Results of Proficiency Test
Gasoline (EN specification)
October 2012

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Authors: ing. L.Dijkstra
Correctors: dr. R.G. Visser & ing. L. Sweere

Report: iis12B05EN

January 2013

CONTENTS

1 INTRODUCTION

Since 1995, the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for Gasoline. During the annual proficiency testing program 2012/2013, it was decided to continue the round robin for the analysis of Gasoline in accordance with the latest applicable version of EN228 specification. In this interlaboratory study 108 laboratories in 50 different countries have participated. See appendix 3 for the number of participants per country. In this report, the results of the gasoline 2012 proficiency test are presented and discussed.

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. In this proficiency test, the participants received, depending on their registration, two 1 litre bottles euro 95 Gasoline (labelled #12115) and/or 1 litre bottle (± 800 mL filled) euro 95 Gasoline (labelled #12116) for DVPE only.
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 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 January 2010 (iis-protocol, version 3.2).

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

The necessary sample material of 400 litre of Gasoline Euro 95 was obtained from local gasoline station. After homogenisation in a 500 L mixing vessel, 270 amber glass bottles of 1 litre were filled and labelled #12115.
The homogeneity of the subsamples #12115 was checked by determination of Density @15°C in accordance with ASTM D4052:11 on 8 stratified randomly selected samples.

	Density @ 15°C in kg/L
Sample #12115-1	0.73147
Sample #12115-2	0.73151
Sample #12115-3	0.73147
Sample #12115-4	0.73147
Sample #12115-5	0.73152
Sample #12115-6	0.73155
Sample #12115-7	0.73157
Sample #12115-8	0.73155

Table 1: homogeneity test results of subsamples #12115

For the second batch, specifically for Dry Vapour Pressure Equivalent (DVPE), the necessary sample material of 110 litre of Gasoline Euro 95 was also obtained from a local gasoline station. After homogenisation, 100 amber glass bottles of 1 litre were filled with approx. 800 mL for DVPE only and labelled #12116. The homogeneity of the subsamples #12116 was checked by determination of DVPE in accordance with ASTM D5191:12 on 8 stratified randomly selected samples.

	DVPE in kPa
Sample #12116-1	90.7
Sample #12116-2	90.6
Sample #12116-3	90.7
Sample #12116-4	90.1
Sample #12116-5	90.3
Sample #12116-6	90.8
Sample #12116-7	90.3
Sample #12116-8	90.3

Table 2: homogeneity test resulta of subsamples #12116

From the above test results, the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibilities in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	Density@ 15 °C in kg/L	DVPE in kPa
r (sample #12115)	0.00011	----
r (sample #12116)	----	0.71
reference method	ISO12185:96	EN13016-1:07
0.3 x R (ref. method)	0.00015	0.76

Table 3: repeatabilities of subsamples #12115 and #12116

The repeatability of the results of homogeneity test for Density and DVPE were in agreement with 0.3 times the corresponding reproducibility of the respective reference method. Therefore, homogeneity of subsamples #12115 and #12116 was assumed.

To the participants, depending on their registration, two 1 litre bottles of sample #12115 and/or 1 litre bottle (± 800 mL filled) of sample #12116 were sent on October 3, 2012.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSIS

The participants were requested to determine API Gravity, Aromatics by FIA, Aromatics by GC, (%V/V and %M/M), Appearance, Benzene, Copper Strip Corrosion, Density @ 15°C, Distillation (automated and manual), Doctor Test, Existent gum, Lead, Manganese, Olefins by FIA, Olefins by GC (%V/V and %M/M), Ethanol, Ethers >C5, MTBE, DIPE, ETBE, Iso-Butanol, Iso-Propanol, Methanol, TAME, t-Butanol, Oxygen, Oxidation Stability, Sulphur, RON and MON on sample #12115.
On sample #12116, the participants were requested to determine Air Saturated Vapour Pressure (ASVP) and Dry Vapour Pressure Equivalent (DVPE) according to EN13016-1.

To get comparable results a detailed report form, on which the units were prescribed as well as some of the required standards and a letter of instructions were prepared and made available for download on the iis website (www.iisnl.com).
A SDS and a form to confirm receipt of the samples were added to the sample package

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were gathered. The original data are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.

Directly after the deadline, a reminder fax was sent to the laboratories 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 laboratories that produced 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 January 2010 (iis-protocol, version 3.2).

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. 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.
In accordance to ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs 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 (see appendix 4; nos.13 and 14).

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 spread 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 the fit-for-useness of the reported test result.

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 during the transport of the samples to the laboratories in Cote D'Ivoire, Oman, Russia and Saudi Arabia. The samples to these laboratories arrived near of after the final reporting date. From the 108 participants, 22 participants did report the results after the deadline for reporting and 13 participants did not report any results at all. The 95 reporting laboratories did send in 1709 numerical results. Observed were 55 outlying results, which is 3.2%. 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.

Not all data sets proved to have a normal distribution. Not normal distributions were found for the following determinations for sample #12115: Benzene, Density, Distillation automated (%vol 150ºC), Distillation Manuel (FBP, %vol 70ºC, %vol 100ºC, %vol 150ºC), Ethanol, MTBE and Oxygen content. In these cases, the statistical evaluation should be used with care.

API Gravity: 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 ASTM D1298:12.

Aromatics by FIA: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with the requirements of D1319:10.

Aromatics by GC: The determination in %V/V was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of EN22854:08.
Also one statistical outlier was observed for the test results in %M/M. Regretfully for the determination in %M/M no precision data are available. Therefore, no significant conclusions were drawn.
One laboratory was excluded for Aromatics by GC in %V/V and %M/M as the test result for Aromatics by GC in %V/V is higher than the test result in %M/M.

Appearance: No problems have been observed. Fifty-two participants agreed on the appearance as Clear and Bright. Other laboratories reported the appearance as clear, pass or OK.

Benzene: This determination was very problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the requirements of EN22854:08.

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

Density @ 15°C: This determination was problematic for a number of laboratories. Four statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outliers, is not at all in agreement with the requirements of ISO12185:96.

Distillation This determination was problematic. In total 12 (6 automated mode and 6 manual mode) statistical outliers were observed. The calculated reproducibilities of the automated mode, after rejection of the statistical outliers, IBP, 10% evaporated, FBP and volume at 70 ºC and volume at 100 ºC and are in full agreement with the requirements of ISO3405:11. In agreement with the requirements of ISO3405:11 is the calculated reproducibility for 90% evaporated. Not in agreement with the requirements of ISO3405:11 are the calculated reproducibilities for 50% evaporated and volume at 150 ºC evaporated.
The calculated reproducibilities of the manual mode for 50% evaporated FBP and volume at 70ºC, volume at 100ºC and volume at 150ºC are in agreement with the requirements of ISO3405:11. Not in agreement with the requirements of ISO3405:11 are the calculated reproducibilities for IBP, 10% evaporated and 90% evaporated. The low number of results manual test results may partly explain the large spread.

Doctor Test: No analytical problems have been observed, all participants agreed on the absence of Mercaptans, except one. This participant reported a test result of 0.7.

Existent Gum: 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 ISO6246:98.

Lead: The consensus value of the group was below the application range (2.5 - 25 mg/L) and most participants reported a “less then” result. Therefore, no significant conclusions were drawn.

Manganese Twelve of the sixteen laboratories reported a ‘less than’ result for this component. Therefore no significant conclusions were drawn.

Olefins by FIA: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of D1319:10.

Olefins by GC: The determination in %V/V was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of EN22854:08. Regretfully for the determination in %M/M no precision data are available. Therefore, no significant conclusions were drawn.

Ethanol: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN1601:97.

Ethers>C5 Fifteen participants obviously included MTBE (a C5-ether) in the final “Ethers >C5” result. After substraction of the MTBE result, the consensus value of “Ethers >C5” falls within the application range (0.17 – 15% M/M) for the quantitative determination of individual organic oxygen bound oxygenate. After correction, one statistical outlier was observed. This test result may be mixed up with the test result for MTBE.

MTBE: This determination was problematic. Four statistical outliers were observed and one false negative result was observed. The calculated reproducibility, after rejection of the statistical outlier, is not in agreement with the requirements of EN1601:97. The false negative test result may be mixed up with the test result for Ethers>C5.

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. Four false positive test results were observed, one for DIPE, one for TAME and two for ETBE. The test results for ETBE may be mixed up with the test results for MTBE.

Oxygen content: This determination was problematic for a number of laboratories. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN1601:97.

Oxidation stability: The majority of the laboratories agreed that the Oxidation Stability is >360 minutes, according to ISO 7536:96.

Sulphur: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ISO20846:11. When the results ASTM D5453 and ISO20846 results were evaluated separately, the calculated reproducibilities are respectively almost and not in agreement with the requirements of the test method.

RON: The determination of RON 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 ISO5164:05.

MON: The determination of MON was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements ISO5163:05.

ASVP: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is in full agreement with the requirements of EN13016-1:07.

DVPE: The Air Saturated Vapour Pressure can be converted to Dry Vapour Pressure Equivalent (DVPE) according to EN13016-1. Two statistical outliers were observed for DVPE. The calculated reproducibility of DVPE after rejection of the statistical outliers is in full agreement with the requirements of EN13016-1:07.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the standard and the reproducibility as found for the group of participating laboratories. The average results of sample #12115 and #12116, calculated reproducibilities and reproducibilities, derived from literature standards (in casu ASTM standards) are compared in the next table.

Parameter		unit	n	mean	2.8 * sd	R (lit)
API Gravity			37	61.81	0.24	0.30
Aromatics by FIA		%V/V	43	28.19	3.49	3.70
Aromatics by GC		%V/V	39	27.43	0.96	1.37
Aromatics by GC		%M/M	27	32.82	1.10	n.a.
Benzene		%V/V	63	0.72	0.08	0.04
Copper Strip 3 hrs @ 50°C			64	1A	n.a.	n.a.
Density @ 15°C		kg/m^3	83	731.75	0.87	0.50
Dist. Auto.	IBP	ºC	71	29.23	4.89	4.78
	10%-evap.	ºC	72	42.09	2.89	3.20
	50%-evap.	ºC	70	80.93	3.52	1.88
	90%-evap.	ºC	72	147.23	2.70	3.93
	FBP	ºC	73	181.92	7.15	6.78
	%vol at 70ºC	%	68	42.78	2.92	2.70
	%vol at 100ºC	%	68	62.19	2.31	2.20
	%vol at 150ºC	%	67	91.43	1.60	1.30
Dist. Man.	IBP	ºC	14	31.40	6.40	5.60
	10%-evap.	ºC	14	43.19	4.04	3.74
	50%-evap.	ºC	13	81.65	3.26	4.28
	90%-evap.	ºC	13	148.67	6.32	4.35
	FBP	ºC	13	183.71	6.37	7.20
	%vol at 70ºC	%	12	42.17	3.07	3.81
	%vol at 100ºC	%	12	62.44	2.87	2.93
	%vol at 150ºC	%	12	91.22	1.90	2.71
Doctor Test			49	negative	n.a.	n.a.
Existent gum (washed)		mg/100mL	33	0.59	0.78	0.79
Lead as Pb		mg/L	41	0.46	0.63	(2.00)
Manganese as Mn		mg/L	16	0.28	0.69	(0.78)
Olefins by FIA		%V/V	43	7.32	3.35	2.70
Olefins by GC		%V/V	34	8.07	0.75	1.46
Olefins by GC		%M/M	22	7.51	0.68	n.a.
Ethanol		%V/V	55	3.90	0.47	0.40
Ethers >C5 (after correction)		%V/V	16	0.19	0.12	0.30
MTBE		%V/V	53	1.78	0.37	0.30
Oxygen content		%M/M	47	1.81	0.22	0.30
Oxidation Stability		min	47	>360	n.a.	n.a.
Sulphur		mg/kg	77	9.01	3.28	2.54
RON			52	94.95	0.77	0.70
MON			44	85.32	0.85	0.90

table 4: performance evaluation sample #12115

* results between brackets should be used with care, because the average found was below the application range

Parameter	Unit	n	mean	2.8 * sd	R (lit)
ASVP	kPa	50	97.03	2.72	2.61
DVPE acc. to EN13016	kPa	68	89.75	2.63	2.53

table 5: performance evaluation sample #12116

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 2012 WITH PREVIOUS PTS

	October 2012	*October 2011*	*October 2010*	*February 2010*
Number of rep. participants	95	111	91	139
Number of results reported	1709	2153	1827	2699
Statistical outliers	55	68	77	95
Percentage outliers	3.2%	3.2%	4.2%	3.5%

table 6: 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 2012*	*October 2011*	*October 2010*	*February 2010*
API Gravity	+	+	+	+
Aromatics by FIA	+	-	++	-
Aromatics by GC	+	-	++	--
Benzene	--	--	--	+
Density @ 15°C	--	+	-	++
Distillation Automated	-	-	+	+
Distillation Manual	+/-	+/-	-	+/-
Existent gum (washed)	(+)	(-)	(+/-)	(++)
Manganese	(+/-)	n.e.	n.e	n.e.
Lead as Pb	(++)	(++)	(++)	(++)
Olefins by FIA	(-)	--	(--)	(--)
Olefins by GC	(++)	+	++	+/-
Ethanol	-	--	--	-
MTBE	-	+	-	--
Oxygen	+	-	+	-
Sulphur	-	+	+/-	-
RON	+/-	+	+/-	-
MON	+	+	-	--
ASVP	+/-	+	++	n.e.
DVPE EN13016-1	+/-	+	++	n.e.

table 7: 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

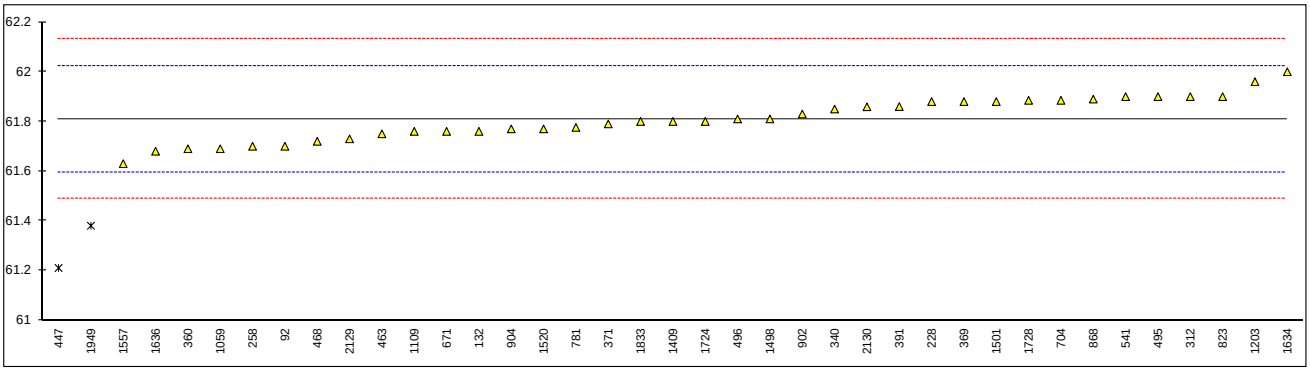
APPENDIX 1

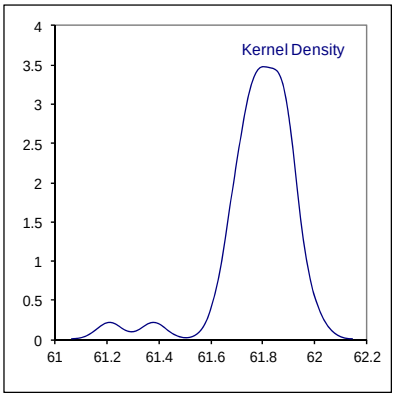
Determination of API Gravity on sample #12115;

lab	method	value	mark	z(targ)	Remarks
92	D1298	61.7		-1.02	
132	D4052	61.76		-0.46	
150		-----		-----	
225		-----		-----	
228	conv	61.88		0.66	
258	D1298	61.7		-1.02	
311		-----		-----	
312	D4052	61.9		0.84	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	D1298	61.85		0.38	
344		-----		-----	
353		-----		-----	
360	D1298	61.69		-1.12	
369	D1298	61.88		0.66	
371	D1298	61.79		-0.18	
391	D1298	61.86		0.47	
402		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445		-----		-----	
447	D4052	61.21	G(0.01)	-5.60	
463	D1298	61.75		-0.56	
468	D1298	61.72	C	-0.84	first reported: 58.804
485		-----		-----	
495	D1298	61.90		0.84	
496	D1298	61.81		0.00	
541	D4052	61.9		0.84	
671	D4052	61.76		-0.46	
704	D1250	61.885		0.70	
781	D1298	61.776		-0.31	
823	D4052	61.9		0.84	
824		-----		-----	
868	D1298	61.89		0.75	
875		-----		-----	
902	D4052	61.83		0.19	
904	D4052	61.77		-0.37	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059	D1298	61.69		-1.12	
1081		-----		-----	
1108		-----		-----	
1109	D287	61.76		-0.46	
1126		-----		-----	
1140		-----		-----	
1155		-----		-----	
1167		-----		-----	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	D1298	61.96		1.40	
1218		-----		-----	
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299		-----		-----	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	

1409	D1298	61.8		-0.09	
1426		-----		-----	
1427		-----		-----	
1428		-----		-----	
1498	D1298	61.81		0.00	
1499		-----		-----	
1501	D4052	61.88		0.66	
1520	D1298	61.77		-0.37	
1557	D1298	61.63		-1.68	
1564		-----		-----	
1570		-----		-----	
1634	D1298	62		1.78	
1635		-----		-----	
1636	D4052	61.68		-1.21	
1654		-----		-----	
1656		-----		-----	
1707		-----		-----	
1709		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724	D1298	61.8		-0.09	
1728	D1298	61.885		0.70	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1833	D1298	61.8		-0.09	
1842		-----		-----	
1849		-----		-----	
1851		-----		-----	
1948		-----		-----	
1949	D1250	61.38	C,G(0.01)	-4.01	first reported: 61.41
1951		-----		-----	
2102		-----		-----	
2129	D1298	61.73		-0.74	
2130	D1298	61.859		0.46	
2146		-----		-----	

normality	OK
n	37
outliers	2
mean (n)	61.810
st.dev. (n)	0.0855
R(calc.)	0.239
R(D1298:12)	0.300



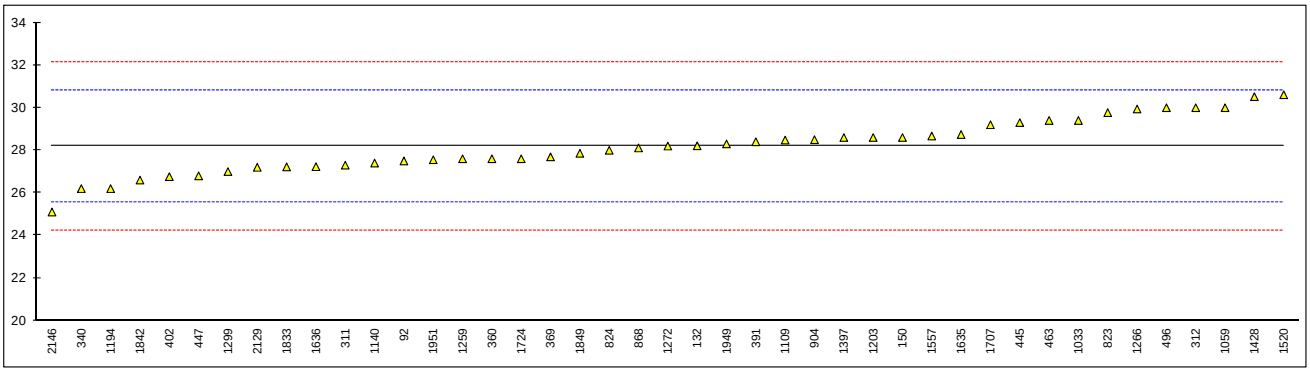


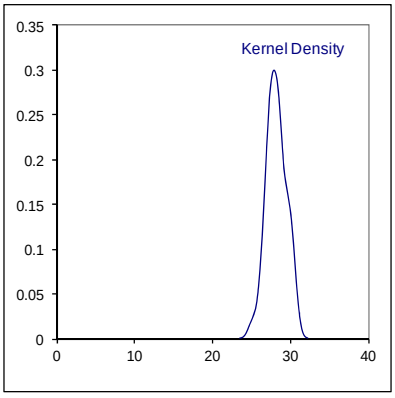
Determination of Aromatics by FIA on sample #12115; results in %V/V

lab	method	value	mark	z(targ)	remarks
92	D1319	27.5		-0.52	
132	D1319	28.21		0.02	
150	D1319	28.6		0.31	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	D1319	27.3		-0.67	
312	D1319	30.0		1.37	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	D1319	26.2		-1.50	
344		-----		-----	
353		-----		-----	
360	D1319	27.6		-0.44	
369	D1319	27.69	C	-0.37	first reported: 7.21
371		-----		-----	
391	D1319	28.4		0.16	
402	D1319	26.76		-1.08	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	D1319	29.3		0.84	
447	D1319	26.8		-1.05	
463	D1319	29.4		0.92	
468		-----		-----	
485		-----		-----	
495		-----		-----	
496	D1319	30.00		1.37	
541		-----		-----	
671		-----		-----	
704		-----		-----	
781		-----		-----	
823	D1319	29.77		1.20	
824	D1319	28.0		-0.14	
868	D1319	28.11		-0.06	
875		-----		-----	
902		-----		-----	
904	D1319	28.5		0.24	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP156	29.4		0.92	
1038		-----		-----	
1059	D1319	30.0		1.37	
1081		-----		-----	
1108		-----		-----	
1109	D1319	28.48		0.22	
1126		-----		-----	
1140	D1319	27.4		-0.59	
1155		-----		-----	
1167		-----		-----	
1186		-----		-----	
1194	INH-1319	26.2		-1.50	
1199		-----		-----	
1203	D1319	28.6		0.31	
1218		-----		-----	
1257		-----		-----	
1259	D1319	27.6		-0.44	
1266	in house	29.94		1.33	
1272	INH-1401	28.2		0.01	
1281		-----		-----	
1299	D1319	27.0		-0.90	
1394		-----		-----	
1395		-----		-----	
1397	D1319	28.6		0.31	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1426		-----		-----	
1427		-----		-----	

1428	EN15553	30.52	1.77
1498		-----	-----
1499		-----	-----
1501		-----	-----
1520	D1319	30.61	1.83
1557	INH-1200	28.67	0.37
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	D1319	28.74	0.42
1636	D1319	27.23	-0.72
1654		-----	-----
1656		-----	-----
1707	EN15553	29.2	0.77
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724	D1319	27.6	-0.44
1728		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	D1319	27.22	-0.73
1842	D1319	26.6	-1.20
1849	D1319	27.86	-0.25
1851		-----	-----
1948		-----	-----
1949	D1319	28.3	0.09
1951	D1319	27.555	-0.48
2102		-----	-----
2129	D1319	27.2	-0.75
2130		-----	-----
2146	D1319	25.1	-2.33

normality	OK
n	43
outliers	0
mean (n)	28.19
st.dev. (n)	1.245
R(calc.)	3.49
R(D1319:10)	3.70



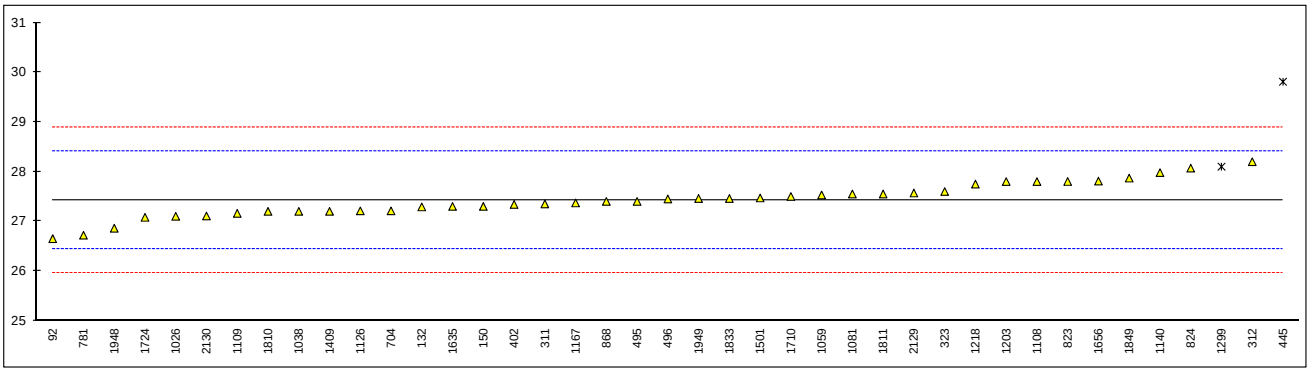


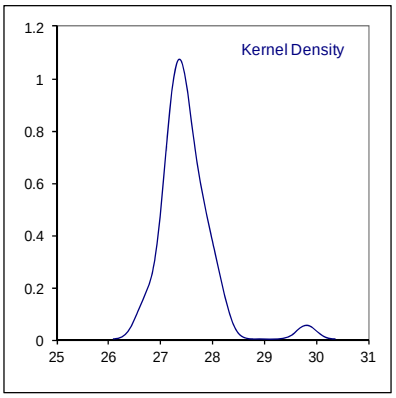
Determination of Aromatics by GC on sample #12115; results in %V/V

lab	method	value	mark	z(targ)	Remarks
92	INH-99	26.65		-1.59	
132	D5769	27.29		-0.28	
150	D5769	27.3		-0.26	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN22854	27.35		-0.16	
312	EN22854	28.2		1.58	
323	EN22854	27.6		0.35	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
344		-----		-----	
353		-----		-----	
360		-----		-----	
369		-----		-----	
371		-----		-----	
391		-----		-----	
402	EN22854	27.34		-0.18	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP566	29.81	C,G(0.01)	4.86	first reported: 29.06
447		-----		-----	
463		-----		-----	
468		-----		-----	
485		-----		-----	
495	EN22854	27.4		-0.06	
496	EN22854	27.45		0.05	
541		-----		-----	
671		-----		-----	
704	D5580	27.210		-0.44	
781	INH-52714	26.72		-1.44	
823	D6730	27.802		0.76	
824	EN22854	28.07		1.31	
868	D6839	27.40		-0.06	
875		-----		-----	
902		-----		-----	
904		-----		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026	D6729	27.1		-0.67	
1033		-----		-----	
1038	D6839	27.2		-0.46	
1059	EN22854	27.53		0.21	
1081	EN14517	27.55		0.25	
1108	EN22854	27.8		0.76	
1109	D6839	27.16		-0.55	
1126	in house	27.21		-0.44	
1140	D6293	27.98		1.13	
1155		-----		-----	
1167	EN22854	27.37		-0.12	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	EN14517	27.8		0.76	
1218	EN22854	27.75		0.66	
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299	EN22854	28.1	ex	1.37	result excluded, test result %V/V>%M/M
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	27.2		-0.46	
1426		-----		-----	
1427		-----		-----	

