Results of Proficiency Test
Gasoil (Diesel - EN spec.)
March 2016

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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CONTENTS

1 INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies organizes proficiency tests for Gasoil - Automotive Diesel. In the annual proficiency testing program of 2015-2016, it was decided to continue the proficiency test for the analysis of Gasoil - Diesel in accordance with the latest applicable version of EN590 specification.
Additionally also Paraffinic Diesel Fuel (like Hydrotreated Vegetable Oil of HVO) is used more and more as gasoil or as a blend component in gasoil. In order to know more about the testing of properties of HVO Diesel, it was decided to send an additional sample of HVO Diesel with the gasoil sample this year. Since paraffinic diesel fuels do not meet the specification of EN590, this sample was tested in accordance with prEN15940:2014 (Draft). The final version of this standard will be published in the fall of 2016.
In this interlaboratory study, 165 laboratories from 52 different countries have participated. See appendix 3 for a list of participants in alphabetical country order. In this report the results of the 2015 Gasoil - Diesel proficiency test are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test.
For the EN 590 specification round robin it was decided to use two identical samples of Gasoil, 1*1L Gasoil and 1*0.5L Gasoil, both labelled #16025. For the paraffinic diesel specification a sample of Hydrotreated Vegetable Oil was used, 1*0.5L labelled #16026. For Total Contamination, it was decided to use one bottle of 1L (85% filled with regular automotive diesel), labelled #16027. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an accredited laboratory. 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 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3), which can be downloaded from the iis website http://www.iisnl.com.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

The 400 litre low sulphur Gasoil (automotive diesel) was purchased from the local market. After homogenization, the material was subsequently divided over 200 amber glass bottles of 1L and 200 amber glass bottles of 500 mL with inner and outer caps, both labelled #16025. The homogeneity of the 1L and 500 mL subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #16025-1	834.87
sample #16025-2	834.89
sample #16025-3	834.89
sample #16025-4	834.89
sample #16025-5	834.88
sample #16025-6	834.86
sample #16025-7	834.88
sample #16025-8	834.89
sample #16025-9	834.88
sample #16025-10	834.89

table 1: homogeneity test results of subsamples #16025

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

	Density at 15°C in kg/m^3
r (sample #16025)	0.03
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 2: evaluation of the repeatability of the subsamples #16025

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #16025 was assumed.

The 200 litre Hydrotreated Vegetable Oil was obtained from a third party. After homogenization, the material was subsequently divided over 200 amber glass bottles 500 mL with inner and outer caps, both labelled #16026.
The homogeneity of the 500 mL subsamples was checked by the determination of Density in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #16026-1	781.05
sample #16026-2	781.04
sample #16026-3	781.04
sample #16026-4	781.04
sample #16026-5	781.04
sample #16026-6	781.04
sample #16026-7	781.04
sample #16026-8	781.04

Table 3: homogeneity test results of subsamples #16026

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

	Density at 15°C in kg/m^3
r (sample #16026)	0.01
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 4: evaluation of the repeatability of the subsamples #16026

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #16026 was assumed.

For Total Contamination, approx. 200 liter was made available from the same batch as sample #16025. Out of this batch, 120 amber glass bottles of 1L with inner and outer caps were filled up to approx 850 ml and subsequently labelled #16027.

Depending on the registration, two bottles of regular Gasoil (1*1 L and 1*0.5 L both labelled #16025) and one bottle of HVO Diesel (1*0.5 L labelled #16026) and/or one bottle of Gasoil for Total Contamination only (1*1 L labelled #16027) were sent to the participating laboratories on February 24, 2016.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSIS

The participants were asked to determine on the samples #16025: Acid Number (Total), Ash, Cetane Index, Cloud Point, Cold Filter Plugging Point (CFPP), Carbon Residue on 10% residue, Copper Corrosion, Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250ºC and 350ºC), FAME, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR, Manganese, Nitrogen, Oxidation Stability, Polycyclic-, Mono-, Di-, Tri+- and Total-Aromatics, Pour Point (manual and automated), Sulphur and Water.
The participants were asked to determine on the sample #16026 (HVO Diesel): Cloud Point, Cold Filter Plugging Point (CFPP), Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250ºC and 350ºC) and Flash Point PMcc.
On sample #16027 the participants were requested to determine Total Contamination only.

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

3 RESULTS

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

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

3.1 STATISTICS

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report ‘iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation’ of April 2014 (iis-protocol, version 3.3).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as ‘<…’ or ‘>…’ were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the

visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either ‘unknown’, ‘OK’, ‘suspect’ or ‘not OK’. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results should be used with due care.

According to ISO 5725 the original test results per determination were submitted to Dixon’s and/or Grubbs' and/or Rosner’s outlier tests. Outliers are marked by D(0.01) for the Dixon’s test, by G(0.01) or DG(0.01) for the Grubbs’ test and by R(0.01) for the Rosner’s test. Stragglers are marked by D(0.05) for the Dixon’s test, by G(0.05) or DG(0.05) for the Grubbs’ test and by R(0.05) for the Rosner’s test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. 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 visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are on the X-axis.

The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in 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 whether the reported test result is fit-for-use.

The z-scores were calculated in accordance with:

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

The $z_{(target)}$ scores are listed in the result tables of appendix 1.
Absolute values for z<2 are very common and absolute values for z>3 are very rare.

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

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

4 EVALUATION

In this interlaboratory study, no problems were encountered with the dispatch of the samples. For both samples #16025 and #16026, one participant reported test results after the final reporting date and four participants did not report any test results.
For sample #16027, three participants reported test results after the final reporting date and nine participants did not report any test results. One laboratory only participated in the round on Total Contamination.

Finally, 161 participants reported 4203 numerical test results in total. Observed were 121 outlying test results, which is 2.9%. In proficiency studies, outlier percentages of 3%-7.5% are quite normal.

4.1 EVALUATION PER TEST

In this section, the results are discussed per test. The methods, which are used by the various laboratories, are taken into account for explaining the observed differences where possible and applicable. These methods are also in the tables together with the reported data. The abbreviations, used in these tables, are listed in appendix 4.

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

Sample #16025 – Gasoil

Acid Number, Total: This determination was not problematic. Only one statistical outliers was observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D974:14e2. One should keep in mind that ASTM D974 and D664, may or may not give the same test results (see note 2 in ASTM D664 and note 3 in ASTM D974).

Ash: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO6245:01.

