.31		-1.22
861		-----		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D6730	3.73	ex, C	0.86
1006		-----		-----	2130	D6730	3.250		-1.52
1011	ISO22854	2.63	R(0.05), E	-4.59	2146		-----		-----
1026	EN13132	3.9	ex, E	1.70	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	3.48		-0.38	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	EN22854	3.59		0.16	7009		-----		-----
1109		-----		-----	7013		-----		-----

-?: false negative test result?

normality	OK
n	36
outliers	1+17ex
mean (n)	3.5569
st.dev. (n)	0.21814
R(calc.)	0.6108
R(EN1601:14)	0.5657

Lab 140: false negative test result?
Lab 171: false negative test result?
Lab 311 first reported: 0.1; excluded due to a calculation error; total Ethers = 3.08 (DIPE included)
Lab 343 first reported: 4.6; excluded due to outlying result in MTBE
Lab 369 excluded due to a calculation error; total Ethers = 3.34
Lab 381 excluded due to outlying result in ETBE
Lab 402 excluded due to a calculation error; total Ethers = 3.39
Lab 494 excluded due to a calculation error; total Ethers = 3.64
Lab 824 first reported: 0
Lab 1011 made a calculation error; total Ethers = 2.48, but has also an outlying result in MTBE
Lab 1026 excluded due to a calculation error; total Ethers = 3.6
Lab 1124 excluded due to a calculation error; total Ethers = 3.25
Lab 1301: false negative test result?
Lab 1347 excluded due to a calculation error; total Ethers = 3.546
Lab 1385 excluded due to a calculation error; total Ethers = 3.667
Lab 1397 excluded due to a calculation error; total Ethers = 3.3
Lab 1402: false negative test result?
Lab 1457 excluded due to a calculation error; total Ethers = 3.44 (DIPE included)
Lab 1538 first reported: 8.08
Lab 1556 excluded due to a calculation error; total Ethers = 3.56 (DIPE included)
Lab 1616 excluded due to a calculation error; total Ethers = 3.357
Lab 1650 excluded due to outlying results in MTBE and ETBE
Lab 1776 excluded due to a calculation error; total Ethers = 3.40 (ETBE included)
Lab 2129 first reported: 0.0; excluded due to outlying result in ETBE



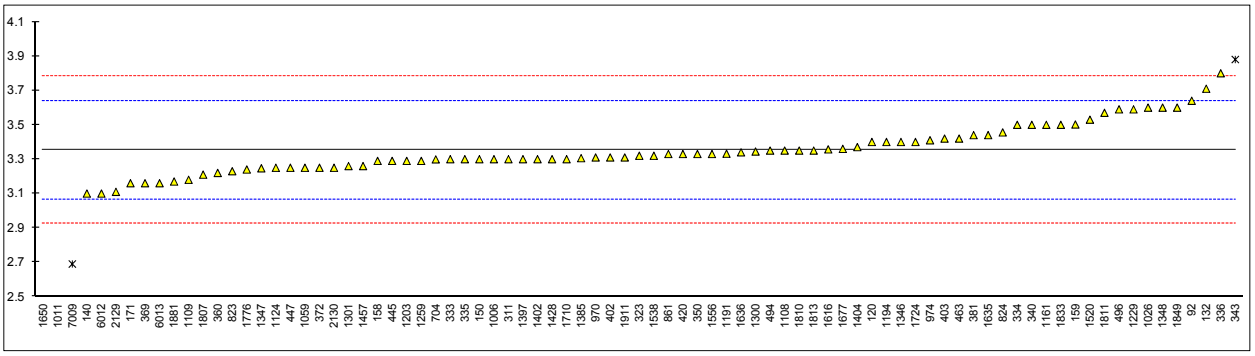


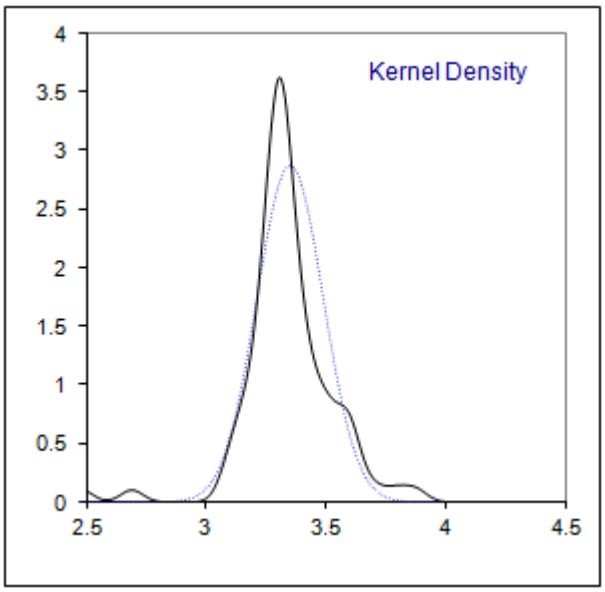
Determination of MTBE on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN13132	3.25		-0.72
92	INH-14.3	3.64		2.01	1126		-----		-----
120	D5599	3.40		0.33	1161	EN13132	3.5		1.03
131		-----		-----	1167		-----		-----
132	D5599	3.71		2.50	1191	EN1601	3.332		-0.14
140	D5599	3.1		-1.77	1194	D5845	3.4		0.33
150	D5599	3.30		-0.37	1199		-----		-----
158	D5599	3.29		-0.44	1203	ISO22854	3.29		-0.44
159	D5599	3.502		1.05	1229	ISO22854	3.59		1.66
171	D5599	3.16		-1.35	1257		-----		-----
194		-----		-----	1259	EN13132	3.29		-0.44
228		-----		-----	1299		-----		-----
237		-----		-----	1300	EN1601	3.3444		-0.06
238		-----		-----	1301	D4815	3.26		-0.65
311	ISO22854	3.3		-0.37	1346	ISO22854	3.40		0.33
312		-----		-----	1347	D4815	3.247		-0.74
323	ISO22854	3.32		-0.23	1348	D4815	3.6		1.73
333	ISO22854	3.3		-0.37	1385	D4815	3.306		-0.32
334	EN1601	3.5		1.03	1395		-----		-----
335	EN1601	3.3		-0.37	1397	EN13132	3.3		-0.37
336	EN1601	3.8		3.13	1402	IP466	3.3		-0.37
337		-----		-----	1404	ISO22854	3.37		0.12
338		-----		-----	1409		-----		-----
340	EN1601	3.5		1.03	1428	EN13132	3.30		-0.37
343	EN13132	3.88	C,R(0.05)	3.69	1457	EN13132	3.26		-0.65
344		-----		-----	1459		-----		-----
350	EN13132	3.33		-0.16	1498		-----		-----
353		-----		-----	1520	EN13132	3.53		1.24
360	EN13132	3.22		-0.93	1538	EN13132	3.32		-0.23
369	EN13132	3.16		-1.35	1544		-----		-----
370		-----		-----	1556	ISO22854	3.33		-0.16
371		-----		-----	1569		-----		-----
372	EN13132	3.25		-0.72	1586		-----		-----
381	EN13132	3.44		0.61	1616	D4815	3.357		0.03
399		-----		-----	1634		-----		-----
402	ISO22854	3.31		-0.30	1635	ISO22854	3.44		0.61
403	EN1601	3.42		0.47	1636	EN13132	3.34		-0.09
420	ISO22854	3.33		-0.16	1650	D5845	2.2	R(0.01)	-8.07
431		-----		-----	1654		-----		-----
440		-----		-----	1677	EN13132	3.36		0.05
444		-----		-----	1710	ISO22854	3.3		-0.37
445	ISO22854	3.29		-0.44	1720		-----		-----
447	IP466	3.25		-0.72	1724	ISO22854	3.40		0.33
453		-----		-----	1728		-----		-----
463	EN13132	3.42		0.47	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	3.35		-0.02	1776	ISO22854	3.24		-0.79
496	EN1601	3.59		1.66	1807	ISO22854	3.21		-1.00
541		-----		-----	1810	ISO22854	3.35		-0.02
556		-----		-----	1811	ISO22854	3.57		1.52
671		-----		-----	1813	D6839	3.35		-0.02
704	D4815	3.299		-0.37	1833	ISO22854	3.5		1.03
782		-----		-----	1842		-----		-----
785		-----		-----	1849	ISO22854	3.6		1.73
823	D4815	3.23		-0.86	1881	D4815	3.17		-1.28
824	D4815	3.4558		0.72	1911	EN13132	3.31		-0.30
861	D4815	3.33		-0.16	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970	D4815	3.31		-0.30	1961		-----		-----
974	D4815	3.41		0.40	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D6730	3.11		-1.70
1006	D4815	3.30		-0.37	2130	D6730	3.250		-0.72
1011	ISO22854	2.48	R(0.01)	-6.11	2146		-----		-----
1026	EN1601	3.6		1.73	6005		-----		-----
1033		-----		-----	6012	D5845	3.1	C	-1.77
1059	ISO22854	3.25		-0.72	6013	D4815	3.16	C	-1.35
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	3.35		-0.02	7009	D5134	2.69	R(0.01)	-4.64
1109	D6839	3.18		-1.21	7013		-----		-----

normality	OK
n	79
outliers	4
mean (n)	3.3523
st.dev. (n)	0.13894
R(calc.)	0.3890
R(EN1601:14)	0.4000

Lab 343 first reported: 4.2
Lab 6012 first reported: 2.6
Lab 6013 first reported: 3.763



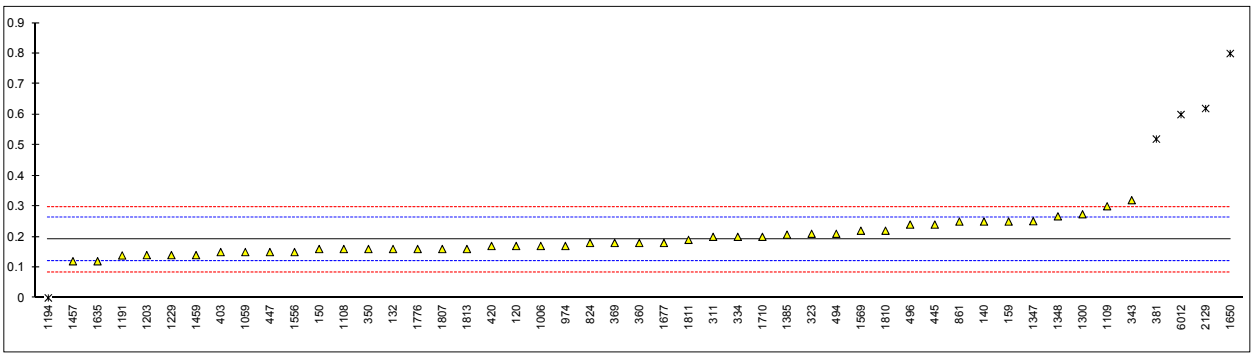


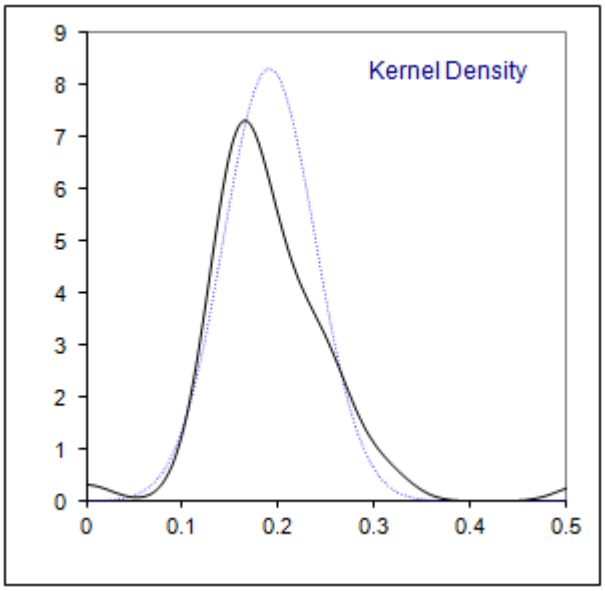
Determination of ETBE on sample #15195; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN13132	<0.2		-----
92		-----		-----	1126		-----		-----
120	D5599	0.17		-0.60	1161	EN13132	<0.17		<-0.60
131		-----		-----	1167		-----		-----
132	D5599	0.16		-0.88	1191	EN1601	0.139		-1.46
140	D5599	0.25	C	1.64	1194	D5845	0	R(0.05)	-5.36
150	D5599	0.16		-0.88	1199		-----		-----
158		-----		-----	1203	ISO22854	0.14		-1.44
159	D5599	0.250		1.64	1229	EN1601	0.14	C	-1.44
171	D5599	<0.10		<-2.56	1257		-----		-----
194		-----		-----	1259	EN13132	<0.2		-----
228		-----		-----	1299		-----		-----
237		-----		-----	1300	EN1601	0.2738		2.31
238		-----		-----	1301	D4815	<0.2		-----
311	ISO22854	0.2		0.24	1346		-----		-----
312		-----		-----	1347	D4815	0.251		1.67
323	ISO22854	0.21		0.52	1348	D4815	0.267		2.12
333		-----		-----	1385	D4815	0.207		0.44
334	EN1601	0.2		0.24	1395		-----		-----
335		-----		-----	1397	EN13132	<0.2	C	-----
336	EN1601	<0.17		<-0.60	1402		-----		-----
337		-----		-----	1404	ISO22854	<0.01		<-5.08
338		-----		-----	1409		-----		-----
340	EN1601	<0.17		<-0.60	1428	EN13132	<0.17		<-0.60
343	EN13132	0.32	C	3.60	1457	EN1601	0.12		-2.00
344		-----		-----	1459	in house	0.14		-1.44
350	EN13132	0.16		-0.88	1498		-----		-----
353		-----		-----	1520		-----		-----
360	EN13132	0.18		-0.32	1538	EN13132	<0.17		<-0.60
369	EN13132	0.18		-0.32	1544		-----		-----
370		-----		-----	1556	ISO22854	0.15		-1.16
371		-----		-----	1569	ISO22854	0.22		0.80
372	EN13132	<0.2		-----	1586		-----		-----
381	EN13132	0.52	R(0.01)	9.20	1616	D4815	<0.2		-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635	ISO22854	0.12		-2.00
403	EN1601	0.15		-1.16	1636	EN13132	<0.17		<-0.60
420	ISO22854	0.17		-0.60	1650	D5845	0.8	R(0.01)	17.04
431		-----		-----	1654		-----		-----
440		-----		-----	1677	EN13132	0.18		-0.32
444		-----		-----	1710	ISO22854	0.2		0.24
445	ISO22854	0.24		1.36	1720		-----		-----
447	IP466	0.15		-1.16	1724		-----		-----
453		-----		-----	1728		-----		-----
463	EN13132	<0.2		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	0.21		0.52	1776	ISO22854	0.16		-0.88
496	EN1601	0.24		1.36	1807	ISO22854	0.16		-0.88
541		-----		-----	1810	ISO22854	0.22		0.80
556		-----		-----	1811	ISO22854	0.19		-0.04
671		-----		-----	1813	D6839	0.16		-0.88
704	D4815	<0.20		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823	D4815	<0.2		-----	1881	D4815	<0.2		-----
824	D4815	0.18	C	-0.32	1911	EN13132	<0.20		-----
861	D4815	0.25		1.64	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D4815	0.17		-0.60	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D6730	0.62	C,R(0.01)	12.00
1006	D4815	0.17		-0.60	2130	D6730	<0.1		<-2.56
1011	ISO22854	<0.80		-----	2146		-----		-----
1026	EN13132	<0.1	C	<-2.56	6005		-----		-----
1033		-----		-----	6012	D5845	0.6	R(0.01)	11.44
1059	ISO22854	0.15		-1.16	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	0.16		-0.88	7009		-----		-----
1109	D6839	0.30		3.04	7013		-----		-----

normality	OK
n	44
outliers	5
mean (n)	0.1913
st.dev. (n)	0.04803
R(calc.)	0.1345
R(EN1601:14)	0.1000

Lab 140 first reported: <0.05
Lab 171: false negative test result?
Lab 343 first reported: 0.4
Lab 824 first reported: 0
Lab 1026 first reported: 0.4 %V/V, a possibly false positive test result and <0.1%V/V possibly false negative?
Lab 1229 first reported: 0 and new reported 0.25 acc.to ISO22854 and 0.14 acc. to EN1601
Lab 1397 first reported: 0.4
Lab 1404: false negative test result?
Lab 2129 first reported: 0.00
Lab 2130: false negative test result?