1428		-----	-----
1498		-----	-----
1499		-----	-----
1501	D6839	27.47	0.09
1520		-----	-----
1557		-----	-----
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	EN14517	27.30	-0.26
1636		-----	-----
1654		-----	-----
1656	EN14517	27.81	0.78
1707		-----	-----
1709		-----	-----
1710	EN14517	27.5	0.15
1720		-----	-----
1724	EN22854	27.08	-0.71
1728		-----	-----
1807		-----	-----
1810	EN22854	27.2	-0.46
1811	EN22854	27.55	0.25
1833	EN22854	27.46	0.07
1842		-----	-----
1849	EN22854	27.87	0.90
1851		-----	-----
1948	EN22854	26.86	-1.16
1949	EN22854	27.46	0.07
1951		-----	-----
2102		-----	-----
2129	D6730	27.57	0.29
2130	EN22854	27.107	-0.65
2146		-----	-----

normality	OK
n	39
outliers	1
mean (n)	27.427
st.dev. (n)	0.3414
R(calc.)	0.956
R(EN22854:08)	1.373



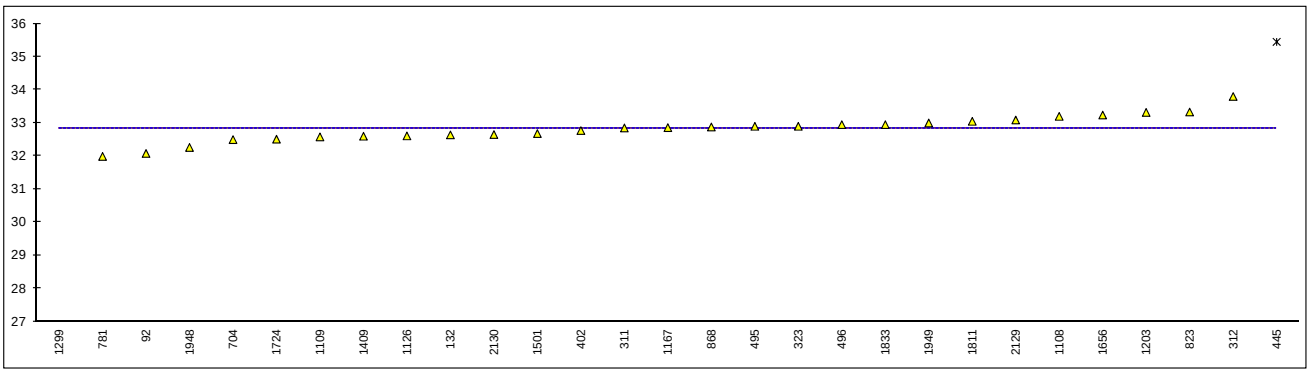


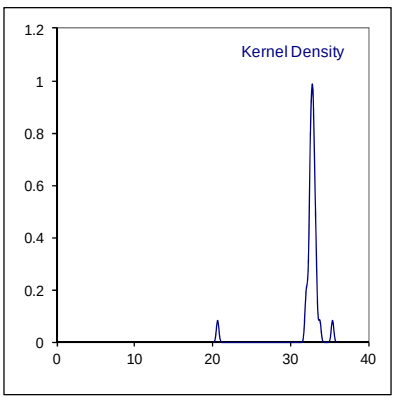
Determination of Aromatics by GC on sample #12115; results in %M/M

lab	method	value	mark	z(targ)	Remarks
92	INH-99	32.08		-----	
132	D5769	32.64		-----	
150		-----		-----	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311		32.85		-----	
312	EN22854	33.8		-----	
323	EN22854	32.9		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
344		-----		-----	
353		-----		-----	
360		-----		-----	
369		-----		-----	
371		-----		-----	
391		-----		-----	
402	EN22854	32.77		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP566	35.45	C,G(0.01)	-----	first reported: 35.12
447		-----		-----	
463		-----		-----	
468		-----		-----	
485		-----		-----	
495		32.9		-----	
496	EN22854	32.95		-----	
541		-----		-----	
671		-----		-----	
704	D5580	32.498		-----	
781	INH-52714	31.99		-----	
823	D6730	33.331		-----	
824		-----		-----	
868	D6839	32.88		-----	
875		-----		-----	
902		-----		-----	
904		-----		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059		-----		-----	
1081		-----		-----	
1108	EN22854	33.2		-----	
1109	D6839	32.58		-----	
1126	in house	32.61		-----	
1140		-----		-----	
1155		-----		-----	
1167	EN22854	32.86		-----	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203		33.32		-----	
1218		-----		-----	
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299		20.6	ex	-----	result excluded, test result % M/M< %V/V
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	32.6		-----	
1426		-----		-----	
1427		-----		-----	

1428		-----	-----
1498		-----	-----
1499		-----	-----
1501	D6839	32.68	-----
1520		-----	-----
1557		-----	-----
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635		-----	-----
1636		-----	-----
1654		-----	-----
1656	EN14517	33.24	-----
1707		-----	-----
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724		32.51	-----
1728		-----	-----
1807		-----	-----
1810		-----	-----
1811	EN22854	33.05	-----
1833		32.95	-----
1842		-----	-----
1849		-----	-----
1851		-----	-----
1948		32.26	-----
1949	EN22854	33.00	-----
1951		-----	-----
2102		-----	-----
2129	D6730	33.09	-----
2130		32.651	-----
2146		-----	-----

normality	OK
n	27
outliers	1
mean (n)	32.822
st.dev. (n)	0.3916
R(calc.)	1.096
R(EN22854:08)	unknown





Determination of Appearance on sample #12115;

lab	method	value	mark	z(targ)	Remarks
92	visual	C&B		-----	
132	D4176	C&B		-----	
150	visual	C&B		-----	
225		-----		-----	
228		-----		-----	
258	visual	C&B		-----	
311		Clear		-----	
312	visual	C&B		-----	
323	INH-001	C&B		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	visual	Clear		-----	
344	visual	C&B		-----	
353	D4176	C&B		-----	
360	visual	C&B		-----	
369	visual	C&B		-----	
371		-----		-----	
391		C&B		-----	
402		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440	visual	C&B		-----	
445	visual	C&B		-----	
447	visual	C&B		-----	
463	D4176	Pass		-----	
468	D4176	Pass		-----	
485		-----		-----	
495		C&B		-----	
496		-----		-----	
541	D4176	C&B		-----	
671		C&B		-----	
704	visual	C&B		-----	
781	visual	C&B		-----	
823		-----		-----	
824		C&B		-----	
868	visual	C&B		-----	
875		-----		-----	
902	visual	Pass		-----	
904	visual	C&B		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059		C&B		-----	
1081		-----		-----	
1108		-----		-----	
1109	D4176	Pass		-----	
1126		-----		-----	
1140		C&B		-----	
1155		-----		-----	
1167		-----		-----	
1186		-----		-----	
1194		C&B		-----	
1199		-----		-----	
1203		C&B		-----	
1218		-----		-----	
1257		-----		-----	
1259		C&B		-----	
1266		C&B		-----	
1272		C&B		-----	
1281		-----		-----	
1299	visual	OK		-----	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	D4176	Pass		-----	
1426		-----		-----	
1427		-----		-----	

1428	visual	C&B	-----
1498		-----	-----
1499		-----	-----
1501		Clear	-----
1520	visual	C&B	-----
1557		C&B	-----
1564		-----	-----
1570		-----	-----
1634		C&B	-----
1635	visual	Clear	-----
1636		-----	-----
1654		-----	-----
1656	visual	C&B	-----
1707	visual	C&B	-----
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724		-----	-----
1728	visual	C&B	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833		-----	-----
1842		-----	-----
1849		C&B	-----
1851		-----	-----
1948	visual	Clear	-----
1949	visual	C&B	-----
1951		C&B	-----
2102		-----	-----
2129		C&B	-----
2130		C&B	-----
2146		-----	-----
	n	52	
	mean (n)	C&B	

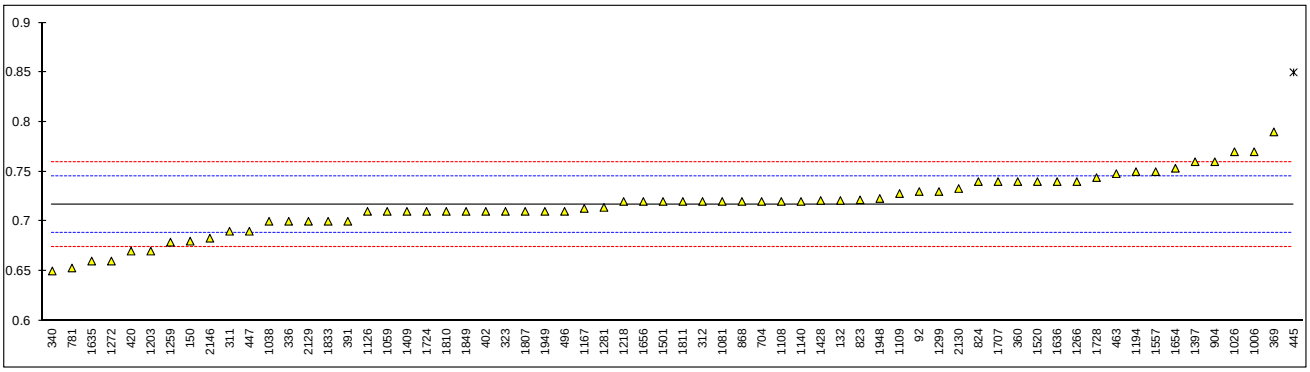
C&B = Clear and Bright

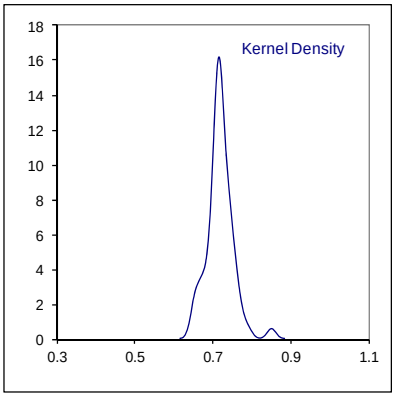
Determination of Benzene on sample #12115; results in %V/V

lab	method	value	mark	z(targ)	Remarks
92	INH-99	0.73		0.92	
132	D3606	0.721		0.29	
150	D3606	0.68		-2.58	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN22854	0.69		-1.88	
312	EN22854	0.72		0.22	
323	EN22854	0.71		-0.48	
335		-----		-----	
336	EN238	0.7		-1.18	
337		-----		-----	
338		-----		-----	
340	EN238	0.65		-4.68	
344		-----		-----	
353		-----		-----	
360	EN12177	0.74		1.62	
369	EN238	0.79		5.12	
371		-----		-----	
391	EN12177	0.70		-1.18	
402	EN22854	0.71		-0.48	
420	EN12177	0.67		-3.28	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP566	0.85	C,G(0.01)	9.32	first reported: 0.88
447	IP429	0.69		-1.88	
463	EN238	0.748		2.18	
468		-----		-----	
485		-----		-----	
495		-----		-----	
496	EN22854	0.710		-0.48	
541		-----		-----	
671		-----		-----	
704	D5580	0.720		0.22	
781	EN238	0.653		-4.47	
823	D6730	0.7216	C	0.33	first reported: 0.8739
824	EN22854	0.74		1.62	
868	D6839	0.72		0.22	
875		-----		-----	
902		-----		-----	
904	D5580	0.76		3.02	
962		-----		-----	
970		-----		-----	
1006	D5580	0.77		3.72	
1017		-----		-----	
1026	EN22854	0.77		3.72	
1033		-----		-----	
1038	D6839	0.70		-1.18	
1059	EN22854	0.71		-0.48	
1081	EN14577	0.72		0.22	
1108	EN22854	0.72		0.22	
1109	D3606	0.728		0.78	
1126	in house	0.71		-0.48	
1140	D6293	0.72		0.22	
1155		-----		-----	
1167	EN22854	0.713		-0.27	
1186		-----		-----	
1194	D6277	0.75		2.32	
1199		-----		-----	
1203	EN14517	0.67		-3.28	
1218	EN22854	0.72		0.22	
1257		-----		-----	
1259	EN12177	0.679		-2.65	
1266	EN238	0.74		1.62	
1272	EN238	0.66		-3.98	
1281	EN238	0.714		-0.20	
1299	EN22854	0.73		0.92	
1394		-----		-----	
1395		-----		-----	
1397	EN238	0.76		3.02	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	0.71		-0.48	
1426		-----		-----	
1427		-----		-----	

1428	EN12177	0.721		0.29	
1498		-----		-----	
1499		-----		-----	
1501	D6839	0.72		0.22	
1520	EN238	0.74		1.62	
1557	EN238	0.75		2.32	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	EN12177	0.66		-3.98	
1636	EN238	0.74		1.62	
1654	D6729	0.7534		2.55	
1656	EN14517	0.72		0.22	
1707	EN12177	0.74		1.62	
1709		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724	EN22854	0.71		-0.48	
1728	EN238	0.744		1.90	
1807	EN238	0.71	C	-0.48	first reported: 0.85
1810	EN22854	0.71		-0.48	
1811	EN22854	0.72		0.22	
1833	EN22854	0.70		-1.18	
1842		-----		-----	
1849	EN22854	0.71		-0.48	
1851		-----		-----	
1948	EN12177	0.723		0.43	
1949	EN22854	0.71		-0.48	
1951		-----		-----	
2102		-----		-----	
2129	D6730	0.70		-1.18	
2130	EN22854	0.733		1.13	
2146	EN12177	0.683		-2.37	

normality	not OK
n	63
outliers	1
mean (n)	0.717
st.dev. (n)	0.0286
R(calc.)	0.080
R(EN22854:08)	0.040





Determination of Copper strip 3hrs/50°C on sample #12115;

lab	method	value	Mark	z(targ)	Remarks
92	D130	1A		-----	
132	D130	1A		-----	
150	D130	1A		-----	
225		-----		-----	
228	D130	1A		-----	
258		-----		-----	
311		1A		-----	
312	D130	1A		-----	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO2160	1A		-----	
344	ISO2160	1A		-----	
353	D130	1A		-----	
360	ISO2160	1A		-----	
369	ISO2160	1A		-----	
371	ISO2160	1A		-----	
391		-----		-----	
402	ISO2160	1A		-----	
420	ISO2160	1A		-----	
430		-----		-----	
431		-----		-----	
440	IP154	1A		-----	
445		-----		-----	
447	D130	1A		-----	
463	D130	1A		-----	
468	D130	1A		-----	
485		-----		-----	
495		-----		-----	
496	ISO2160	1A		-----	
541	D130	1		-----	
671	D130	1A		-----	
704	D130	1A		-----	
781		-----		-----	
823	D130	1A		-----	
824		1A		-----	
868	D130	1A		-----	
875		-----		-----	
902		-----		-----	
904	D130	1A		-----	
962		-----		-----	
970		-----		-----	
1006	D130	1A		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP154	1B		-----	
1038		-----		-----	
1059	ISO2160	1A		-----	
1081	D130	1B		-----	
1108	ISO2160	1		-----	
1109	D130	1A		-----	
1126		-----		-----	
1140		-----		-----	
1155		-----		-----	
1167	ISO2160	1A		-----	
1186	D130	1A		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO2160	1		-----	
1218		-----		-----	
1257	D130	1A		-----	
1259	ISO2160	1A		-----	
1266	ISO2160	1A		-----	
1272	ISO2160	1A		-----	
1281	ISO2160	1A		-----	
1299	D130	1A		-----	
1394		-----		-----	
1395	D130	1A		-----	
1397		1		-----	
1406		-----		-----	
1407		-----		-----	
1409		1A		-----	
1426		-----		-----	
1427		-----		-----	

1428	ISO2160	1A	-----
1498		-----	-----
1499		-----	-----
1501	D130	1A	-----
1520	ISO2160	1A	-----
1557	ISO2160	1A	-----
1564		-----	-----
1570		-----	-----
1634	D130	1A	-----
1635	D130	1A	-----
1636	ISO2160	1A	-----
1654	ISO2160	1A	-----
1656	ISO2160	1A	-----
1707	ISO2160	1A	-----
1709		-----	-----
1710		1A	-----
1720		-----	-----
1724		-----	-----
1728	D130	1A	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833		-----	-----
1842	IP154	1A	-----
1849	D130	1A	-----
1851		-----	-----
1948		1A	-----
1949	D130	1A	-----
1951		-----	-----
2102	D130	1	-----
2129		1A	-----
2130		-----	-----
2146		-----	-----
	n	64	
	mean (n)	1A	

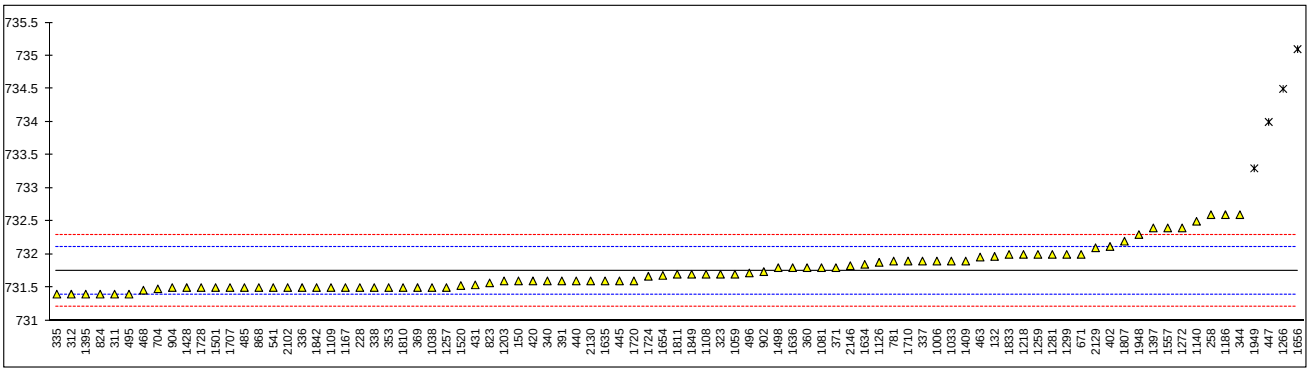
Determination of Density @ 15°C on sample #12115; results in kg/m^3

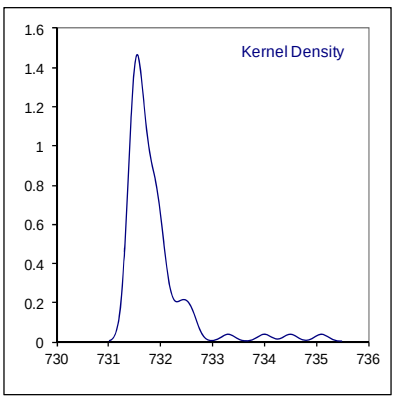
lab	method	value	mark	z(targ)	Remarks
92		-----		-----	
132	D4052	731.97		1.22	
150	D4052	731.6		-0.85	
225		-----		-----	
228	D4052	731.5		-1.41	
258	D1298	732.6		4.75	
311	ISO12185	731.4		-1.97	
312	D4052	731.4		-1.97	
323	ISO12185	731.7		-0.29	
335	ISO12185	731.4		-1.97	
336	ISO12185	731.5		-1.41	
337	ISO12185	731.9		0.83	
338	ISO12185	731.5		-1.41	
340	ISO12185	731.60		-0.85	
344	D4052	732.6		4.75	
353	IP365	731.5		-1.41	
360	ISO12185	731.8		0.27	
369	ISO12185	731.5		-1.41	
371	ISO12185	731.8		0.27	
391	ISO12185	731.6		-0.85	
402	ISO12185	732.12		2.06	
420	ISO12185	731.6		-0.85	
430		-----		-----	
431	ISO12185	731.54		-1.19	
440	D4052	731.6		-0.85	
445	IP365	731.6		-0.85	
447	IP365	734.0	G(0.01)	12.59	
463	ISO12185	731.96		1.17	
468	ISO12185	731.46		-1.63	
485	ISO12185	731.5		-1.41	
495	ISO12185	731.4		-1.97	
496	ISO12185	731.72		-0.18	
541	ISO12185	731.5		-1.41	
671	D4052	732.0		1.39	
704	ISO12185	731.48	C	-1.52	first reported: 0.73148
781	ISO12185	731.9		0.83	
823	D4052	731.57		-1.02	
824	ISO12185	731.4		-1.97	
868	D4052	731.50		-1.41	
875		-----		-----	
902	D4052	731.74		-0.07	
904	D4052	731.5		-1.41	
962		-----		-----	
970		-----		-----	
1006	D4052	731.9		0.83	
1017		-----		-----	
1026		-----		-----	
1033	IP365	731.9		0.83	
1038	D4052	731.5		-1.41	
1059	ISO12185	731.7		-0.29	
1081	ISO12185	731.8		0.27	
1108	ISO12185	731.7		-0.29	
1109	D4052	731.5		-1.41	
1126	ISO12185	731.88		0.72	
1140	D4052	732.5	C	4.19	first reported: 0.7325
1155		-----		-----	
1167	ISO12185	731.5		-1.41	
1186	D1298	732.6		4.75	
1194		-----		-----	
1199		-----		-----	
1203	ISO12185	731.6		-0.85	
1218	EN22854	732.0		1.39	
1257	D4052	731.5		-1.41	
1259	ISO3675	732.0		1.39	
1266	ISO3675	734.5	G(0.01)	15.39	
1272	ISO12185	732.4		3.63	
1281	ISO3675	732.0		1.39	
1299	D4052	732.0		1.39	
1394		-----		-----	
1395	D4052	731.4		-1.97	
1397	ISO12185	732.4		3.63	
1406		-----		-----	
1407		-----		-----	
1409	ISO12185	731.9		0.83	
1426		-----		-----	
1427		-----		-----	

1428	ISO12185	731.5		-1.41	
1498	D1298	731.8		0.27	
1499		-----		-----	
1501	D4052	731.5		-1.41	
1520	ISO12185	731.53		-1.24	
1557	ISO3675	732.4		3.63	
1564		-----		-----	
1570		-----		-----	
1634	ISO12185	731.85		0.55	
1635	ISO12185	731.6		-0.85	
1636	ISO12185	731.8		0.27	
1654	ISO12185	731.683		-0.38	
1656	ISO12185	735.1	C,G(0.01)	18.75	first reported: 733.4
1707	ISO12185	731.5		-1.41	
1709		-----		-----	
1710	ISO12185	731.9		0.83	
1720	D4052	731.6		-0.85	
1724	ISO12185	731.67		-0.46	
1728	D4052	731.50		-1.41	
1807	D4052	732.2	C	2.51	Probably unit error, reported: 0.73170
1810	ISO12185	731.5		-1.41	
1811	ISO12185	731.7		-0.29	
1833	ISO12185	732.0		1.39	
1842	IP365	731.5		-1.41	
1849	ISO12185	731.7	C	-0.29	first reported: 732.7
1851		-----		-----	
1948	ISO12185	732.3		3.07	
1949	D4052	733.3	C,G(0.01)	8.67	first reported: 0.7333
1951	ISO 12185	731.5		-----	
2102		-----		-1.41	
2129	ISO12185	732.1	C	1.95	first reported: 0.7321
2130	ISO12185	731.6		-0.85	
2146	ISO12185	731.83		0.44	

	normality	not OK
	n	83
	outliers	4
	mean (n)	731.752
	st.dev. (n)	0.3109
	R(calc.)	0.871
	R(ISO12185:96)	0.500

Compare R(D4052:11) = 2.528





Determination of Distillation ASTM D86 (automated) on sample #12115; results in °C

lab	method	IBP	mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	Mark
92	D86	26.7		41.1		81.4		146.5		183.9	
132	D86	27.5		41.6		80.8		147.1		181.3	
150	D86	30.5		42.7		81.8		146.9		185.1	
225		-----		-----		-----		-----		-----	
228		-----		-----		-----		-----		-----	
258		31.5		43.4		81.9		147.9		182.5	
311	ISO3405	28.4		41.5		79.5		146.8		182.6	
312	D86	29.7		42.0		81.7		147.5		183.2	
323	ISO3405	30.6		41.4		79.8		147.9		182.1	
335	ISO3405	27.2		39.5		79.9		145.4		180.3	
336	ISO3405	25.7		40.8		78.6		146.1		178.9	
337	ISO3405	27.9		40.6		80.3		146.9		184.6	
338	ISO3405	30.9		39.5		78.7		147.2		183.5	
340	ISO3405	29.8		42.3		81.3		147.8		179.9	
344	D86	30.7		43.0		82.3		148.9		179.6	
353	IP123	27.9		41.7		81.4		147.4		181.5	
360	ISO3405	29.8		41.0		79.1		146.6		179.4	
369	ISO3405	29.1		42.0		79.8		146.7		180.4	
371	ISO3405	28.6		42.0		79.9		146.0		179.6	
391		-----		-----		-----		-----		-----	
402	ISO3405	31.8		42.2		82.2		147.4		183.1	
420	ISO3405	27.8		42.8		82.4		150.1		182.2	
430		-----		-----		-----		-----		-----	
431		-----		41.5		81.4		147.5		-----	
440	D86	28.2		42.1		81.8		147.4		184.0	
445	IP123	31.7		-----		-----		-----		186.5	
447	IP123	26.3		41.2		80.4		146.3		182.4	
463	D86	30.6		41.2		79.3		147.0		178.8	
468	ISO3405	30.5		43.2		82.0	C	148.7	C	182.7	C
485	ISO3405	30.55		41.95		80.30		146.55		182.65	
495	ISO3405	26.4		42.0		80.2		146.2		182.6	
496	ISO3405	29.2		41.2		79.8		146.9		181.5	
541		-----		-----		-----		-----		-----	
671	D86	29.0		42.5		80.9		146.2		178.9	
704		-----		-----		-----		-----		-----	
781		-----		-----		-----		-----		-----	
823	D86	30.1		41.8		80.7		147.9		183.1	
824	ISO3405	30.4		43.1		82.8		146.6		180.2	
868	D86	31.2		42.5		81.0		148.4		179.2	
875		-----		-----		-----		-----		-----	
902		-----		-----		-----		-----		-----	
904	D86	27.5		42.5		81.0		147.9		184.3	
962		-----		-----		-----		-----		-----	
970		-----		-----		-----		-----		-----	
1006	D86	32.0		43.4		82.5		148.8		182.8	
1017		-----		-----		-----		-----		-----	
1026		-----		-----		-----		-----		-----	
1033	IP123	29.2		42.1		80.5		147.1		183.8	
1038		-----		42.0		80.3		146.1		183.1	
1059	ISO3405	28.0		41.1		80.4		147.1		180.8	
1081	D86	30.5		41.5		80.8		146.1		180.4	
1108	ISO3405-A	30.8		43.8		77.2	DG(0.05)	145.5		184.0	
1109	D86	28.5		42.3		81.4		147.2		178.7	
1126	in house	21.5	G(0.01)	32.9	G(0.01)	86.3	G(0.05)	147.5		177.8	
1140	D86	27.2		43.5		81.8		147.9		181.5	
1155		-----		-----		-----		-----		-----	
1167	ISO3405	29.85		41.3		78.95		146.55		178.4	
1186		-----		-----		-----		-----		-----	
1194	D86	27.2		40.9		76.2	DG(0.05)	148.7		178.9	
1199		-----		-----		-----		-----		-----	
1203	ISO3405	29.0		42.2		80.8		146.6		181.3	
1218	ISO3405	28.6		40.9		80.7		145.1		176.8	
1257	D86-A	26.9		42.7		82.6		148.9		181.5	
1259	ISO3405	26.7		42.8		81.4		147.9		184.0	
1266	ISO3405	28.75		41.45		80.65		147.0		174.35	
1272	ISO3405	30.6		44.8		83.4		147.4		185.9	
1281		-----		-----		-----		-----		-----	
1299	D86	31.1		40.7		79.2		146.9		183.9	
1394		-----		-----		-----		-----		-----	
1395	D86	29.5		42.0		80.5		147.4		176.8	
1397	ISO3405	29.6		44.5		84.5		148.4		181.9	
1406		-----		-----		-----		-----		-----	
1407		-----		-----		-----		-----		-----	
1409	ISO3405	28.1		42.3		81.0		146.5		183.4	
1426		-----		-----		-----		-----		-----	
1427		-----		-----		-----		-----		-----	