Cetane Index: Two participants reported test results according ASTM D976, a test method that leads to test results that are not equivalent with ISO4264/ASTM D4737 results. Therefore, these test results were excluded from the statistical evaluation. For the other results, apparently almost all participants used the same calculation method: procedure A of ISO4264:95 / IP380:98 / ASTM D4737:10.
The calculated reproducibility of the group is small in comparison with the reproducibility as found in last year's round: 0.82 vs 0.94.
Nine participants probably made a calculation error.

Cloud Point: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of EN23015:94.

CFPP: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN116:15.

CR on 10% res.: This determination was problematic at this low level of carbon residue. One test result was excluded, as zero is not a real result. No statistical outliers were observed. The calculated reproducibility after rejection of the suspect data is not in agreement with ISO10370:14.

Copper Corrosion: This determination was not problematic. One-hundred seventeen participants reported a test result and agreed on a result of 1 (1a).

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

Distillation: The automated method was performed by 82% of the participants. This determination was not problematic. In total twelve statistical outliers were observed. All calculated reproducibilities are in agreement with the requirements of ISO3405:11 (automated).

FAME: This determination was problematic. Three statistical outliers were observed. One test result was excluded, for the test result was rounded too far (ASTM D7806 states that results should be rounded to the nearest 0.1%). The calculated reproducibility after rejection of the suspect data is not in agreement with EN14078:14 (range B).
One laboratory performed ASTM D7963. This test method may be less suitable to test FAME in %V/V at a level that is found in this sample. This method has a calibration range up to 1000 mg/kg, but allows dilution when the

amount of FAME is higher than this. In order to use this test method on this sample requires a dilution with a factor of 10000 and a recalculation from mg/kg to %V/V.

Flash Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ISO2719:02.

Kin. visc. 40°C: 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 almost in agreement with ISO3104:94.

Lubricity: This determination was not problematic. One statistical outlier was observed. Six results were excluded for statistical evaluation, as the reported test method (ASTM D6079 and D7688) uses a deviating calculation procedure and the test result therefore is not equivalent with a test result of ISO12156. However, the calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ISO12156:16.

Manganese: This determination was problematic. The samples were spiked with 5 mg Manganese/L. Therefore, the minimal concentration to be found was known. The laboratories should be able to find at least 4.3 mg/kg [5 $mg/L_{(added\ amount)}$ – 0.7 $mg/L_{(R\ EN16576)}$].
Eleven laboratories reported a lower amount than 4.3 mg/kg. The test results of these laboratories were rejected prior to data analysis. One laboratory reported a false negative test result. No statistical outliers were observed. The calculated reproducibility after rejection of the suspect data was not in agreement with the requirements of EN16576:14.

Nitrogen: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D4629:12.
Three laboratories used ASTM D5762, although this method states that at levels below 100 mg/kg ASTM D4629 can be more appropriate.

Oxidation Stability: This determination was very problematic. Two statistical outliers were observed. Four laboratories were excluded for performing a method that is not equivalent to EN15751. The calculated reproducibility after rejection of the suspect data is not at all in agreement with EN15751:14.

Poly-Aromatics: This determination was problematic. One statistical outlier was observed and one test result was excluded, because the test results for this laboratory for Mono-, Di-, Tri+- and Total Aromatics were outliers. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements EN12916:06. One participant probably made a calculation error, as the reported test result deviates from the sum of the reported test results for Di and Tri+ aromatics.

Mono-Aromatics: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements EN12916:06.

Di-Aromatics: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements EN12916:06.

Tri^{+}-Aromatics: This determination was problematic for a number of participants. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements EN12916:06.

Total Aromatics: This determination 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 EN12916:06.

Pour Point manual: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO3016:94.

Pour Point automated: This determination was not problematic. No statistical outliers were observed and one participant reported a test method that describes a manual mode. Therefore, this test result was excluded from the statistical evaluation. The calculated reproducibility after rejection of the suspect data is in agreement with ASTM D5950:14.

Sulphur: This determination was problematic for a number of participants. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO20846:11.

Water: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in good agreement with the requirements of ISO12937:00.

Sample #16026 – Hydrotreated Vegetable Oil (HVO diesel)

Cloud Point: This determination 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 EN23015:94.

CFPP: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of EN116:15.

Density at 15°C: This determination was problematic for a number of laboratories. Twelve statistical outliers were observed and the test result of one laboratory was excluded for reporting the test result of sample #16025. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO12185:96.
The high amount of outliers may be explained by the fact that the method allows to measure the density at a different temperature (for example 20°C), recalculating to a density at 15°C. The calculation tables from the method are based on gasoil samples and may not be applicable to HVO Diesel.

Distillation: The automated method was performed by 82% of the participants. This determination was problematic for a number of laboratories. The distillation behaviour of this HVO diesel appears to be very different than that of gasoil. More difficulties were observed with the determination of the Initial Boiling Point and with the volume higher than 350°C.
In total thirty statistical outliers were observed, from which 17 outliers were observed in the determination of IBP. All test results of one laboratory were excluded for reporting the test results of sample #16025. The calculated reproducibilities after rejection of the suspect data of 10%, 50%, 90%, 95% recovered and Volume at 250°C are all in agreement with the requirements of ISO3405:11 (automated). The calculated reproducibilities after rejection of the suspect data of IBP and FBP are not in agreement with requirements of ISO3405:11 (automated). The determination of Volume at 350°C was not evaluated, due to the wide variety of results (between 0.0 and 100.0%). The end point of the distillation for this HVO diesel was below 350°C.

Flash Point: This determination was not problematic. Two statistical outliers were observed and the test result of one laboratory was excluded for reporting the test result of sample #16025. However, the calculated reproducibility is in good agreement with the requirements of ISO2719:02.

Sample #16027 – Gasoil

Total Contamination: This determination was not problematic at the high level of 53 mg/kg. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN12662:14. The correctness of the sample pretreatment is critical for this determination.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of participating laboratories that participated. The average results of the evaluated parameters, calculated reproducibilities and reproducibilities, derived from literature standards (in casu ASTM, EN or ISO standards) are compared in the next tables.