Determination of other oxygenates on sample #15195; results in %V/V

lab	method	MeOH	DIPE	TAME	i-PropOH	i-BuOH	Tert-buOH	Others
62		-----	-----	-----	-----	-----	-----	-----
92		-----	-----	-----	-----	-----	-----	-----
120	D5599	0.00	0.00	0.00	0.00	0.00	0.00	0.00
131		-----	-----	-----	-----	-----	-----	-----
132	D5599	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
140	D5599	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
150	D5599	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-----
158		-----	-----	-----	-----	-----	-----	-----
159	D5599	0	0.101	0	0	0	0	0
171	D5599	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-----
194		-----	-----	-----	-----	-----	-----	-----
228		-----	-----	-----	-----	-----	-----	-----
237		-----	-----	-----	-----	-----	-----	-----
238		-----	-----	-----	-----	-----	-----	-----
311	ISO22854	<0.1	0.08	<0.1	<0.1	<0.1	<0.1	<0.1
312		-----	-----	-----	-----	-----	-----	-----
323	ISO22854	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
333		-----	-----	-----	-----	-----	-----	-----
334	EN1601	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	-----
335		-----	-----	-----	-----	-----	-----	-----
336		-----	-----	-----	-----	-----	-----	-----
337		-----	-----	-----	-----	-----	-----	-----
338		-----	-----	-----	-----	-----	-----	-----
340	EN1601	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
343	EN13132	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
344		-----	-----	-----	-----	-----	-----	-----
350		-----	-----	-----	-----	-----	-----	-----
353		-----	-----	-----	-----	-----	-----	-----
360	EN13132	<0.17	-----	<0.17	<0.17	<0.17	<0.17	<0.17
369	EN13132	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
370		-----	-----	-----	-----	-----	-----	-----
371		-----	-----	-----	-----	-----	-----	-----
372	EN13132	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-----
381	EN13132	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
399		-----	-----	-----	-----	-----	-----	-----
402	ISO22854	-----	0.08	-----	-----	-----	-----	-----
403	EN1601	-----	0.09	-----	-----	-----	-----	-----
420	ISO22854	<0.01	0.09	-----	<0.01	<0.01	<0.01	0.03
431		-----	-----	-----	-----	-----	-----	-----
440		-----	-----	-----	-----	-----	-----	-----
444		-----	-----	-----	-----	-----	-----	-----
445	ISO22854	<0.01	<0.01	<0.01	0.02	<0.01	0.01	0.08
447	IP466	0.46 **+?**	0.06	-----	-----	-----	-----	-----
453		-----	-----	-----	-----	-----	-----	-----
463	EN13132	<0.2	<0.2	<0.2	<0.2	<0.2	0.12	-----
468		-----	-----	-----	-----	-----	-----	-----
485		-----	-----	-----	-----	-----	-----	-----
494	ISO22854	0	0.08	0	0	0	0	0.08
496	EN1601	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
541		-----	-----	-----	-----	-----	-----	-----
556		-----	-----	-----	-----	-----	-----	-----
671		-----	-----	-----	-----	-----	-----	-----
704	D4815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
782		-----	-----	-----	-----	-----	-----	-----
785		-----	-----	-----	-----	-----	-----	-----
823	D4815	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-----
824	D4815	0	0	0	0	0	0	0
861	D4815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-----
875		-----	-----	-----	-----	-----	-----	-----
962		-----	-----	-----	-----	-----	-----	-----
963		-----	-----	-----	-----	-----	-----	-----
970		-----	-----	-----	-----	-----	-----	-----
974		-----	-----	-----	-----	-----	-----	-----
994		-----	-----	-----	-----	-----	-----	-----
998		-----	-----	-----	-----	-----	-----	-----
1006	D4815	-----	n.d.	n.d.	-----	-----	-----	-----
1011	ISO22854	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	-----
1026	EN13132	<0.1	-----	-----	<0.1	<0.1	<0.1	<0.1
1033		-----	-----	-----	-----	-----	-----	-----
1059	ISO22854	<0.20	0.08	<0.20	<0.20	<0.20	<0.20	<0.20
1067		-----	-----	-----	-----	-----	-----	-----
1081		-----	-----	-----	-----	-----	-----	-----
1082		-----	-----	-----	-----	-----	-----	-----
1108	ISO22854	-----	0.08	-----	-----	-----	-----	-----
1109	D6839	0.00	0.09	0.00	0.00	0.00	0.00	-----
1124	EN13132	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1126		-----	-----	-----	-----	-----	-----	-----

lab	method	MeOH	DIPE	TAME	i-PropOH	i-BuOH	Tert-buOH	Others
1161	EN13132	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
1167	ISO13132	<0.1	-----	-----	<0.1	<0.03	<0.1	<0.1
1191	EN1601	0.009	-----	0	-----	-----	0	-----
1194	D5845	0	0.4 **+?**	0.6 **+?**	-----	-----	-----	-----
1199		-----	-----	-----	-----	-----	-----	-----
1203	EN ISO 22854	<0.02	-----	<0.02	<0.02	<0.02	<0.02	0.16
1229	ISO22854	0	0	0	0	0	0	0
1257		-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----
1299	EN ISO22854	<0.8	-----	-----	<0.8	<0.8	<0.8	<0.8
1300	EN1601	<0.01	0.1978	0.2390 **+?**	0.190	0.0082	0.005	<0.1
1301	D4815	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1346		-----	-----	-----	-----	-----	-----	-----
1347	D4815	0.016	<0.1	0.048	0.033	0.005	0.021	0.051
1348	D4815	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1385	D4815	<0.1	<0.1	0.154	0.13	0.127	<0.1	<0.1
1395		-----	-----	-----	-----	-----	-----	-----
1397		-----	-----	-----	-----	-----	-----	-----
1402	IP466	<0.2	-----	<0.2	<0.2	<0.2	<0.2	-----
1404	ISO22854	7.17 **+?**	0.15	<0.01	<0.01	<0.01	0.02	<0.01
1409		-----	-----	-----	-----	-----	-----	-----
1428	EN13132	<0.17	-----	-----	<0.17	<0.17	<0.17	-----
1457	EN1601	0	0.06	0	0	0	0	0.03
1459		-----	-----	-----	-----	-----	-----	-----
1498		-----	-----	-----	-----	-----	-----	-----
1520	EN13132	-----	-----	0.36 **+?**	-----	-----	-----	-----
1538		-----	-----	-----	-----	-----	-----	-----
1544		-----	-----	-----	-----	-----	-----	-----
1556	ISO22854	<0.20	0.08	<0.20	<0.20	<0.20	<0.20	<0.20
1569		-----	-----	-----	-----	-----	-----	-----
1586		-----	-----	-----	-----	-----	-----	-----
1616	D4815	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1634		-----	-----	-----	-----	-----	-----	-----
1635	ISO22854	0.07	0.08	-----	-----	-----	-----	-----
1636	EN13132	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	-----
1650	D5845	-----	-----	-----	-----	-----	0.6 **+?**	-----
1654		-----	-----	-----	-----	-----	-----	-----
1677	EN13132	0.02	0.08	<0.01	<0.01	<0.01	0.01	0.04
1710	EN ISO22854	0.0	-----	0.0	0.0	0.0	0.0	0.0
1720		-----	-----	-----	-----	-----	-----	-----
1724		-----	-----	-----	-----	-----	-----	-----
1728		-----	-----	-----	-----	-----	-----	-----
1740		-----	-----	-----	-----	-----	-----	-----
1742		-----	-----	-----	-----	-----	-----	-----
1751		-----	-----	-----	-----	-----	-----	-----
1776	ISO22854	<0.2	<0.2	-----	<0.2	<0.2	<0.2	<0.2
1807	EN ISO22854	0	-----	-----	-----	-----	-----	-----
1810		-----	-----	-----	-----	-----	-----	-----
1811		-----	-----	-----	-----	-----	-----	-----
1813	D6839	-----	0.09	-----	-----	-----	-----	-----
1833		-----	-----	-----	-----	-----	-----	-----
1842		-----	-----	-----	-----	-----	-----	-----
1849		-----	-----	-----	-----	-----	-----	-----
1881	D4815	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1911	EN13132	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1936		-----	-----	-----	-----	-----	-----	-----
1937		-----	-----	-----	-----	-----	-----	-----
1938		-----	-----	-----	-----	-----	-----	-----
1953		-----	-----	-----	-----	-----	-----	-----
1961		-----	-----	-----	-----	-----	-----	-----
1979		-----	-----	-----	-----	-----	-----	-----
1995		-----	-----	-----	-----	-----	-----	-----
2129	D6730	0.01	0.00	0.00	0.00	0.00	0.00	0.00
2130	D6730	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2146		-----	-----	-----	-----	-----	-----	-----
6005		-----	-----	-----	-----	-----	-----	-----
6012	D5845	0.0	0.0	0.0	-----	-----	0.0	-----
6013		-----	-----	-----	-----	-----	-----	-----
6014		-----	-----	-----	-----	-----	-----	-----
6016		-----	-----	-----	-----	-----	-----	-----
7003		-----	-----	-----	-----	-----	-----	-----
7009	D5134	0.004	-----	-----	-----	-----	-----	7.57 **+?**
7013		-----	-----	-----	-----	-----	-----	-----
	n	56	52	48	51	51	53	40
	mean (n)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

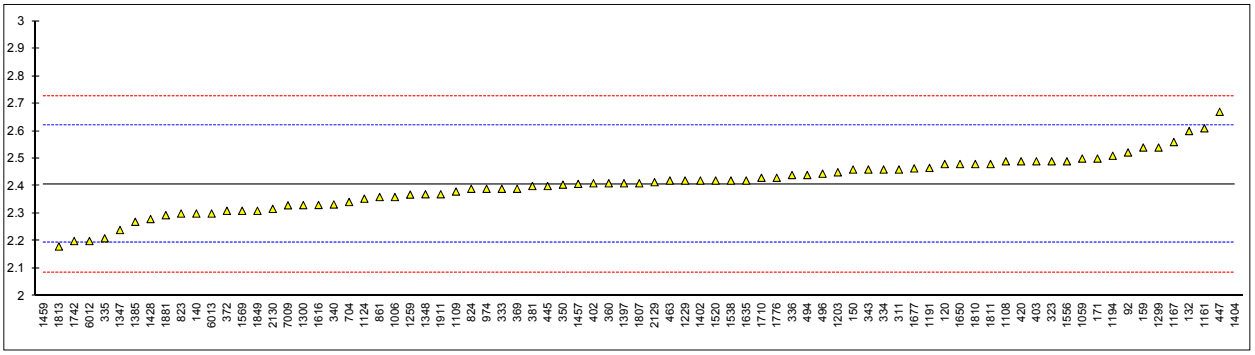
+?: false positive test result?

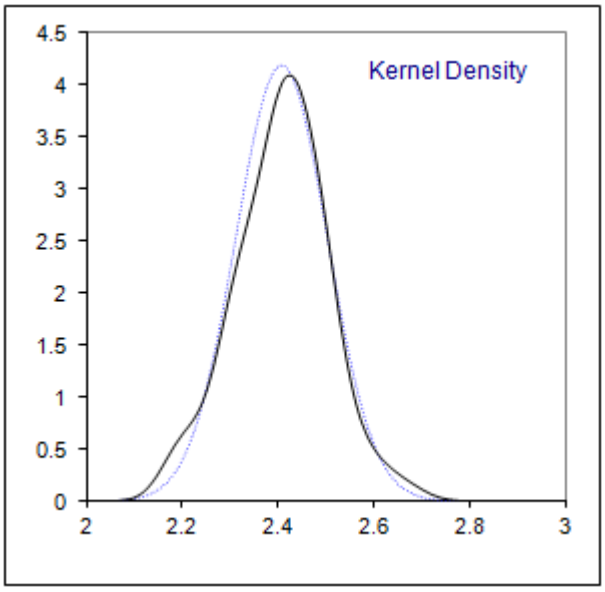
Determination of Oxygen Content on sample #15195; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124	EN13132	2.354		-0.49
92	INH-14.3	2.522		1.08	1126		-----		-----
120	D5599	2.48		0.68	1161	EN13132	2.61		1.90
131		-----		-----	1167	ISO13132	2.56		1.43
132	D5599	2.6		1.80	1191	EN1601	2.466		0.55
140	D5599	2.3		-1.00	1194	D5845	2.51		0.96
150	D5599	2.46		0.50	1199		-----		-----
158		-----		-----	1203	ISO22854	2.45		0.40
159	D5599	2.54		1.24	1229	ISO22854	2.42		0.12
171	D5599	2.50		0.87	1257		-----		-----
194		-----		-----	1259	EN13132	2.369		-0.35
228		-----		-----	1299	ISO22854	2.54		1.24
237		-----		-----	1300	EN1601	2.3306		-0.71
238		-----		-----	1301		-----		-----
311	ISO22854	2.46		0.50	1346		-----		-----
312		-----		-----	1347	D4815	2.24		-1.56
323	ISO22854	2.49		0.78	1348	D4815	2.37		-0.34
333	ISO22854	2.39		-0.16	1385	D4815	2.27		-1.28
334	EN1601	2.46		0.50	1395		-----		-----
335	EN1601	2.21		-1.84	1397	EN13132	2.41		0.03
336	EN1601	2.44		0.31	1402	IP466	2.42		0.12
337		-----		-----	1404	ISO22854	6.43	R(0.01)	37.55
338		-----		-----	1409		-----		-----
340	EN1601	2.333		-0.69	1428	EN13132	2.28		-1.18
343	EN13132	2.46		0.50	1457	EN1601	2.408		0.01
344		-----		-----	1459	in house	1.79	R(0.01)	-5.76
350	EN13132	2.405		-0.02	1498		-----		-----
353		-----		-----	1520	EN13132	2.42		0.12
360	EN13132	2.410		0.03	1538	EN13132	2.42		0.12
369	EN13132	2.39		-0.16	1544		-----		-----
370		-----		-----	1556	ISO22854	2.49		0.78
371		-----		-----	1569	EN22854	2.31		-0.90
372	EN13132	2.31		-0.90	1586		-----		-----
381	EN13132	2.40		-0.06	1616	D4815	2.331		-0.71
399		-----		-----	1634		-----		-----
402	ISO22854	2.41		0.03	1635	EN22854	2.42		0.12
403	EN1601	2.49		0.78	1636		-----		-----
420	ISO22854	2.49		0.78	1650	D5845	2.48		0.68
431		-----		-----	1654		-----		-----
440		-----		-----	1677	EN13132	2.464		0.53
444		-----		-----	1710	ISO22854	2.43		0.22
445		2.40		-0.06	1720		-----		-----
447	IP466	2.67		2.46	1724		-----		-----
453		-----		-----	1728		-----		-----
463	EN13132	2.42		0.12	1740		-----		-----
468		-----		-----	1742	D5622	2.20		-1.93
485		-----		-----	1751		-----		-----
494	ISO22854	2.44		0.31	1776	ISO22854	2.43		0.22
496	EN1601	2.445		0.36	1807	ISO22854	2.41		0.03
541		-----		-----	1810	ISO22854	2.48		0.68
556		-----		-----	1811	ISO22854	2.48		0.68
671		-----		-----	1813	D6839	2.18		-2.12
704	D4815	2.342		-0.60	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849	EN22854	2.31		-0.90
823	D4815	2.30		-1.00	1881	D4815	2.294		-1.05
824	D4815	2.39		-0.16	1911	EN13132	2.37		-0.34
861	D4815	2.36		-0.44	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D4815	2.39		-0.16	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129	D6730	2.414	C	0.07
1006	D4815	2.36		-0.44	2130	D6730	2.317		-0.84
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012	D5845	2.20	C	-1.93
1059	EN22854	2.50		0.87	6013	D4815	2.30	C	-1.00
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	EN22854	2.49		0.78	7009	in house	2.33		-0.72
1109	D6839	2.38		-0.25	7013		-----		-----

normality	OK
n	77
outliers	2
mean (n)	2.407
st.dev. (n)	0.0954
R(calc.)	0.267
R(EN1601:14)	0.300