1428	ISO3405	31.3	42.9	81.7	147.1		186.7
1498	D86	33.3	42.2	80.3	147.1		181.3
1499		-----	-----	-----	-----		-----
1501		-----	-----	-----	-----		-----
1520		-----	-----	-----	-----		-----
1557		-----	-----	-----	-----		-----
1564		-----	-----	-----	-----		-----
1570		-----	-----	-----	-----		-----
1634	ISO3405	27.7	41.3	80.5	146.9		180.6
1635		-----	-----	-----	-----		-----
1636	ISO3405	27.6	42.1	81.1	147.6		181.9
1654	ISO3405	32.5	42.8	81.1	147.3		182.8
1656	ISO3405	32.1	43.0	80.5	147.6		189.0
1707	ISO3405	30.2	42.6	81.2	147.8		182.6
1709		-----	-----	-----	-----		-----
1710	ISO3405	28.7	41.8	80.0	147.1		181.4
1720	D86	30.7	43.8	83.2	149.3	C	181.6
1724	ISO3405	26.6	43.6	83.2	148.6		186.9
1728		-----	-----	-----	-----		-----
1807	ISO3405	29.8	40.2	78.4	145.9		181.4
1810	ISO3405	27.8	42.8	82.7	150.8	G(0.05)	183.3
1811	ISO3405	29.9	41.9	80.5	146.8		185.6
1833	ISO3405	27.1	41.7	80.0	146.8		182.8
1842		-----	-----	-----	-----		-----
1849	ISO3405	28.5	42.15	81	147.6		182.6
1851		-----	-----	-----	-----		-----
1948	ISO3405-A	27.1	42.6	82.6	149.2		184.2
1949		-----	-----	-----	-----		-----
1951		30.7	43.7	78.3	146.0		178.1
2102	ISO3405	-----	-----	-----	-----		-----
2129	ISO3405-A	26.9	40.8	80.9	147.3		183.3
2130	ISO3405	31.2	41.7	79.8	146.2		182.7
2146	ISO3405	30.1	42.9	82.1	147.2		180.4
	normality	OK	OK	OK	OK		OK
	n	71	72	70	72		73
	outliers	1	1	3	1		0
	mean (n)	29.23	42.09	80.93	147.23		181.92
	st.dev. (n)	1.746	1.031	1.258	0.963		2.553
	R(calc.)	4.89	2.89	3.52	2.70		7.15
	R(ISO3405:09)	4.78	3.20	1.88	3.93		6.78

C= corrected, the first reported test results are given below.

Lab 468: 50% evap : 85.2
90% evap : 52.6
FBP : 189.2
Lab 1720: 90% evap : 151.3

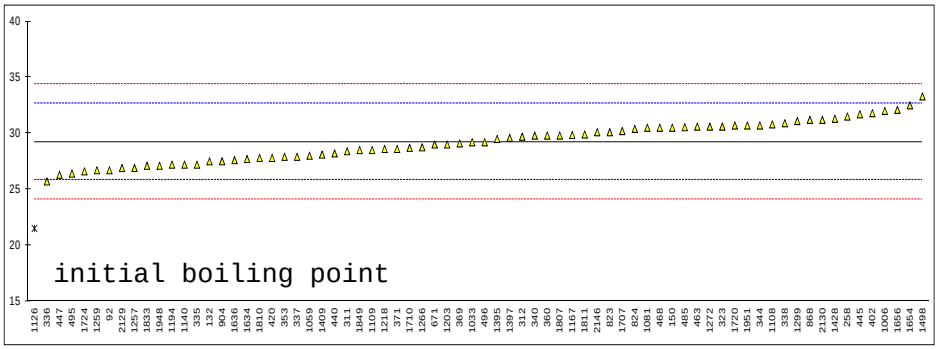
Determination of Distillation ASTM D86 (automated) on sample #12115; results in °C
--continued--

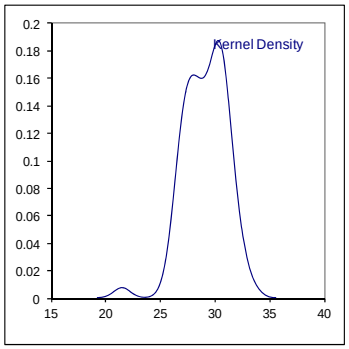
lab	method	%vol 70ºC	mark	%vol 100ºC	mark	%vol 150ºC	mark	%residue	Mark
92	D86-A	40.7		60.7		91.8	C	0.9	
132	D86-A	43.1		62.3		91.4		1.0	
150	D86-A	42.1		61.6		91.6		1.1	
225		-----		-----		-----		-----	
228		-----		-----		-----		-----	
258	D86-A	42.1		61.8		91.1		0.6	
311	ISO3405-A	43.8		62.8		91.7		1.0	
312	D86-A	42.9		61.8		91.3		1.0	
323	ISO3405-A	43.7		62.5		91.1		1.8	
335	ISO3405-A	44.1		62.9		91.5		0.9	
336	ISO3405-A	44.5	C	63.6		92.2		0.8	
337		-----		-----		-----		0.6	
338	ISO3405-A	44.7		63.2		91.5		1.1	
340	ISO3405-A	42.5		62.2		91.1		1.0	
344	D86-A	41.7		61.4		90.6		0.5	
353	IP123-A	42.7		62.0		91.4		1.1	
360	ISO3405-A	44.2		63.1		91.6		1.0	
369	ISO3405-A	43.2		63.3		91.7		0.8	
371	ISO3405-A	43.7		63.0		92.0		1.1	
391		-----		-----		-----		-----	
402	ISO3405-A	42.6		61.3		91.3		1	
420	ISO3405-A	42.0		61.2		90.1		1.0	
430		-----		-----		-----		-----	
431		-----		-----		-----		-----	
440	D86-A	42.5		61.5		91.8		0.9	
445	IP123-A	42.9		62.2		92.1		1.3	
447	IP123	41.7		60.5		89.8		1.0	
463	D86-A	42.2		63.2		91.5		1.1	
468	ISO3405-A	40.2		62.1	C	90.7	C	0.8	
485	ISO3405-A	43.40		62.50		91.75		0.8	
495	ISO3405-A	43.4		62.7		92.0		0.5	
496	ISO3405-A	43.3		62.6		92.3		0.9	
541		-----		-----		-----		-----	
671	D86-A	43		62		92		2.8	
704		-----		-----		-----		-----	
781		-----		-----		-----		-----	
823	D86-A	43.0		62.6	C	91.8		1.0	
824	ISO3405-A	41.5		60.6		91.8		1.0	
868	D86-A	43.0		62.1		90.7		1.1	
875		-----		-----		-----		-----	
902		-----		-----		-----		-----	
904	D86-A	42.9		62.0		91.1		1.0	
962		-----		-----		-----		-----	
970		-----		-----		-----		-----	
1006		-----		-----		-----		1.4	
1017		-----		-----		-----		-----	
1026		-----		-----		-----		-----	
1033	IP123-A	43.1		62.7		-----		1.0	
1038	D86-A	43.1		63.1		92.1		0.9	
1059	ISO3405-A	43.3		62.4		91.4		1.4	
1081	D86	43.2		62.6		91.9		0.6	
1108	ISO3405-A	45.4		64.4		92.3		0.8	
1109	D86-A	43.1		62.1		91.4		0.9	
1126	in house-A	40.5		61.8		91.8		-----	
1140	D86-A	41.9		61.7		91.1		-----	
1155		-----		-----		-----		-----	
1167	ISO3405-A	44.1		63.0		91.8		3.5	
1186		-----		-----		-----		-----	
1194		-----		-----		-----		1.1	
1199		-----		-----		-----		-----	
1203	ISO3405	42.3		61.6		90.9		1.0	
1218	ISO3405-A	43.7		62.7		91.8		-----	
1257		-----		-----		-----		-----	
1259	ISO3405-A	42.4		61.8		91.9		1.0	
1266	ISO3405-A	43.35		62.2		91.55		1.2	
1272	ISO3405-A	41.4		61.7		91.2		-----	
1281		-----		-----		-----		-----	
1299	D86-A	44.1		62.9		91.5		1.0	
1394		-----		-----		-----		-----	
1395	D86-A	42.8		62.4		91.4		1.0	
1397	ISO3405-A	40.5		60.5		91.0		1.0	
1406		-----		-----		-----		-----	
1407		-----		-----		-----		-----	
1409	ISO3405-A	42.8		62.2		91.8		0.9	
1426		-----		-----		-----		-----	
1427		-----		-----		-----		-----	

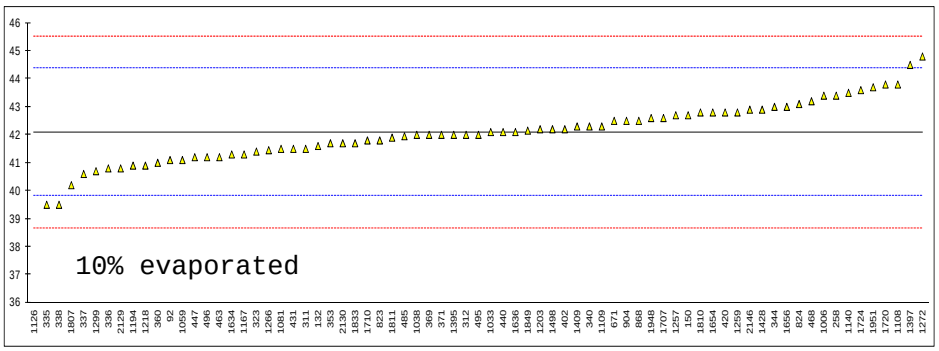
1428	ISO3405-A	42.1	62.1	91.3		1.0
1498	D86-A	43.0	63.0	91.0		0.9
1499		-----	-----	-----		-----
1501		-----	-----	-----		-----
1520		-----	-----	-----		-----
1557		-----	-----	-----		-----
1564		-----	-----	-----		-----
1570		-----	-----	-----		-----
1634	ISO3405-A	43.0	62.4	91.3		1.0
1635		-----	-----	-----		-----
1636	ISO3405-A	42.9	62.0	91.3		0.9
1654	ISO3405-A	42.1	61.8	91.4		1
1656	ISO3405-A	42.5	62.0	91.5		1.2
1707	ISO3405-A	42.5	62.0	91.0		1.0
1709		-----	-----	-----		-----
1710	ISO3405-A	43.4	62.6	91.6		0.8
1720		-----	-----	-----		1.0
1724	ISO3405-A	41.2	60.7	90.7		1.3
1728		-----	-----	-----		-----
1807	ISO3405-A	44.3	63.8	92.2		1.0
1810	ISO3405-A	41.6	60.9	90.5	C	1.0
1811	ISO3405-A	41.2	60.4	90.0	C	1
1833	ISO3405-A	43.4	62.7	92.3		1.1
1842		-----	-----	-----		-----
1849	ISO3405-A	42.4	62.2	91		1.0
1851		-----	-----	-----		-----
1948	ISO3405-A	41.9	61.1	90.4		1.1
1949		-----	-----	-----		-----
1951	ISO3405-A	44.3	63.4	92.8		1.0
2102		-----	-----	-----		-----
2129	ISO3405-A	43.4	62.2	91.5		1.0
2130	ISO3405-A	43.5	62.6	91.8		1.0
2146	ISO3405-A	42.1	61.6	91.3		1.4
	normality	OK	OK	not OK		
	n	68	68	67		
	outliers	0	0	0		
	mean (n)	42.78	62.19	91.43		
	st.dev. (n)	1.041	0.825	0.573		
	R(calc.)	2.92	2.31	1.60		
	R(ISO3405:11)	2.70	2.20	1.30		

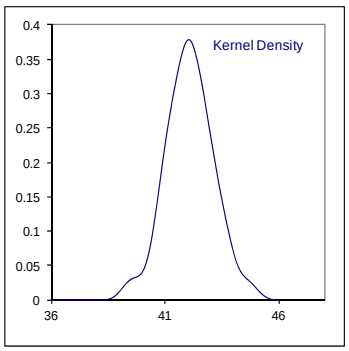
C= corrected, the first reported test results are given below.

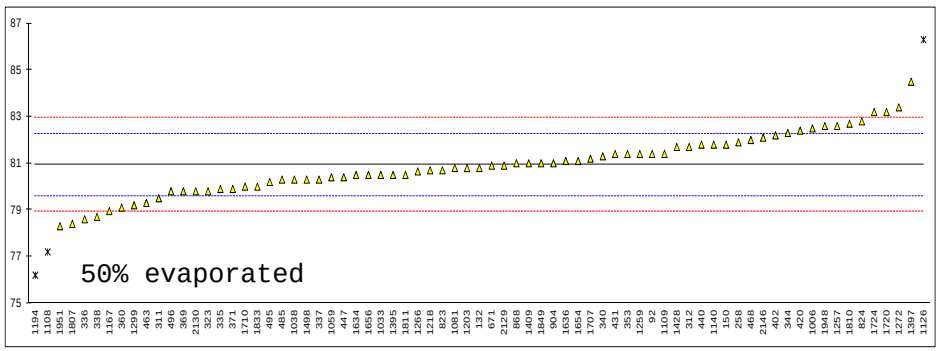
Lab 336: % vol 70ºC : 45.5
Lab 468: % vol 100ºC : 59.5
% vol 150ºC : 88.7
Lab 823: % vol 100ºC : 66.2
Lab 1810: % vol 150ºC : 89.6
Lab 1811: % vol 150ºC : 89.6

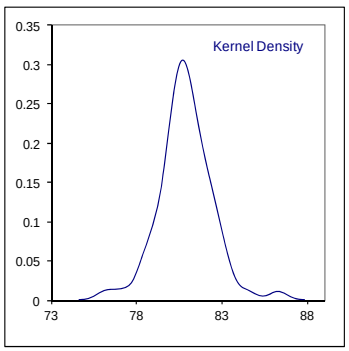

initial boiling point

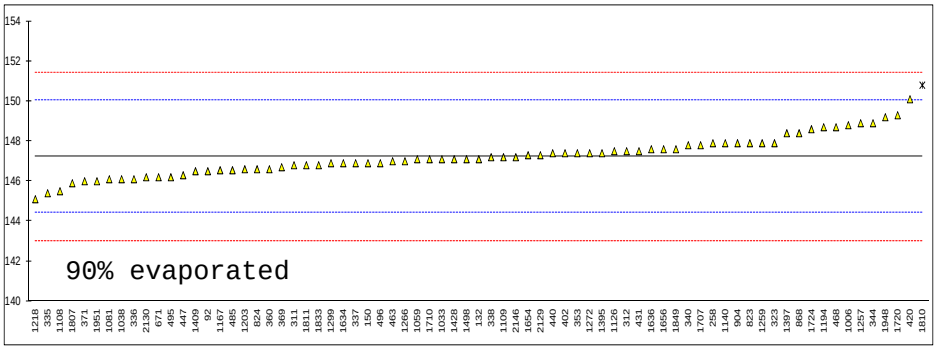

Kernel Density

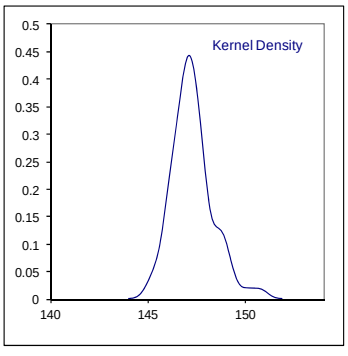

10% evaporated

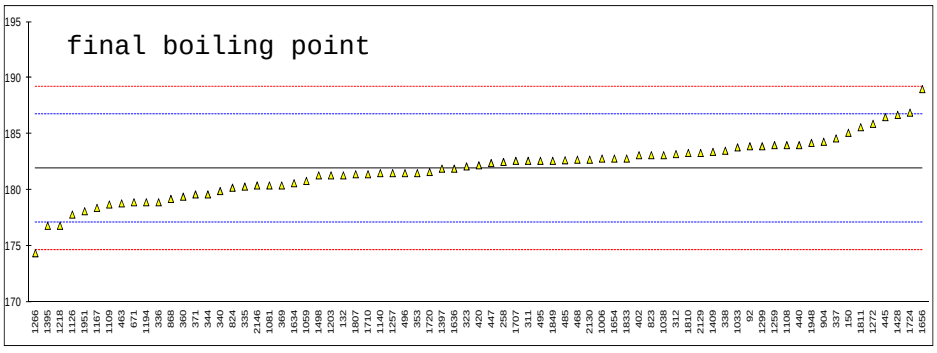

Kernel Density

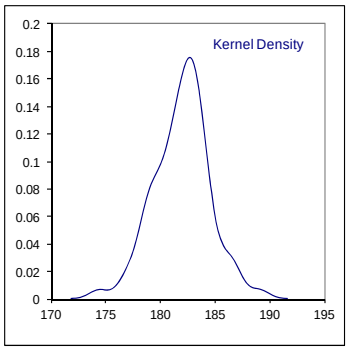

50% evaporated

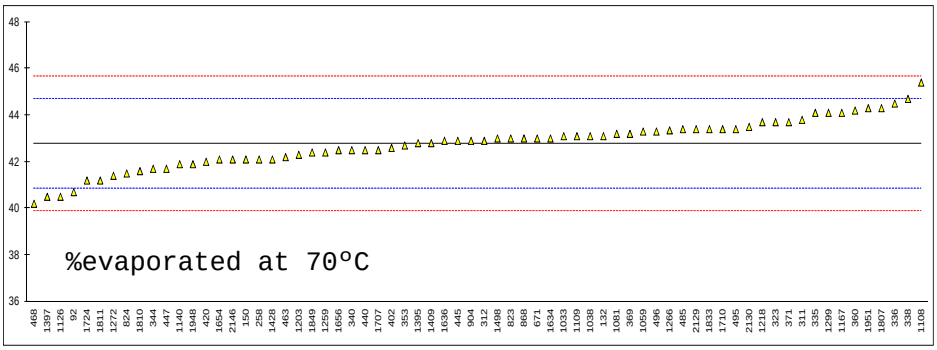

Kernel Density

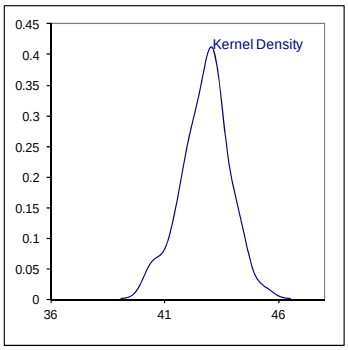

90% evaporated

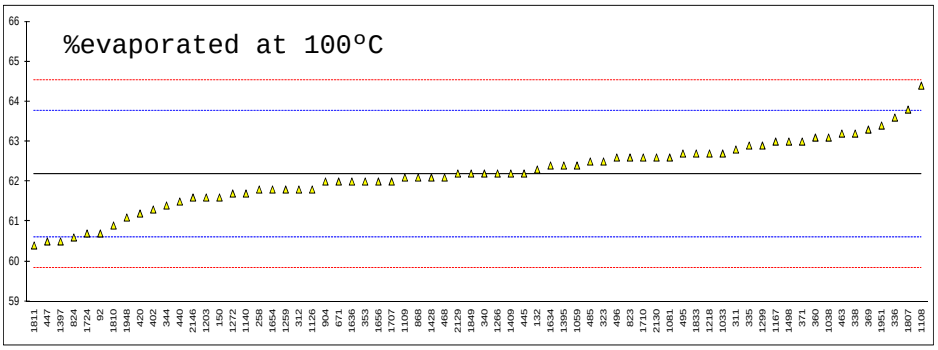

Kernel Density

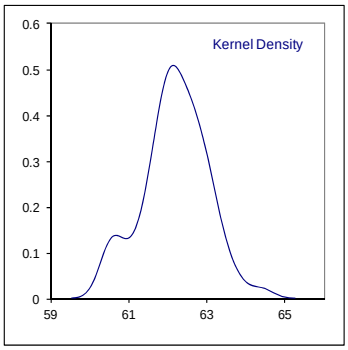

final boiling point

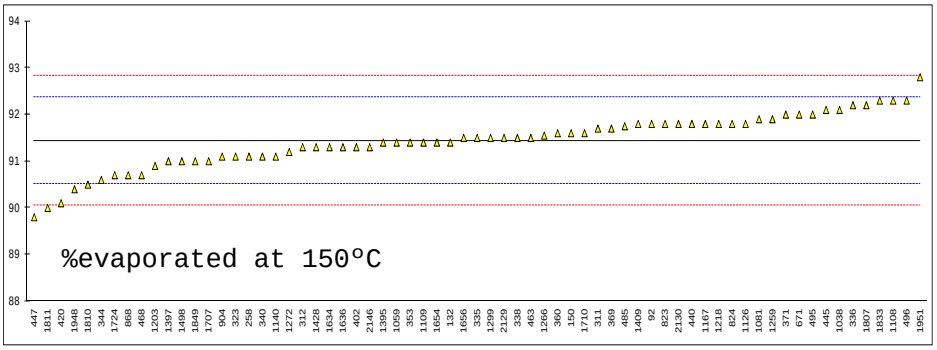

Kernel Density

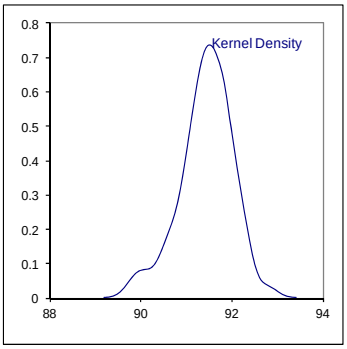

%evaporated at 70°C


Kernel Density


%evaporated at 100°C


Kernel Density


%evaporated at 150°C


Kernel Density

Determination of Distillation ASTM D86 (Manual) on sample #12115; results in °C

lab	method	IBP	Mark	10% eva	mark	50% eva	mark	90% eva	mark	FBP	Mark
92		-----		-----		-----		-----		-----	
132		-----		-----		-----		-----		-----	
150		-----		-----		-----		-----		-----	
225		-----		-----		-----		-----		-----	
228	D86	34.0		43.0		82.0		154.0		185.0	
258		-----		-----		-----		-----		-----	
311		-----		-----		-----		-----		-----	
312		-----		-----		-----		-----		-----	
323		-----		-----		-----		-----		-----	
335		-----		-----		-----		-----		-----	
336		-----		-----		-----		-----		-----	
337		-----		-----		-----		-----		-----	
338		-----		-----		-----		-----		-----	
340		-----		-----		-----		-----		-----	
344		-----		-----		-----		-----		-----	
353		-----		-----		-----		-----		-----	
360		-----		-----		-----		-----		-----	
369		-----		-----		-----		-----		-----	
371		-----		-----		-----		-----		-----	
391		-----		-----		-----		-----		-----	
402		-----		-----		-----		-----		-----	
420		-----		-----		-----		-----		-----	
430		-----		-----		-----		-----		-----	
431		-----		-----		-----		-----		-----	
440		-----		-----		-----		-----		-----	
445		-----		-----		-----		-----		-----	
447		-----		-----		-----		-----		-----	
463		-----		-----		-----		-----		-----	
468		-----		-----		-----		-----		-----	
485		-----		-----		-----		-----		-----	
495		-----		-----		-----		-----		-----	
496		-----		-----		-----		-----		-----	
541	ISO3405	30.5		43.0		84.0		150.5		179.0	
671		-----		-----		-----		-----		-----	
704	D86	30.7		42.3		81.1		148.2		179.5	
781		31.0		42.9		81.1		146.3		187.0	
823		-----		-----		-----		-----		-----	
824		-----		-----		-----		-----		-----	
868		-----		-----		-----		-----		-----	
875		-----		-----		-----		-----		-----	
902	D86	31.3		43.8		82.2		148.0		184.4	
904		-----		-----		-----		-----		-----	
962		-----		-----		-----		-----		-----	
970		-----		-----		-----		-----		-----	
1006		-----		-----		-----		-----		-----	
1017		-----		-----		-----		-----		-----	
1026		-----		-----		-----		-----		-----	
1033		-----		-----		-----		-----		-----	
1038		-----		-----		-----		-----		-----	
1059		-----		-----		-----		-----		-----	
1081		-----		-----		-----		-----		-----	
1108		-----		-----		-----		-----		-----	
1109		-----		-----		-----		-----		-----	
1126		-----		-----		-----		-----		-----	
1140		-----		-----		-----		-----		-----	
1155		-----		-----		-----		-----		-----	
1167		-----		-----		-----		-----		-----	
1186	D86	32.1		44.1		82.1		147.1		175.2	G(0.01)
1194		-----		-----		-----		-----		-----	
1199		-----		-----		-----		-----		-----	
1203		-----		-----		-----		-----		-----	
1218		-----		-----		-----		-----		-----	
1257		-----		-----		-----		-----		-----	
1259		-----		-----		-----		-----		-----	
1266		-----		-----		-----		-----		-----	
1272		-----		-----		-----		-----		-----	
1281	ISO3405	37.05		45.55		82.75		148.74		184.45	
1299		-----		-----		-----		-----		-----	
1394		-----		-----		-----		-----		-----	
1395		-----		-----		-----		-----		-----	
1397		-----		-----		-----		-----		-----	
1406		-----		-----		-----		-----		-----	
1407		-----		-----		-----		-----		-----	
1409		-----		-----		-----		-----		-----	
1426		-----		-----		-----		-----		-----	
1427		-----		-----		-----		-----		-----	

1428	-----	-----		-----		-----		-----	
1498	-----	-----		-----		-----		-----	
1499	-----	-----		-----		-----		-----	
1501	28.23	42.19		80.65		146.58		185.06	C
1520	32.0	40.6		80.8		147.4		185.0	
1557	33.0	46.0	C	90.0	C,G(0.01)	158.0	C,G(0.05)	185.0	
1564	-----	-----		-----		-----		-----	
1570	-----	-----		-----		-----		-----	
1634	-----	-----		-----		-----		-----	
1635	30.0	44.0		80.0		150.0		184.0	
1636	-----	-----		-----		-----		-----	
1654	-----	-----		-----		-----		-----	
1656	-----	-----		-----		-----		-----	
1707	-----	-----		-----		-----		-----	
1709	-----	-----		-----		-----		-----	
1710	-----	-----		-----		-----		-----	
1720	-----	-----		-----		-----		-----	
1724	-----	-----		-----		-----		-----	
1728	28.17	41.53		80.06		145.94		182.05	
1807	-----	-----		-----		-----		-----	
1810	-----	-----		-----		-----		-----	
1811	-----	-----		-----		-----		-----	
1833	-----	-----		-----		-----		-----	
1842	31.5	42.7		82.0		148.9		183.3	
1849	-----	-----		-----		-----		-----	
1851	-----	-----		-----		-----		-----	
1948	-----	-----		-----		-----		-----	
1949	30.0	43.0		82.75		151.0		184.5	
1951	-----	-----		-----		-----		-----	
2102	-----	-----		-----		-----		-----	
2129	-----	-----		-----		-----		-----	
2130	-----	-----		-----		-----		-----	
2146	-----	-----		-----		-----		-----	
normality	OK	OK		OK		OK		not OK	
n	14	14		13		13		13	
outliers	0	0		1		1		1	
mean (n)	31.40	43.19		81.65		148.67		183.71	
st.dev. (n)	2.287	1.441		1.164		2.258		2.277	
R(calc.)	6.40	4.04		3.26		6.32		6.37	
R(ISO3405:11)	5.60	3.74		4.28		4.35		7.20	

C = Corrected, the first reported test results are given below.