Parameters	unit	n	average	2.8 * sd	R (lit)
Acid Number, Total	mgKOH/g	80	0.037	0.054	0.080
Ash	%M/M	66	0.0008	0.0012	0.0050
Cetane index, four variables		118	55.01	0.82	n.a.
Cloud Point	°C	125	-1.7	2.3	4.0
Cold Filter Plugging Point	°C	119	-11.4	4.3	3.7
Carbon Residue on 10% res.	%M/M	68	0.031	0.045	0.024
Copper Corrosion (3hrs at 50ºC)		117	1 (1a)	n.a.	n.a.
Density at 15 °C	kg/m^3	151	834.90	0.32	0.50
IBP	°C	143	167.8	8.8	9.2
10% recovery	°C	140	210.1	5.1	4.6
50% recovery	°C	144	281.1	3.2	3.0
90% recovery	°C	145	341.0	4.4	5.1
95% recovery	°C	146	355.8	7.1	9.1
FBP	°C	145	365.2	7.0	7.1
Volume at 250ºC	%V/V	137	29.5	2.1	2.7
Volume at 350ºC	%V/V	138	93.4	1.8	2.7
FAME	%V/V	79	6.51	0.67	0.48
Flash Point PMcc	°C	148	62.3	3.7	4.4
Kinematic Viscosity at 40°C	mm^2/s	136	2.965	0.037	0.033
Lubricity by HFRR	µm	73	216	88	90
Manganese	mg/L	17	5.03	1.07	0.67
Nitrogen	mg/kg	39	55.9	8.7	6.4
Oxidation Stability	hrs	18	52.2	39.7	10.3
Poly-Aromatics	%M/M	58	2.54	1.18	0.94
Mono-Aromatics	%M/M	52	18.69	1.59	2.35
Di-Aromatics	%M/M	55	2.25	0.87	0.73
Tri$^+$-Aromatics	%M/M	47	0.25	0.31	0.58
Total Aromatics	%M/M	51	21.17	2.05	4.74
Pour Point, manual	ºC	80	-16.5	4.1	6.4
Pour Point, automated	ºC	42	-15.4	5.1	6.1
Sulphur	mg/kg	121	7.6	1.9	2.0
Water	mg/kg	128	58.5	25.4	52.6
Total Contamination #16027	mg/kg	64	53.2	10.6	12.9

Table 5: reproducibilities of tests on sample #16025 and #16027

Parameters	unit	n	average	2.8 * sd	R (lit)
Cloud Point	°C	91	-15.0	3.3	4.0
Cold Filter Plugging Point	°C	82	-16.5	1.9	4.0
Density at 15°C	kg/m^3	99	781.09	0.35	0.50
IBP	°C	72	224.3	18.7	12.3
10% recovery	°C	90	273.6	4.3	6.0
50% recovery	°C	90	286.1	2.4	3.0
90% recovery	°C	88	295.9	2.7	4.4
95% recovery	°C	87	298.9	2.6	6.7
FBP	°C	90	306.2	8.7	7.1
Volume at 250ºC	%V/V	75	1.8	1.8	2.7
Volume at 350ºC	%V/V	18	n.a.	n.a.	n.a.
Flash Point PMcc	°C	96	90.4	5.0	6.4

Table 6: reproducibilities of tests on Gasoil #16026

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

4.3 COMPARISON OF THE INTERLABORATORY STUDY OF MARCH 2016 WITH PREVIOUS PTS.

	March 2016	*March 2015*	*March 2014*	*March 2013*	*March 2012*
Number of reporting labs	161	169	162	132	116
Number of results reported	4203	3186	3191	2572	2135
Statistical outliers	121	90	90	75	59
Percentage outliers	2.9%	2.8%	2.8%	2.9%	2.8%

Table 7: 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:

	March 2016	*March 2015*	*March 2014*	*March 2013*	*March 2012*
Acid Number, Total	+	++	++	++	++
Ash	++	++	++	++	++
Cloud Point	++	++	++	++	++
Cold Filter Plugging Point	-	+	+	-	+
CR 10% residue	--	-	--	--	--
Density at 15°C	+	++	++	+	++
Distillation	+	++	++	++	++
FAME	-	--	--	-	-
Flash Point PMcc	+	+	++	++	+
Kinematic Viscosity at 40°C	+/-	+	+/-	+/-	+
Lubricity by HFRR	+/-	--	--	--	+/-
Manganese	-	n.e.	n.e.	n.e.	n.e.
Nitrogen	-	--	--	-	--
Oxidation Stability	--	--	n.e.	n.e.	n.e.
Poly-Aromatics	-	+	+/-	+/-	--
Mono-, Di-, Tri^{+}-Aromatics	+	++	-	-	n.e.
Total Aromatics	++	n.e.	n.e.	n.e.	n.e.
Pour Point	+	+/-	++	++	++
Sulphur	+/-	+/-	--	-	-
Water	++	++	++	++	++
Total Contamination #16027	+	--	--	--	+

Table 8: comparison determinations against the standard

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 similar to the standard
- - : group performed worse than the standard
- -- : group performed much worse than the standard
- n.e.: not evaluated

APPENDIX 1

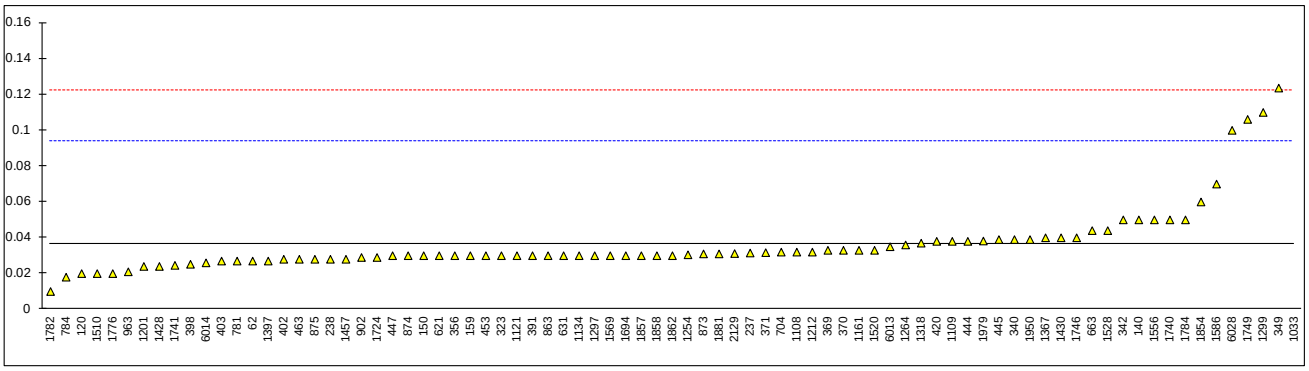
Determination of Acid Number, Total (TAN) on sample #16025; result in mgKOH/g