Lab 2129 first reported: 2.317
Lab 6012 first reported: 1.84
Lab 6013 first reported: 2.745



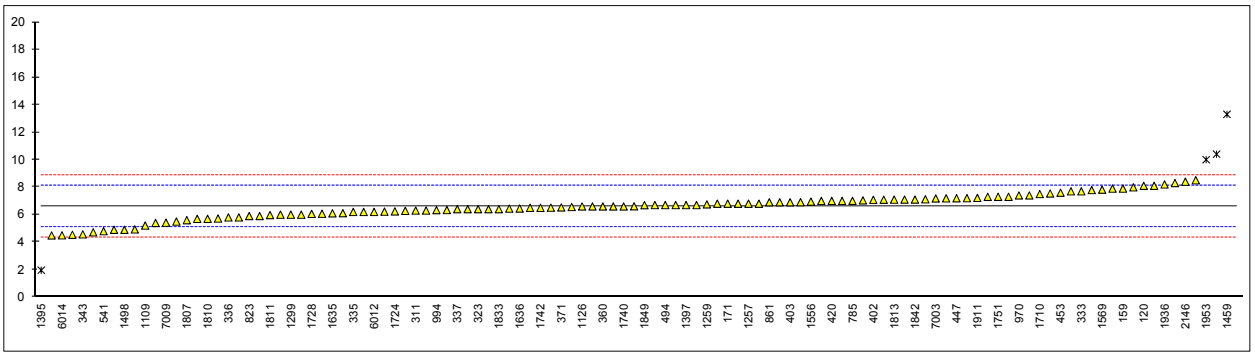


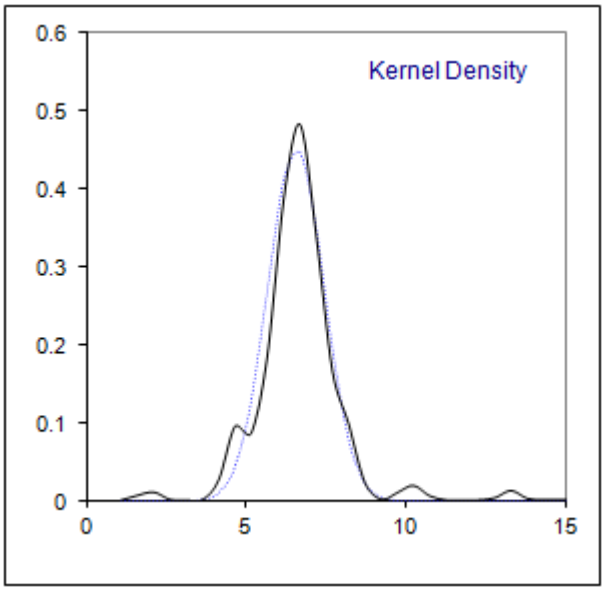
Determination of Sulphur on sample #15195; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5453	6.7		0.15	1124	ISO20846	6.11		-0.63
92	D5453	6.28		-0.40	1126	ISO20846	6.6		0.02
120	D2622	8.1		2.01	1161	ISO20846	6.0		-0.78
131		-----		-----	1167		-----		-----
132	D2622	6.22		-0.48	1191	ISO20846	6.8		0.29
140	D5453	6.07		-0.68	1194		-----		-----
150	D5453	6.4		-0.24	1199		-----		-----
158	D2622	7.1		0.68	1203	ISO20846	6.5		-0.11
159	D5453	7.9		1.74	1229	ISO20846	7.0		0.55
171	D2622	6.8		0.29	1257	D5453	6.8		0.29
194	D2622	7.4		1.08	1259	ISO20846	6.75		0.22
228		-----		-----	1299	ISO20884	6.0		-0.78
237		-----		-----	1300	ISO20846	7.988		1.86
238		-----		-----	1301		-----		-----
311	ISO20846	6.3		-0.38	1346		-----		-----
312		-----		-----	1347		-----		-----
323	ISO20846	6.4		-0.24	1348	D4294	<100		-----
333	ISO20846	7.7		1.48	1385	D4294	130	R(0.01)	163.65
334	ISO20846	6.7		0.15	1395	D5453	1.961	R(0.01)	-6.13
335	ISO20846	6.2		-0.51	1397	ISO20846	6.7		0.15
336	ISO20846	5.8		-1.04	1402	ISO20846	4.49		-2.78
337	ISO20846	6.4		-0.24	1404	ISO20846	6.2		-0.51
338		-----		-----	1409		-----		-----
340	ISO20846	7.3		0.95	1428	ISO20846	6.6		0.02
343	ISO20846	4.57		-2.67	1457	ISO20846	6.44		-0.19
344	D5453	4.9275		-2.20	1459	in house	13.3	R(0.01)	8.90
350		-----		-----	1498	D5453	4.9		-2.23
353	IP531	10.4	R(0.05)	5.06	1520	ISO20846	6.51		-0.10
360	ISO20846	6.60		0.02	1538	ISO20846	6.4		-0.24
369	ISO20846	6.6		0.02	1544	ISO20846	6.00		-0.78
370	ISO20846	6.61		0.03	1556	ISO20846	6.95		0.48
371	ISO20846	6.53		-0.07	1569	ISO20846	7.82		1.64
372	ISO20846	5.8		-1.04	1586	D5453	5.7		-1.17
381	ISO20846	6.91		0.43	1616	D5453	6.34		-0.32
399	ISO20846	7.0		0.55	1634	ISO20846	7.2		0.82
402	ISO20846	7.08		0.66	1635	ISO20846	6.1		-0.64
403	ISO20846	6.9		0.42	1636	ISO20846	6.45		-0.18
420	ISO20846	7.0		0.55	1650		-----		-----
431		-----		-----	1654		-----		-----
440	D5453	7.544		1.27	1677	D5453	7.19		0.80
444	D5453	4.7	C	-2.47	1710	ISO20846	7.5		1.21
445		-----		-----	1720		-----		-----
447	IP490	7.194		0.81	1724	ISO20846	6.24		-0.46
453	ISO20846	7.6		1.35	1728	ISO20846	6.06		-0.70
463	ISO20846	6.8		0.29	1740	ISO20846	6.6		0.02
468		-----		-----	1742	ISO20846	6.5		-0.11
485		-----		-----	1751	ISO20884	7.3		0.95
494	ISO20846	6.7		0.15	1776	ISO20846	6.7		0.15
496	ISO20846	4.54		-2.71	1807	ISO20846	5.6		-1.31
541	ISO20846	4.8		-2.37	1810	D5453	5.7		-1.17
556		-----		-----	1811	ISO20846	5.97		-0.81
671	D5453	7.79		1.60	1813	D2622	7.0950		0.68
704	ISO20846	7.09		0.67	1833	ISO20846	6.4		-0.24
782	ISO20884	7.9		1.74	1842	D5453	7.1		0.68
785	ISO20846	7.004		0.56	1849	ISO20846	6.694		0.15
823	D5453	5.9		-0.91	1881	ISO20846	7.12		0.71
824	D5453	6.56		-0.03	1911	ISO20846	7.22		0.84
861	D5453	6.9		0.42	1936	ISO20846	8.2		2.14
875	ISO20846	6.9		0.42	1937	ISO20846	6.8		0.29
962		-----		-----	1938	ISO20846	7.3		0.95
963	D5453	7.7		1.48	1953	D4294	10.0	R(0.05)	4.53
970	D5453	7.40		1.08	1961		-----		-----
974		-----		-----	1979		-----		-----
994	D5453	6.33		-0.34	1995		-----		-----
998		-----		-----	2129	ISO20846	7.04		0.60
1006	D5453	5.5		-1.44	2130	ISO20846	8.10	C	2.01
1011	ISO20846	8.3		2.27	2146	ISO20846	8.4		2.41
1026	ISO20846	4.9		-2.23	6005	ISO20846	5.72		-1.15
1033		-----		-----	6012	ISO20846	6.2		-0.51
1059	ISO20846	5.4		-1.57	6013	D2622	5.9		-0.91
1067		-----		-----	6014	ISO20884	4.5		-2.76
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003	D5453	7.18		0.79
1108	ISO20846	6.3		-0.38	7009	D5453	5.42		-1.54
1109	D7039	5.21		-1.82	7013	D6667	8.50491		2.55

normality	OK
n	111
outliers	5
mean (n)	6.584
st.dev. (n)	0.8840
R(calc.)	2.475
R(ISO20846:11)	2.112

Lab 444 first reported: 10.1
Lab 2130 first reported: 11.49



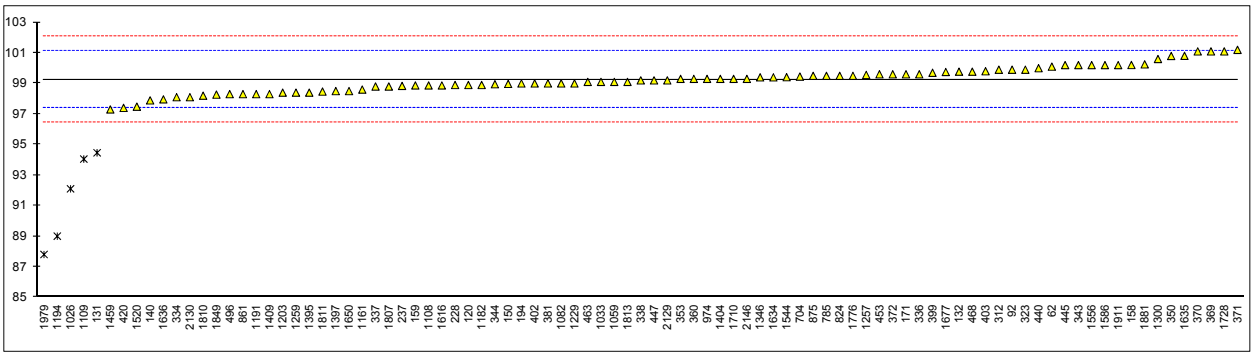


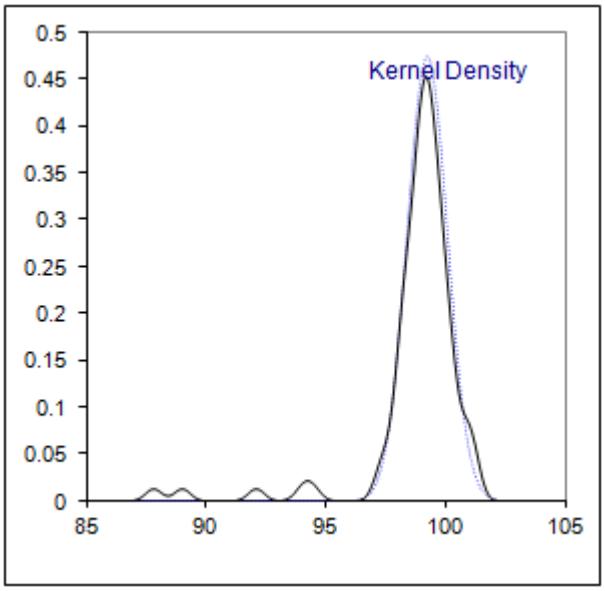
Determination of ASVP on sample #15196; results in kPa

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5191	100.1		0.90	1059	EN13016-1	99.1		-0.17
92	D5191	99.9		0.69	1067		-----		-----
120	D5191	98.90		-0.38	1081		-----		-----
131	D5191	94.46	R(0.01)	-5.11	1082	EN13016-1	99.0		-0.27
132	D5191	99.77		0.55	1108	EN13016-1	98.87		-0.41
140	D5191	97.89	C, E	-1.45	1109	D5191	94.05	R(0.01)	-5.54
150	D5191	98.97		-0.30	1124		-----		-----
158	D5191	100.21	C	1.02	1161	EN13016-1	98.6		-0.70
159	D5191	98.87	E	-0.41	1167		-----		-----
171	D5191	99.6		0.37	1182	D5191	98.9		-0.38
194	EN13016-1	99.0		-0.27	1186		-----		-----
228	D5191	98.9		-0.38	1191	EN13016-1	98.3		-1.02
237	D5191	98.84	C, E	-0.44	1194	D5191	89.0	R(0.01)	-10.92
238		-----		-----	1203	EN13016-1	98.4		-0.91
311		-----		-----	1229	EN13016-1	99.0		-0.27
312	D5191	99.9		0.69	1257	D5191	99.56		0.32
323	EN13016-1	99.9		0.69	1259	EN13016-1	98.4		-0.91
333		-----		-----	1299		-----		-----
334	EN13016-1	98.1		-1.23	1300	EN13016-1	100.6		1.43
335		-----		-----	1346	EN13016-1	99.4		0.15
336	EN13016-1	99.6		0.37	1395	D5191	98.4		-0.91
337	EN13016-1	98.8		-0.49	1397	EN13016-1	98.5		-0.81
338	EN13016-1	99.2		-0.06	1404	EN13016-1	99.3		0.05
340		-----		-----	1409	EN13016-1	98.3		-1.02
343	EN13016-1	100.2		1.01	1428		-----		-----
344	EN13016-1	98.948		-0.33	1457		-----		-----
350	EN13016-1	100.8		1.64	1459	EN13016-1	97.3		-2.08
353	D5191	99.3		0.05	1520	EN13016-1	97.48		-1.89
360	EN13016-1	99.3		0.05	1538		-----		-----
369	EN13016-1	101.1		1.96	1544	EN13016-1	99.41		0.16
370	EN13016-1	101.1		1.96	1556	EN13016-1	100.2		1.01
371	EN13016-1	101.2		2.07	1586	EN13016-1	100.2		1.01
372	EN13016-1	99.6		0.37	1616	Calc.	98.87		-0.41
381	EN13016-1	99.0		-0.27	1634	EN13016-1	99.4		0.15
399	EN13016-1	99.7		0.47	1635	EN13016-1	100.81		1.66
402	EN13016-1	99.0		-0.27	1636	EN13016-1	97.96		-1.38
403	EN13016-1	99.8		0.58	1650	D5191	98.5		-0.81
420	EN13016-1	97.4		-1.98	1654		-----		-----
431		-----		-----	1677	D5191	99.75		0.53
440	D5191	100.0		0.79	1710	EN13016-1	99.3		0.05
445	IP394	100.2		1.01	1720		-----		-----
447	D5191	99.2		-0.06	1724		-----		-----
453	IP394	99.6	C	0.37	1728	EN13016-1	101.1		1.96
463	EN13016-1	99.1		-0.17	1776	EN13016-1	99.5		0.26
468	EN13016-1	99.77		0.55	1807	EN13016-1	98.8		-0.49
485		-----		-----	1810	EN13016-1	98.20		-1.12
494		-----		-----	1811	EN13016-1	98.47		-0.84
496	EN13016-1	98.3		-1.02	1813	D5191	99.1		-0.17
541		-----		-----	1833		-----		-----
704	EN13016-1	99.45		0.21	1849	EN13016-1	98.27		-1.05
785	D5191	99.5		0.26	1881	D5191	100.25		1.06
824	D5191	99.5		0.26	1911	EN13016-1	100.20		1.01
861	D5191	98.3		-1.02	1936		-----		-----
875	D5191	99.5		0.26	1937		-----		-----
963		-----		-----	1938		-----		-----
970		-----		-----	1979	IP394	87.8	C,R(0.01)	-12.20
974	D5191	99.30		0.05	1995		-----		-----
1006		-----		-----	2129	EN13016-1	99.2		-0.06
1011		-----		-----	2130	D5191	98.1		-1.23
1026	D5191	92.1	R(0.01)	-7.62	2146	EN13016-1	99.3		0.05
1033	IP394	99.1		-0.17					

normality	OK
n	86
outliers	5
mean (n)	99.256
st.dev. (n)	0.8432
R(calc.)	2.361
R(EN13016-1:07)	2.629