Lab 1557: 10% evap : 48.0
50% evap : 88.0
90% evap : 159.0

Determination of Distillation ASTM D86 (manual) on sample #12115; results in °C
--continued--

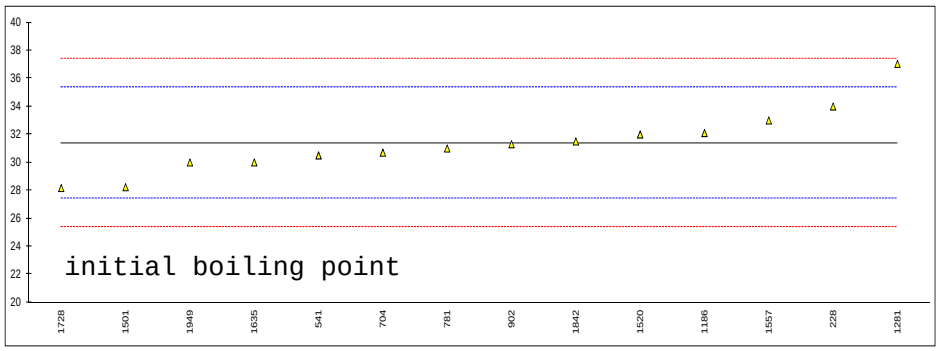
lab	method	%vol 70ºC	mark	%vol 100ºC	mark	%vol 150ºC	mark	%residue	Mark
92		-----		-----		-----		-----	
132		-----		-----		-----		-----	
150		-----		-----		-----		-----	
225		-----		-----		-----		-----	
228	D86-M	43.0		64.0		92.0		0.8	
258		-----		-----		-----		-----	
311		-----		-----		-----		-----	
312		-----		-----		-----		-----	
323		-----		-----		-----		-----	
335		-----		-----		-----		-----	
336		-----		-----		-----		-----	
337		-----		-----		-----		0.6	
338		-----		-----		-----		-----	
340		-----		-----		-----		-----	
344		-----		-----		-----		-----	
353		-----		-----		-----		-----	
360		-----		-----		-----		-----	
369		-----		-----		-----		-----	
371		-----		-----		-----		-----	
391		-----		-----		-----		-----	
402		-----		-----		-----		-----	
420		-----		-----		-----		-----	
430		-----		-----		-----		-----	
431		-----		-----		-----		-----	
440		-----		-----		-----		-----	
445		-----		-----		-----		-----	
447		-----		-----		-----		-----	
463		-----		-----		-----		-----	
468		-----		-----		-----		-----	
485		-----		-----		-----		-----	
495		-----		-----		-----		-----	
496		-----		-----		-----		-----	
541	ISO3405-M	42.0		60.0		90.0		1.2	
671		-----		-----		-----		-----	
704	D86-M	43.0		62.5		91.0		1.0	
781	ISO3405-M	42.3		62.3		91.7		0.8	
823		-----		-----		-----		-----	
824		-----		-----		-----		-----	
868		-----		-----		-----		-----	
875		-----		-----		-----		-----	
902	D86-M	42.0		62.0		91.4		1.0	
904		-----		-----		-----		-----	
962		-----		-----		-----		-----	
970		-----		-----		-----		-----	
1006		-----		-----		-----		1.4	
1017		-----		-----		-----		-----	
1026		-----		-----		-----		-----	
1033		-----		-----		-----		-----	
1038		-----		-----		-----		-----	
1059		-----		-----		-----		-----	
1081		-----		-----		-----		-----	
1108		-----		-----		-----		-----	
1109		-----		-----		-----		-----	
1126		-----		-----		-----		-----	
1140		-----		-----		-----		-----	
1155		-----		-----		-----		-----	
1167		-----		-----		-----		-----	
1186	D86-M	41		64		91.5		1.0	
1194		-----		-----		-----		-----	
1199		-----		-----		-----		-----	
1203		-----		-----		-----		-----	
1218		-----		-----		-----		-----	
1257		-----		-----		-----		-----	
1259		-----		-----		-----		-----	
1266		-----		-----		-----		-----	
1272		-----		-----		-----		-----	
1281	ISO3405-M	39.32		62.32		90.62		1.25	
1299		-----		-----		-----		-----	
1394		-----		-----		-----		-----	
1395		-----		-----		-----		-----	
1397		-----		-----		-----		-----	
1406		-----		-----		-----		-----	
1407		-----		-----		-----		-----	
1409		-----		-----		-----		-----	
1426		-----		-----		-----		-----	
1427		-----		-----		-----		-----	

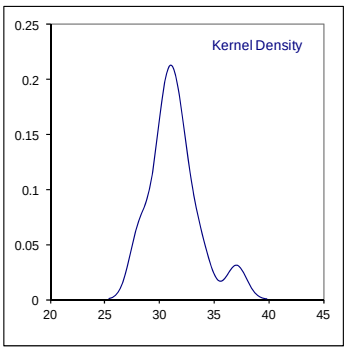
1428		-----		-----		-----	-----
1498		-----		-----		-----	-----
1499		-----		-----		-----	-----
1501	D86-M	43.2		62.5		91.7	1.2
1520	ISO3405-M	42.0		62.0		91.5	1.1
1557	ISO3405-M	35.5	C,G(0.01)	57.5	C,G(0.01)	86.0	G(0.01) 1.0
1564		-----		-----		-----	-----
1570		-----		-----		-----	-----
1634		-----		-----		-----	-----
1635	ISO3405-M	43.0		63.0		90.0	1.0
1636		-----		-----		-----	-----
1654		-----		-----		-----	-----
1656		-----		-----		-----	-----
1707		-----		-----		-----	-----
1709		-----		-----		-----	-----
1710		-----		-----		-----	-----
1720		-----		-----		-----	-----
1724		-----		-----		-----	-----
1728	ISO3405-M	42.84		62.32		91.85	1.2
1807		-----		-----		-----	-----
1810		-----		-----		-----	-----
1811		-----		-----		-----	-----
1833		-----		-----		-----	-----
1842		-----		-----		-----	-----
1849		-----		-----		-----	-----
1851		-----		-----		-----	-----
1948		-----		-----		-----	-----
1949	D86-M	42.4		62.4		91.4	1.1
1951		-----		-----		-----	-----
2102		-----		-----		-----	-----
2129		-----		-----		-----	-----
2130		-----		-----		-----	-----
2146		-----		-----		-----	-----

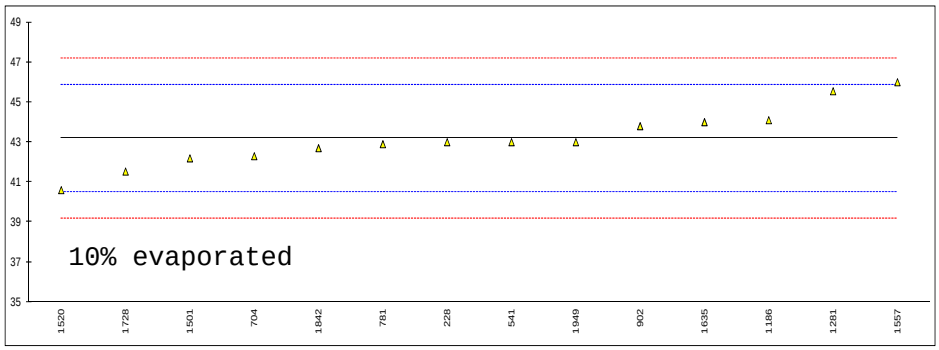
normality	not OK	not OK	not OK
n	12	12	12
outliers	1	1	1
mean (n)	42.17	62.44	91.22
st.dev. (n)	1.096	1.026	0.679
R(calc.)	3.07	2.87	1.90
R(ISO3405:11)	3.81	2.93	2.71

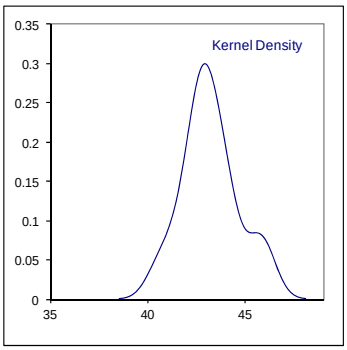
C= corrected, the first reported test results are given below.

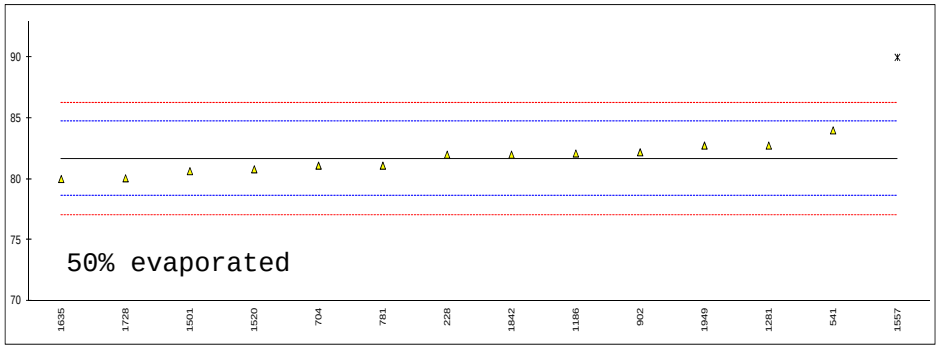
Lab 1557: % vol 70ºC : 36
% vol 100ºC : 58

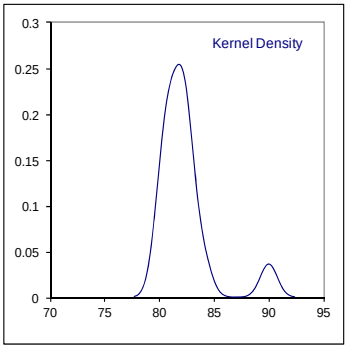

initial boiling point
1728 1501 1949 1635 541 704 781 902 1842 1520 1186 1557 228 1281

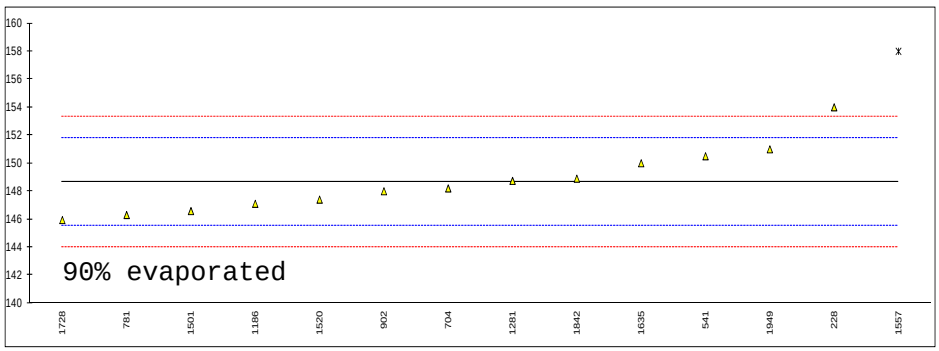

Kernel Density

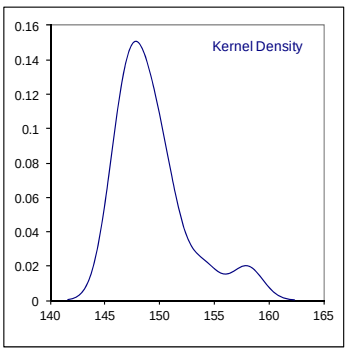

10% evaporated
1520 1728 1501 704 1842 781 228 541 1949 902 1635 1186 1281 1557

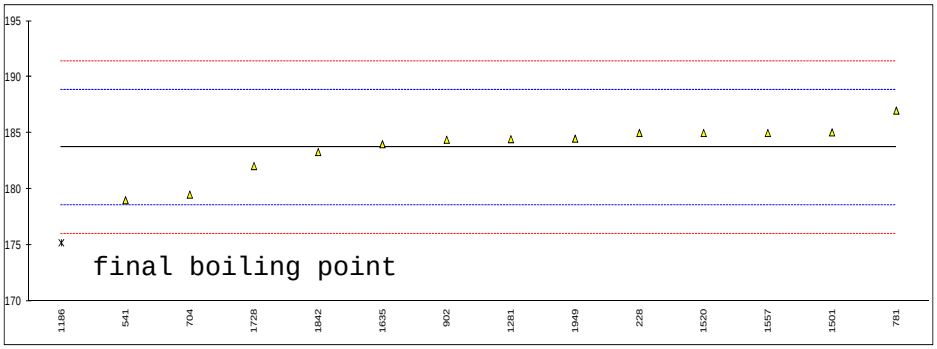

Kernel Density

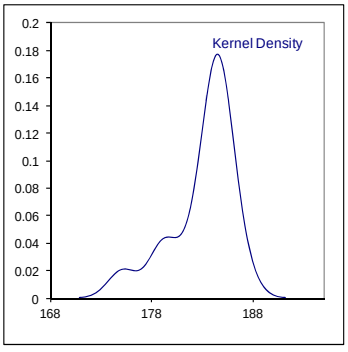

50% evaporated
1635 1728 1501 1520 704 781 228 1842 1186 902 1949 1281 541 1557

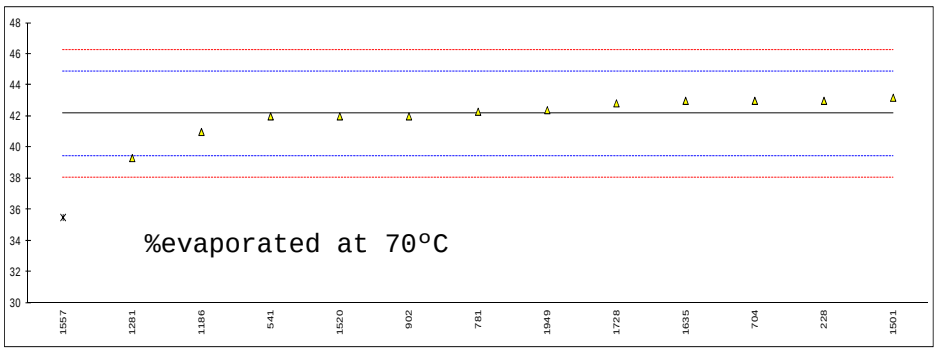

Kernel Density

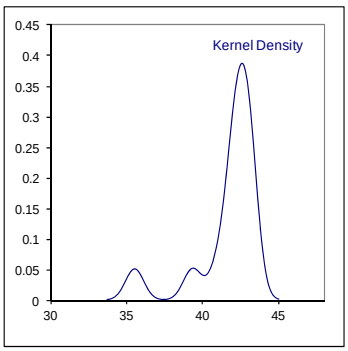

90% evaporated
1728 781 1501 1186 1520 902 704 1281 1842 1635 541 1949 228 1557

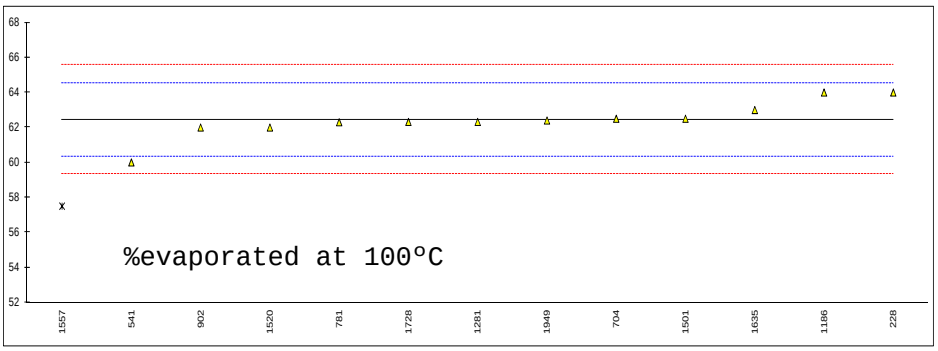

Kernel Density

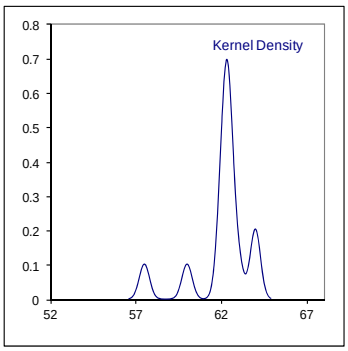

final boiling point
1186 541 704 1728 1842 1635 902 1281 1949 228 1520 1557 1501 781

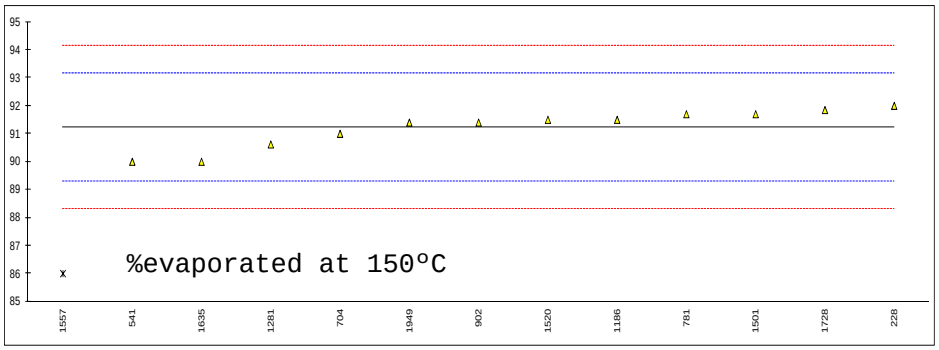

Kernel Density

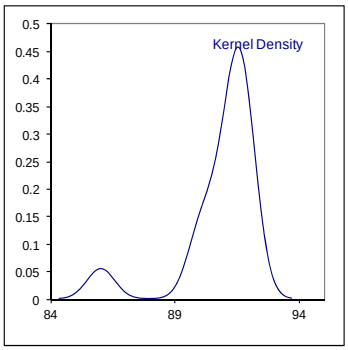

%evaporated at 70°C
1557 1281 1186 541 1520 902 781 1949 1728 1635 704 228 1501


Kernel Density


%evaporated at 100°C
1557 541 902 1520 781 1728 1281 1949 704 1501 1635 1186 228


Kernel Density


%evaporated at 150°C
1557 541 1635 1281 704 1949 902 1520 1186 781 1501 1728 228


Kernel Density

Determination of Doctor Test on sample #12115;

lab	method	value	mark	z(targ)	Remarks
92	D4952	neg		-----	
132	D4952	neg		-----	
150	D4952	neg		-----	
225		-----		-----	
228		-----		-----	
258		neg		-----	
311	D4952	neg		-----	
312	IP30	neg		-----	
323	D4952	neg		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	D4952	neg		-----	
344		-----		-----	
353		-----		-----	
360	D4952	neg		-----	
369	IP30	neg		-----	
371		-----		-----	
391	IP30	neg		-----	
402		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440	IP30	neg		-----	
445	IP30	neg		-----	
447	IP30	neg		-----	
463	IP30	neg		-----	
468		-----		-----	
485		-----		-----	
495		neg		-----	
496		-----		-----	
541	IP30	neg		-----	
671	D4952	neg		-----	
704	D4952	neg		-----	
781	D4952	neg		-----	
823	D4952	neg		-----	
824		neg		-----	
868	D4952	neg		-----	
875		-----		-----	
902		-----		-----	
904	D4952	neg		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059	ISO5275	neg		-----	
1081	D4952	neg		-----	
1108		-----		-----	
1109	IP30	neg		-----	
1126		-----		-----	
1140		neg		-----	
1155		-----		-----	
1167		-----		-----	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	D4952	0.7		-----	
1218		-----		-----	
1257	D4952	neg		-----	
1259	D4952	neg		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299	IP30	neg		-----	
1394		-----		-----	
1395		-----		-----	
1397		neg		-----	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1426		-----		-----	
1427		-----		-----	

1428	D4952	neg	-----
1498		-----	-----
1499		-----	-----
1501	D4952	neg	-----
1520	D4952	neg	-----
1557		-----	-----
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	D4952	neg	-----
1636	D4952	neg	-----
1654		-----	-----
1656		-----	-----
1707	D4952	neg	-----
1709		-----	-----
1710		neg	-----
1720		-----	-----
1724	IP30	neg	-----
1728	D4952	neg	-----
1807		-----	-----
1810		-----	-----
1811		neg	-----
1833		neg	-----
1842		-----	-----
1849		neg	-----
1851		-----	-----
1948		-----	-----
1949	D4952	sweet	-----
1951		neg	-----
2102		-----	-----
2129		neg	-----
2130		neg	-----
2146		-----	-----

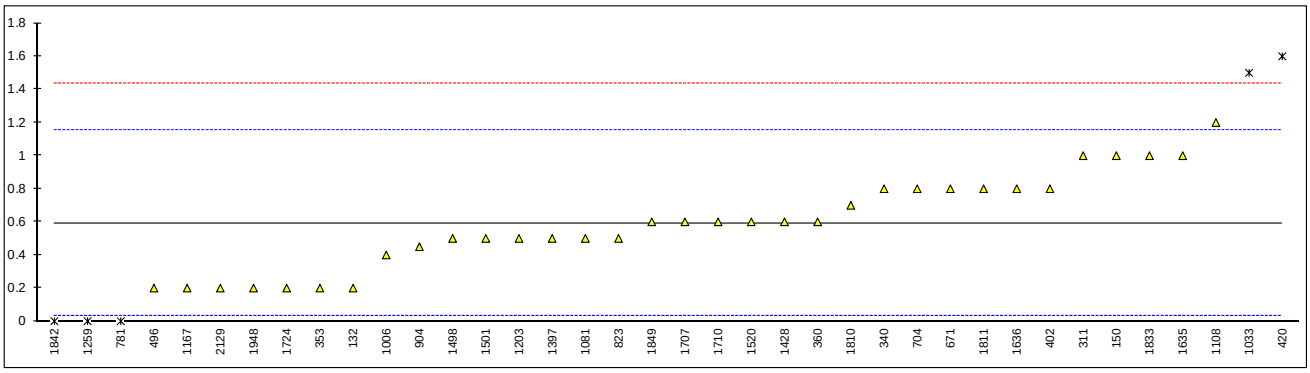
normality	n.a
n	49
outliers	n.a
mean (n)	neg
st.dev. (n)	n.a
R(calc.)	n.a
R(D4952:09)	n.a

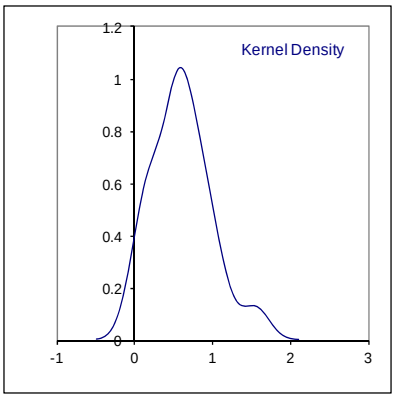
Determination of Existent Gum (washed) on sample #12115; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
92	D381	<0.5		-----	
132	D381	0.2		-1.39	
150	D381	1.0		1.45	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	ISO6246	1		1.45	
312	ISO6246	<0.5		-----	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO6246	0.8		0.74	
344		-----		-----	
353	IP131	0.2		-1.39	
360	ISO6246	0.6		0.03	
369	D381	<0.5		-----	
371		-----		-----	
391		-----		-----	
402	ISO6246	0.8		0.74	
420	ISO6246	1.6	DG(0.05)	3.57	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP131	<1		-----	
447	IP131	<1		-----	
463	ISO6246	<1		-----	
468		-----		-----	
485		-----		-----	
495	ISO6246	<1		-----	
496	ISO6246	0.2		-1.39	
541		-----		-----	
671	D381	0.8		0.74	
704	ISO6246	0.8		0.74	
781	ISO6246	0	ex	-2.10	result excluded, zero is not a real value
823	D341	0.5		-0.33	
824		-----		-----	
868	D381	<0.5		-----	
875		-----		-----	
902		-----		-----	
904	D381	0.45		-0.50	
962		-----		-----	
970		-----		-----	
1006	ISO6246	0.4		-0.68	
1017		-----		-----	
1026		-----		-----	
1033	IP131	1.50	DG(0.05)	3.22	
1038		-----		-----	
1059	ISO6246	<1		-----	
1081	D381	0.5		-0.33	
1108	ISO6246	1.2		2.15	
1109	D381	<0.5		-----	
1126		-----		-----	
1140		-----		-----	
1155		-----		-----	
1167	ISO6246	0.2		-1.39	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO6246	0.5		-0.33	
1218		-----		-----	
1257		-----		-----	
1259	ISO6246	0	ex	-2.10	result excluded, zero is not a real value
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299	D381	<0.5		-----	
1394		-----		-----	
1395	D381	<0.5		-----	
1397	ISO6246	0.5		-0.33	
1407		-----		-----	
1409	ISO6246	<1		-----	
1426		-----		-----	
1427		-----		-----	
1428	ISO6246	0.6		0.03	