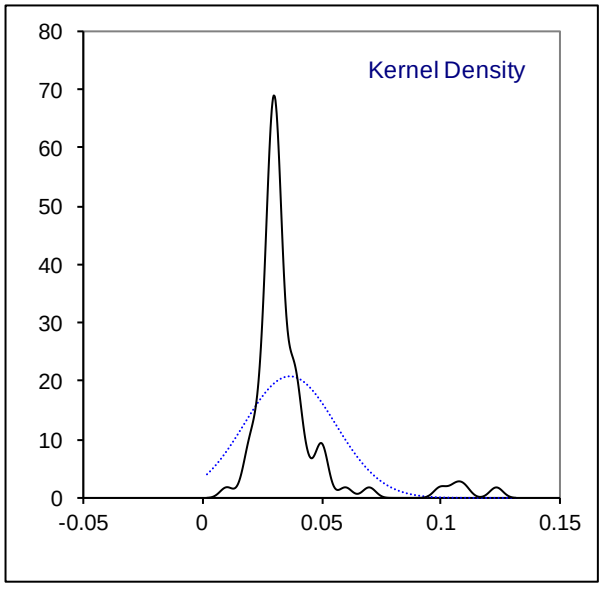
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D974	0.027		-0.34	1134	D664	0.03		-0.23
120	D974	0.02		-0.58	1146		-----		-----
140	D974	0.05		0.47	1161	D664	0.033		-0.13
150	D974	0.03		-0.23	1167		-----		-----
159	D974	0.03		-0.23	1191		-----		-----
171	D664	<0.10		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237	D974	0.0315		-0.18	1201	D974	0.024		-0.44
238	D974	0.028		-0.30	1205		-----		-----
311	D664	<0.10		-----	1212	D974	0.032		-0.16
312	D974	<0.02		-----	1229		-----		-----
323	D974	0.03		-0.23	1254	D664	0.0305		-0.21
331		-----		-----	1264	D664	0.036		-0.02
333		-----		-----	1266		-----		-----
334		-----		-----	1272		-----		-----
335		-----		-----	1297	D664	0.03		-0.23
336		-----		-----	1299	D664	0.11		2.57
337		-----		-----	1310		-----		-----
338		-----		-----	1316		-----		-----
340	D974	0.039	C	0.08	1318	D664	0.037		0.01
342	D664	0.05		0.47	1356	D974	<0.05		-----
345		-----		-----	1365		-----		-----
349	D664	0.1236		3.04	1367	IP139	0.04		0.12
350		-----		-----	1397	D974	0.027		-0.34
351		-----		-----	1428	D664	0.024		-0.44
353		-----		-----	1430	In house	0.04		0.12
356	D974	0.03		-0.23	1433		-----		-----
357	D664	<0,1		-----	1457	D974	0.028		-0.30
369	D974	0.033		-0.13	1459		-----		-----
370	D974	0.033		-0.13	1491		-----		-----
371	D974	0.0317		-0.17	1498		-----		-----
381		-----		-----	1510	D974	0.02		-0.58
391	D974	0.03		-0.23	1520	D974	0.033		-0.13
398	D664	0.0252		-0.40	1528	D974	0.044		0.26
399		-----		-----	1556	D664	0.05		0.47
402	D974	0.028		-0.30	1569	D664	0.03		-0.23
403	D664	0.027		-0.34	1584		-----		-----
420	ISO6618	0.038		0.05	1586	D974	0.07		1.17
431		-----		-----	1631		-----		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444	D664	0.038		0.05	1681		-----		-----
445	D974	0.039		0.08	1694	D974	0.0300		-0.23
447	D974	0.03		-0.23	1720		-----		-----
453	D664	0.03		-0.23	1724	D664	0.029		-0.27
463	D974	0.028		-0.30	1730		-----		-----
485		-----		-----	1740	D664	0.05		0.47
541	D974	<0.05		-----	1741		0.0246		-0.42
593		-----		-----	1742		-----		-----
621	D664	0.03		-0.23	1746	D974	0.04		0.12
631	D974	0.030		-0.23	1749	D974	0.1061		2.43
663	D664	0.044		0.26	1753		-----		-----
704	D974	0.032		-0.16	1771		-----		-----
781	D974	0.027		-0.34	1773		-----		-----
784	D664	0.018		-0.65	1776	D664	0.02		-0.58
785		-----		-----	1782	D664	0.01		-0.93
863	D974	0.03		-0.23	1784	D664	0.05		0.47
873	D974	0.031		-0.20	1807		-----		-----
874	D664	0.03		-0.23	1811		-----		-----
875	D664	0.028		-0.30	1813		-----		-----
886		-----		-----	1832		-----		-----
902	D664	0.029		-0.27	1849		-----		-----
912		-----		-----	1854	D664	0.06		0.82
962		-----		-----	1857	D974	0.03		-0.23
963	D974	0.021		-0.55	1858	D664	0.03		-0.23
1006		-----		-----	1862	D974	0.03		-0.23
1033	D664	12.10	R(0.01)	422.22	1872		-----		-----
1059		-----		-----	1881	D974	0.031		-0.20
1080		-----		-----	1911		-----		-----
1082		-----		-----	1936		-----		-----
1108	D664	0.032		-0.16	1937		-----		-----
1109	D974	0.038		0.05	1938		-----		-----
1121	IP139	0.030		-0.23	1950	D974	0.039		0.08
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	D664	0.035		-0.06
1976		-----	-----	6014	D664	0.026		-0.37
1979	ISO6618	0.0382	0.06	6018		-----		-----
1984		-----	-----	6028	D664	0.10	C	2.22
1995		-----	-----	6034		-----		-----
2129	D974	0.0312	-0.19	7006		-----		-----
2146		-----	-----	9057		-----		-----

normality	not OK
n	80
outliers	1
mean (n)	0.0366
st.dev. (n)	0.01927
R(calc.)	0.0540
R(D974:14e2)	0.0800