Lab 140 first reported 99.10, conversion error in first reported value
Lab 158 first reported 14.53 kPa (wrong unit; 14.53 psi =100.18 kPa)
Lab 159 conversion error
Lab 237 first reported 99.767, conversion error in first reported value
Lab 453 first reported 92.3
Lab 1979 first reported 91.3



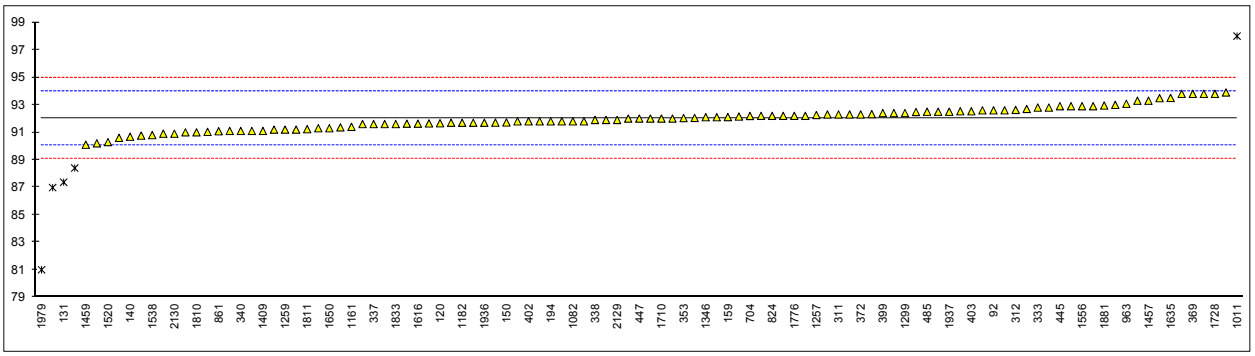


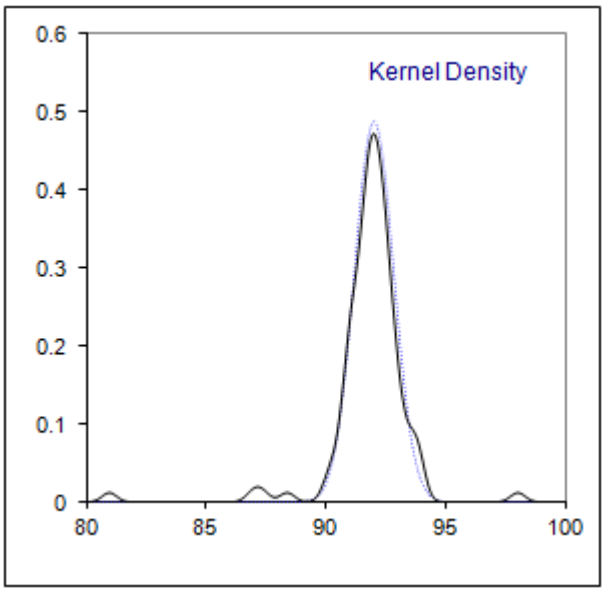
Determination of DVPE (acc. to EN13016-1) on sample #15196; results in kPa

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5191	92.8		0.86	1059	EN13016-1	91.8		-0.23
92	D5191	92.6		0.64	1067	D5191	92.6		0.64
120	D5191	91.66		-0.39	1081		-----		-----
131	D5191	87.37	R(0.01)	-5.09	1082	EN13016-1	91.8		-0.23
132	D5191	92.53		0.57	1108	EN13016-1	91.63		-0.42
140	D5191	90.68	C, E	-1.46	1109	D5191	86.98	R(0.01)	-5.51
150	D5191	91.72		-0.32	1124	EN13016-1	92.32		0.34
158		-----		-----	1161	EN13016-1	91.4		-0.67
159	D5191	92.11	E	0.11	1167	EN13016-1	90.6		-1.55
171	D5191	92.4		0.43	1182	D5191	91.7		-0.34
194	EN13016-1	91.8		-0.23	1186		-----		-----
228	D5191	91.65		-0.40	1191	EN13016-1	91.1		-1.00
237	D5191	91.6	E	-0.45	1194		-----		-----
238		-----		-----	1203	EN13016-1	91.2		-0.89
311	D5191	92.3		0.32	1229	EN13016-1	91.7		-0.34
312	D5191	92.63		0.68	1257	D5191	92.26		0.27
323	EN13016-1	92.6		0.64	1259	EN13016-1	91.2		-0.89
333	EN13016-1	92.8		0.86	1299	D5191	92.4		0.43
334	EN13016-1	90.9		-1.22	1300	EN13016-1	93.3		1.41
335	EN13016-1	91.7		-0.34	1346	EN13016-1	92.1		0.10
336	EN13016-1	92.3		0.32	1395	D5191	91.2		-0.89
337	EN13016-1	91.6		-0.45	1397	EN13016-1	91.3		-0.78
338	EN13016-1	91.9		-0.12	1404	EN13016-1	92.0		-0.01
340	EN13016-1	91.1		-1.00	1409	EN13016-1	91.1		-1.00
343	EN13016-1	92.9		0.97	1428	EN13016-1	93.8		1.96
344	EN13016-1	91.705		-0.34	1457	D5191	93.3		1.41
350	EN13016-1	93.49		1.62	1459	EN13016-1	90.1		-2.09
353	D5191	92.04		0.03	1520	EN13016-1	90.29		-1.89
360	EN13016-1	92.0		-0.01	1538	EN13016-1	90.8		-1.33
369	EN13016-1	93.8		1.96	1544	EN13016-1	92.15		0.15
370	EN13016-1	93.8		1.96	1556	EN13016-1	92.9		0.97
371	EN13016-1	93.9		2.07	1586	EN13016-1	92.9		0.97
372	EN13016-1	92.3		0.32	1616	D5191	91.63		-0.42
381	EN13016-1	91.8		-0.23	1634	EN13016-1	92.1		0.10
399	EN13016-1	92.4		0.43	1635	EN13016-1	93.50		1.63
402	EN13016-1	91.8		-0.23	1636	EN13016-1	90.76		-1.37
403	EN13016-1	92.53		0.57	1650	D5191	91.3		-0.78
420	EN13016-1	90.2		-1.99	1654		-----		-----
431	EN13016-1	88.4	R(0.01)	-3.96	1677	D5191	92.48		0.51
440	D5191	92.7		0.75	1710	EN13016-1	92.0		-0.01
445	IP394	92.9		0.97	1720		-----		-----
447	D5191	92.0		-0.01	1724	EN13016-1	91.0		-1.11
453	IP394	92.3		0.32	1728	EN13016-1	93.8		1.96
463	EN13016-1	91.8		-0.23	1776	EN13016-1	92.2		0.21
468	EN13016-1	92.50		0.53	1807	EN13016-1	91.6		-0.45
485	EN13016-1	92.5		0.53	1810	EN13016-1	91.0		-1.11
494		-----		-----	1811	EN13016-1	91.23		-0.86
496	EN13016-1	91.1		-1.00	1813	D5191	91.8		-0.23
541		-----		-----	1833	EN13016-1	91.6		-0.45
704	EN13016-1	92.19		0.20	1849	EN13016-1	91.03		-1.08
785	D5191	92.2		0.21	1881	D5191	92.95		1.03
824	D5191	92.2		0.21	1911	EN13016-1	93.00		1.08
861	D5191	91.08		-1.02	1936	EN13016-1	91.7		-0.34
875	D5191	92.2		0.21	1937	EN13016-1	92.5		0.53
963	D5191	93.08		1.17	1938	EN13016-1	92.2		0.21
970		-----		-----	1979	EN13016-1	81.0	C,R(0.01)	-12.07
974	D5191	92.05		0.04	1995		-----		-----
1006	D5191	91.36	C	-0.71	2129	EN13016-1	91.9		-0.12
1011	EN13016-1	98.0	R(0.01)	6.56	2130	D5191	90.9		-1.22
1026		-----		-----	2146	EN13016-1	92.0		-0.01
1033	IP394	91.9		-0.12					

normality	OK
n	104
outliers	5
mean (n)	92.012
st.dev. (n)	0.8182
R(calc.)	2.291
R(EN13016-1:07)	2.555

Lab 140 first reported 91.2, conversion error in first reported value
Lab 159 conversion error in reported value
Lab 237 conversion error in reported value, changed ASVP value
Lab 1006 reported 13.25 kPa, which is a unit error. IIS converted 13.25 psi to 91.36 kPa
Lab 1979 first reported 84.4

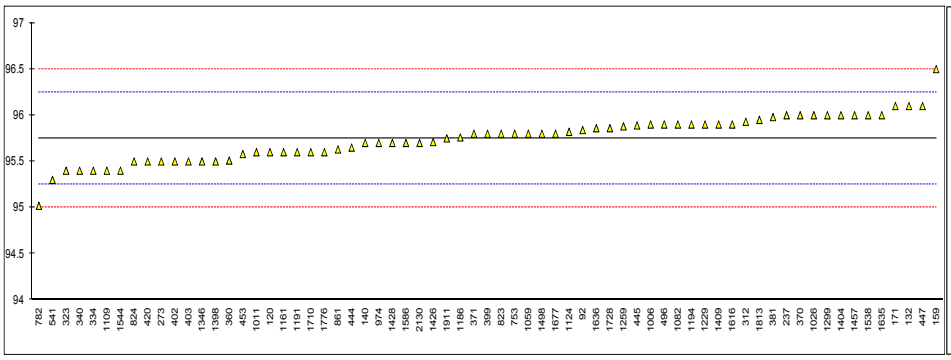


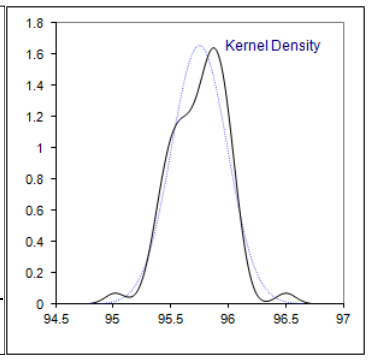


Determination of RON on sample #15198;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1059	ISO5164	95.8		0.20
92	D2699	95.84		0.36	1081		-----		-----
120	D2699	95.6		-0.60	1082	ISO5164	95.9		0.60
132	D2699	96.1		1.40	1109	D2699	95.4		-1.40
140	D2699	95.7		-0.20	1124	ISO5164	95.82		0.28
159	D2699	96.5		3.00	1161	ISO5164	95.6		-0.60
171	D2699	96.1		1.40	1167		-----		-----
237	D2699	96.0		1.00	1186	D2699	95.76		0.04
273	D2699	95.5		-1.00	1191	ISO5164	95.6		-0.60
312	ISO5164	95.93		0.72	1194	D2699	95.9		0.60
323	ISO5164	95.4		-1.40	1229	ISO5164	95.9		0.60
334	ISO5164	95.4		-1.40	1259	ISO5164	95.88		0.52
340	ISO5164	95.4		-1.40	1299	D2699	96.0		1.00
360	ISO5164	95.51		-0.96	1346	ISO5164	95.5		-1.00
370	ISO5164	96.0		1.00	1398	INH-52947	95.5		-1.00
371	ISO5164	95.8		0.20	1404	ISO5164	96.0		1.00
381	ISO5164	95.98		0.92	1409	ISO5164	95.9		0.60
399	ISO5164	95.8		0.20	1426	D2699	95.71		-0.16
402	ISO5164	95.5		-1.00	1428	D2699	95.7		-0.20
403	ISO5164	95.5		-1.00	1457	ISO5164	96.0		1.00
420	ISO5164	95.5		-1.00	1498	D2699	95.8		0.20
444	D2699	95.65		-0.40	1538	ISO5164	96.0		1.00
445	IP237	95.89		0.56	1544	ISO5164	95.4		-1.40
447	D2699	96.1		1.40	1556		-----		-----
453	D2699	95.58		-0.68	1586	D2699	95.7		-0.20
496	ISO5164	95.9		0.60	1616	D2699	95.9		0.60
541	D2699	95.3		-1.80	1635	ISO5164	96.0		1.00
753	ISO5164	95.8		0.20	1636	ISO5164	95.86		0.44
782	ISO5164	95.02		-2.92	1650		-----		-----
823	D2699	95.8		0.20	1677	D2699	95.8		0.20
824	D2699	95.5		-1.00	1710	ISO5164	95.6		-0.60
861	D2699	95.63		-0.48	1720		-----		-----
963		-----		-----	1728	D2699	95.86		0.44
970		-----		-----	1776	ISO5164	95.6		-0.60
974	D2699	95.7		-0.20	1813	D2699	95.95		0.80
1006	D2699	95.9		0.60	1849		-----		-----
1011	ISO5164	95.6		-0.60	1911	ISO5164	95.75		0.00
1026	ISO5164	96.0		1.00	2130	ISO5164	95.7		-0.20

normality	OK
n	67
outliers	0
mean (n)	95.75
st.dev. (n)	0.241
R(calc.)	0.68
R(ISO5164:14)	0.70



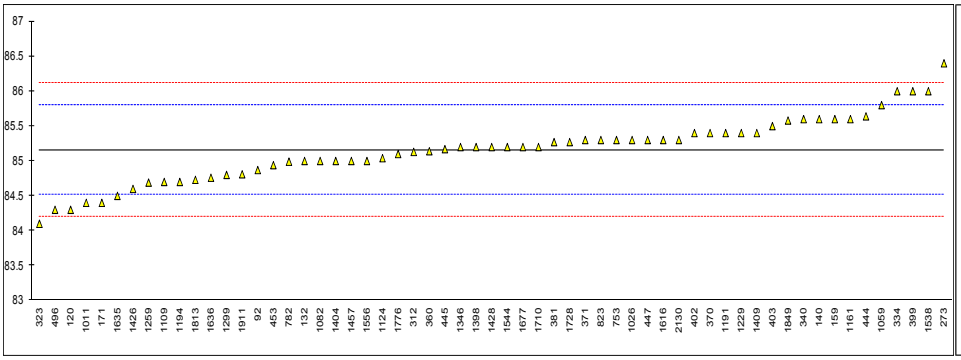


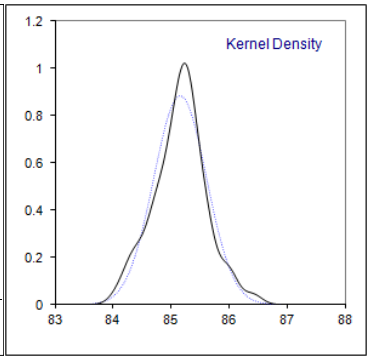
Determination of MON on sample #15198;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1059	ISO5163	85.8		2.00
92	D2700	84.87		-0.90	1081		-----		-----
120	D2700	84.3		-2.67	1082	ISO5163	85.0		-0.49
132	D2700	85.0		-0.49	1109	D2700	84.7		-1.43
140	D2700	85.6		1.37	1124	ISO5163	85.04		-0.37
159	D2700	85.6		1.37	1161	ISO5163	85.6		1.37
171	D2700	84.4		-2.36	1167		-----		-----
237		-----		-----	1186		-----		-----
273	D2700	86.4		3.86	1191	ISO5163	85.4		0.75
312	ISO5163	85.13		-0.09	1194	INH-2699	84.7		-1.43
323	ISO5163	84.1		-3.29	1229	ISO5163	85.4		0.75
334	ISO5163	86.0		2.62	1259	ISO5163	84.69		-1.46
340	ISO5163	85.6		1.37	1299	D2700	84.8		-1.11
360	ISO5163	85.14		-0.06	1346	ISO5163	85.2		0.13
370	ISO5163	85.4		0.75	1398	INH-52947	85.2		0.13
371	ISO5163	85.3		0.44	1404	ISO5163	85.0		-0.49
381	ISO5163	85.27		0.35	1409	ISO5163	85.4		0.75
399	ISO5163	86.0		2.62	1426	D2700	84.6		-1.74
402	ISO5163	85.4		0.75	1428	D2700	85.2		0.13
403	ISO5163	85.5		1.06	1457	ISO5163	85.0		-0.49
420		-----		-----	1498		-----		-----
444	D2700	85.64		1.50	1538	ISO5163	86.0		2.62
445	IP236	85.17		0.04	1544	ISO5163	85.2		0.13
447	D2700	85.3		0.44	1556	ISO5163	85.0		-0.49
453	D2700	84.94		-0.68	1586		-----		-----
496	ISO5163	84.3		-2.67	1616	D2700	85.3		0.44
541		-----		-----	1635	ISO5163	84.5		-2.05
753	ISO5163	85.3		0.44	1636	ISO5163	84.76		-1.24
782	ISO5163	84.99	C	-0.52	1650		-----		-----
823	D2700	85.3		0.44	1677	D2700	85.2		0.13
824		-----		-----	1710	ISO5163	85.2		0.13
861		-----		-----	1720		-----		-----
963		-----		-----	1728	D2700	85.27		0.35
970		-----		-----	1776	ISO5163	85.1		-0.18
974		-----		-----	1813	D2700	84.73		-1.33
1006		-----		-----	1849	D2700	85.58		1.31
1011	ISO5163	84.4		-2.36	1911	ISO5163	84.81		-1.08
1026	ISO5163	85.3		0.44	2130	ISO5163	85.3		0.44

normality	OK
n	59
outliers	0
mean (n)	85.16
st.dev. (n)	0.452
R(calc.)	1.27
R(ISO5163:14)	0.90