1498	D381	0.5		-0.33	
1499		-----		-----	
1501	D381	0.50		-0.33	
1520	ISO6246	0.6		0.03	
1557		-----		-----	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	ISO6246	1.0		1.45	
1636	ISO6246	0.8		0.74	
1654		-----		-----	
1656	ISO6246	<1		-----	
1707	ISO6246	0.6		0.03	
1709		-----		-----	
1710	ISO6246	0.6		0.03	
1720		-----		-----	
1724	ISO6246	0.2		-1.39	
1728		-----		-----	
1807		-----		-----	
1810	ISO6246	0.7		0.38	
1811	ISO6246	0.8		0.74	
1833	ISO6246	1.0		1.45	
1842	D381	0.0	ex	-2.10	result excluded, zero is not a real value
1849	ISO6246	0.6		0.03	
1851		-----		-----	
1948	ISO6246	0.2		-1.39	
1949	D381	<0.5		-----	
1951		-----		-----	
2102		-----		-----	
2129	ISO6246	0.2		-1.39	
2130		-----		-----	
2146		-----		-----	

normality	OK
n	33
outliers	2
mean (n)	0.59
st.dev. (n)	0.279
R(calc.)	0.78
R(ISO6246:98)	0.79





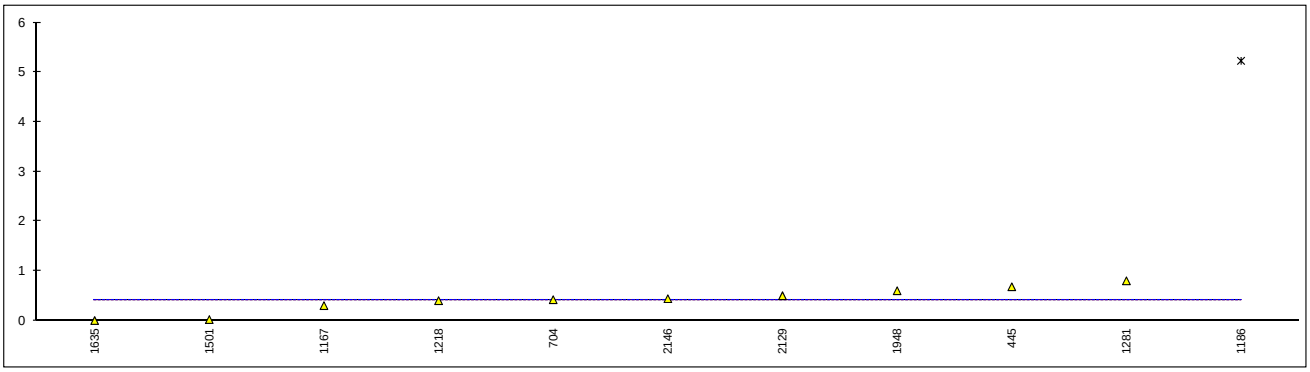
Determination of Lead as Pb on sample #12115; results in mg/L

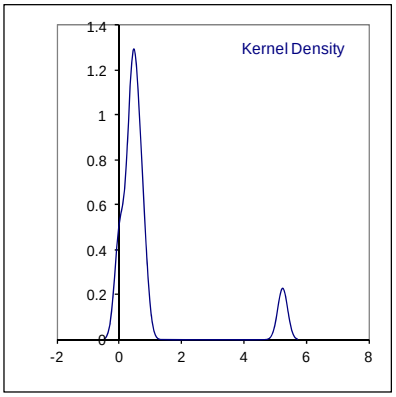
lab	method	value	mark	z(targ)	Remarks
92		-----		-----	
132	D3237	<2.5		-----	
150		-----		-----	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311		-----		-----	
312	EN237	<2.5		-----	
323	EN237	<2.5		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
344		-----		-----	
353		-----		-----	
360	in house	<2.5		-----	
369		-----		-----	
371	EN237	<2.5		-----	
391		-----		-----	
402		-----		-----	
420	EN237	<2.5		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP428	0.68		-----	
447	EN237	<2.5		-----	
463	D3237	<2.5		-----	
468		-----		-----	
485		-----		-----	
495	EN237	<2.5		-----	
496	EN237	<2.5		-----	
541	D3237	<2.5		-----	
671		-----		-----	
704	EN237	0.42		-----	
781	EN237	<1		-----	
823		-----		-----	
824		-----		-----	
868	UOP952	<0.01		-----	
875		-----		-----	
902		-----		-----	
904	D3237	<2.5		-----	
962		-----		-----	
970		-----		-----	
1006	D3237	<2.5		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059		-----		-----	
1081	D5059	<2.5		-----	
1108		-----		-----	
1109	D3237	<2.5		-----	
1126		-----		-----	
1140		-----		-----	
1155		-----		-----	
1167	EN237	0.30		-----	
1186	D3237	5.23	G(0.01)	-----	false positive?
1194		-----		-----	
1199		-----		-----	
1203	EN237	<1		-----	
1218	in house	0.4		-----	
1257		-----		-----	
1259	EN237	<2.5		-----	
1266		-----		-----	
1272		-----		-----	
1281	EN237	0.8		-----	
1299	EN237	<0.0025		-----	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN237	<2.5		-----	
1426		-----		-----	
1427		-----		-----	

1428	EN237	<2.5		-----	
1498		-----		-----	
1499		-----		-----	
1501	D3237	0.02		-----	
1520	EN237	<2.50		-----	
1557	in house	<0.019		-----	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	EN237	0.0	ex	-----	result excluded, zero is not a real value
1636	IP352	<1		-----	
1654		-----		-----	
1656	EN237	<2.5		-----	
1707	EN237	<2.5		-----	
1709		-----		-----	
1710	EN237	<2.5		-----	
1720		-----		-----	
1724	EN237	<3.0		-----	
1728		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
1833	EN237	<2.5		-----	
1842	EN237	<0.001		-----	
1849		-----		-----	
1851		-----		-----	
1948	EN237	0.6		-----	
1949	EN237	<2.5		-----	
1951		-----		-----	
2102		-----		-----	
2129	EN237	0.5		-----	
2130		-----		-----	
2146	ISO8754	0.44		-----	

	normality	OK
	n	41
	outliers	1
	mean (n)	0.46
	st.dev. (n)	0.226
	R(calc.)	0.63
	R(EN237:04)	(2.00)

application range : (2.5 – 25 mg/L)





Determination of Manganese as Mn on sample #12115; results in mg/L

lab	method	value	mark	z(targ)	Remarks
92		-----		-----	
132		-----		-----	
150		-----		-----	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311		-----		-----	
312	EN16136	<1		-----	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
344		-----		-----	
353		-----		-----	
360	EN16136	<2		-----	
369		-----		-----	
371		-----		-----	
391		-----		-----	
402		-----		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445		-----		-----	
447		-----		-----	
463	EN16135	<2		-----	
468		-----		-----	
485		-----		-----	
495		-----		-----	
496		-----		-----	
541	D3831	<0.25		-----	
671		-----		-----	
704		-----		-----	
781	INH-51925	<0.25		-----	
823		-----		-----	
824		-----		-----	
868	D3831	<0.25		-----	
875		-----		-----	
902		-----		-----	
904	D3831	<0.5		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059		-----		-----	
1081		-----		-----	
1108		-----		-----	
1109		-----		-----	
1126		-----		-----	
1140		-----		-----	
1155		-----		-----	
1167	D3831	0.22		-----	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	D3831	<2		-----	
1218	in house	0.0	ex	-----	result excluded, zero is not a real value
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299	D3831	0	ex	-----	result excluded, zero is not a real value
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN16135	<2		-----	
1426		-----		-----	
1427		-----		-----	

1428		-----	-----
1498		-----	-----
1499		-----	-----
1501	D3831	0.30	-----
1520		-----	-----
1557	in house	0.008	-----
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635		-----	-----
1636		-----	-----
1654		-----	-----
1656		-----	-----
1707	INH-8829	<1	-----
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724		-----	-----
1728		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833		-----	-----
1842		-----	-----
1849		-----	-----
1851		-----	-----
1948	D3831	0.6	-----
1949	D3831	<0.25	-----
1951		-----	-----
2102		-----	-----
2129	D3831	<0.2	-----
2130		-----	-----
2146		-----	-----

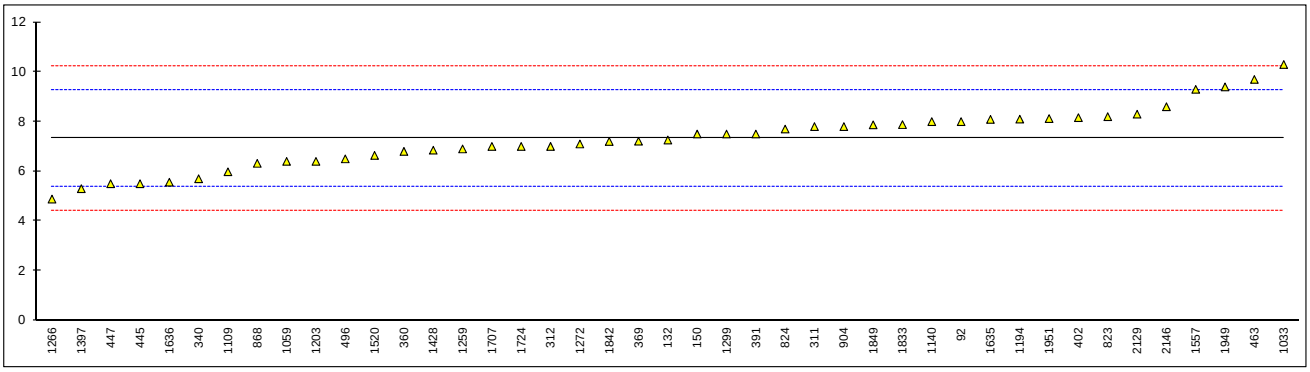
normality	OK	
n	4	
outliers	0	
mean (n)	0.28	
st.dev. (n)	0.245	
R(calc.)	0.69	Compare R(ISO16136:12) = 0.78
R(ISO16135:11)	(0.78)	application range : 2 – 8 mg/L

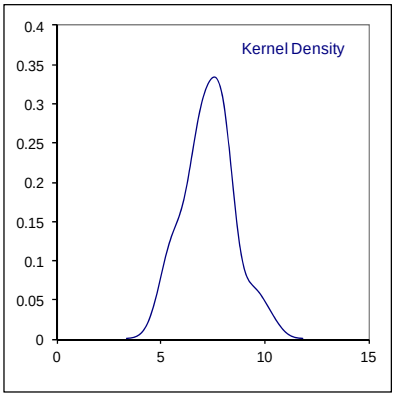
Determination of Olefins by FIA on sample #12115; results in %V/V

lab	method	value	mark	z(targ)	Remarks
92	D1319	8.0		0.70	
132	D1319	7.26		-0.06	
150	D1319	7.5		0.18	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	D1319	7.8		0.50	
312	D1319	7.0		-0.33	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	D1319	5.7		-1.68	
344		-----		-----	
353		-----		-----	
360	D1319	6.8		-0.54	
369	D1319	7.21	C	-0.12	first reported: 27.69
371		-----		-----	
391	D1319	7.5		0.18	
402	D1319	8.16		0.87	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	D1319	5.5		-1.89	
447	D1319	5.5		-1.89	
463	D1319	9.7		2.46	
468		-----		-----	
485		-----		-----	
495		-----		-----	
496	D1319	6.50		-0.85	
541		-----		-----	
671		-----		-----	
704		-----		-----	
781		-----		-----	
823	D1319	8.2	C	0.91	first reported: 10.56
824	D1319	7.7		0.39	
868	D1319	6.32		-1.04	
875		-----		-----	
902		-----		-----	
904	D1319	7.8		0.50	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP156	10.3		3.09	
1038		-----		-----	
1059	D1319	6.4		-0.95	
1081		-----		-----	
1108		-----		-----	
1109	D1319	5.98		-1.39	
1126		-----		-----	
1140	D1319	8.0		0.70	
1155		-----		-----	
1167		-----		-----	
1186		-----		-----	
1194	INH-1319	8.1		0.81	
1199		-----		-----	
1203	D1319	6.4		-0.95	
1218		-----		-----	
1257		-----		-----	
1259	D1319	6.9		-0.44	
1266	in house	4.88		-2.53	
1272	INH-1401	7.1		-0.23	
1281		-----		-----	
1299	D1319	7.5		0.18	
1394		-----		-----	
1395		-----		-----	
1397	D1319	5.3		-2.09	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1426		-----		-----	
1427		-----		-----	

1428	EN15553	6.85	-0.49
1498		-----	-----
1499		-----	-----
1501		-----	-----
1520	D1319	6.64	-0.71
1557	INH-1200	9.3	2.05
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	D1319	8.09	0.80
1636	D1319	5.56	-1.82
1654		-----	-----
1656		-----	-----
1707	EN15553	7.0	-0.33
1709		-----	-----
1710		-----	-----
1720		-----	-----
1724	D1319	7.0	-0.33
1728		-----	-----
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	D1319	7.88	0.58
1842	D1319	7.2	-0.13
1849	D1319	7.87	0.57
1851		-----	-----
1948		-----	-----
1949	D1319	9.4	2.15
1951	D1319	8.123	0.83
2102		-----	-----
2129	D1319	8.3	1.01
2130		-----	-----
2146	D1319	8.6	1.32

normality	OK
n	43
outliers	0
mean (n)	7.32
st.dev. (n)	1.195
R(calc.)	3.35
R(D1319:10)	2.70



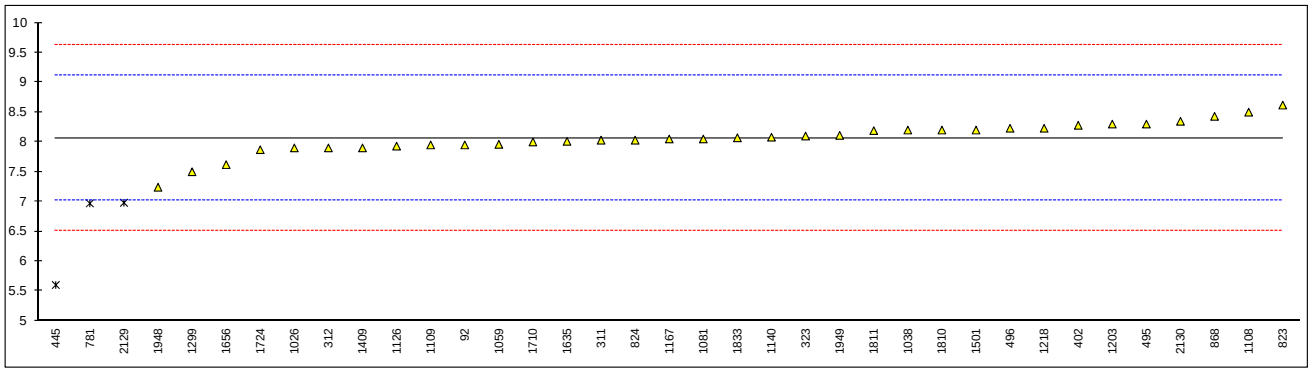


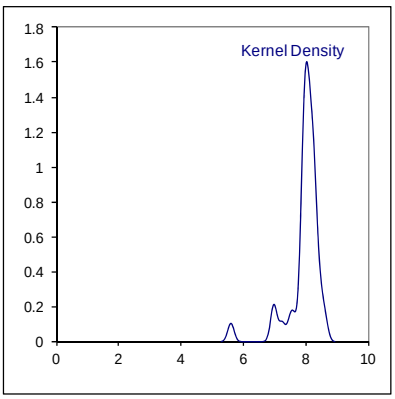
Determination of Olefins by GC on sample #12115; results in %V/V

lab	method	value	mark	z(targ)	Remarks
92	INH-99	7.95		-0.22	
132		-----		-----	
150		-----		-----	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN22854	8.03		-0.07	
312	EN22854	7.9		-0.32	
323	EN22854	8.1		0.06	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
344		-----		-----	
353		-----		-----	
360		-----		-----	
369		-----		-----	
371		-----		-----	
391		-----		-----	
402	EN22854	8.28		0.41	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP566	5.60	C,G(0.01)	-4.73	first reported: 4.55
447		-----		-----	
463		-----		-----	
468		-----		-----	
485		-----		-----	
495	EN22854	8.3		0.45	
496	EN22854	8.23		0.31	
541		-----		-----	
671		-----		-----	
704		-----		-----	
781	INH-52714	6.97	DG(0.01)	-2.10	
823	D6730	8.619	C	1.06	first reported: 10.004
824	EN22854	8.03		-0.07	
868	D6839	8.43		0.70	
875		-----		-----	
902		-----		-----	
904		-----		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026	D6729	7.9		-0.32	
1033		-----		-----	
1038	D6839	8.2		0.26	
1059	EN22854	7.96		-0.21	
1081	EN14517	8.05		-0.03	
1108	EN22854	8.5		0.83	
1109	D6839	7.95		-0.22	
1126	in house	7.93		-0.26	
1140	D6293	8.08		0.03	
1155		-----		-----	
1167	EN22854	8.05		-0.03	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	EN14517	8.3		0.45	
1218	EN22854	8.23		0.31	
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299	EN22854	7.5		-1.09	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	7.9		-0.32	
1426		-----		-----	
1427		-----		-----	

1428		-----		-----	
1498		-----		-----	
1499		-----		-----	
1501	D6839	8.20		0.26	
1520		-----		-----	
1557		-----		-----	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	EN14517	8.01		-0.11	
1636		-----		-----	
1654		-----		-----	
1656	EN14517	7.62		-0.86	
1707		-----		-----	
1709		-----		-----	
1710	EN14517	8.0		-0.13	
1720		-----		-----	
1724	EN22854	7.87		-0.38	
1728		-----		-----	
1807		-----		-----	
1810	EN22854	8.2		0.26	
1811	EN22854	8.19		0.24	
1833	EN22854	8.07		0.01	
1842		-----		-----	
1849		-----		-----	
1851		-----		-----	
1948	EN22854	7.24		-1.59	
1949	EN22854	8.11		0.08	
1951		-----		-----	
2102		-----		-----	
2129	D6730	6.98	C,DG(0.01)	-2.08	first reported: 6.43
2130	EN22854	8.347		0.54	
2146		-----		-----	

normality	OK
n	34
outliers	3
mean (n)	8.067
st.dev. (n)	0.2684
R(calc.)	0.751
R(EN22854:08)	1.460



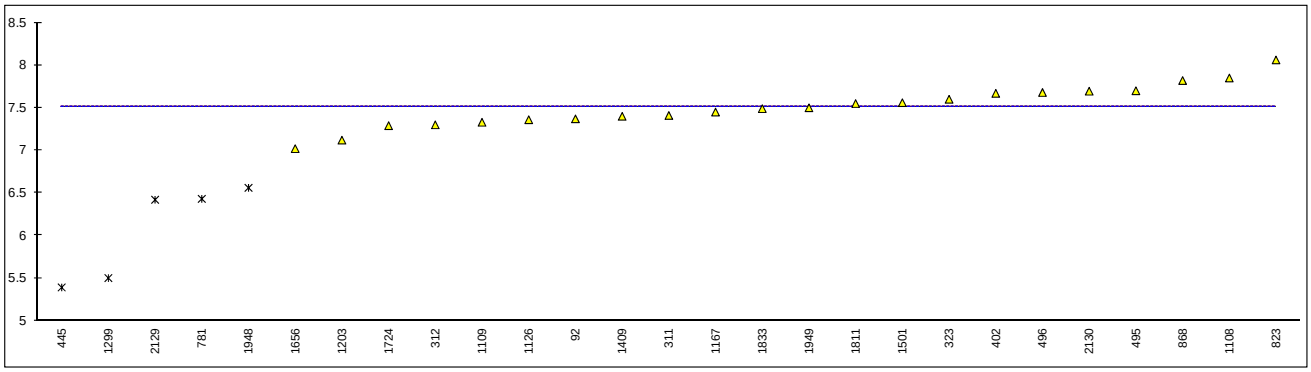


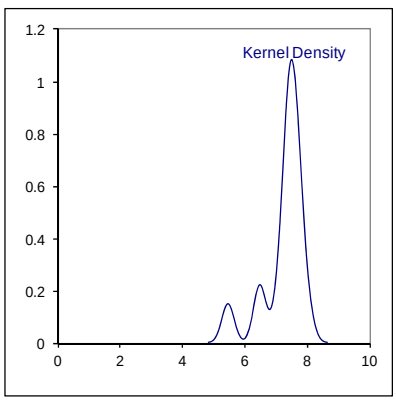
Determination of Olefins by GC on sample #12115; results in %M/M

lab	method	value	mark	z(targ)	Remarks
92	INH-99	7.37		-----	
132		-----		-----	
150		-----		-----	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311		7.41		-----	
312	EN22854	7.3		-----	
323	EN22854	7.6		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340		-----		-----	
344		-----		-----	
353		-----		-----	
360		-----		-----	
369		-----		-----	
371		-----		-----	
391		-----		-----	
402	EN22854	7.67		-----	
420		-----		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP566	5.39	C,DG(0.01)	-----	first reported: 4.43
447		-----		-----	
463		-----		-----	
468		-----		-----	
485		-----		-----	
495		7.7		-----	
496	EN22854	7.68		-----	
541		-----		-----	
671		-----		-----	
704		-----		-----	
781	INH-52714	6.43	DG(0.05)	-----	
823	D6730	8.062	C	-----	first reported: 9.201
824		-----		-----	
868	D6839	7.82		-----	
875		-----		-----	
902		-----		-----	
904		-----		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059		-----		-----	
1081		-----		-----	
1108	EN22854	7.85		-----	
1109	D6839	7.33		-----	
1126	in house	7.36		-----	
1140		-----		-----	
1155		-----		-----	
1167	EN22854	7.45		-----	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	EN14517	7.12		-----	
1218		-----		-----	
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299		5.5	DG(0.01)	-----	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	7.4		-----	
1426		-----		-----	
1427		-----		-----	

1428		-----		-----	
1498		-----		-----	
1499		-----		-----	
1501	D6839	7.56		-----	
1520		-----		-----	
1557		-----		-----	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635		-----		-----	
1636		-----		-----	
1654		-----		-----	
1656	EN14517	7.02		-----	
1707		-----		-----	
1709		-----		-----	
1710		-----		-----	
1720		-----		-----	
1724		7.29		-----	
1728		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		7.55		-----	
1833		7.49		-----	
1842		-----		-----	
1849		-----		-----	
1851		-----		-----	
1948		6.56	G(0.05)	-----	
1949	EN22854	7.50		-----	
1951		-----		-----	
2102		-----		-----	
2129	D6730	6.42	C,DG(0.05)	-----	first reported: 5.89
2130		7.695		-----	
2146		-----		-----	

normality	OK
n	22
outliers	5
mean (n)	7.510
st.dev. (n)	0.2429
R(calc.)	0.680
R(EN22854:08)	unknown



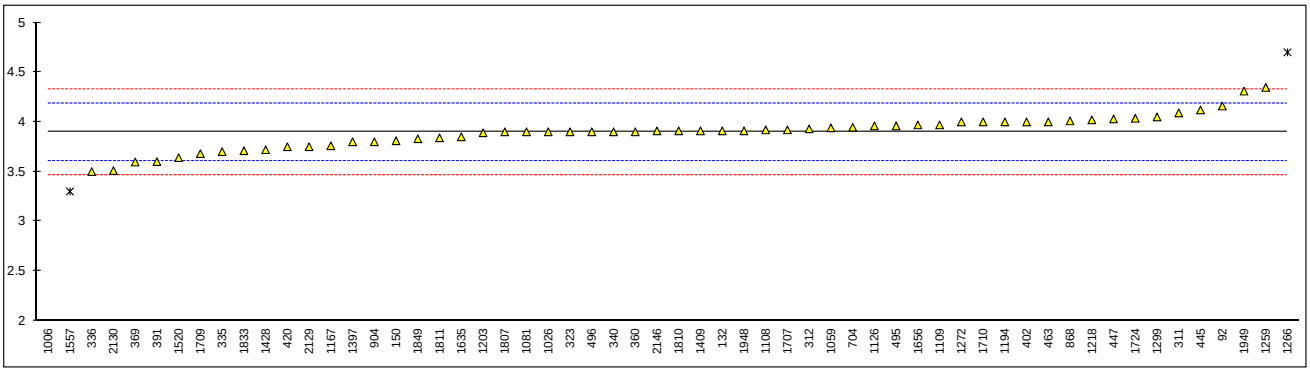


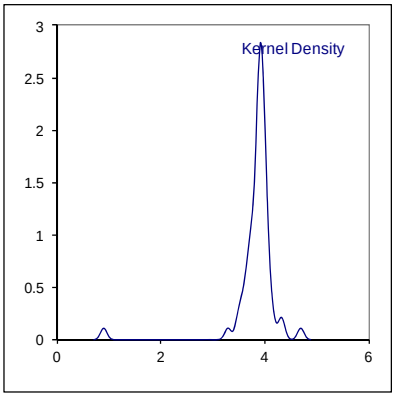
Determination of Ethanol on sample #12115; results in %V/V

lab	method	value	mark	z(targ)	Remarks
92	INH-99	4.16		1.85	
132	D5599	3.91		0.10	
150	D5599	3.81		-0.60	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN22854	4.09		1.36	
312	EN22854	3.93		0.24	
323	EN22854	3.90		0.03	
335	EN1601	3.7		-1.37	
336	EN1601	3.5		-2.77	
337		-----		-----	
338		-----		-----	
340	EN1601	3.90		0.03	
344		-----		-----	
353		-----		-----	
360	EN13132	3.90		0.03	
369	D4815	3.596		-2.10	
371		-----		-----	
391	EN1601	3.60		-2.07	
402	EN22854	4.00		0.73	
420	EN13132	3.75		-1.02	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	D4815	4.12		1.57	
447	D4815	4.03		0.94	
463	EN13132	4.0		0.73	
468		-----		-----	
485		-----		-----	
495	EN22854	3.96		0.45	
496	EN1601	3.90		0.03	
541		-----		-----	
671		-----		-----	
704	D4815	3.946		0.35	
781		-----		-----	
823		-----		-----	
824		-----		-----	
868	D4815	4.01		0.80	
875		-----		-----	
902		-----		-----	
904	D4815	3.8		-0.67	
962		-----		-----	
970		-----		-----	
1006	D4815	0.91	G(0.01)	-20.90	
1017		-----		-----	
1026	EN13132	3.9		0.03	
1033		-----		-----	
1038		-----		-----	
1059	EN22854	3.94		0.31	
1081	EN14517	3.90		0.03	
1108	EN22854	3.92		0.17	
1109	D6839	3.97		0.52	
1126	in house	3.96		0.45	
1140		-----		-----	
1155		-----		-----	
1167	EN13132	3.76		-0.95	
1186		-----		-----	
1194	D5845	4.0		0.73	
1199		-----		-----	
1203	EN14517	3.89		-0.04	
1218	EN22854	4.02		0.87	
1257		-----		-----	
1259	EN13132	4.347		3.16	
1266	D5845	4.7	G(0.01)	5.63	
1272	EN13132	4.0		0.73	
1281		-----		-----	
1299	ISO22854	4.05		1.08	
1394		-----		-----	
1395		-----		-----	
1397	EN13132	3.8		-0.67	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	3.91		0.10	
1426		-----		-----	
1427		-----		-----	