Lab 340: first reported 1.25
Lab 6028: first reported 0.15





Determination of Ash on sample #16025; result in %M/M

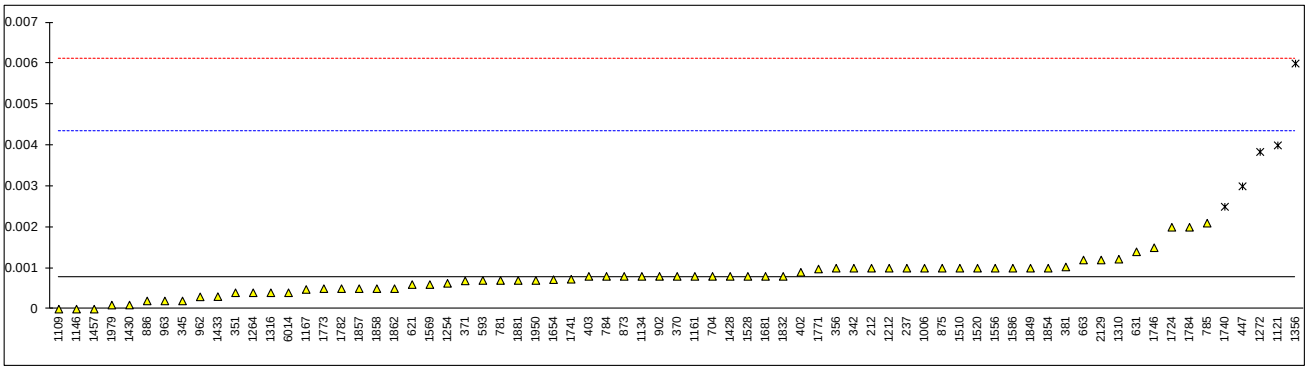
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D482	<0.001		-----	1134	IP4	0.0008		0.02
120	ISO6245	<0.001		-----	1146	D482	0.000		-0.43
140		-----		-----	1161	ISO6245	0.0008		0.02
150	ISO6245	<0.001		-----	1167	ISO6245	0.00048		-0.16
159	D482	<0.001		-----	1191		-----		-----
171	D482	<0.001		-----	1194		-----		-----
212	ISO6245	0.001		0.13	1199		-----		-----
237	D482	0.001		0.13	1201	ISO6245	<0.001		-----
238		-----		-----	1205		-----		-----
311	ISO6245	<0.001		-----	1212	ISO6245	0.001		0.13
312		-----		-----	1229		-----		-----
323	ISO6245	<0.001		-----	1254	ISO6245	0.00063		-0.08
331		-----		-----	1264	D482	0.0004		-0.21
333		-----		-----	1266		-----		-----
334	ISO6245	<0.001		-----	1272	ISO6245	0.00384	R(0.01)	1.72
335		-----		-----	1297		-----		-----
336		-----		-----	1299		-----		-----
337		-----		-----	1310	ISO6245	0.00122		0.25
338		-----		-----	1316	D482	0.0004		-0.21
340	ISO6245	<0.001		-----	1318		-----		-----
342	ISO6245	0.001		0.13	1356	ISO6245	0.006	R(0.01)	2.93
345	ISO6245	0.0002		-0.32	1365	D482	<0.001		-----
349		-----		-----	1367	IP4	<0.001		-----
350		-----		-----	1397	ISO6245	<0,001		-----
351	ISO6245	0.0004		-0.21	1428	ISO6245	0.0008		0.02
353		-----		-----	1430	D482	0.0001		-0.38
356	D482	0.001	C	0.13	1433	ISO6245	0.000305		-0.26
357	ISO6245	< 0,001		-----	1457	ISO6245	0		-0.43
369	ISO6245	<0.001		-----	1459		-----		-----
370	ISO6245	0.0008		0.02	1491		-----		-----
371	ISO6245	0.00069		-0.05	1498		-----		-----
381	ISO6245	0.00103		0.15	1510	IP4	0.001		0.13
391		-----		-----	1520	ISO6245	0.001		0.13
398		-----		-----	1528	ISO6245	0.0008		0.02
399		-----		-----	1556	ISO6245	0.001		0.13
402	ISO6245	0.0009		0.07	1569	ISO6245	0.0006		-0.10
403	ISO6245	0.0008		0.02	1584		-----		-----
420	ISO6245	<0,001		-----	1586	ISO6245	0.001		0.13
431		-----		-----	1631	ISO6245	<0.001		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654	ISO6245	0.00072		-0.03
440		-----		-----	1678		-----		-----
444		-----		-----	1681	ISO6245	0.0008		0.02
445	IP4	<0.001		-----	1694		-----		-----
447	IP4	0.003	R(0.01)	1.25	1720		-----		-----
453	IP4	<0.001		-----	1724	D482	0.002		0.69
463	ISO6245	<0,001		-----	1730		-----		-----
485		-----		-----	1740	ISO6245	0.0025	R(0.05)	0.97
541	ISO6245	<0.001		-----	1741	ISO6245	0.00073		-0.02
593	D482	0.0007		-0.04	1742		-----		-----
621	D482	0.0006		-0.10	1746	D482	0.0015		0.41
631	D482	0.0014		0.35	1749		-----		-----
663	D482	0.0012		0.24	1753		-----		-----
704	ISO6245	0.0008		0.02	1771	ISO6245	0.00098		0.12
781	ISO6245	0.0007		-0.04	1773	ISO6245	0.0005		-0.15
784	ISO6245	0.0008		0.02	1776		-----		-----
785	D482	0.0021		0.74	1782	D482	0.0005		-0.15
863	ISO6245	<0.001		-----	1784	D482	0.002		0.69
873	D482	0.0008		0.02	1807		-----		-----
874	D482	Less 0.001		-----	1811		-----		-----
875	D482	0.001		0.13	1813	D482	<0.0010		-----
886	D482	0.0002		-0.32	1832	ISO6245	0.0008		0.02
902	D482	0.0008		0.02	1849	ISO6245	0.001		0.13
912		-----		-----	1854	ISO6245	0.001		0.13
962	D482	0.0003		-0.26	1857	ISO6245	0.0005		-0.15
963	ISO6245	0.0002		-0.32	1858	D482	0.0005		-0.15
1006	D482	0.001		0.13	1862	ISO6245	0.0005		-0.15
1033		-----		-----	1872		-----		-----
1059	ISO6245	<0,001		-----	1881	ISO6245	0.0007		-0.04
1080		-----		-----	1911	ISO6245	<0,001		-----
1082		-----		-----	1936		-----		-----
1108		-----		-----	1937		-----		-----
1109	D482	0.000		-0.43	1938		-----		-----
1121	IP4	0.004	R(0.01)	1.81	1950	ISO6245	0.0007		-0.04
1126		-----		-----	1953		-----		-----