Lab 782 first reported: 83.99



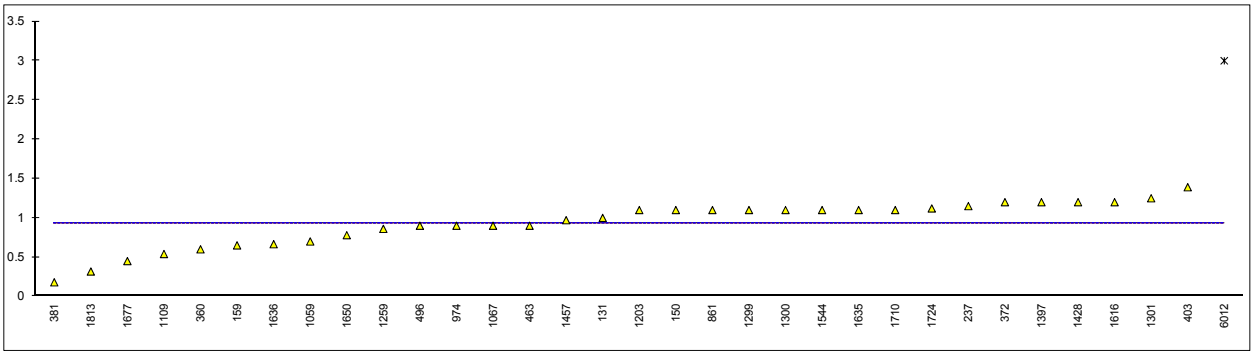


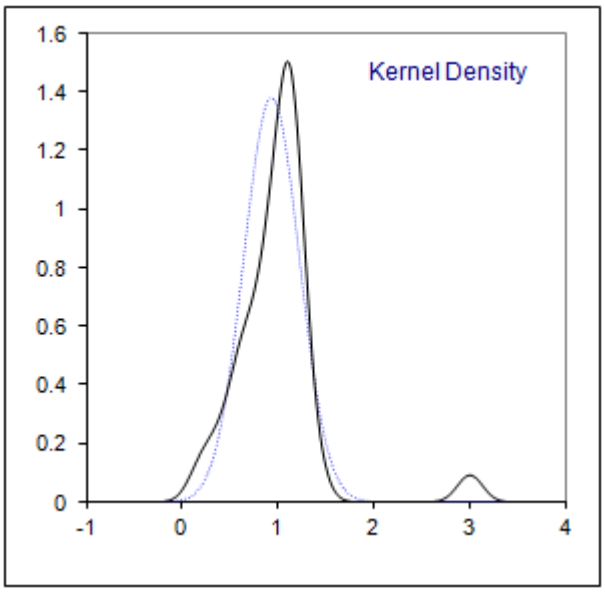
Determination of Aromatics by FIA without oxygenates correction on sample #15199; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161		-----		-----
131	D1319	1.0		-----	1167		-----		-----
132	D1319	<5		-----	1191		-----		-----
140		-----		-----	1194		-----		-----
150	D1319	1.1		-----	1199		-----		-----
158		-----		-----	1203	EN15553	1.1		-----
159	D1319	0.65		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259	D1319	0.86		-----
228		-----		-----	1299	D1319	1.1		-----
237	D1319	1.15		-----	1300	D1319	1.1		-----
238		-----		-----	1301	D1319	1.25		-----
311		-----		-----	1346		-----		-----
312		-----		-----	1347		-----		-----
323		-----		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397	EN15553	1.2		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404		-----		-----
338		-----		-----	1409		-----		-----
340	D1319	<5		-----	1428	D1319	1.2		-----
343	D1319	<5.0		-----	1457	D1319	0.97		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360	D1319	0.6		-----	1538		-----		-----
369	D1319	<5		-----	1544	D1319	1.1		-----
370		-----		-----	1556		-----		-----
371		-----		-----	1569		-----		-----
372	D1319	1.2		-----	1586		-----		-----
381	EN15553	0.18		-----	1616	D1319	1.2		-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635	D1319	1.1		-----
403	D1319	1.39		-----	1636	EN15553	0.665		-----
420		-----		-----	1650	D1319	0.78		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D1319	0.45		-----
444		-----		-----	1710	D1319	1.1		-----
445		-----		-----	1720		-----		-----
447		-----		-----	1724	D1319	1.12		-----
453		-----		-----	1728		-----		-----
463	D1319	0.9		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496	D1319	0.90		-----	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D1319	0.3175		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911	EN15553	<5.0		-----
861	D1319	1.1		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D1319	0.90		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012	D1319	3.0	C, R(0.01)	-----
1059	D1319	0.7		-----	6013		-----		-----
1067	D1319	0.9		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009		-----		-----
1109	D1319	0.54		-----	7013		-----		-----

normality	OK	application range 5 - 99%
n	32	
outliers	1	
mean (n)	(0.932)	
st.dev. (n)	(0.2890)	
R(calc.)	(0.809)	
R(D1319:14)	(1.146)	

Lab 6012 first reported: 2.6



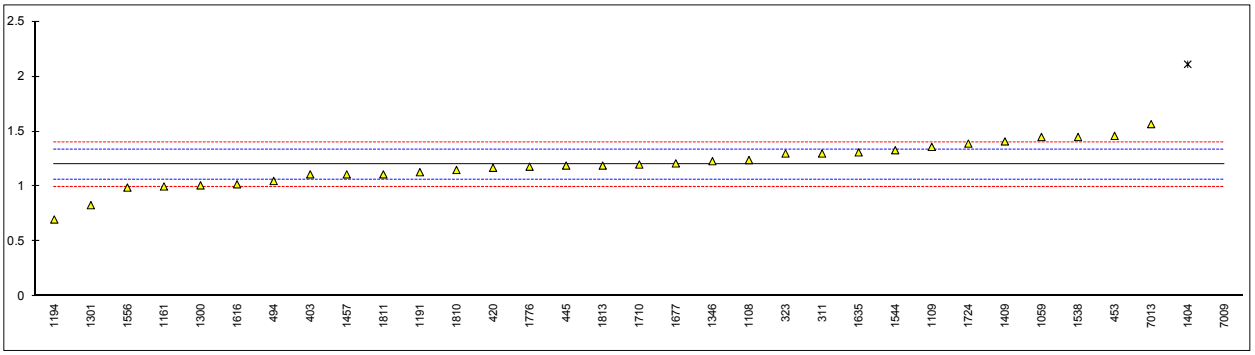


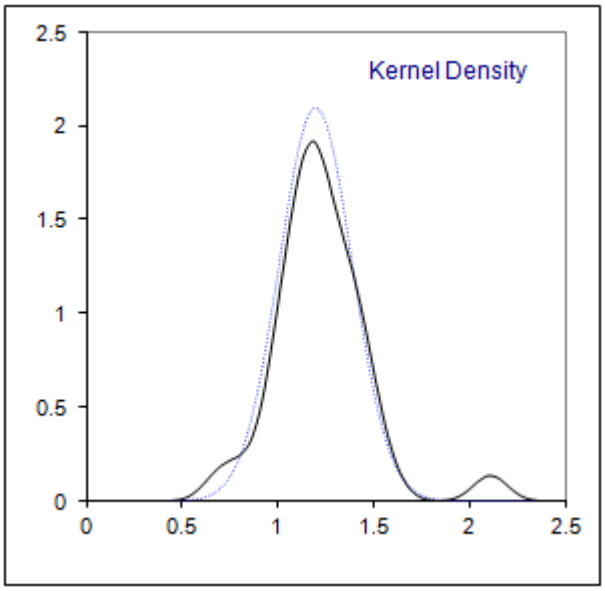
Determination of Aromatics by Reformulyser–PNA method on sample #15199; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	1.0		-2.89
131		-----		-----	1167		-----		-----
132		-----		-----	1191	ISO22854	1.13		-0.99
140		-----		-----	1194	ISO22854	0.7		-7.25
150		-----		-----	1199		-----		-----
158		-----		-----	1203		-----		-----
159		-----		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299		-----		-----
237		-----		-----	1300	ISO22854	1.01		-2.74
238		-----		-----	1301	D6730	0.83	C	-5.36
311	D5443	1.30		1.48	1346	ISO22854	1.23		0.46
312		-----		-----	1347		-----		-----
323	ISO22854	1.3		1.48	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	D6730	2.111	R(0.01)	13.29
338		-----		-----	1409	ISO22854	1.41	C	3.08
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	1.11		-1.29
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	1.45		3.66
369		-----		-----	1544	ISO22854	1.33		1.92
370		-----		-----	1556	ISO22854	0.99		-3.03
371		-----		-----	1569		-----		-----
372		-----		-----	1586		-----		-----
381		-----		-----	1616	D6839	1.02		-2.60
399		-----		-----	1634		-----		-----
402		-----		-----	1635	ISO22854	1.31		1.63
403	ISO22854	1.11		-1.29	1636		-----		-----
420	ISO22854	1.17		-0.41	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	1.21		0.17
444		-----		-----	1710	ISO22854	1.2		0.02
445	ISO22854	1.19		-0.12	1720		-----		-----
447		-----		-----	1724	ISO22854	1.39		2.79
453	ISO22854	1.46		3.81	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	1.05		-2.16	1776	ISO22854	1.18		-0.27
496		-----		-----	1807		-----		-----
541		-----		-----	1810	ISO22854	1.15		-0.70
556		-----		-----	1811	ISO22854	1.11		-1.29
671		-----		-----	1813	D5443	1.19		-0.12
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		-----		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	1.45		3.66	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	1.24		0.61	7009	D5134	13.871	R(0.01)	184.50
1109	D6839	1.36		2.35	7013	in house	1.567		5.37

		ISO22854 results only	
normality	OK	OK	
n	31	24	
outliers	2	1	
mean (n)	1.198	1.216	
st.dev. (n)	0.1897	0.1451	
R(calc.)	0.531	0.406	
R(ISO22854-A:14)	0.192	0.192	compare R(D5443:14)=0.307

Lab 1301 first reported: 1.77
Lab 1409 first reported: 1.75



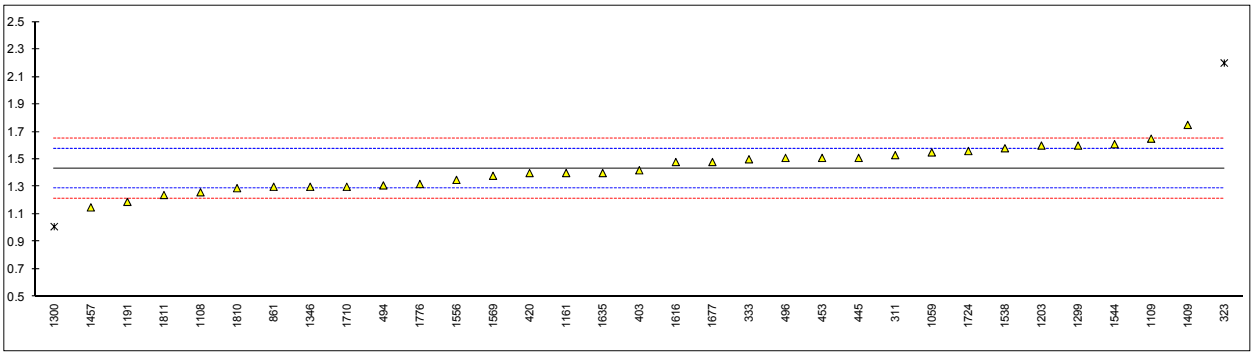


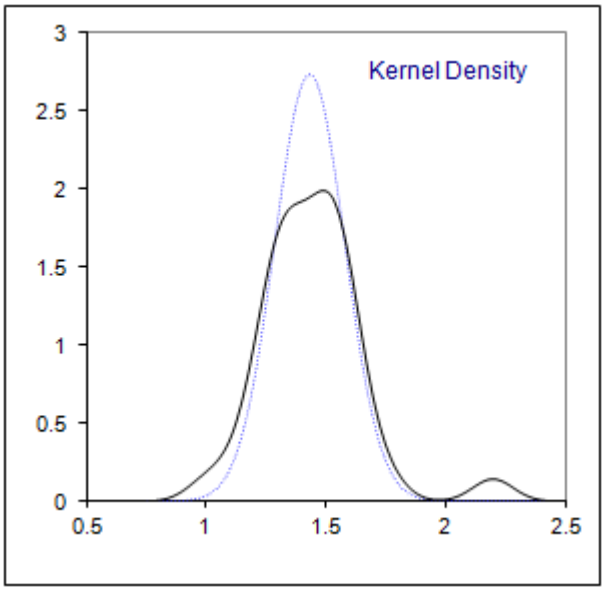
Determination of Aromatics by Reformulyser–Winterspec method on sample #15199; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	1.4	C	-0.46
131		-----		-----	1167		-----		-----
132		-----		-----	1191	ISO22854	1.19		-3.36
140		-----		-----	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203	ISO22854	1.60		2.30
159		-----		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	ISO22854	1.6		2.30
237		-----		-----	1300	ISO22854	1.01	ex	-5.84
238		-----		-----	1301		-----		-----
311	ISO22854	1.53		1.34	1346	ISO22854	1.30		-1.84
312		-----		-----	1347		-----		-----
323	ISO22854	2.2	R(0.01)	10.58	1348		-----		-----
333	ISO22854	1.5		0.92	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404		-----		-----
338		-----		-----	1409	ISO22854	1.75	C	4.37
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	1.15		-3.91
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	1.58	C	2.03
369		-----		-----	1544	ISO22854	1.61		2.44
370		-----		-----	1556	ISO22854	1.35		-1.15
371		-----		-----	1569	ISO22854	1.38		-0.73
372		-----		-----	1586		-----		-----
381		-----		-----	1616	D6839	1.48		0.65
399		-----		-----	1634		-----		-----
402		-----		-----	1635	ISO22854	1.4		-0.46
403	ISO22854	1.42		-0.18	1636		-----		-----
420	ISO22854	1.40		-0.46	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	1.48		0.65
444		-----		-----	1710	ISO22854	1.3		-1.84
445	ISO22854	1.51		1.06	1720		-----		-----
447		-----		-----	1724	ISO22854	1.56		1.75
453	ISO22854	1.51		1.06	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	1.31		-1.70	1776	ISO22854	1.32		-1.56
496	ISO22854	1.51		1.06	1807		-----		-----
541		-----		-----	1810	ISO22854	1.29		-1.98
556		-----		-----	1811	ISO22854	1.24		-2.67
671		-----		-----	1813		-----		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		1.3		-1.84	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	1.55		1.61	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	1.26		-2.39	7009		-----		-----
1109	D6839	1.65		2.99	7013		-----		-----