1428	EN13132	3.72		-1.23	
1498		-----		-----	
1499		-----		-----	
1501		-----		-----	
1520	EN13132	3.64		-1.79	
1557	D5845	3.3	G(0.05)	-4.17	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	EN22854	3.85		-0.32	
1636		-----		-----	
1654		-----		-----	
1656	EN14517	3.97		0.52	
1707	EN13132	3.92		0.17	
1709	D4815	3.68		-1.51	
1710	EN1601	4.0		0.73	
1720		-----		-----	
1724	EN13132	4.036		0.98	
1728		-----		-----	
1807	EN13132	3.9		0.03	
1810	EN1601	3.91		0.10	
1811	EN1601	3.84		-0.39	
1833	EN13132	3.71		-1.30	
1842		-----		-----	
1849	EN1601	3.83		-0.46	
1851		-----		-----	
1948	EN1601	3.91		0.10	
1949	EN22854	4.31	C	2.90	first reported: 3.41
1951		-----		-----	
2102		-----		-----	
2129	D6730	3.75		-1.02	
2130	EN1601	3.510		-2.70	
2146	EN13132	3.909		0.09	

normality	not OK
n	55
outliers	3
mean (n)	3.896
st.dev. (n)	0.1666
R(calc.)	0.467
R(EN1601:97)	0.400

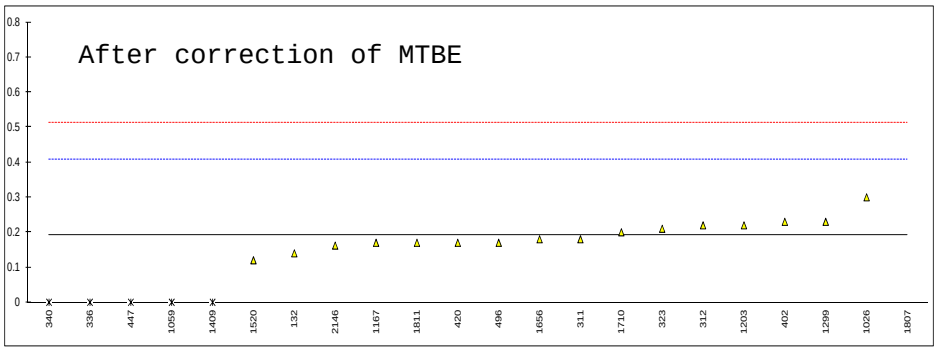


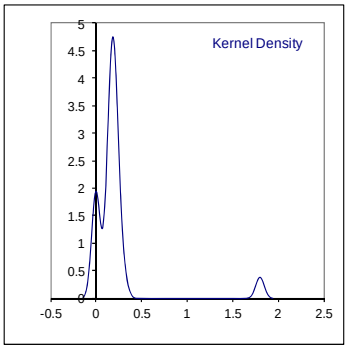


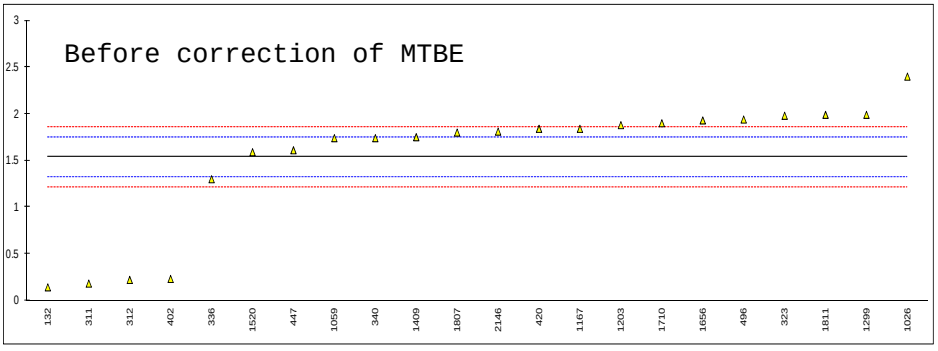
Determination of Ethers (>C5) on sample #12115; results in %V/V

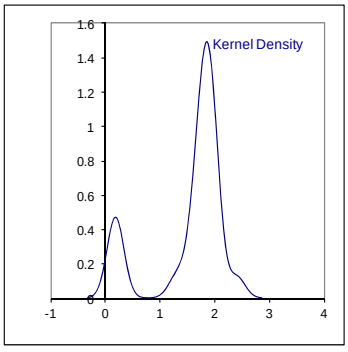
lab	method	value	After correction for MTBE	mark	z(targ)	remarks
92		-----	-----		-----	
132	D5599	0.14	0.14		-0.49	
150		-----	-----		-----	
225		-----	-----		-----	
228		-----	-----		-----	
258		-----	-----		-----	
311	EN22854	0.18	0.18		-0.11	
312	EN22854	0.22	0.22		0.26	
323	EN22854	1.98	0.21		0.17	
335		-----	-----		-----	
336	EN1601	1.3	0	ex	-1.79	result excluded, zero is not a real value
337		-----	-----		-----	
338		-----	-----		-----	
340	EN1601	1.74	0	ex	-1.79	result excluded, zero is not a real value
344		-----	-----		-----	
353		-----	-----		-----	
360		-----	-----		-----	
369		-----	-----		-----	
371		-----	-----		-----	
391	EN1601	<0.20	<0.20		-----	
402	EN22854	0.23	0.23		0.35	
420	EN13132	1.84	0.17		-0.21	
430		-----	-----		-----	
431		-----	-----		-----	
440		-----	-----		-----	
445	D4815	<0.1	<0.1		-----	
447	D4815	1.61	0	ex	-1.79	result excluded, zero is not a real value
463	EN13132	<0.3	<0.3		-----	
468		-----	-----		-----	
485		-----	-----		-----	
495		-----	-----		-----	
496	EN1601	1.94	0.17		-0.21	
541		-----	-----		-----	
671		-----	-----		-----	
704	D4815	<0.20	<0.20		-----	
781		-----	-----		-----	
823		-----	-----		-----	
824		-----	-----		-----	
868	D4815	<0.20	<0.20		-----	
875		-----	-----		-----	
902		-----	-----		-----	
904	D4815	<0.2	<0.2		-----	
962		-----	-----		-----	
970		-----	-----		-----	
1006		-----	-----		-----	
1017		-----	-----		-----	
1026	EN13132	2.4	0.3		1.01	
1033		-----	-----		-----	
1038		-----	-----		-----	
1059	EN22854	1.74	0	ex	-1.79	result excluded, zero is not a real value
1081		-----	-----		-----	
1108		-----	-----		-----	
1109		-----	-----		-----	
1126		-----	-----		-----	
1140		-----	-----		-----	
1155		-----	-----		-----	
1167	EN13132	1.84	0.17		-0.21	
1186		-----	-----		-----	
1194		-----	-----		-----	
1199		-----	-----		-----	
1203	EN14517	1.88	0.22		0.26	
1218		-----	-----		-----	
1257		-----	-----		-----	
1259		-----	-----		-----	
1266		-----	-----		-----	
1272		-----	-----		-----	
1281		-----	-----		-----	
1299	ISO22854	1.99	0.23		0.35	
1394		-----	-----		-----	
1395		-----	-----		-----	
1397		-----	-----		-----	
1406		-----	-----		-----	
1407		-----	-----		-----	
1409	EN22854	1.75	0	ex	-1.79	result excluded, zero is not a rael value
1426		-----	-----		-----	
1427		-----	-----		-----	

1428		-----	-----		-----	
1498		-----	-----		-----	
1499		-----	-----		-----	
1501		-----	-----		-----	
1520	EN13132	1.59	0.12		-0.67	
1557		-----	-----		-----	
1564		-----	-----		-----	
1570		-----	-----		-----	
1634		-----	-----		-----	
1635	EN22854	n.d.	n.d.		-----	
1636		-----	-----		-----	
1654		-----	-----		-----	
1656	EN14517	1.93	0.18		-0.11	
1707	EN13132	<0.17	<0.17		-----	
1709		-----	-----		-----	
1710	EN1601	1.9	0.2		0.07	
1720		-----	-----		-----	
1724		-----	-----		-----	
1728		-----	-----		-----	
1807	EN13132	1.8	1.8	G(0.01)	15.01	see § 4.1
1810		-----	-----		-----	
1811	EN1601	1.99	0.17		-0.21	
1833		-----	-----		-----	
1842		-----	-----		-----	
1849		-----	-----		-----	
1851		-----	-----		-----	
1948		-----	-----		-----	
1949	EN22854	<0.01	<0.01		-----	
1951		-----	-----		-----	
2102		-----	-----		-----	
2129	D6730	<0.1	<0.1		-----	
2130		-----	-----		-----	
2146	EN13132	1.810	0.162		-0.28	
	normality	not OK	OK			
	n	22	16			
	outliers	0	1			
	mean (n)	1.54	0.19			
	st.dev. (n)	0.679	0.043			
	R(calc.)	1.90	0.12			
	R(EN1601:97)	0.30	0.30	application range: 0.17 – 15 % M/M		







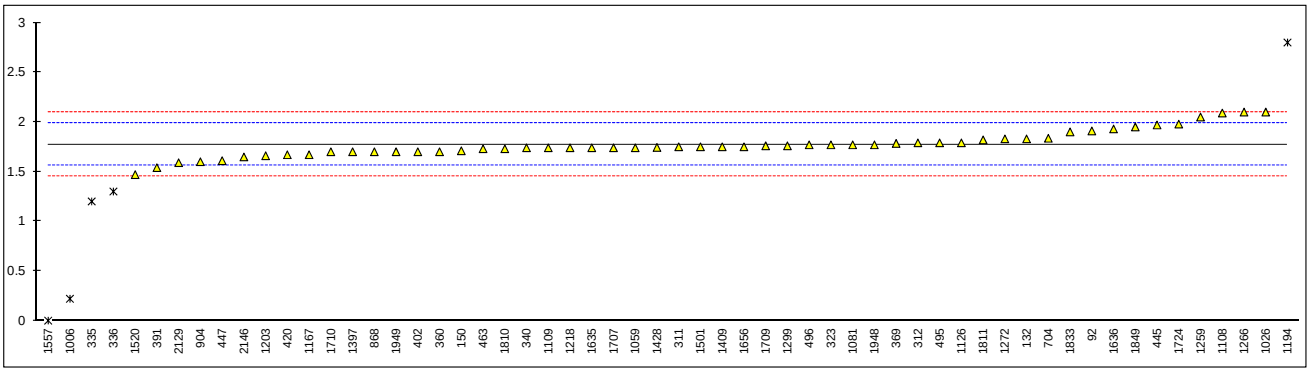


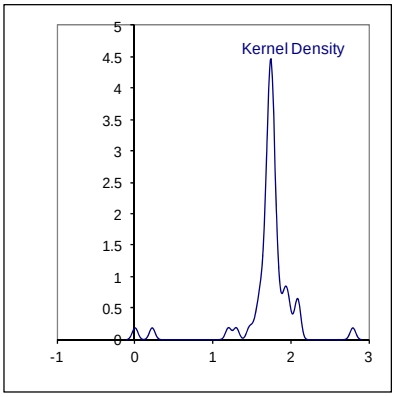
Determination of MTBE on sample #12115; results in %V/V

lab	method	value	Mark	z(targ)	Remarks
92	INH-99	1.91		1.26	
132	D5599	1.83		0.52	
150	D5599	1.71		-0.60	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN22854	1.75		-0.23	
312	EN22854	1.79		0.14	
323	EN22854	1.77		-0.04	
335	EN1601	1.2	G(0.05)	-5.36	
336	EN1601	1.3	G(0.05)	-4.43	
337		-----		-----	
338		-----		-----	
340	EN1601	1.74		-0.32	
344		-----		-----	
353		-----		-----	
360	EN13132	1.70		-0.70	
369	D4815	1.784		0.09	
371		-----		-----	
391	EN1601	1.54		-2.19	
402	EN22854	1.70		-0.70	
420	EN13132	1.67		-0.98	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	D4815	1.97		1.82	
447	D4815	1.61		-1.54	
463	EN13132	1.73		-0.42	
468		-----		-----	
485		-----		-----	
495	EN22854	1.79		0.14	
496	EN1601	1.77		-0.04	
541		-----		-----	
671		-----		-----	
704	D4815	1.836		0.57	
781		-----		-----	
823		-----		-----	
824		-----		-----	
868	D4815	1.70		-0.70	
875		-----		-----	
902		-----		-----	
904	D4815	1.6		-1.63	
962		-----		-----	
970		-----		-----	
1006	D4815	0.22	G(0.01)	-14.51	
1017		-----		-----	
1026	EN13132	2.1		3.04	
1033		-----		-----	
1038		-----		-----	
1059	EN22854	1.74		-0.32	
1081	EN14517	1.77		-0.04	
1108	EN22854	2.09		2.94	
1109	D6839	1.74		-0.32	
1126	in house	1.79		0.14	
1140		-----		-----	
1155		-----		-----	
1167	EN13132	1.67		-0.98	
1186		-----		-----	
1194	D5845	2.8	G(0.01)	9.57	
1199		-----		-----	
1203	EN14517	1.66		-1.07	
1218	EN22854	1.74		-0.32	
1257		-----		-----	
1259	EN13132	2.05		2.57	
1266	D5845	2.1		3.04	
1272	EN13132	1.83	C	0.52	first reported: 2.3
1281		-----		-----	
1299	ISO22854	1.76		-0.14	
1394		-----		-----	
1395		-----		-----	
1397	EN13132	1.7		-0.70	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	1.75		-0.23	
1426		-----		-----	
1427		-----		-----	

1428	EN13132	1.744		-0.29	
1498		-----		-----	
1499		-----		-----	
1501	D6839	1.75		-0.23	
1520	EN13132	1.47		-2.84	
1557	D5845	0.0	ex	-16.56	result excluded, zero is not a real value
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	EN22854	1.74		-0.32	
1636	D5845	1.93		1.45	
1654		-----		-----	
1656	EN14517	1.75		-0.23	
1707	EN13132	1.74		-0.32	
1709	D4815	1.76		-0.14	
1710	EN1601	1.7		-0.70	
1720		-----		-----	
1724	EN13132	1.9786		1.90	
1728		-----		-----	
1807	EN13132	<0.2		<14.43	false negative ?
1810	EN1601	1.73		-0.42	
1811	EN1601	1.82		0.42	
1833	EN13132	1.90		1.17	
1842		-----		-----	
1849	EN14517	1.95		1.64	
1851		-----		-----	
1948	EN1601	1.77		-0.04	
1949	EN22854	1.70		-0.70	
1951		-----		-----	
2102		-----		-----	
2129	D6730	1.59		-1.72	
2130		-----		-----	
2146	EN13132	1.648		-1.18	

normality	not OK
n	53
outliers	4
mean (n)	1.775
st.dev. (n)	0.1324
R(calc.)	0.371
R(EN1601:97)	0.300





Determination of other oxygenates on sample #12115; results in %V/V

lab	method	DIPE	ETBE	i-buOH	i-prOH	MeOH	TAME	Tert-buOH	Others
92		-----	-----	-----	-----	-----	-----	-----	-----
132	D5599	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
150	D5599	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
225		-----	-----	-----	-----	-----	-----	-----	-----
228		-----	-----	-----	-----	-----	-----	-----	-----
258		-----	-----	-----	-----	-----	-----	-----	-----
311	EN22854	<0.01	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
312	EN22854	0.04	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10
323	EN22854	<0.10	0.19	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
335		-----	-----	-----	-----	-----	-----	-----	-----
336	EN1601	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
337		-----	-----	-----	-----	-----	-----	-----	-----
338		-----	-----	-----	-----	-----	-----	-----	-----
340	EN1601	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
344		-----	-----	-----	-----	-----	-----	-----	-----
353		-----	-----	-----	-----	-----	-----	-----	-----
360	EN13132	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
369	D4815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-----
371		-----	-----	-----	-----	-----	-----	-----	-----
391	EN1601	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
402	EN22854	0.03	0.20	-----	-----	-----	-----	-----	0.03
420	EN13132	<0.1	0.17	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
430		-----	-----	-----	-----	-----	-----	-----	-----
431		-----	-----	-----	-----	-----	-----	-----	-----
440		-----	-----	-----	-----	-----	-----	-----	-----
445	D4815	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
447	D4815	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
463	EN13132	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3
468		-----	-----	-----	-----	-----	-----	-----	-----
485		-----	-----	-----	-----	-----	-----	-----	-----
495	EN22854	-----	0.16	-----	-----	-----	-----	-----	-----
496	EN1601	<0.10	0.17	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
541		-----	-----	-----	-----	-----	-----	-----	-----
671		-----	-----	-----	-----	-----	-----	-----	-----
704	D4815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
781		-----	-----	-----	-----	-----	-----	-----	-----
823		-----	-----	-----	-----	-----	-----	-----	-----
824		-----	-----	-----	-----	-----	-----	-----	-----
868	D4815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
875		-----	-----	-----	-----	-----	-----	-----	-----
902		-----	-----	-----	-----	-----	-----	-----	-----
904	D4815	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
962		-----	-----	-----	-----	-----	-----	-----	-----
970		-----	-----	-----	-----	-----	-----	-----	-----
1006	D4815	<0.1	<0.1	-----	-----	<0.1	<0.1	<0.1	-----
1017		-----	-----	-----	-----	-----	-----	-----	-----
1026		-----	0.3	<0.1	<0.1	<0.1	-----	<0.1	<0.1
1033		-----	-----	-----	-----	-----	-----	-----	-----
1038		-----	-----	-----	-----	-----	-----	-----	-----
1059	EN22854	<0.20	0.17	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1081		-----	0.18	-----	-----	0.00	-----	-----	-----
1108	EN14517	-----	0.21	-----	-----	-----	-----	-----	-----
1109	D6839	0.03	0.17	-----	-----	-----	<0.1	<0.1	0.03
1126	In house	-----	0.18	-----	-----	-----	-----	-----	-----
1140		-----	-----	-----	-----	-----	-----	-----	-----
1155		-----	-----	-----	-----	-----	-----	-----	-----
1167	ISO22854	0.033	0.16	<0.01	<0.01	0.08	0.07	0.035	7.55
1186		-----	-----	-----	-----	-----	-----	-----	-----
1194	D5845	0.8* +?	0	-----	-----	0	0.7* +?	0	-----
1199		-----	-----	-----	-----	-----	-----	-----	-----
1203	EN14517	0.03	0.19	<0.02	<0.02	<0.02	<0.02	<0.02	0.09
1218	EN22864	-----	0.20	-----	0.03	-----	-----	0.02	-----
1257		-----	-----	-----	-----	-----	-----	-----	-----
1259		-----	-----	-----	-----	-----	-----	-----	-----
1266	D5845	-----	-----	-----	-----	0.5	-----	-----	-----
1272	EN13132	0.17	0.1	-----	0.5	0	0.3	-----	-----
1281		-----	-----	-----	-----	-----	-----	-----	-----
1299		-----	0.23	-----	-----	<0.01	<0.01	<0.01	<0.01
1394		-----	-----	-----	-----	-----	-----	-----	-----
1395		-----	-----	-----	-----	-----	-----	-----	-----
1397	EN13132	-----	0.3	-----	-----	-----	0.2	-----	-----
1406		-----	-----	-----	-----	-----	-----	-----	-----
1407		-----	-----	-----	-----	-----	-----	-----	-----
1409	EN22854	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
1426		-----	-----	-----	-----	-----	-----	-----	-----
1427		-----	-----	-----	-----	-----	-----	-----	-----

1428	EN13132	-----	<0.17		<0.17	<0.17	<0.17	-----	<0.17	-----
1498		-----	-----		-----	-----	-----	-----	-----	-----
1499		-----	-----		-----	-----	-----	-----	-----	-----
1501		-----	-----		-----	-----	-----	-----	-----	-----
1520	EN13132	<0.10	0.12		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1557	D5845	0.0	2.7*	+?	-----	-----	0.0	4.6	0.0	-----
1564		-----	-----		-----	-----	-----	-----	-----	-----
1570		-----	-----		-----	-----	-----	-----	-----	-----
1634		-----	-----		-----	-----	-----	-----	-----	-----
1635		n.d.	0.19		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
1636		-----	-----		-----	-----	-----	-----	-----	-----
1654		-----	-----		-----	-----	-----	-----	-----	-----
1656	EN14517	0.18	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1707	EN13132	<0.17	<0.17		<0.17	<0.17	<0.17	<0.17	<0.17	-----
1709		-----	-----		-----	-----	-----	-----	-----	-----
1710		-----	0.2		-----	-----	-----	-----	-----	-----
1720		-----	-----		-----	-----	-----	-----	-----	-----
1724		-----	-----		-----	-----	-----	-----	-----	-----
1728		-----	-----		-----	-----	-----	-----	-----	-----
1807		-----	1.7 *	+?	<0.2	<0.2	<0.2	-----	<0.2	-----
1810		-----	0.17		-----	-----	0.0	-----	-----	-----
1811		-----	0.17		-----	-----	-----	-----	-----	-----
1833	EN13132	0.04	0.18		-----	-----	-----	-----	-----	-----
1842		-----	-----		-----	-----	-----	-----	-----	-----
1849	EN1601	0.03	0.17		-----	-----	-----	-----	-----	-----
1851		-----	-----		-----	-----	-----	-----	-----	-----
1948	EN1601	0.019	0.163		<0.01	<0.01	0.156	0.061	0.031	-----
1949	EN22854	0.03	0.15		0.02	<0.01	<0.01	<0.01	<0.01	<0.01
1951		-----	-----		-----	-----	-----	-----	-----	-----
2102		-----	-----		-----	-----	-----	-----	-----	-----
2129	D6730	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2130		-----	-----		-----	-----	-----	-----	-----	-----
		-----	0.162		-----	-----	-----	<0.2	-----	-----

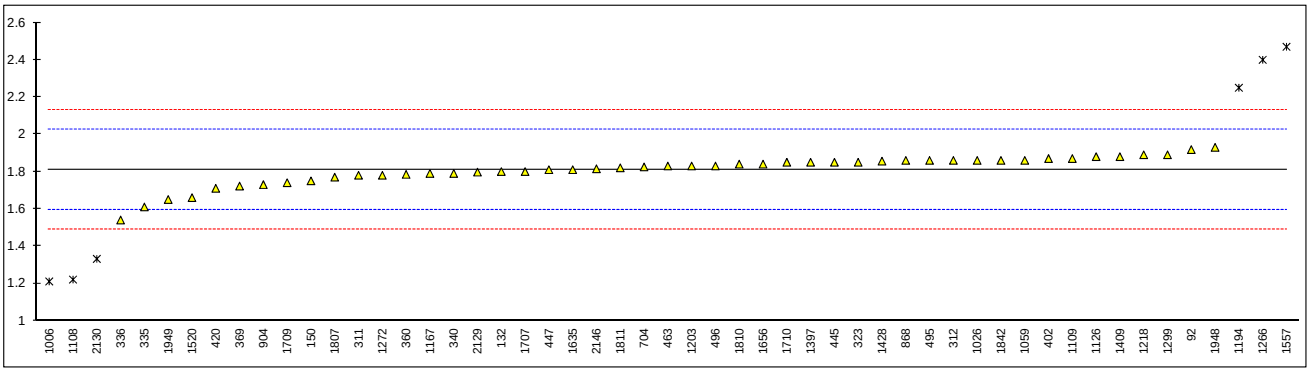
*= false positive result?