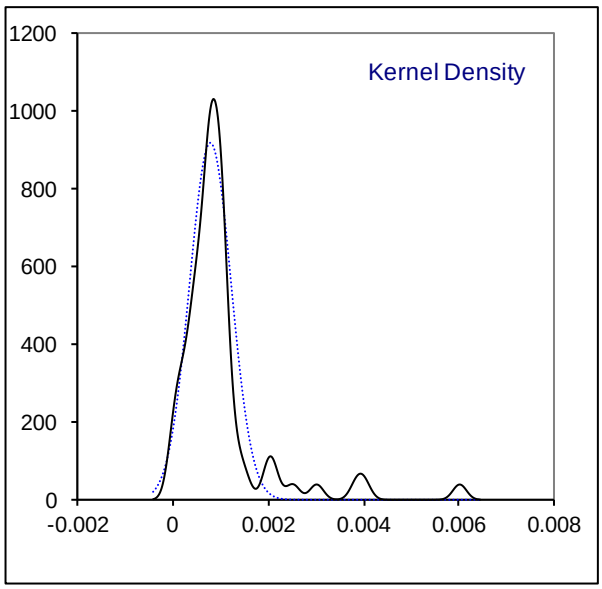
1961		-----	-----	6013	ISO6245	<0,001	-----
1976		-----	-----	6014	ISO6245	0.0004	-0.21
1979	ISO6245	0.000099	-0.38	6018		-----	-----
1984		-----	-----	6028		-----	-----
1995		-----	-----	6034		-----	-----
2129	ISO6245	0.0012	0.24	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	suspect
n	66
outliers	5
mean (n)	0.00077
st.dev. (n)	0.000435
R(calc.)	0.00122
R(ISO6245:01)	0.00500

Application range: 0.001 – 0.180%M/M

Lab 356: first reported 0.008





Determination of Cetane Index, four variables on sample #16025

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4737	55.4		-----	1134	D4737	54.8448		-----
120	ISO4264	55.1		-----	1146		-----		-----
140	ISO4264	55.1		-----	1161	ISO4264	54.57		-----
150	ISO4264	54.8		-----	1167		-----		-----
159	ISO4264	54.9		-----	1191		-----		-----
171	D4737	55.5		-----	1194	D4737	54.6		-----
212		-----		-----	1199		-----		-----
237	D4737	54.5		-----	1201	ISO4264	55.0		-----
238		-----		-----	1205		-----		-----
311	ISO4264	55.1		-----	1212	ISO4264	55.23		-----
312	ISO4264	55.4		-----	1229		-----		-----
323	ISO4264	55.4		-----	1254	ISO4264	55.2		-----
331		-----		-----	1264	D4737	54.9		-----
333		-----		-----	1266	ISO4264	55.8	E	-----
334	ISO4264	54.4		-----	1272	ISO4264	55		-----
335	ISO4264	55.3	E	-----	1297	D976	55.212	ex	-----
336	ISO4264	55.1		-----	1299	D4737	54.9		-----
337		-----		-----	1310	ISO4264	53.9	R(0.05)	-----
338	ISO4264	55.3		-----	1316	D4737	55.0	C	-----
340	ISO4264	55.1		-----	1318	D4737	55.0		-----
342	ISO4264	54.9		-----	1356	ISO4264	56	E	-----
345	ISO4264	54.8		-----	1365	D4737	54.2		-----
349		-----		-----	1367		-----		-----
350		-----		-----	1397	ISO4264	55.3		-----
351	ISO4264	54.91		-----	1428		-----		-----
353	IP380	55.287		-----	1430	D4737	54.5		-----
356	D4737	55.4		-----	1433	ISO4264	54.9		-----
357	ISO4264	55.31		-----	1457	ISO4264	55.0		-----
369	ISO4264	55.24		-----	1459	ISO4264	55.2		-----
370	ISO4264	54.71		-----	1491	ISO4264	55.3		-----
371	ISO4264	55.0		-----	1498		-----		-----
381	ISO4264	55.02		-----	1510	IP380	54.9		-----
391	ISO4264	55.2		-----	1520	ISO4264	54.6		-----
398		-----		-----	1528	ISO4264	55.29		-----
399	ISO4264	55.7		-----	1556	ISO4264	55.1		-----
402	ISO4264	55.1		-----	1569	ISO4264	55		-----
403	ISO4264	55.1		-----	1584	ISO4264	54.8		-----
420	ISO4264	55.3		-----	1586	ISO4264	54.6		-----
431		-----		-----	1631	ISO4264	55.1		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654	ISO4264	55.21		-----
440	IP380	55		-----	1678		-----		-----
444		-----		-----	1681	ISO4264	54.86		-----
445	IP380	54.8		-----	1694	D4737	54.823	E	-----
447	IP380	55.0		-----	1720		-----		-----
453	IP380	55.0		-----	1724	ISO4264	55.11		-----
463	ISO4264	54.9		-----	1730		-----		-----
485	ISO4264	55.4		-----	1740	ISO4264	55.0		-----
541	ISO4264	55.1		-----	1741	ISO4264	54.94		-----
593	D976	55.0	ex	-----	1742		-----		-----
621	ISO4264	54.5		-----	1746		55.2	E	-----
631	D4737	54.4504		-----	1749		-----		-----
663	D4737	55.3		-----	1753	ISO4264	53.72	R(0.05)	-----
704	ISO4264	55.1		-----	1771	ISO4264	54.8		-----
781	ISO4264	55.0		-----	1773	ISO4264	54.8579		-----
784	ISO4264	54.9		-----	1776	ISO4264	54.6	E	-----
785	D4737	55.2		-----	1782	ISO4264	55.2		-----
863	ISO4264	54.6		-----	1784	D4737	54.9		-----
873	ISO4264	54.9		-----	1807	ISO4264	54.7		-----
874	ISO4264	55.1		-----	1811	ISO4264	55		-----
875	ISO4264	55.2		-----	1813	D4737	55.20		-----
886	D4737	54.5	C,E	-----	1832		-----		-----
902	D4737	54.9		-----	1849	ISO4264	54.96		-----
912		-----		-----	1854		54.9		-----
962	D4737	55.2		-----	1857	D4737	54.8		-----
963	ISO4264	55.1		-----	1858	D4737	55.1		-----
1006	D4737	55.3		-----	1862	ISO4264	54.9		-----
1033	IP380	55.4		-----	1872		-----		-----
1059	ISO4264	55.3		-----	1881	ISO4264	54.9		-----
1080		-----		-----	1911	ISO4264	55.20		-----
1082		-----		-----	1936	ISO4264	55.01	E	-----
1108	ISO4264	56.2	R(0.05)	-----	1937	ISO4264	54.88		-----
1109	D4737	54.7		-----	1938	ISO4264	54.8		-----
1121		-----		-----	1950	ISO4264	54.9		-----
1126		-----		-----	1953		-----		-----