		ISO22854 results only
normality	OK	OK
n	31	29
outliers	1+1ex	1+1ex
mean (n)	1.4332	1.4241
st.dev. (n)	0.14641	0.14534
R(calc.)	0.4099	0.4070
R(ISO22854-A:14)	0.2023	0.2023

Lab 1161 first reported: 1.0
Lab 1300 excluded; reported the same Aromatics value as determined by PNA method
Lab 1409 first reported: 1.41
Lab 1538 first reported: 1.98



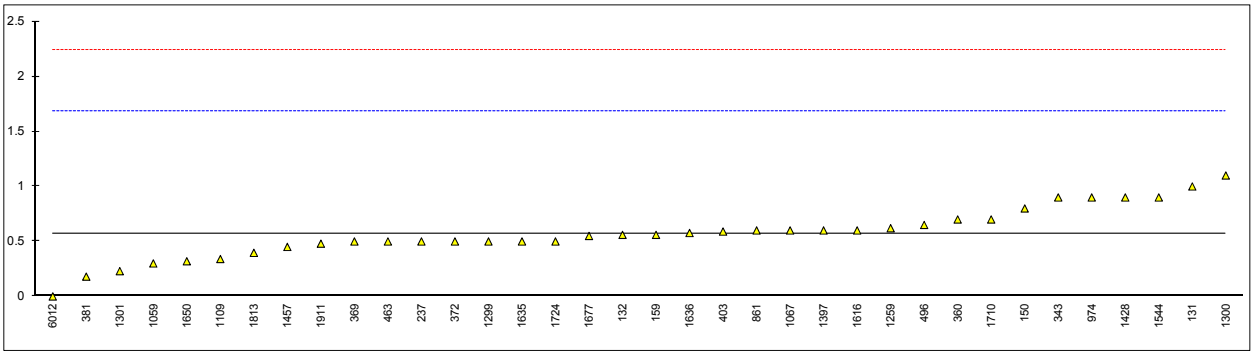


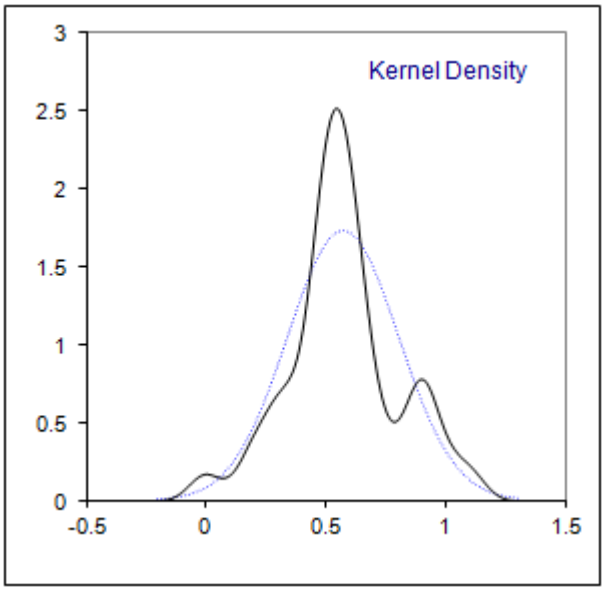
Determination of Olefins by FIA without oxygenates correction on sample #15199; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161		-----		-----
131	D1319	1.0		-----	1167		-----		-----
132	D1319	0.56		-----	1191		-----		-----
140		-----		-----	1194		-----		-----
150	D1319	0.8		-----	1199		-----		-----
158		-----		-----	1203		-----		-----
159	D1319	0.56		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259	D1319	0.62		-----
228		-----		-----	1299	D1319	0.5		-----
237	D1319	0.5		-----	1300	D1319	1.1		-----
238		-----		-----	1301	D1319	0.23		-----
311		-----		-----	1346		-----		-----
312		-----		-----	1347		-----		-----
323		-----		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397	EN15553	0.6		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404		-----		-----
338		-----		-----	1409		-----		-----
340	D1319	<0.3		-----	1428	D1319	0.9		-----
343	D1319	0.9		-----	1457	D1319	0.45		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360	D1319	0.7		-----	1538		-----		-----
369	D1319	0.5		-----	1544	D1319	0.9		-----
370		-----		-----	1556		-----		-----
371		-----		-----	1569		-----		-----
372	D1319	0.5		-----	1586		-----		-----
381	EN15553	0.18		-----	1616	D1319	0.6		-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635	D1319	0.5		-----
403	D1319	0.59		-----	1636	EN15553	0.577		-----
420		-----		-----	1650	D1319	0.32		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	D1319	0.55		-----
444		-----		-----	1710	D1319	0.7		-----
445		-----		-----	1720		-----		-----
447		-----		-----	1724	D1319	0.5		-----
453		-----		-----	1728		-----		-----
463	D1319	0.5		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496	D1319	0.65		-----	1807		-----		-----
541		-----		-----	1810		-----		-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813	D1319	0.3967		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911	EN15553	0.48		-----
861	D1319	0.6	C	-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974	D1319	0.90		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012	D1319	0.0		-----
1059	D1319	0.3		-----	6013		-----		-----
1067	D1319	0.6		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108		-----		-----	7009		-----		-----
1109	D1319	0.34		-----	7013		-----		-----

normality	OK	application range 1 – 55%
n	36	
outliers	0	
mean (n)	(0.5723)	
st.dev. (n)	(0.23110)	
R(calc.)	(0.6471)	
R(D1319:14)	(1.5529)	

Lab 861 first reported: 1.1





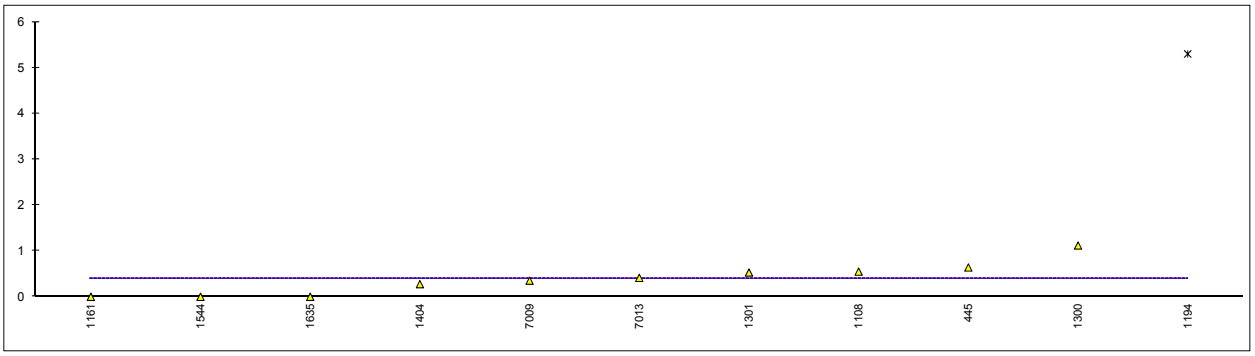
Determination of Olefins by Reformulyzer–PNA method on sample #15199; results in %V/V

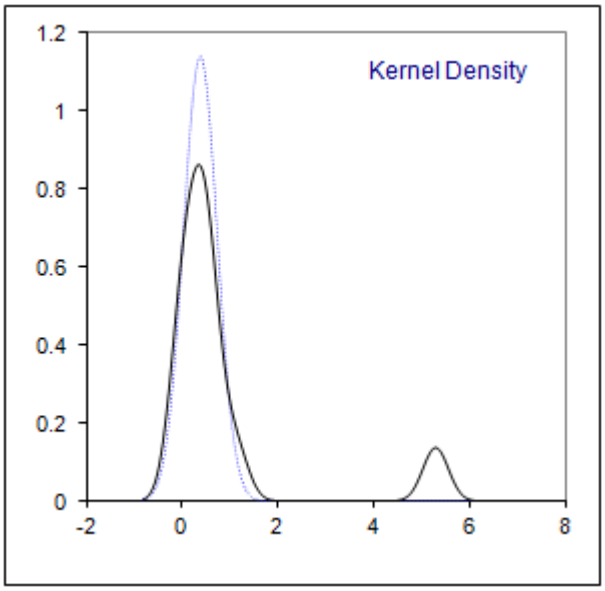
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	0		-----
131		-----		-----	1167		-----		-----
132		-----		-----	1191		-----		-----
140		-----		-----	1194	ISO22854	5.3	D(0.01)	-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203		-----		-----
159		-----		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299		-----		-----
237		-----		-----	1300	ISO22854	1.12		-----
238		-----		-----	1301	D6730	0.53		-----
311		-----		-----	1346		-----		-----
312		-----		-----	1347		-----		-----
323	ISO22854	<1.5		-----	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	D6730	0.2756		-----
338		-----		-----	1409		-----		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457		-----		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538		-----		-----
369		-----		-----	1544	ISO22854	0.0		-----
370		-----		-----	1556	ISO22854	-----	see remark	-----
371		-----		-----	1569		-----		-----
372		-----		-----	1586		-----		-----
381		-----		-----	1616	D6839	-----	see remark	-----
399		-----		-----	1634		-----		-----
402		-----		-----	1635	ISO22854	0		-----
403		-----		-----	1636		-----		-----
420		-----		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	-----	see remark	-----
444		-----		-----	1710		-----		-----
445	ISO22854	0.64		-----	1720		-----		-----
447		-----		-----	1724		-----		-----
453		-----		-----	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494		-----		-----	1776		-----		-----
496		-----		-----	1807		-----		-----
541		-----		-----	1810		-----	see remark	-----
556		-----		-----	1811		-----		-----
671		-----		-----	1813		-----		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		-----		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059		-----		-----	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	0.55		-----	7009	D5134	0.352		-----
1109		-----		-----	7013	In house	0.414		-----

normality	n.a.
n	10
outliers	1
mean (n)	(0.388)
st.dev. (n)	(0.3515)
R(calc.)	n.a.
R(lit.)	n.a.

Olefin content by reformulyzer – PNA method is theoretical 0 as all alkenes are hydrolysed in this method

Lab 1556 reported: PNA do not include Olefine content, therefore PIONA program used; and reported 0.49 for Olefins content
Lab 1616 reported: PNA method is not suitable for testing Olefins, PONA mode used in stead; and reported 0.61 for Olefins content
Lab 1677 reported: PNA do not show Olefins, therefore PIONA program used. Product contains 0.16% MTBE. Reported 0.59 for Olefins content
Lab 1810 reported: Olefins cannot be determinded by PNA method





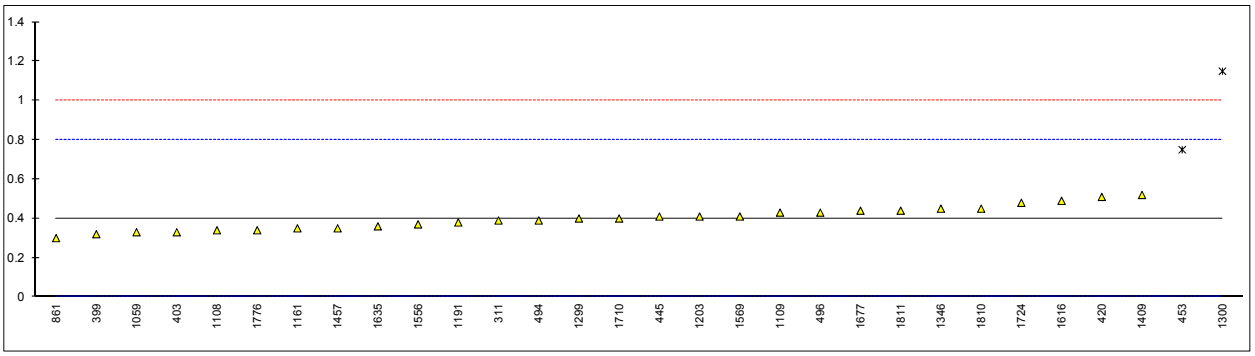
Determination of Olefins by Reformulyzer–Winterspec method on sample #15199; results in %V/V

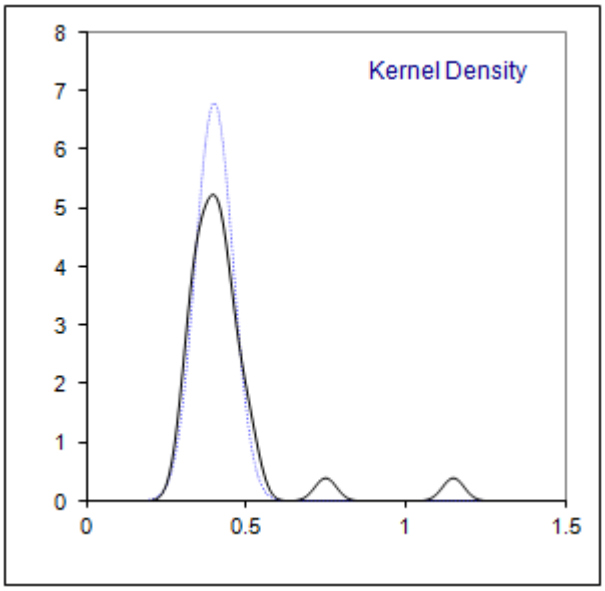
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	0.35		-----
131		-----		-----	1167		-----		-----
132		-----		-----	1191	ISO22854	0.38		-----
140		-----		-----	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203	ISO22854	0.41		-----
159		-----		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	ISO22854	0.4		-----
237		-----		-----	1300	ISO22854	1.15	R(0.01)	-----
238		-----		-----	1301		-----		-----
311	ISO22854	0.39		-----	1346	ISO22854	0.45		-----
312		-----		-----	1347		-----		-----
323	ISO22854	<1.5		-----	1348		-----		-----
333	ISO22854	<0.1		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404		-----		-----
338		-----		-----	1409	ISO22854	0.52		-----
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	0.35		-----
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	<0.60	C	-----
369		-----		-----	1544	ISO22854	<1.5	C	-----
370		-----		-----	1556	ISO22854	0.37		-----
371		-----		-----	1569	ISO22854	0.41		-----
372		-----		-----	1586		-----		-----
381		-----		-----	1616	D6839	0.49		-----
399	ISO22854	0.32		-----	1634		-----		-----
402		-----		-----	1635	ISO22854	0.36		-----
403	ISO22854	0.33		-----	1636		-----		-----
420	ISO22854	0.51		-----	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	0.44		-----
444		-----		-----	1710	ISO22854	0.4		-----
445	ISO22854	0.41		-----	1720		-----		-----
447		-----		-----	1724	ISO22854	0.48		-----
453	ISO22854	0.75	C,R(0.01)	-----	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	0.39		-----	1776	ISO22854	0.34		-----
496	ISO22854	0.43		-----	1807		-----		-----
541		-----		-----	1810	ISO22854	0.45		-----
556		-----		-----	1811	ISO22854	0.44		-----
671		-----		-----	1813		-----		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		0.3		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	0.33		-----	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	0.34		-----	7009		-----		-----
1109	D6839	0.43		-----	7013		-----		-----

normality	OK
n	28
outliers	2
mean (n)	(0.4007)
st.dev. (n)	(0.05862)
R(calc.)	(0.1641)
R(ISO22854-A:14)	(0.5589)

application range: 1.5-30% V/V

Lab 453 first reported: 0.65
Lab 1538 first reported: 0.78
Lab 1544 first reported: 0.85