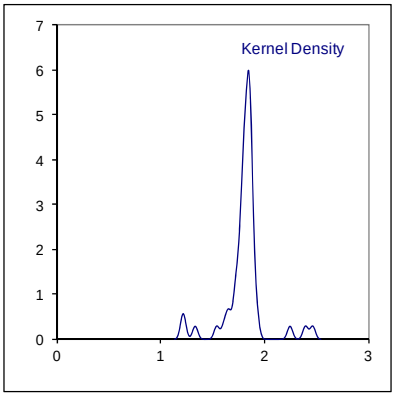
Determination of Oxygen Content on sample #12115; results in %M/M

lab	Method	value	mark	z(targ)	Remarks
92	EN1601	1.918		1.02	
132	D5599	1.8		-0.08	
150	D5599	1.75		-0.55	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN22854	1.78		-0.27	
312	EN22854	1.86		0.48	
323	EN22854	1.85		0.39	
335	EN1601	1.61		-1.85	
336	EN1601	1.54		-2.51	
337		-----		-----	
338		-----		-----	
340	EN1601	1.79		-0.17	
344		-----		-----	
353		-----		-----	
360	EN13132	1.785		-0.22	
369	D4815	1.722		-0.81	
371		-----		-----	
391		-----		-----	
402	EN22854	1.87		0.57	
420	EN13132	1.71		-0.92	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	D4815	1.85		0.39	
447	D4815	1.81		0.01	
463	EN13132	1.83		0.20	
468		-----		-----	
485		-----		-----	
495	EN22854	1.86		0.48	
496	EN1601	1.830		0.20	
541		-----		-----	
671		-----		-----	
704	D4815	1.825		0.15	
781		-----		-----	
823		-----		-----	
824		-----		-----	
868	D4815	1.86		0.48	
875		-----		-----	
902		-----		-----	
904	D4815	1.73		-0.73	
962		-----		-----	
970		-----		-----	
1006	D4815	1.21	G(0.05)	-5.59	
1017		-----		-----	
1026	EN13132	1.86		0.48	
1033		-----		-----	
1038		-----		-----	
1059	EN22854	1.86		0.48	
1081		-----		-----	
1108	EN22854	1.22	G(0.01)	-5.49	
1109	D6839	1.87		0.57	
1126	in house	1.88		0.67	
1140		-----		-----	
1155		-----		-----	
1167	EN13132	1.79		-0.17	
1186		-----		-----	
1194	D5845	2.25	G(0.01)	4.12	
1199		-----		-----	
1203	EN14517	1.83		0.20	
1218	EN22854	1.89		0.76	
1257		-----		-----	
1259		-----		-----	
1266	in house	2.4	G(0.05)	5.52	
1272	EN13132	1.78		-0.27	
1281		-----		-----	
1299	ISO22854	1.89		0.76	
1394		-----		-----	
1395		-----		-----	
1397	EN13132	1.85		0.39	
1406		-----		-----	
1407		-----		-----	
1409	EN22854	1.88		0.67	
1426		-----		-----	
1427		-----		-----	

1428	EN13132	1.856		0.44
1498		-----		-----
1499		-----		-----
1501		-----		-----
1520	EN13132	1.66		-1.39
1557	D5845	2.47	G(0.05)	6.17
1564		-----		-----
1570		-----		-----
1634		-----		-----
1635	EN22854	1.81		0.01
1636		-----		-----
1654		-----		-----
1656	EN14517	1.84		0.29
1707	EN13132	1.800		-0.08
1709	D4815	1.74		-0.64
1710	EN1601	1.85		0.39
1720		-----		-----
1724		-----		-----
1728		-----		-----
1807	EN13132	1.77		-0.36
1810	EN1601	1.84		0.29
1811	EN1601	1.82		0.11
1833		-----		-----
1842	in house	1.86		0.48
1849		-----		-----
1851		-----		-----
1948	EN1601	1.93		1.13
1949	EN22854	1.65		-1.48
1951		-----		-----
2102		-----		-----
2129	D6730	1.797		-0.11
2130	EN1601	1.331	G(0.01)	-4.46
2146	EN13132	1.815		0.06

Normality	not OK
N	47
Outliers	6
mean (n)	1.808
st.dev. (n)	0.078
R(calc.)	0.219
R(EN1601:97)	0.300





Determination of Oxidation Stability on sample #12115; results in minutes

lab	Method	value	mark	z(targ)	Remarks
92		-----		-----	
132	D525	>2676		-----	
150	D525	>900		-----	
225		-----		-----	
228	D525	>900		-----	
258		-----		-----	
311		-----		-----	
312	D525	>900		-----	
323	ISO7536	>900		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO7536	>960		-----	
344		-----		-----	
353		-----		-----	
360	ISO7536	>900		-----	
369		-----		-----	
371	ISO7536	>900		-----	
391	ISO7536	>900		-----	
402	ISO7536	>900		-----	
420	ISO7536	>900		-----	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP540	>900		-----	
447		-----		-----	
463	ISO7536	>360		-----	
468		-----		-----	
485		-----		-----	
495	ISO7536	>900		-----	
496		-----		-----	
541	ISO7536	>900		-----	
671		-----		-----	
704		-----		-----	
781	D525	>360		-----	
823		-----		-----	
824		-----		-----	
868	D525	>900		-----	
875		-----		-----	
902		-----		-----	
904	D525	>360		-----	
962		-----		-----	
970		-----		-----	
1006	ISO7536	<900		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP40	>960		-----	
1038		-----		-----	
1059	ISO7536	>900		-----	
1081		-----		-----	
1108	ISO7536	>900		-----	
1109	D525	>1230		-----	
1126		-----		-----	
1140	ISO7536	>360		-----	
1155		-----		-----	
1167	ISO7536	>900		-----	
1186		-----		-----	
1194		-----		-----	
1199		-----		-----	
1203	ISO7536	>900		-----	
1218		-----		-----	
1257		-----		-----	
1259		-----		-----	
1266		-----		-----	
1272		-----		-----	
1281		-----		-----	
1299	D525	>960		-----	
1394		-----		-----	
1395	D525	>2880		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	ISO7536	>900		-----	
1426		-----		-----	
1427		-----		-----	

1428	ISO7536	>900	-----
1498		-----	-----
1499		-----	-----
1501	D525	>900	-----
1520	ISO7536	>900	-----
1557		-----	-----
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	ISO7536	>1000	-----
1636	ISO7536	>1232	-----
1654	ISO7536	>900	-----
1656	ISO7536	>900	-----
1707	ISO7536	>900	-----
1709		-----	-----
1710	ISO7536	>900	-----
1720		-----	-----
1724	ISO7536	>900	-----
1728	D525	300	-----
1807	D525	>380	-----
1810		-----	-----
1811		-----	-----
1833	ISO7536	460	-----
1842		-----	-----
1849	ISO7536	455	-----
1851		-----	-----
1948	ISO7536	>900	-----
1949	D525	>1200	-----
1951	ISO7536	>900	-----
2102		-----	-----
2129	ISO7536	>900	-----
2130		-----	-----
2146		-----	-----

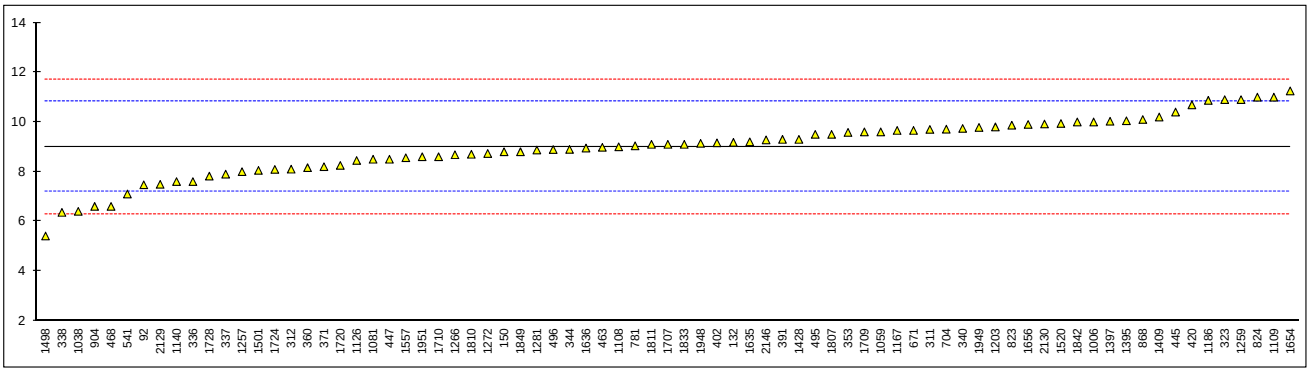
normality	n.a
n	47
mean (n)	>360
st.dev. (n)	n.a
R(calc.)	n.a
R(ISO7536:96)	n.a

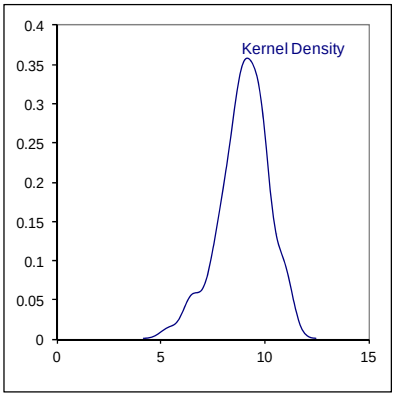
Determination of Sulphur on sample #12115; results in mg/kg

lab	Method	value	mark	z(targ)	Remarks
92	D5453	7.47		-1.70	
132	D2622	9.18		0.19	
150	D5453	8.8		-0.23	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311	EN20846	9.7		0.77	
312	D5453	8.1		-1.00	
323	ISO20846	10.9		2.09	
335		-----		-----	
336	EN20846	7.6		-1.55	
337	EN20846	7.9		-1.22	
338	EN20846	6.36		-2.92	
340	EN20846	9.74		0.81	
344	D5453	8.896		-0.12	
353	IP531	9.58		0.63	
360	EN20846	8.16		-0.93	
369		-----		-----	
371	EN20846	8.2		-0.89	
391	EN20846	9.3		0.32	
402	EN20846	9.16		0.17	
420	EN20846	10.69		1.86	
430		-----		-----	
431		-----		-----	
440		-----		-----	
445	IP490	10.4		1.54	
447	IP490	8.5		-0.56	
463	D5453	8.98		-0.03	
468	EN20846	6.6		-2.66	
485		-----		-----	
495	EN20846	9.5		0.55	
496	EN20846	8.89		-0.13	
541	EN20846	7.1		-2.11	
671	D5453	9.66		0.72	
704	EN20846	9.71		0.78	
781	EN20846	9.04		0.04	
823	D5453	9.87		0.95	
824	EN20846	11		2.20	
868	D3120	10.1		1.21	
875		-----		-----	
902		-----		-----	
904	D5453	6.6		-2.66	
962		-----		-----	
970		-----		-----	
1006	D5453	10.0		1.10	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038	D2622	6.4		-2.88	
1059	EN20846	9.6		0.66	
1081	ISO20846	8.5		-0.56	
1108	EN20846	9.0		-0.01	
1109	D7039	11.0		2.20	
1126	EN20846	8.45		-0.61	
1140	D5453	7.6		-1.55	
1155		-----		-----	
1167	EN20846	9.66		0.72	
1186	D5453	10.87		2.06	
1194		-----		-----	
1199		-----		-----	
1203	EN20846	9.8		0.88	
1218		-----		-----	
1257	D3120	8.0		-1.11	
1259	D3120	10.9		2.09	
1266	EN20846	8.68		-0.36	
1272	EN20846	8.73		-0.30	
1281	EN20846	8.87		-0.15	
1299		-----		-----	
1394		-----		-----	
1395	D5453	10.05		1.15	
1397	EN20846	10.03		1.13	
1406		-----		-----	
1407		-----		-----	
1409	EN20846	10.2		1.32	
1426		-----		-----	
1427		-----		-----	

1428	EN20846	9.3		0.32	
1498	D5453	5.4090		-3.97	
1499		-----		-----	
1501	D5453	8.05		-1.06	
1520	EN20846	9.94		1.03	
1557	EN20846	8.56		-0.49	
1564		-----		-----	
1570		-----		-----	
1634		-----		-----	
1635	EN20846	9.2		0.21	
1636	EN20846	8.95		-0.06	
1654	EN20846	11.25		2.48	
1656	EN20846	9.9		0.99	
1707	EN20846	9.1		0.10	
1709	D5453	9.6		0.66	
1710	EN20846	8.6		-0.45	
1720	D5453	8.25		-0.83	
1724	EN20846	8.09		-1.01	
1728	D5453	7.82		-1.31	
1807	ISO8754	9.5		0.55	
1810	EN20846	8.7		-0.34	
1811	EN20846	9.1		0.10	
1833	EN20846	9.1		0.10	
1842	in house	10		1.10	
1849	EN20846	8.80		-0.23	
1851		-----		-----	
1948	EN20846	9.14		0.15	
1949	EN20846	9.78	C	0.85	first reported: 14.3
1951	EN20846	8.6		-0.45	
2102		-----		-----	
2129	EN20846	7.49		-1.67	
2130	EN20846	9.92		1.01	
2146	EN20846	9.278		0.30	

		Only EN20846 data	Only D5433 data
normality	OK	OK	OK
n	77	51	17
outliers	0	0	0
mean (n)	9.006	9.074	8.590
st.dev. (n)	1.1719	1.0206	1.3911
R(calc.)	3.281	2.858	3.895
R(ISO20846:11)	2.535	2.547	2.462



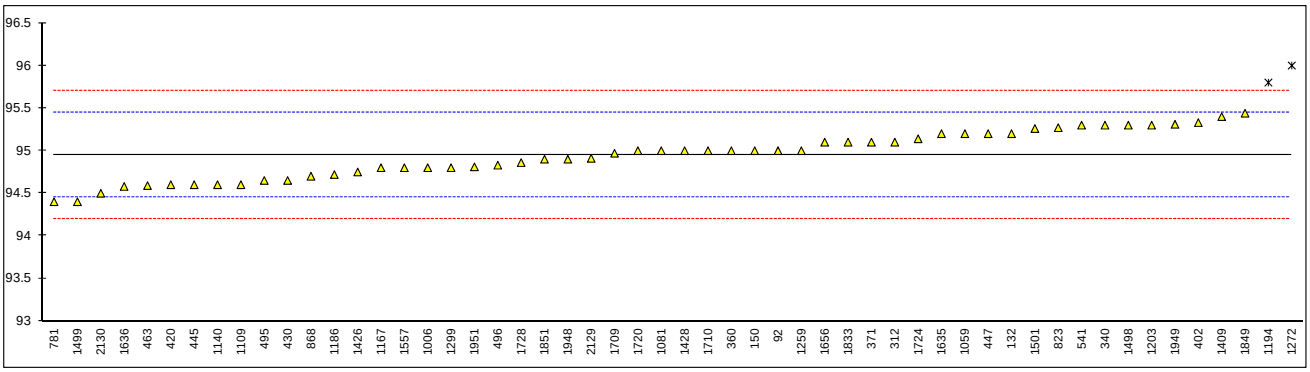


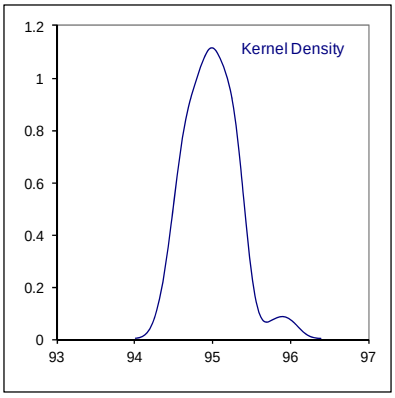
Determination of RON on sample #12115;

lab	method	value	mark	z(targ)	Remarks
92	D2699	95.0		0.21	
132	D2699	95.2		1.01	
150	D2699	95.0		0.21	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311		-----		-----	
312	ISO5164	95.1		0.61	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO5164	95.3		1.41	
344		-----		-----	
353		-----		-----	
360	ISO5164	95.00		0.21	
369		-----		-----	
371	ISO5164	95.1		0.61	
391		-----		-----	
402	ISO5164	95.33		1.53	
420	ISO5164	94.6		-1.39	
430	ISO5164	94.65		-1.19	
431		-----		-----	
440		-----		-----	
445	IP237	94.6		-1.39	
447	ISO5164	95.2		1.01	
463	ISO5164	94.59		-1.43	
468		-----		-----	
485		-----		-----	
495	ISO5164	94.65		-1.19	
496	D2699	94.83		-0.47	
541	D2699	95.3		1.41	
671		-----		-----	
704		-----		-----	
781	ISO5164	94.4		-2.19	
823	D2699	95.27		1.29	
824		-----		-----	
868	D2699	94.7		-0.99	
875		-----		-----	
902		-----		-----	
904		-----		-----	
962		-----		-----	
970		-----		-----	
1006	D2699	94.8		-0.59	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059	ISO5164	95.2		1.01	
1081	D2699	95.0		0.21	
1108		-----		-----	
1109	D2699	94.6		-1.39	
1126		-----		-----	
1140	ISO5164	94.6		-1.39	
1155		-----		-----	
1167	ISO5164	94.8		-0.59	
1186	D2699	94.72		-0.91	
1194	INH-2699	95.8	DG(0.05)	3.41	
1199		-----		-----	
1203	ISO5164	95.3		1.41	
1218		-----		-----	
1257		-----		-----	
1259	ISO5164	95.0		0.21	
1266		-----		-----	
1272	INH-1401	96.0	C,DG(0.05)	4.21	first reported: 97.1
1281		-----		-----	
1299	D2699	94.8		-0.59	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	ISO5164	95.4	C	1.81	first reported: 85.5
1426	ISO5164	94.75		-0.79	
1427		-----		-----	

1428	D2699	95.0	0.21
1498	D2699	95.3	1.41
1499	D2699	94.40	-2.19
1501	D2699	95.26	1.25
1520		-----	-----
1557	INH-1200	94.8	-0.59
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	ISO5164	95.2	1.01
1636	ISO5164	94.58	-1.47
1654		-----	-----
1656	ISO5164	95.1	0.61
1707		-----	-----
1709	D2699	94.97	0.09
1710	ISO5164	95.0	0.21
1720	D2699	95.0	0.21
1724	ISO5164	95.14	0.77
1728	D2699	94.86	-0.35
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	ISO5164	95.1	0.61
1842		-----	-----
1849	ISO5164	95.44	1.97
1851	D2699	94.9	-0.19
1948	ISO5164	94.9	-0.19
1949	INH-8226	95.31	1.45
1951	ISO5164	94.81	-0.55
2102		-----	-----
2129	D2699	94.91	-0.15
2130	ISO5164	94.5	-1.79
2146		-----	-----

normality	OK
n	52
outliers	2
mean (n)	94.947
st.dev. (n)	0.2744
R(calc.)	0.768
R(ISO5164:05)	0.700



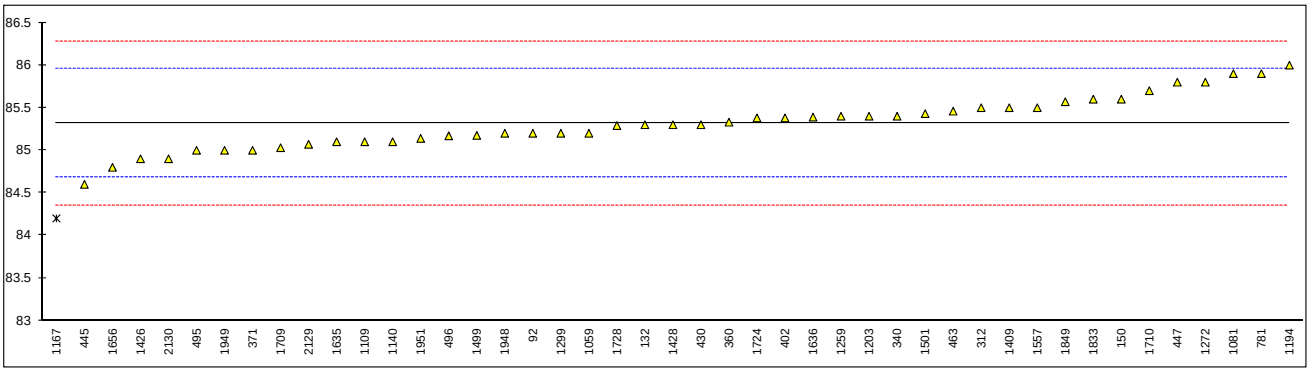


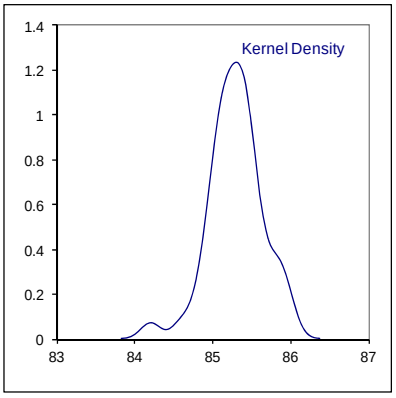
Determination of MON on sample #12115;

lab	method	value	mark	z(targ)	Remarks
92	D2700	85.2		-0.37	
132	D2700	85.3		-0.06	
150	D2700	85.6		0.88	
225		-----		-----	
228		-----		-----	
258		-----		-----	
311		-----		-----	
312	ISO5163	85.5		0.56	
323		-----		-----	
335		-----		-----	
336		-----		-----	
337		-----		-----	
338		-----		-----	
340	ISO5163	85.4		0.25	
344		-----		-----	
353		-----		-----	
360	ISO5163	85.33		0.04	
369		-----		-----	
371	ISO5163	85.0		-0.99	
391		-----		-----	
402	ISO5163	85.38		0.19	
420		-----		-----	
430	ISO5163	85.30		-0.06	
431		-----		-----	
440		-----		-----	
445	IP236	84.6		-2.24	
447	ISO5163	85.8		1.50	
463	ISO5163	85.46		0.44	
468		-----		-----	
485		-----		-----	
495	ISO5163	85.00		-0.99	
496	D2700	85.17		-0.46	
541		-----		-----	
671		-----		-----	
704		-----		-----	
781	ISO5163	85.9		1.81	
823		-----		-----	
824		-----		-----	
868		-----		-----	
875		-----		-----	
902		-----		-----	
904		-----		-----	
962		-----		-----	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033		-----		-----	
1038		-----		-----	
1059	ISO5163	85.2		-0.37	
1081	D2700	85.9		1.81	
1108		-----		-----	
1109	D2700	85.1		-0.68	
1126		-----		-----	
1140	ISO5163	85.1		-0.68	
1155		-----		-----	
1167	ISO5163	84.2	G(0.05)	-3.48	
1186		-----		-----	
1194	INH-2700	86.0		2.12	
1199		-----		-----	
1203	ISO5163	85.4		0.25	
1218		-----		-----	
1257		-----		-----	
1259	ISO5163	85.4		0.25	
1266		-----		-----	
1272	INH-1401	85.8		1.50	
1281		-----		-----	
1299	D2700	85.2		-0.37	
1394		-----		-----	
1395		-----		-----	
1397		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	ISO5163	85.5	C	0.56	first reported: 95.4
1426	ISO5163	84.9		-1.30	
1427		-----		-----	

1428	D2700	85.3	-0.06
1498		-----	-----
1499	D2700	85.175	-0.45
1501	D2700	85.43	0.35
1520		-----	-----
1557	INH-1200	85.5	0.56
1564		-----	-----
1570		-----	-----
1634		-----	-----
1635	ISO5163	85.1	-0.68
1636	ISO5163	85.39	0.22
1654		-----	-----
1656	ISO5163	84.8	-1.61
1707		-----	-----
1709	D2700	85.03	-0.90
1710	ISO5163	85.7	1.19
1720		-----	-----
1724	ISO5163	85.38	0.19
1728	D2700	85.29	-0.09
1807		-----	-----
1810		-----	-----
1811		-----	-----
1833	ISO5163	85.6	0.88
1842		-----	-----
1849	ISO5163	85.57	0.78
1851		-----	-----
1948	ISO5163	85.2	-0.37
1949	INH-511	85.00	-0.99
1951	ISO5163	85.14	-0.56
2102		-----	-----
2129	D2700	85.07	-0.77
2130	ISO5163	84.9	-1.30
2146		-----	-----

normality	OK
n	44
outliers	1
mean (n)	85.318
st.dev. (n)	0.3048
R(calc.)	0.854
R(ISO5163:05)	0.900



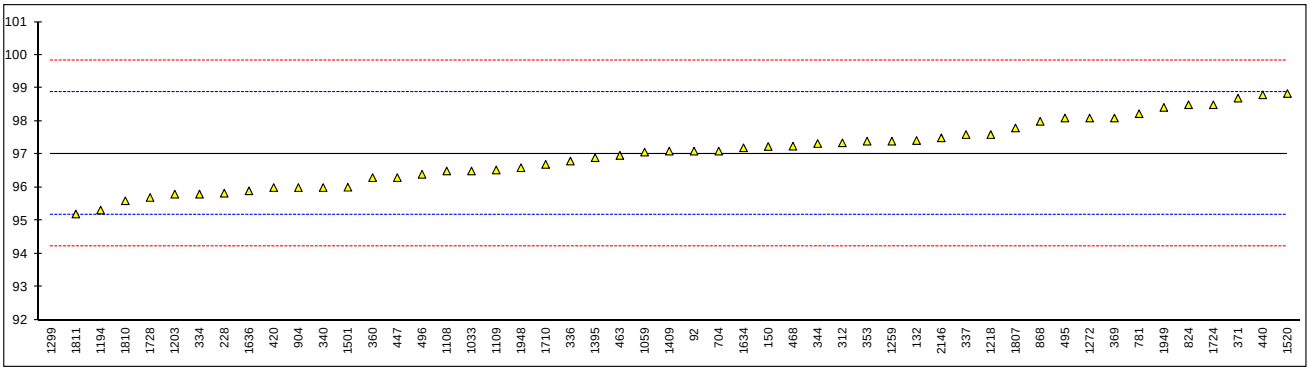


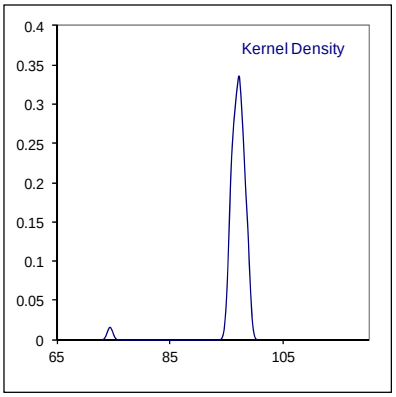
Determination of ASVP on sample #12116; results in kPa

lab	method	value	mark	z(targ)	Remarks
92	D5191	97.1	C	0.08	first reported: 72.3
132	D5191	97.42		0.42	
150	EN13016	97.24		0.23	
225		-----		-----	
228	D5191	95.83		-1.29	
258		-----		-----	
311		-----		-----	
312	D5191	97.35		0.35	
323		-----		-----	
334	EN13016	95.8		-1.32	
335		-----		-----	
336	EN13016	96.8		-0.25	
337	EN13016	97.6		0.61	
338		-----		-----	
340	EN13016	96.0		-1.10	
344	EN13016	97.33		0.32	
353	D5191	97.4	C	0.40	first reported: 90.2
360	EN13016	96.3		-0.78	
369	EN13016	98.10		1.15	
371	EN13016	98.7		1.80	
391		-----		-----	
420	EN13016	96.0		-1.10	
431		-----		-----	
433		-----		-----	
440	D5191	98.8		1.90	
445		-----		-----	
447	D5191	96.3		-0.78	
463	EN13016	96.97		-0.06	
468	EN13016	97.25		0.24	
485		-----		-----	
495	EN13016	98.1		1.15	
496	EN13016	96.4		-0.67	
704	EN13016	97.10		0.08	
781	EN13016	98.23		1.29	
823		-----		-----	
824	EN13016	98.5		1.58	
868	D5191	98.0		1.04	
875		-----		-----	
904	EN13016	96.0		-1.10	
970		-----		-----	
1006		-----		-----	
1017		-----		-----	
1026		-----		-----	
1033	IP394	96.5		-0.57	
1038		-----		-----	
1059	EN13016	97.07		0.04	
1081		-----		-----	
1108	EN13016	96.5		-0.57	
1109	D5191	96.53		-0.54	
1140		-----		-----	
1155		-----		-----	
1167		-----		-----	
1194	D5191	95.32		-1.84	
1203	EN13016	95.8		-1.32	
1218	EN13016	97.6		0.61	
1257		-----		-----	
1259	EN13016	97.4		0.40	
1272	EN13016	98.1		1.15	
1299	D5191	74.4	G(0.01)	-24.31	
1395	D5191	96.9		-0.14	
1409	EN13016	97.1		0.08	
1427		-----		-----	
1428		-----		-----	
1501	D6378	96.01		-1.09	
1520	EN13016	98.84		1.95	
1564		-----		-----	
1634	EN13016	97.2		0.18	
1636	EN13016	95.9		-1.21	
1654		-----		-----	
1656		-----		-----	
1710	EN13016	96.7		-0.35	
1724	EN13016	98.5		1.58	
1728	EN13016	95.7		-1.43	
1807	EN13016	97.8		0.83	
1810	EN13016	95.6		-1.53	
1811	EN13016	95.2		-1.96	