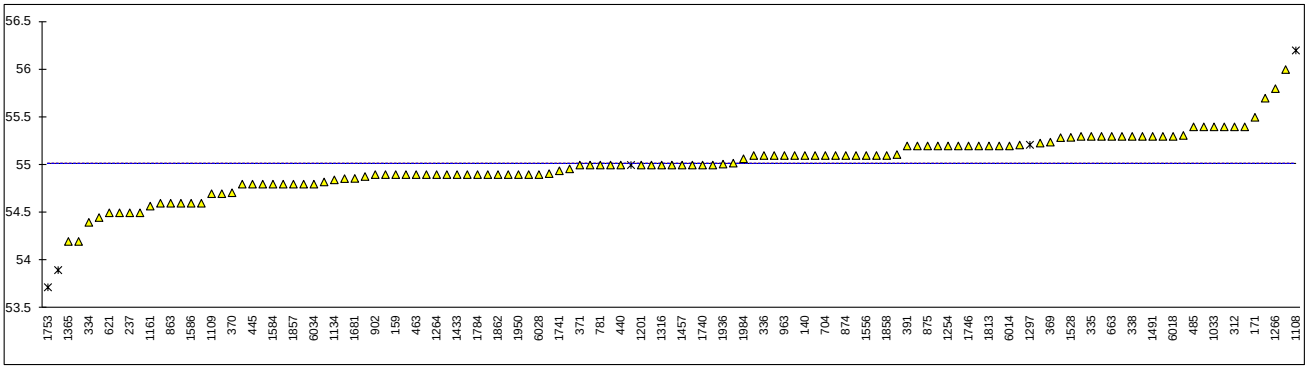
1961		-----		-----	6013	ISO4264	54.9		-----
1976	D4737	54.2	E	-----	6014	ISO4264	55.2		-----
1979		-----		-----	6018	ISO4264	55.3		-----
1984	ISO4264	55.066		-----	6028	ISO4264	54.9		-----
1995		-----		-----	6034	D4737	54.8		-----
2129	ISO4264	55.3		-----	7006		-----		-----
2146		-----		-----	9057		-----		-----

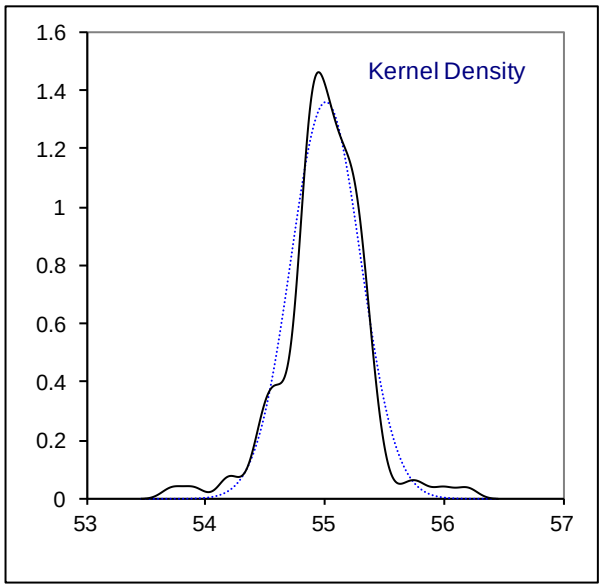
normality	suspect
n	118
outliers	3 (+2ex)
mean (n)	55.013
st.dev. (n)	0.2929
R(calc.)	0.820
R(lit)	unknown

Recalculated values (=E)

335	ISO4264	54.94	1746		54.69
886	D4737 – calc. A	55.21	1776	ISO4264	53.52
1266	ISO4264	55.48	1936	ISO4264	54.71
1356	ISO4264	55.34	1976	D4737 – calc. A	55.16
1694	D4737 – calc. A	56.29			

Lab 886: first reported 52.3
Lab 1316: first reported 46.4
Lab 1936 also reported 54.71, when calculation is based on evaporation values
ex = reported result is excluded as the test method is not equivalent (different calculation)





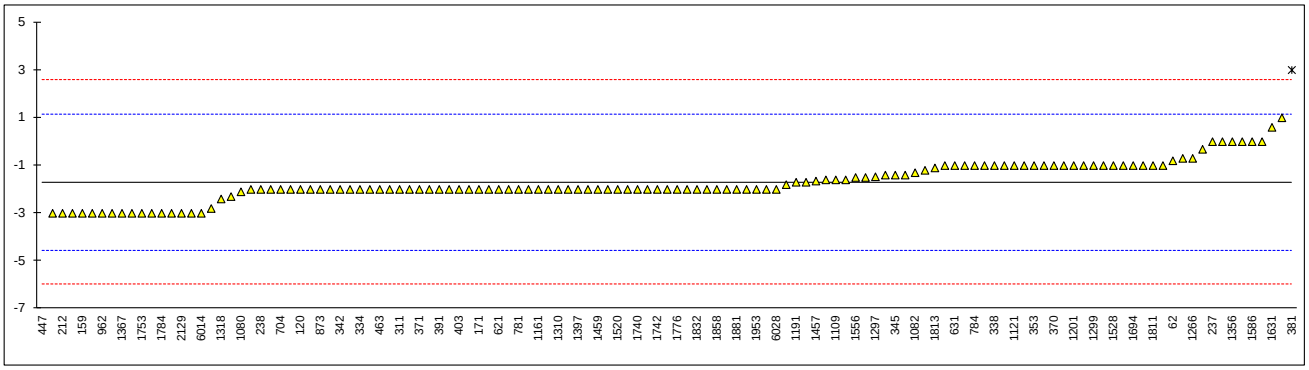
Determination of Cloud Point on sample #16025; result in °C