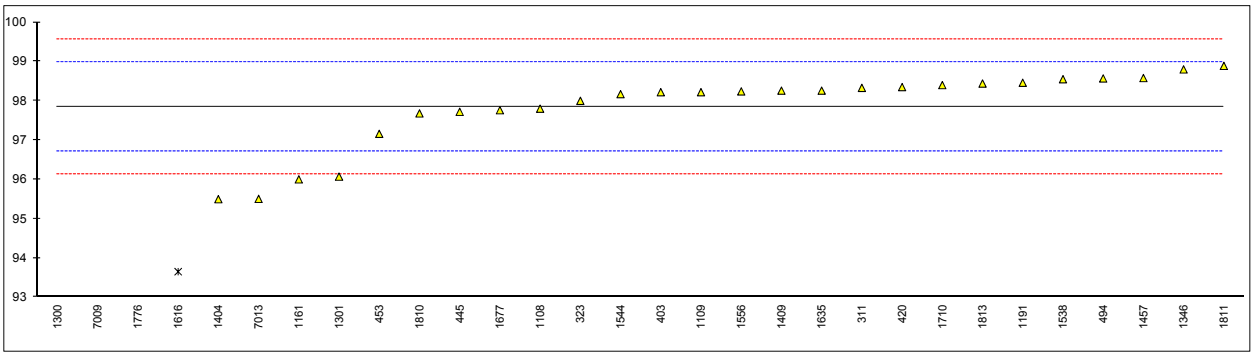


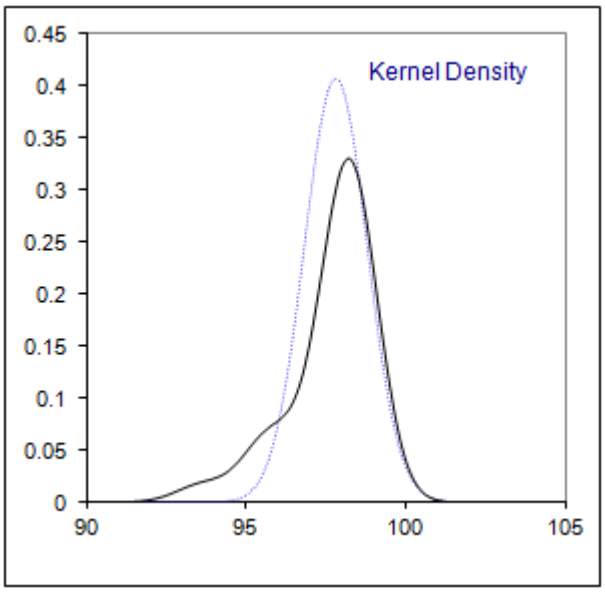
Determination of Paraffins by Reformulyser–PNA method on sample #15199; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	96.0	C	-3.23
131		-----	see §4.1	-----	1167		-----		-----
132		-----		-----	1191	ISO22854	98.46		1.08
140		-----		-----	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203		-----		-----
159		-----		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299		-----		-----
237		-----		-----	1300	ISO22854	39.38	R(0.01)	-102.31
238		-----		-----	1301	D6370	96.07	C	-3.10
311	D5443	98.33		0.85	1346	ISO22854	98.8		1.67
312		-----		-----	1347		-----		-----
323	ISO22854	98.0		0.27	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404	ISO22854	95.4959		-4.11
338		-----		-----	1409	ISO22854	98.26	C	0.73
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	98.58		1.29
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	98.55		1.24
369		-----		-----	1544	ISO22854	98.17		0.57
370		-----		-----	1556	ISO22854	98.24		0.69
371		-----		-----	1569		-----		-----
372		-----		-----	1586		-----		-----
381		-----		-----	1616	D6839	93.65	R(0.01)	-7.34
399		-----		-----	1634		-----		-----
402		-----		-----	1635	ISO22854	98.26		0.73
403	ISO22854	98.22		0.66	1636		-----		-----
420	ISO22854	98.35		0.89	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	97.76		-0.15
444		-----		-----	1710	ISO22854	98.4		0.97
445	ISO22854	97.72		-0.22	1720		-----		-----
447		-----		-----	1724		-----	W	-----
453	ISO22854	97.16	C	-1.20	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	98.57		1.27	1776	ISO22854	64.15	R(0.01)	-58.96
496		-----		-----	1807		-----		-----
541		-----		-----	1810	ISO22854	97.68		-0.29
556		-----		-----	1811	ISO22854	98.89		1.83
671		-----		-----	1813	D5443	98.44		1.04
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		-----		-----	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059		-----		-----	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	97.8		-0.08	7009	D5134	42.641	R(0.01)	-96.60
1109	D6839	98.22		0.66	7013	In house	95.503		-4.10

		ISO22854 results only	
normality	suspect	OK	
n	26	19	
outliers	4	4	
mean (n)	97.843	98.204	
st.dev. (n)	0.9816	0.4318	
R(calc.)	2.748	1.209	
R(ISO22854-A:14)	1.600	1.600	compare R(D5443:14)=1.682

Lab 453 first reported: 96.60
Lab 1161 first reported: 62.5
Lab 1301 first reported: 5.86
Lab 1409 first reported: 97.9
Lab 1724 withdraw result: 24.2
Lab 7013 reported: Parafins: 18.571% & Iso-Parafins:76.932



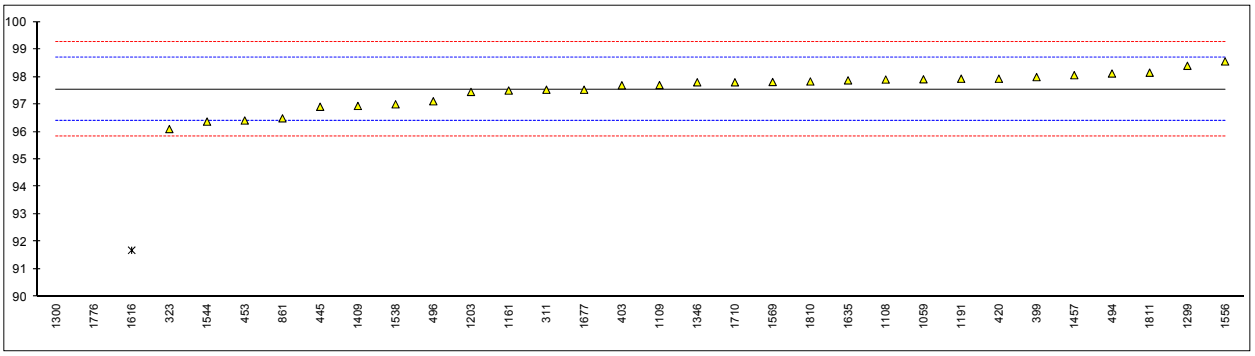


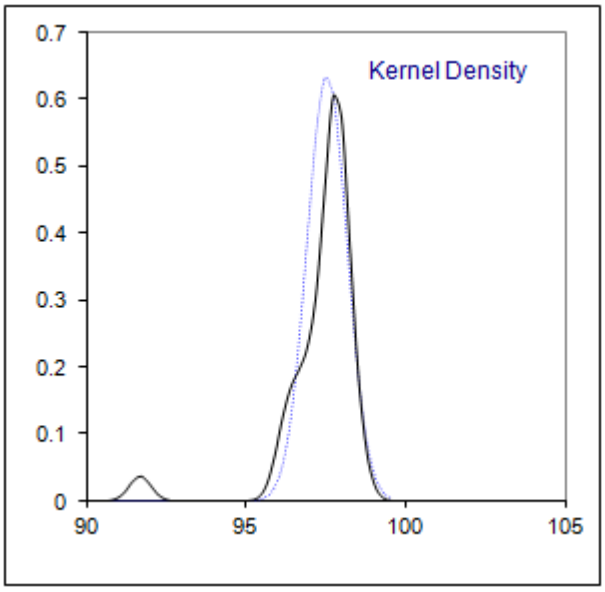
Determination of Paraffins by Reformulyser–Winterspec method on sample #15199; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1124		-----		-----
92		-----		-----	1126		-----		-----
120		-----		-----	1161	ISO22854	97.50	C	-0.08
131		-----		-----	1167		-----		-----
132		-----		-----	1191	ISO22854	97.93		0.67
140		-----		-----	1194		-----		-----
150		-----		-----	1199		-----		-----
158		-----		-----	1203	ISO22854	97.45		-0.17
159		-----		-----	1229		-----		-----
171		-----		-----	1257		-----		-----
194		-----		-----	1259		-----		-----
228		-----		-----	1299	ISO22854	98.4		1.50
237		-----		-----	1300	ISO22854	33.73	R(0.01)	-111.68
238		-----		-----	1301		-----		-----
311	ISO22854	97.53		-0.03	1346	ISO22854	97.8		0.45
312		-----		-----	1347		-----		-----
323	ISO22854	96.1		-2.53	1348		-----		-----
333		-----		-----	1385		-----		-----
334		-----		-----	1395		-----		-----
335		-----		-----	1397		-----		-----
336		-----		-----	1402		-----		-----
337		-----		-----	1404		-----		-----
338		-----		-----	1409	ISO22854	96.94		-1.06
340		-----		-----	1428		-----		-----
343		-----		-----	1457	ISO22854	98.06		0.90
344		-----		-----	1459		-----		-----
350		-----		-----	1498		-----		-----
353		-----		-----	1520		-----		-----
360		-----		-----	1538	ISO22854	97.00		-0.95
369		-----		-----	1544	ISO22854	96.37		-2.06
370		-----		-----	1556	ISO22854	98.56		1.78
371		-----		-----	1569	ISO22854	97.81		0.46
372		-----		-----	1586		-----		-----
381		-----		-----	1616	D6839	91.69	R(0.01)	-10.25
399	ISO22854	97.99		0.78	1634		-----		-----
402		-----		-----	1635	ISO22854	97.87		0.57
403	ISO22854	97.69		0.25	1636		-----		-----
420	ISO22854	97.93		0.67	1650		-----		-----
431		-----		-----	1654		-----		-----
440		-----		-----	1677	ISO22854	97.53		-0.03
444		-----		-----	1710	ISO22854	97.8		0.45
445	ISO22854	96.91		-1.11	1720		-----		-----
447		-----		-----	1724		-----	W	-----
453	ISO22854	96.41	C	-1.99	1728		-----		-----
463		-----		-----	1740		-----		-----
468		-----		-----	1742		-----		-----
485		-----		-----	1751		-----		-----
494	ISO22854	98.12		1.01	1776	ISO22854	64.00	R(0.01)	-58.70
496	ISO22854	97.11		-0.76	1807		-----		-----
541		-----		-----	1810	ISO22854	97.83		0.50
556		-----		-----	1811	ISO22854	98.15		1.06
671		-----		-----	1813		-----		-----
704		-----		-----	1833		-----		-----
782		-----		-----	1842		-----		-----
785		-----		-----	1849		-----		-----
823		-----		-----	1881		-----		-----
824		-----		-----	1911		-----		-----
861		96.49	C	-1.85	1936		-----		-----
875		-----		-----	1937		-----		-----
962		-----		-----	1938		-----		-----
963		-----		-----	1953		-----		-----
970		-----		-----	1961		-----		-----
974		-----		-----	1979		-----		-----
994		-----		-----	1995		-----		-----
998		-----		-----	2129		-----		-----
1006		-----		-----	2130		-----		-----
1011		-----		-----	2146		-----		-----
1026		-----		-----	6005		-----		-----
1033		-----		-----	6012		-----		-----
1059	ISO22854	97.91		0.64	6013		-----		-----
1067		-----		-----	6014		-----		-----
1081		-----		-----	6016		-----		-----
1082		-----		-----	7003		-----		-----
1108	ISO22854	97.9		0.62	7009		-----		-----
1109	D6839	97.70		0.27	7013		-----		-----

		ISO22854 results only
normality	OK	OK
n	29	27
outliers	3	2
mean (n)	97.544	97.578
st.dev. (n)	0.6281	0.6164
R(calc.)	1.759	1.726
R(ISO22854-A:14)	1.600	1.600

Lab 453 first reported: 96.0
Lab 861 first reported: 94.74
Lab 1161 first reported: 62.08
Lab 1724 withdrawn result: 27.3