1833		-----	-----
1849		-----	-----
1851		-----	-----
1948	EN13016	96.6	-0.46
1949	CALC	98.42	1.50
2130		-----	-----
2146	EN13016	97.5	0.51

normality	OK
n	50
outliers	1
mean (n)	97.028
st.dev. (n)	0.9708
R(calc.)	2.718
R(EN13016:07)	2.606



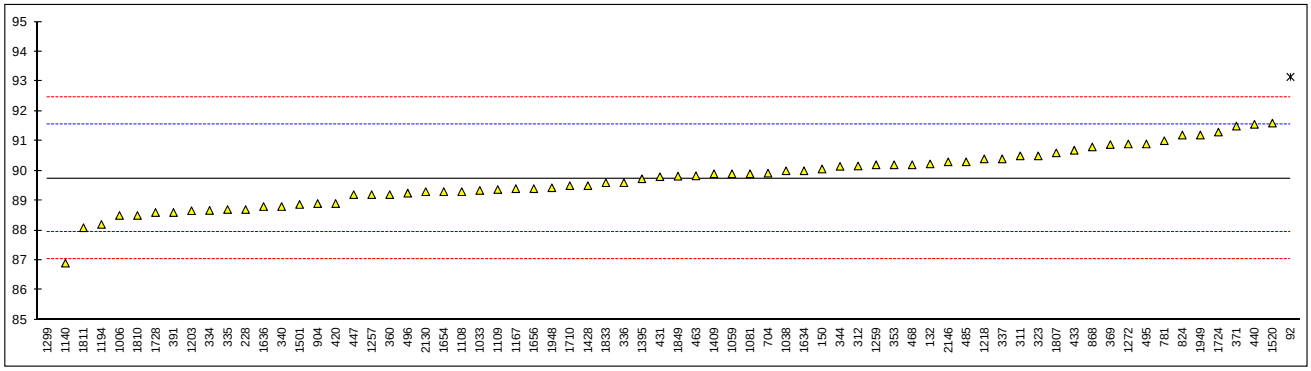


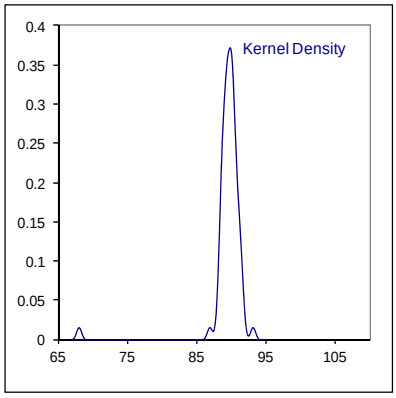
Determination of DVPE (acc. to EN13016-1) on sample #12116; results in kPa

lab	method	value	mark	z(targ)	Remarks
92	D5191	93.15	C,G(0.05)	3.76	first reported: 65.98
132	D5191	90.23		0.53	
150	EN13016	90.06		0.35	
225		-----		-----	
228	D5191	88.70		-1.16	
258		-----		-----	
311	EN13016	90.5		0.83	
312	D5191	90.16		0.46	
323	EN13016	90.5		0.83	
334	EN13016	88.67		-1.19	
335	EN13016	88.7		-1.16	
336	EN13016	89.6		-0.16	
337	EN13016	90.4		0.72	
338		-----		-----	
340	EN13016	88.8		-1.05	
344	EN13016	90.15		0.45	
353	D5191	90.2		0.50	
360	EN13016	89.2		-0.61	
369	EN13016	90.88		1.25	
371	EN13016	91.5		1.94	
391	EN13016	88.6		-1.27	
420	EN13016	88.9		-0.94	
431	EN13016	89.8		0.06	
433	EN13016	90.69		1.04	first reported: 13.154 PSI
440	D5191	91.56		2.00	
445		-----		-----	
447	D5191	89.2		-0.61	
463	EN13016	89.83		0.09	
468	EN13016	90.20		0.50	
485	EN13016	90.3		0.61	
495	EN13016	90.9		1.27	
496	EN13016	89.25		-0.55	
704	EN13016	89.92		0.19	
781	EN13016	91.01		1.40	
823		-----		-----	
824	EN13016	91.2		1.61	
868	D5191	90.8		1.16	
875		-----		-----	
904	EN13016	88.9		-0.94	
970		-----		-----	
1006	D5191	88.5		-1.38	
1017		-----		-----	
1026		-----		-----	
1033	IP394	89.34		-0.45	
1038	D5191	90.0		0.28	
1059	EN13016	89.9		0.17	
1081	D5191	89.90		0.17	
1108	EN13016	89.3		-0.49	
1109	D5191	89.37		-0.42	
1140	D5191	86.9	C	-3.15	first reported: 12.60
1155		-----		-----	
1167	EN13016	89.4		-0.38	
1194	D5191	88.2		-1.71	
1203	EN13016	88.66		-1.20	
1218	EN13016	90.4		0.72	
1257	D5191	89.2		-0.61	
1259	EN13016	90.2		0.50	
1272	EN13016	90.9		1.27	
1299	D5191	68.0	G(0.01)	-24.05	
1395	D5191	89.73		-0.02	
1409	EN13016	89.9		0.17	
1427		-----		-----	
1428	EN13016	89.5		-0.27	
1501	D6378	88.87		-0.97	
1520	EN13016	91.60		2.05	
1564		-----		-----	
1634	EN13016	90.0		0.28	
1636	EN13016	88.8		-1.05	
1654	EN13016	89.3		-0.49	
1656	EN13016	89.4		-0.38	
1710	EN13016	89.5		-0.27	
1724	EN13016	91.3		1.72	
1728	EN13016	88.6		-1.27	
1807	EN13016	90.6		0.94	
1810	EN13016	88.5		-1.38	
1811	EN13016	88.09		-1.83	

1833	EN13016	89.6	-0.16
1849	EN13016	89.82	0.08
1851		-----	-----
1948	EN13016	89.43	-0.35
1949	D5191	91.2	1.61
2130	EN13016	89.3	-0.49
2146	EN13016	90.3	0.61

normality	OK
n	68
outliers	2
mean (n)	89.747
st.dev. (n)	0.9375
R(calc.)	2.625
R(EN13016:07)	2.532





APPENDIX 2

z-scores distillation ASTM D86 (automated mode)

lab	IBP	10%eva	50%eva	90%eva	FBP	%vol70	%vol100	%vol150
92	-1.48	-0.87	0.70	-0.52	0.82	-2.16	-1.89	0.79
132	-1.01	-0.43	-0.19	-0.09	-0.25	0.33	0.15	-0.07
150	0.74	0.53	1.30	-0.24	1.32	-0.71	-0.74	0.36
225	-----	-----	-----	-----	-----	-----	-----	-----
228	-----	-----	-----	-----	-----	-----	-----	-----
258	1.33	1.14	1.45	0.48	0.24	-0.71	-0.49	-0.72
311	-0.49	-0.52	-2.13	-0.31	0.28	1.06	0.78	0.57
312	0.27	-0.08	1.15	0.19	0.53	0.12	-0.49	-0.29
323	0.80	-0.61	-1.68	0.48	0.08	0.95	0.40	-0.72
335	-1.19	-2.27	-1.53	-1.30	-0.67	1.37	0.91	0.14
336	-2.07	-1.13	-3.47	-0.81	-1.25	1.78	1.80	1.65
337	-0.78	-1.31	-0.93	-0.24	1.11	-----	-----	-----
338	0.97	-2.27	-3.32	-0.02	0.65	1.99	1.29	0.14
340	0.33	0.18	0.56	0.40	-0.83	-0.29	0.02	-0.72
344	0.86	0.79	2.04	1.19	-0.96	-1.12	-1.00	-1.80
353	-0.78	-0.34	0.70	0.12	-0.17	-0.08	-0.24	-0.07
360	0.33	-0.96	-2.72	-0.45	-1.04	1.47	1.16	0.36
369	-0.08	-0.08	-1.68	-0.38	-0.63	0.43	1.42	0.57
371	-0.37	-0.08	-1.53	-0.88	-0.96	0.95	1.04	1.22
391	-----	-----	-----	-----	-----	-----	-----	-----
402	1.50	0.09	1.90	0.12	0.49	-0.19	-1.13	-0.29
420	-0.84	0.62	2.19	2.04	0.12	-0.81	-1.25	-2.87
430	-----	-----	-----	-----	-----	-----	-----	-----
431	-----	-0.52	0.70	0.19	-----	-----	-----	-----
440	-0.61	0.01	1.30	0.12	0.86	-0.29	-0.87	0.79
445	1.44	-----	-----	-----	1.89	0.12	0.02	1.43
447	-1.72	-0.78	-0.79	-0.66	0.20	-1.12	-2.14	-3.52
463	0.80	-0.78	-2.42	-0.17	-1.29	-0.60	1.29	0.14
468	0.74	0.97	1.60	1.05	0.32	-2.68	-0.11	-1.58
485	0.77	-0.12	-0.93	-0.49	0.30	0.64	0.40	0.68
495	-1.66	-0.08	-1.08	-0.73	0.28	0.64	0.66	1.22
496	-0.02	-0.78	-1.68	-0.24	-0.17	0.54	0.53	1.86
541	-----	-----	-----	-----	-----	-----	-----	-----
671	-0.14	0.36	-0.04	-0.73	-1.25	0.23	-0.24	1.22
704	-----	-----	-----	-----	-----	-----	-----	-----
781	-----	-----	-----	-----	-----	-----	-----	-----
823	0.51	-0.26	-0.34	0.48	0.49	0.23	0.53	0.79
824	0.68	0.88	2.79	-0.45	-0.71	-1.33	-2.02	0.79
868	1.15	0.36	0.11	0.83	-1.12	0.23	-0.11	-1.58
875	-----	-----	-----	-----	-----	-----	-----	-----
902	-----	-----	-----	-----	-----	-----	-----	-----
904	-1.01	0.36	0.11	0.48	0.98	0.12	-0.24	-0.72
962	-----	-----	-----	-----	-----	-----	-----	-----
970	-----	-----	-----	-----	-----	-----	-----	-----
1006	1.62	1.14	2.34	1.12	0.37	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----
1026	-----	-----	-----	-----	-----	-----	-----	-----
1033	-0.02	0.01	-0.64	-0.09	0.78	0.33	0.66	-----
1038	-----	-0.08	-0.93	-0.81	0.49	0.33	1.16	1.43
1059	-0.72	-0.87	-0.79	-0.09	-0.46	0.54	0.27	-0.07
1081	0.74	-0.52	-0.19	-0.81	-0.63	0.43	0.53	1.00
1108	0.92	1.49	-5.55	-1.23	0.86	2.72	2.82	1.86
1109	-0.43	0.18	0.70	-0.02	-1.33	0.33	-0.11	-0.07
1126	-4.53	-8.04	8.00	0.19	-1.70	-2.37	-0.49	0.79
1140	-1.19	1.23	1.30	0.48	-0.17	-0.91	-0.62	-0.72
1155	-----	-----	-----	-----	-----	-----	-----	-----
1167	0.36	-0.69	-2.94	-0.49	-1.45	1.37	1.04	0.79
1186	-----	-----	-----	-----	-----	-----	-----	-----
1194	-1.19	-1.04	-7.04	1.05	-1.25	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----
1203	-0.14	0.09	-0.19	-0.45	-0.25	-0.50	-0.74	-1.15
1218	-0.37	-1.04	-0.34	-1.52	-2.11	0.95	0.66	0.79
1257	-1.37	0.53	2.49	1.19	-0.17	-----	-----	-----
1259	-1.48	0.62	0.70	0.48	0.86	-0.40	-0.49	1.00
1266	-0.28	-0.56	-0.41	-0.17	-3.12	0.59	0.02	0.25
1272	0.80	2.37	3.68	0.12	1.65	-1.43	-0.62	-0.50
1281	-----	-----	-----	-----	-----	-----	-----	-----
1299	1.09	-1.22	-2.57	-0.24	0.82	1.37	0.91	0.14
1394	-----	-----	-----	-----	-----	-----	-----	-----
1395	0.16	-0.08	-0.64	0.12	-2.11	0.02	0.27	-0.07
1397	0.21	2.11	5.32	0.83	-0.01	-2.37	-2.14	-0.94
1406	-----	-----	-----	-----	-----	-----	-----	-----
1407	-----	-----	-----	-----	-----	-----	-----	-----

1409	-0.66	0.18	0.11	-0.52	0.61	0.02	0.02	0.79
1426	-----	-----	-----	-----	-----	-----	-----	-----
1427	-----	-----	-----	-----	-----	-----	-----	-----
1428	1.21	0.71	1.15	-0.09	1.98	-0.71	-0.11	-0.29
1498	2.38	0.09	-0.93	-0.09	-0.25	0.23	1.04	-0.94
1499	-----	-----	-----	-----	-----	-----	-----	-----
1501	-----	-----	-----	-----	-----	-----	-----	-----
1520	-----	-----	-----	-----	-----	-----	-----	-----
1557	-----	-----	-----	-----	-----	-----	-----	-----
1564	-----	-----	-----	-----	-----	-----	-----	-----
1570	-----	-----	-----	-----	-----	-----	-----	-----
1634	-0.90	-0.69	-0.64	-0.24	-0.54	0.23	0.27	-0.29
1635	-----	-----	-----	-----	-----	-----	-----	-----
1636	-0.96	0.01	0.26	0.26	-0.01	0.12	-0.24	-0.29
1654	1.91	0.62	0.26	0.05	0.37	-0.71	-0.49	-0.07
1656	1.68	0.79	-0.64	0.26	2.93	-0.29	-0.24	0.14
1707	0.56	0.44	0.41	0.40	0.28	-0.29	-0.24	-0.94
1709	-----	-----	-----	-----	-----	-----	-----	-----
1710	-0.31	-0.26	-1.38	-0.09	-0.21	0.64	0.53	0.36
1720	0.86	1.49	3.39	1.47	-0.13	-----	-----	-----
1724	-1.54	1.32	3.39	0.97	2.06	-1.64	-1.89	-1.58
1728	-----	-----	-----	-----	-----	-----	-----	-----
1807	0.33	-1.66	-3.76	-0.95	-0.21	1.57	2.06	1.65
1810	-0.84	0.62	2.64	2.54	0.57	-1.23	-1.64	-2.01
1811	0.39	-0.17	-0.64	-0.31	1.52	-1.64	-2.27	-3.09
1833	-1.25	-0.34	-1.38	-0.31	0.37	0.64	0.66	1.86
1842	-----	-----	-----	-----	-----	-----	-----	-----
1849	-0.43	0.05	0.11	0.26	0.28	-0.40	0.02	-0.94
1851	-----	-----	-----	-----	-----	-----	-----	-----
1948	-1.25	0.44	2.49	1.40	0.94	-0.91	-1.38	-2.23
1949	-----	-----	-----	-----	-----	-----	-----	-----
1951	0.86	1.41	-3.91	-0.88	-1.58	1.57	1.55	2.94
2102	-----	-----	-----	-----	-----	-----	-----	-----
2129	-1.37	-1.13	-0.04	0.05	0.57	0.64	0.02	0.14
2130	1.15	-0.34	-1.68	-0.73	0.32	0.74	0.53	0.79
2146	0.51	0.71	1.75	-0.02	-0.63	-0.71	-0.74	-0.29

z-scores distillation ASTM D86 (manual mode)

lab	IBP	10%eva	50%eva	90%eva	FBP	%vol70	%vol100	%vol150
92	-----	-----	-----	-----	-----	-----	-----	-----
132	-----	-----	-----	-----	-----	-----	-----	-----
150	-----	-----	-----	-----	-----	-----	-----	-----
225	-----	-----	-----	-----	-----	-----	-----	-----
228	1.30	-0.14	0.23	3.46	0.50	0.61	1.49	0.80
258	-----	-----	-----	-----	-----	-----	-----	-----
311	-----	-----	-----	-----	-----	-----	-----	-----
312	-----	-----	-----	-----	-----	-----	-----	-----
323	-----	-----	-----	-----	-----	-----	-----	-----
335	-----	-----	-----	-----	-----	-----	-----	-----
336	-----	-----	-----	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----
340	-----	-----	-----	-----	-----	-----	-----	-----
344	-----	-----	-----	-----	-----	-----	-----	-----
353	-----	-----	-----	-----	-----	-----	-----	-----
360	-----	-----	-----	-----	-----	-----	-----	-----
369	-----	-----	-----	-----	-----	-----	-----	-----
371	-----	-----	-----	-----	-----	-----	-----	-----
391	-----	-----	-----	-----	-----	-----	-----	-----
402	-----	-----	-----	-----	-----	-----	-----	-----
420	-----	-----	-----	-----	-----	-----	-----	-----
430	-----	-----	-----	-----	-----	-----	-----	-----
431	-----	-----	-----	-----	-----	-----	-----	-----
440	-----	-----	-----	-----	-----	-----	-----	-----
445	-----	-----	-----	-----	-----	-----	-----	-----
447	-----	-----	-----	-----	-----	-----	-----	-----
463	-----	-----	-----	-----	-----	-----	-----	-----
468	-----	-----	-----	-----	-----	-----	-----	-----
485	-----	-----	-----	-----	-----	-----	-----	-----
495	-----	-----	-----	-----	-----	-----	-----	-----
496	-----	-----	-----	-----	-----	-----	-----	-----
541	-0.45	-0.14	1.53	1.19	-1.83	-0.13	-2.34	-1.27
671	-----	-----	-----	-----	-----	-----	-----	-----
704	-0.35	-0.67	-0.36	-0.30	-1.64	0.61	0.05	-0.23
781	-0.20	-0.22	-0.36	-1.53	1.28	0.09	-0.14	0.49
823	-----	-----	-----	-----	-----	-----	-----	-----
824	-----	-----	-----	-----	-----	-----	-----	-----
868	-----	-----	-----	-----	-----	-----	-----	-----
875	-----	-----	-----	-----	-----	-----	-----	-----
902	-0.05	0.46	0.36	-0.43	0.27	-0.13	-0.43	0.18
904	-----	-----	-----	-----	-----	-----	-----	-----
962	-----	-----	-----	-----	-----	-----	-----	-----
970	-----	-----	-----	-----	-----	-----	-----	-----
1006	-----	-----	-----	-----	-----	-----	-----	-----
1017	-----	-----	-----	-----	-----	-----	-----	-----
1026	-----	-----	-----	-----	-----	-----	-----	-----
1033	-----	-----	-----	-----	-----	-----	-----	-----
1038	-----	-----	-----	-----	-----	-----	-----	-----
1059	-----	-----	-----	-----	-----	-----	-----	-----
1081	-----	-----	-----	-----	-----	-----	-----	-----
1108	-----	-----	-----	-----	-----	-----	-----	-----
1109	-----	-----	-----	-----	-----	-----	-----	-----
1126	-----	-----	-----	-----	-----	-----	-----	-----
1140	-----	-----	-----	-----	-----	-----	-----	-----
1155	-----	-----	-----	-----	-----	-----	-----	-----
1167	-----	-----	-----	-----	-----	-----	-----	-----
1186	0.35	0.68	0.29	-1.02	-3.31	-0.86	1.49	0.29
1194	-----	-----	-----	-----	-----	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----
1203	-----	-----	-----	-----	-----	-----	-----	-----
1218	-----	-----	-----	-----	-----	-----	-----	-----
1257	-----	-----	-----	-----	-----	-----	-----	-----
1259	-----	-----	-----	-----	-----	-----	-----	-----
1266	-----	-----	-----	-----	-----	-----	-----	-----
1272	-----	-----	-----	-----	-----	-----	-----	-----
1281	2.83	1.77	0.72	0.05	0.29	-2.10	-0.12	-0.62
1299	-----	-----	-----	-----	-----	-----	-----	-----
1394	-----	-----	-----	-----	-----	-----	-----	-----
1395	-----	-----	-----	-----	-----	-----	-----	-----
1397	-----	-----	-----	-----	-----	-----	-----	-----
1406	-----	-----	-----	-----	-----	-----	-----	-----
1407	-----	-----	-----	-----	-----	-----	-----	-----
1409	-----	-----	-----	-----	-----	-----	-----	-----
1426	-----	-----	-----	-----	-----	-----	-----	-----
1427	-----	-----	-----	-----	-----	-----	-----	-----

1428	-----	-----	-----	-----	-----	-----	-----	-----
1498	-----	-----	-----	-----	-----	-----	-----	-----
1499	-----	-----	-----	-----	-----	-----	-----	-----
1501	-1.58	-0.75	-0.66	-1.35	0.52	0.76	0.05	0.49
1520	0.30	-1.94	-0.56	-0.82	0.50	-0.13	-0.43	0.29
1557	0.80	2.10	5.46	6.05	0.50	-4.90	-4.73	-5.41
1564	-----	-----	-----	-----	-----	-----	-----	-----
1570	-----	-----	-----	-----	-----	-----	-----	-----
1634	-----	-----	-----	-----	-----	-----	-----	-----
1635	-0.70	0.61	-1.08	0.87	0.11	0.61	0.53	-1.27
1636	-----	-----	-----	-----	-----	-----	-----	-----
1654	-----	-----	-----	-----	-----	-----	-----	-----
1656	-----	-----	-----	-----	-----	-----	-----	-----
1707	-----	-----	-----	-----	-----	-----	-----	-----
1709	-----	-----	-----	-----	-----	-----	-----	-----
1710	-----	-----	-----	-----	-----	-----	-----	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-----	-----	-----	-----	-----	-----	-----	-----
1728	-1.61	-1.24	-1.04	-1.77	-0.65	0.49	-0.12	0.65
1807	-----	-----	-----	-----	-----	-----	-----	-----
1810	-----	-----	-----	-----	-----	-----	-----	-----
1811	-----	-----	-----	-----	-----	-----	-----	-----
1833	-----	-----	-----	-----	-----	-----	-----	-----
1842	0.05	-0.37	0.23	0.15	-0.16	-----	-----	-----
1849	-----	-----	-----	-----	-----	-----	-----	-----
1851	-----	-----	-----	-----	-----	-----	-----	-----
1948	-----	-----	-----	-----	-----	-----	-----	-----
1949	-0.70	-0.14	0.72	1.51	0.31	0.17	-0.04	0.18
1951	-----	-----	-----	-----	-----	-----	-----	-----
2102	-----	-----	-----	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----	-----	-----	-----
2130	-----	-----	-----	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX 3

Number of participants per country

1 lab in	ARGENTINA
2 labs in	AUSTRALIA
2 labs in	AUSTRIA
3 labs in	BELGIUM
1 lab in	BULGARIA
1 lab in	CANADA
1 lab in	CHILE
1 lab in	COSTA RICA
1 lab in	CÔTE D'IVOIRE
3 labs in	CROATIA
1 lab in	CYPRUS
3 labs in	CZECH REPUBLIC
2 labs in	ESTONIA
1 lab in	FINLAND
5 labs in	FRANCE
2 labs in	GERMANY
2 labs in	GREECE
1 lab in	GUAM
1 lab in	HONG KONG
2 labs in	HUNGARY
2 labs in	IRELAND
1 lab in	ISRAEL
1 lab in	ITALY
2 labs in	KOREA
2 labs in	LATVIA
1 lab in	LITHUANIA
1 lab in	MEXICO
1 lab in	MOZAMBIQUE
1 lab in	NORTHERN IRELAND
1 lab in	OMAN
1 lab in	P.R. of CHINA
1 lab in	POLAND
2 labs in	PORTUGAL
1 lab in	REPUBLIC OF MACEDONIA
2 labs in	ROMANIA
5 labs in	RUSSIA
1 lab in	SAUDI ARABIA
3 labs in	SERBIA
1 lab in	SLOVENIA
6 labs in	SPAIN
1 lab in	SUDAN
2 labs in	SWEDEN
3 labs in	TAIWAN R.O.C.
6 labs in	THE NETHERLANDS
1 lab in	TOGO
10 labs in	TURKEY
1 lab in	U.A.E.
2 labs in	U.S.A.
1 lab in	UKRAINE
9 labs in	UNITED KINGDOM

APPENDIX 4

Abbreviations:

C	= final result after checking of first reported suspect result
C(0.01)	= outlier in Cochran's outlier test
C(0.05)	= straggler in Cochran's outlier test
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
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

Literature:

1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010

2 ASTM E178-02

3 ASTM E1301-03

4 ISO13528-05

4 ISO 5725-86

5 ISO 5725, parts 1-6, 1994

6 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)

7 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)

8 IP 367/96

9 DIN 38402 T41/42

10 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)

11 J.N. Miller, Analyst, 118, 455, (1993)

12 Analytical Methods Committee Technical brief, No4 January 2001.

13 The Royal Society of Chemistry 2002, Analyst 2002, 127 page 1359-1364, P.J. Lowthian and M. Thompson (see http://www.rsc.org/suppdata/an/b2/b205600n/).

14 H. Verplaetse and M. Lacourt, Accred Qual Assur (2006) 11:521-522