APPENDIX 2 z-scores distillation

lab	method	mode	IBP	10% eva	50% eva	90% eva	FBP	E70%V/V	E100%V/V	E150%V/V
62	D86	Automated	-0.98	-1.87	-1.52	-0.39	-----	0.05	-0.34	2.85
92	D86	Automated	-0.39	-0.21	1.31	0.48	1.37	0.17	-0.73	-0.60
120	D86	Automated	-0.80	-0.56	-0.62	0.19	-0.74	0.48	0.42	0.91
131	D86	Automated	30.03	41.52	47.68	6.88	-1.81	-----	-----	-----
132	D86	Automated	0.09	-0.38	-0.62	0.04	0.58	-0.04	0.16	-0.17
140	D86	Automated	0.21	-0.38	5.04	-0.60	-1.44	0.07	2.46	0.05
150	D86	Automated	-0.68	0.41	-0.18	-0.39	-0.41	0.27	0.04	0.48
158	D86	Automated	-0.43	-0.53	-0.56	-0.32	3.01	-----	-----	-----
159	D86	Automated	-2.17	-0.47	-0.62	-0.17	-0.78	-0.01	0.34	0.16
171	D86	Automated	-1.22	0.14	-0.48	0.04	1.08	0.59	-0.22	0.48
194	D86	Automated	1.10	0.06	-0.62	0.04	-0.08	-----	-----	-----
228	D86	Manual	1.16	0.14	-0.48	-1.40	0.46	0.17	1.56	1.99
237	D86	Manual	-0.03	0.23	0.42	-0.46	0.46	-0.35	-0.34	-0.17
238			-----	-----	-----	-----	-----	-----	-----	-----
311	ISO3405	Automated	-1.34	0.32	0.42	-0.46	-0.12	-0.14	-0.22	0.91
312			-----	-----	-----	-----	-----	-----	-----	-----
323	ISO3405	Automated	0.74	-0.56	-2.41	-0.24	0.21	1.10	0.42	0.48
333	ISO3405	Automated	-1.22	-1.17	-0.62	0.12	-0.99	0.69	0.29	0.05
334	ISO3405	Automated	-0.80	-0.64	-0.92	-0.82	-0.45	0.38	0.55	0.91
335	ISO3405	Automated	-1.51	-0.73	0.27	-0.24	-0.29	0.59	0.04	0.26
336	ISO3405	Automated	-0.33	0.14	0.57	-0.53	0.71	-0.14	0.04	0.48
337			-----	-----	-----	-----	-----	-----	-----	-----
338	ISO3405	Automated	-0.15	-0.47	-1.96	-0.17	1.45	0.69	0.93	0.26
340	ISO3405	Automated	-0.27	0.06	-0.03	-0.10	-0.62	0.17	0.04	0.05
343	ISO3405	Automated	0.15	-1.87	-3.60	19.56	-0.95	1.62	1.18	2.63
344	D86	Automated	0.09	0.47	-1.37	0.62	-1.07	0.69	0.29	1.13
350	ISO3405	Manual	0.19	-0.84	-1.86	-0.67	-0.45	0.48	1.06	0.05
353	IP123	Automated	0.62	0.49	0.87	0.04	0.66	-0.04	-0.22	-0.38
360	ISO3405	Automated	-0.21	-0.03	-0.62	-0.39	-1.11	0.38	0.29	0.26
369	ISO3405	Automated	0.09	-0.29	-0.48	0.19	-0.53	0.59	0.67	0.05
370	ISO3405	Automated	0.86	0.76	0.57	-1.32	-0.20	-0.04	-0.09	0.48
371	ISO3405	Automated	-0.27	0.93	0.27	-0.68	-0.33	0.17	0.29	0.26
372	ISO3405	Automated	0.80	1.28	2.06	0.04	-1.03	-1.38	0.04	-1.03
381	ISO3405	Automated	0.86	1.19	2.65	0.84	0.58	-0.36	-1.06	-1.22
399	D86	Automated	1.46	0.49	-0.18	-0.96	0.17	-1.49	-1.87	-1.46
402	ISO3405	Automated	1.69	-0.82	-2.86	-1.47	-0.82	1.00	1.06	2.20
403	ISO3405	Automated	1.22	0.06	-1.67	-0.17	-0.29	0.38	0.80	0.26
420	ISO3405	Automated	-0.15	-0.82	-1.22	-0.39	-0.45	0.48	0.55	0.70
431	ISO3405	Automated	2.29	0.76	1.61	0.12	0.21	-0.45	-0.60	0.05
440	IP123	Automated	0.27	-1.08	-2.86	-0.32	0.95	1.31	0.80	0.48
444			-----	-----	-----	-----	-----	-----	-----	-----
445	IP123	Automated	0.09	-0.38	-1.52	-0.46	0.05	0.69	0.67	0.26
447	D86	Automated	-1.16	-0.21	-0.48	0.12	-0.66	0.38	-0.09	-0.38
453	IP123	Automated	-1.57	-0.38	-0.62	-0.10	1.20	0.48	0.16	1.77
463	ISO3405	Automated	0.33	-0.29	0.27	-0.24	1.24	0.27	-0.22	0.26
468	D86	Automated	-0.68	0.76	4.74	1.92	-0.04	-0.87	-1.87	-7.70
485	ISO3405	Automated	0.30	-0.43	-1.07	-0.50	0.13	0.48	-0.15	0.70
494	ISO3405	Automated	-0.09	0.23	-0.62	-0.17	0.21	0.27	0.55	0.05
496	D86	Automated	0.45	-0.03	-1.07	0.04	0.29	0.48	0.29	-0.17
541	ISO3405	Automated	-0.27	-0.29	-1.37	-0.32	0.46	0.38	0.80	0.70
556			-----	-----	-----	-----	-----	-----	-----	-----
671			-----	-----	-----	-----	-----	-----	-----	-----
704	D86	Manual	0.03	-0.64	-0.48	0.12	-0.12	1.00	0.67	-0.60
782	ISO3405	Manual	1.46	1.98	3.55	0.69	0.66	-1.70	-0.85	-2.32
785	D86	Automated	-0.56	1.19	4.44	2.20	0.71	-1.38	-2.13	-2.32
823	ISO3405	Automated	0.86	0.41	1.31	-0.17	-0.29	-1.59	-0.73	-2.75
824		Automated	1.28	0.84	1.16	0.12	0.05	-0.66	-0.47	0.05
861	D86	Automated	0.09	0.14	-0.18	-0.10	-0.04	0.27	-0.22	0.05
875	ISO3405	Automated	-0.98	-0.64	-0.03	-0.17	0.00	-1.38	-2.25	-2.75
962		Manual	-----	-----	-----	-----	-----	-----	-----	-----
963	D86	Automated	-0.98	-0.56	-0.18	0.04	0.21	-1.49	-2.38	-1.67
970	D86	Manual	2.35	1.37	1.01	0.12	-0.57	-0.35	0.29	-0.17
974	D86	Automated	-1.16	-0.12	0.42	-0.17	0.66	-1.38	-1.74	-2.75
994	D86	Manual	1.46	1.81	3.25	0.48	-0.37	-1.38	-0.34	-1.24
998	D86	Manual	1.16	1.37	2.50	0.12	-0.37	-1.38	-0.34	-0.17
1006	D86	Automated	-0.03	0.41	0.72	0.04	-0.41	-----	-----	-----
1011	ISO3405	Automated	-0.80	1.63	3.25	0.33	2.44	-1.28	-1.11	-0.17
1026	ISO3405	Automated	-0.68	1.02	6.08	3.29	0.09	0.38	0.16	0.48
1033	IP123	Automated	-0.21	1.72	7.27	4.44	0.99	-----	-----	-----
1059	ISO3405	Automated	-0.50	-0.64	-1.22	-0.32	-1.03	0.69	0.16	0.26
1067	D86	Automated	1.75	0.41	1.46	0.04	0.87	-0.87	-0.47	-0.17
1081			-----	-----	-----	-----	-----	-----	-----	-----
1082	ISO3405	Automated	-1.75	-0.29	-0.18	0.12	-0.57	0.38	-0.09	-0.17
1108	ISO3405	Automated	-0.98	0.41	0.12	0.12	0.21	0.48	-0.34	1.13
1109	D86	Automated	0.39	-0.21	-0.33	-0.46	0.13	0.38	-0.09	0.48
1124	ISO3405	Automated	-0.33	0.23	-3.16	-0.10	0.66	-0.24	1.06	-0.17
1126	ISO3405	Automated	0.92	-0.73	-4.20	0.12	1.24	1.83	0.67	-0.60

lab	method	mode	IBP	10% eva	50% eva	90% eva	FBP	E70%V/V	E100%V/V	E150%V/V
1161	ISO3405	Automated	0.27	0.23	1.91	0.84	0.66	-0.97	-1.49	-1.24
1167	ISO3405		2.46	-1.78	-3.75	-0.75	-1.69	1.62	2.96	1.56
1191	ISO3405	Automated	0.15	-0.03	-1.96	-0.39	-0.95	0.48	1.06	0.26
1194	INH-86	Automated	1.87	-2.57	-12.39	0.33	-0.74	6.19	5.76	0.26
1199			-----	-----	-----	-----	-----	-----	-----	-----
1203	ISO3405	Automated	0.92	1.02	-0.33	0.26	-1.03	0.07	0.04	-0.81
1229	ISO3405	Automated	-0.74	-1.17	-2.86	-0.60	-0.37	1.21	1.06	0.91
1257	D86		-0.27	0.23	-0.33	-0.10	0.38	-----	-----	-----
1259	ISO3405	Automated	-0.56	0.58	1.46	0.19	0.42	-0.45	-0.73	-0.17
1299	D86	Automated	0.21	-----	-----	-----	-0.62	1.10	1.18	0.26
1300	ISO3405		0.56	0.93	0.57	0.62	-0.24	-0.14	-0.22	-0.60
1301	D86	Manual	0.56	1.38	3.99	0.12	0.46	-2.42	0.93	0.91
1346	ISO3405	Automated	0.80	0.32	1.61	0.12	0.17	0.07	-0.85	-1.46
1347	D86	Manual	1.75	3.99	3.99	2.28	1.70	-2.94	-0.98	-3.40
1348	D86	Automated	1.28	1.02	9.21	4.65	1.20	-2.94	-3.53	-5.55
1385	D86	Manual	3.53	2.24	5.48	2.28	0.87	-1.90	-2.25	-3.40
1395	D86	Automated	-0.03	-0.56	-1.22	-41.15	-0.49	0.90	0.55	0.70
1397	ISO3405		1.87	1.89	4.59	0.48	1.16	-1.80	-1.62	-0.81
1402	ISO3405	Automated	-1.04	-2.13	-1.67	0.26	-0.33	1.10	0.67	-0.60
1404	ISO3405	Automated	-0.21	1.98	-6.88	-0.96	-0.95	2.87	2.20	1.77
1409	ISO3405	Automated	-0.45	0.76	2.95	1.92	0.50	-1.18	-1.74	-2.97
1428	ISO3405	Automated	0.86	0.67	1.16	0.26	0.66	-0.76	-0.60	-0.60
1457	ISO3405	Automated	-1.22	-0.73	-0.77	-0.53	-0.86	0.48	0.04	0.91
1459	ISO3405	Automated	-0.21	-1.17	-3.31	-0.17	-0.41	1.21	0.42	0.26
1498	D86		0.56	-0.21	-1.22	0.12	0.87	1.21	0.29	0.91
1520	ISO3405	Manual	1.57	-1.69	-2.41	-0.68	-0.95	-1.18	0.67	-0.38
1538			-----	-----	-----	-----	-----	-----	-----	-----
1544	ISO3405	Automated	0.15	-0.47	-1.52	-0.24	-0.53	0.17	0.55	-0.38
1556	ISO3405	Automated	-1.16	-1.78	-3.45	-0.82	-0.95	1.42	1.56	1.13
1569	ISO3405	Automated	-1.63	-0.64	-1.52	-0.60	0.87	0.69	0.67	0.91
1586	D86		-1.87	1.19	5.04	1.99	0.00	-1.90	-2.13	-2.75
1616	D86	Manual	-0.03	0.67	-8.52	-1.18	0.05	4.32	5.38	0.91
1634	ISO3405	Automated	-0.86	-0.73	-0.18	0.40	0.38	-0.24	0.04	-1.67
1635	ISO3405	Automated	-1.28	-1.08	-1.52	0.69	2.81	0.69	0.29	-1.03
1636	ISO3405	Automated	-1.04	0.41	1.46	0.84	0.46	-0.45	-0.98	-1.03
1650	ISO3405		0.39	-0.38	-0.33	0.26	0.50	1.00	-0.09	1.56
1654			-----	-----	-----	-----	-----	-----	-----	-----
1677	D86	Automated	-0.62	-0.21	-7.33	0.26	0.54	0.17	0.42	0.05
1710	ISO3405	Automated	-0.21	0.14	-0.03	-0.10	-0.29	0.38	-0.09	0.26
1720			-----	-----	-----	-----	-----	-----	-----	-----
1724	D86	Automated	-2.05	-0.56	-0.92	-0.10	0.21	0.27	0.29	0.05
1728	ISO3405	Manual	0.21	0.02	-0.36	0.88	-0.64	0.12	0.22	-1.48
1740	ISO3405		-0.09	-0.38	-0.62	0.12	1.28	0.48	-0.09	-0.17
1742	ISO3405	Automated	0.27	-1.52	-3.01	-0.39	0.46	1.21	0.93	0.70
1751	ISO3405	Automated	0.03	-0.91	-1.82	-0.10	-0.99	1.00	0.42	0.70
1776	ISO3405	Automated	-0.45	-0.91	-3.60	-0.53	-0.70	1.31	1.44	0.70
1807	ISO3405	Automated	-0.68	-0.29	-1.37	0.04	-0.33	0.59	0.42	0.05
1810	ISO3405	Automated	-1.04	0.06	-0.48	-0.03	-0.53	-0.76	-1.24	-2.32
1811	ISO3405	Automated	-1.10	-0.64	-3.16	-1.25	-0.33	1.10	1.44	1.99
1813	D86	Automated	-1.49	-1.46	-2.46	-0.87	-0.11	1.42	0.80	1.34
1833	ISO3405	Automated	-1.22	0.41	0.27	-0.46	-0.66	-0.24	0.04	0.70
1842	D86	Automated	0.80	-----	-----	-----	-0.41	-0.35	-0.60	-0.38
1849	D86		-0.56	0.49	-0.77	-0.82	-0.29	-0.04	0.80	0.91
1881	ISO3405	Manual	-1.22	0.49	1.76	-0.60	-2.23	-0.24	-0.85	1.13
1911	ISO3405	Automated	-0.18	-0.34	-0.70	-0.14	-0.88	0.43	0.16	0.16
1936	ISO3405	Automated	-0.92	-0.47	-1.07	-0.32	0.46	0.38	0.42	0.48
1937	ISO3405	Automated	-0.27	-0.29	-1.22	-0.17	0.17	0.27	0.04	0.26
1938	ISO3405	Automated	-0.98	-0.38	-2.56	-0.75	-1.32	0.79	1.44	1.13
1953	ISO3405	Automated	-1.57	-0.38	2.06	2.06	-3.88	-----	-----	-----
1961			-----	-----	-----	-----	-----	-----	-----	-----
1979	ISO3405	Automated	2.23	1.19	-1.37	1.84	-1.48	1.52	1.95	0.91
1995			-----	-----	-----	-----	-----	-----	-----	-----
2129	ISO3405	Automated	-0.74	0.58	-0.48	0.04	0.62	0.17	0.29	0.05
2130	ISO3405	Automated	-0.98	-0.82	-0.18	-0.96	1.78	0.69	-0.09	1.56
2146	ISO3405		0.80	2.24	2.80	0.62	0.46	-2.01	-2.25	-0.60
6005	ISO3405	Automated	-0.86	-2.39	4.29	2.92	-1.32	-1.59	-1.74	-4.69
6012	D86	Manual	1.34	0.58	1.64	0.42	-0.62	-2.73	1.18	-11.58
6013	ISO3405	Automated	0.80	0.06	1.01	-0.10	0.05	-0.24	-0.47	0.26
6014	ISO3405	Automated	1.28	0.32	1.46	0.04	-0.04	-0.56	-0.73	-0.17
6016			-----	-----	-----	-----	-----	-----	-----	-----
7003	D86	Automated	0.27	-0.64	-2.71	-0.32	-2.56	1.31	0.93	0.48
7009	D86		1.75	2.86	5.18	-0.89	-0.12	-2.84	-1.62	-0.17
7013	D86	Automated	-0.86	0.49	4.14	1.84	-0.04	-----	-----	-----

APPENDIX 3

Number of participants per country

1 lab in	AFGHANISTAN	3 labs in	LATVIA
1 lab in	ARGENTINA	3 labs in	LEBANON
2 labs in	AUSTRALIA	2 labs in	LITHUANIA
1 lab in	AUSTRIA	2 labs in	MACEDONIA
1 lab in	AZERBAIJAN	1 lab in	MALTA
2 labs in	BELGIUM	7 labs in	NETHERLANDS
1 lab in	BOSNIA and HERZEGOWINA	2 labs in	NIGERIA
1 lab in	BRAZIL	1 lab in	OMAN
2 labs in	BULGARIA	3 labs in	POLAND
2 labs in	CANADA	3 labs in	PORTUGAL
1 lab in	CHILE	1 lab in	QATAR
1 lab in	CHINA, People's Republic	3 labs in	ROMANIA
3 labs in	CROATIA	5 labs in	RUSSIAN FEDERATION
2 labs in	CYPRUS	2 labs in	SAUDI ARABIA
3 labs in	CZECH REPUBLIC	1 lab in	SERBIA
1 lab in	EGYPT	1 lab in	SLOVENIA
4 labs in	ESTONIA	1 lab in	SOUTH AFRICA
6 labs in	FINLAND	2 labs in	SOUTH KOREA
9 labs in	FRANCE	7 labs in	SPAIN
2 labs in	GERMANY	1 lab in	SUDAN
3 labs in	GREECE	5 labs in	SWEDEN
1 lab in	GUAM	2 labs in	TAIWAN
1 lab in	HONG KONG	1 lab in	TOGO
3 labs in	HUNGARY	12 labs in	TURKEY
3 labs in	IRAN, Islamic Republic of	1 lab in	UKRAINE
1 lab in	IRELAND	3 labs in	UNITED ARAB EMIRATES
1 lab in	ISRAEL	11 labs in	UNITED KINGDOM
1 lab in	ITALY	9 labs in	UNITED STATES OF AMERICA
1 lab in	KAZAKHSTAN		

APPENDIX 4

Abbreviations:

C	= final result after checking of first reported suspect result
D(0.01) or D(1)	= outlier in Dixon's outlier test
D(0.05) or D(5)	= straggler in Dixon's outlier test
G(0.01) or G(1)	= outlier in Grubbs' outlier test
G(0.05) or G(5)	= straggler in Grubbs' outlier test
DG(0.01) or DG(1)	= outlier in Double Grubbs' outlier test
DG(0.05) or DG(5)	= straggler in Double Grubbs' outlier test
R(0.01) or R(1)	= outlier in Rosner outlier test
R(0.05) or R(5)	= straggler in Rosner outlier test
E	= error in calculations
U	= reported in a different unit
W	= result withdrawn on request of participant
ex	= excluded from calculations
n.a.	= not applicable
n.d.	= not detected
fr.	= first reported
SDS	= Safety Data Sheet

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