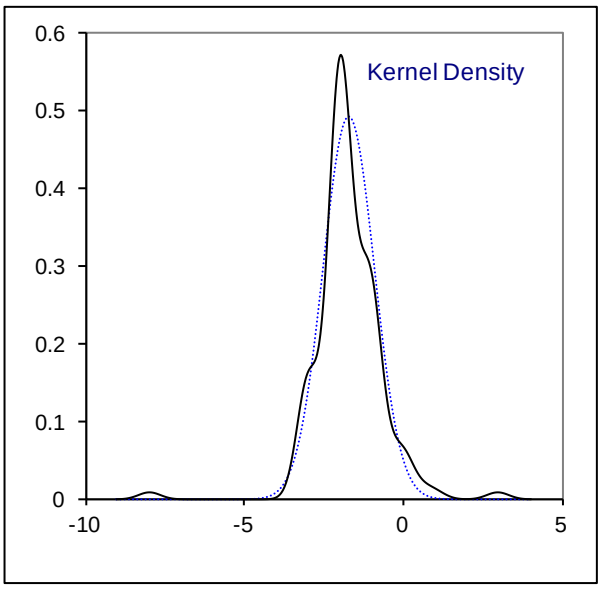
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5773	-0.8		0.64	1134	IP219	-1		0.50
120	D2500	-2		-0.20	1146	D2500	-0.7		0.71
140	EN23015	-1.6		0.08	1161	EN23015	-2		-0.20
150	EN23015	-2		-0.20	1167		-----		-----
159	D2500	-3		-0.90	1191	D5773	-1.7		0.01
171	D2500	-2		-0.20	1194		-----		-----
212	ISO3015	-3		-0.90	1199		-----		-----
237	D2500	0		1.20	1201	EN23015	-1		0.50
238	D2500	-2		-0.20	1205		-----		-----
311	D5771	-2		-0.20	1212	EN23015	-1.6		0.08
312	D2500	-2		-0.20	1229	D7689	-1.7		0.01
323	EN23015	-2		-0.20	1254	EN23015	-2		-0.20
331		-----		-----	1264	D2500	-1		0.50
333	EN23015	-1		0.50	1266	EN23015	-0.7		0.71
334	EN23015	-2		-0.20	1272		-----		-----
335	EN23015	-2		-0.20	1297	D5771	-1.47		0.17
336	EN23015	-2		-0.20	1299	D2500	-1		0.50
337	EN23015	-1		0.50	1310	EN23015	-2		-0.20
338	EN23015	-1		0.50	1316	D5771	-2.0		-0.20
340	EN23015	-1		0.50	1318	D7689	-2.4		-0.48
342	ISO3015	-2		-0.20	1356	ISO3015	0		1.20
345	D5771	-1.4		0.22	1365	D2500	0		1.20
349		-----		-----	1367	IP219	-3		-0.90
350		-----		-----	1397	EN23015	-2		-0.20
351	D7683	-0.32		0.97	1428	EN23015	-2		-0.20
353	IP219	-1		0.50	1430		-----		-----
356	D2500	0		1.20	1433	ISO3015	-1		0.50
357	D5771	-2		-0.20	1457	ISO3015	-1.65		0.04
369	EN23015	-1		0.50	1459	ISO3015	-2.0		-0.20
370	EN23015	-1		0.50	1491	D2500	-3		-0.90
371	EN23015	-2		-0.20	1498	D2500	-2		-0.20
381	ISO3015	3	C,R(0.01)	3.30	1510	D2500	1		1.90
391	ISO3015	-2		-0.20	1520	EN23015	-2		-0.20
398	EN23015	-2		-0.20	1528	EN23015	-1		0.50
399	D2500	-2		-0.20	1556	ISO3015	-1.5		0.15
402	EN23015	-2		-0.20	1569	EN23015	-2		-0.20
403	EN23015	-2		-0.20	1584	EN23015	-1		0.50
420	EN23015	-2		-0.20	1586	D5771	0		1.20
431		-----		-----	1631	EN23015	0.6		1.62
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440	IP219	-3		-0.90	1678	D2500	-2.8		-0.76
444		-----		-----	1681	ISO3015	0.0		1.20
445	IP219	-2		-0.20	1694	D2500	-1		0.50
447	D2500	-8	R(0.01)	-4.40	1720		-----		-----
453	D5773	-1.4		0.22	1724		-----		-----
463	EN23015	-2		-0.20	1730		-----		-----
485		-----		-----	1740	ISO3015	-2		-0.20
541	EN23015	-2		-0.20	1741	ISO3015	-2		-0.20
593		-----		-----	1742	ISO3015	-2		-0.20
621	D2500	-2.0		-0.20	1746	D2500	-2		-0.20
631	D2500	-1		0.50	1749		-----		-----
663	D2500	-3		-0.90	1753	EN23015	-3		-0.90
704	ISO3015	-2		-0.20	1771	EN23015	-1		0.50
781	EN23015	-2		-0.20	1773	EN23015	-3.00		-0.90
784	D2500	-1		0.50	1776	EN23015	-2		-0.20
785	D2500	-3		-0.90	1782	D2500	-2		-0.20
863	D2500	-3		-0.90	1784	D2500	-3		-0.90
873	D2500	-2		-0.20	1807		-----		-----
874	D2500	-2		-0.20	1811	EN23015	-1		0.50
875	D2500	-2		-0.20	1813	D5773	-1.1		0.43
886		-----		-----	1832	EN23015	-2.0		-0.20
902	EN23015	-1		0.50	1849		-----		-----
912		-----		-----	1854	D2500	-3		-0.90
962	D2500	-3		-0.90	1857	D2500	-2		-0.20
963	EN23015	-2		-0.20	1858	D2500	-2		-0.20
1006		-----		-----	1862	EN23015	-1		0.50
1033	D5772	-2.3		-0.41	1872	ISO3015	-2		-0.20
1059	EN23015	-1		0.50	1881	EN23015	-2		-0.20
1080	EN23015	-2.1		-0.27	1911	ISO3015	-1.5		0.15
1082	D5771	-1.3		0.29	1936		-----		-----
1108	D5771	-1.8		-0.06	1937		-----		-----
1109	D5773	-1.6		0.08	1938		-----		-----
1121	IP219	-1.0		0.50	1950	EN23015	-2		-0.20
1126		-----		-----	1953	D7683	-2		-0.20

1961		-----	-----	6013	EN23015	-3	-0.90
1976		-----	-----	6014	EN23015	-3	-0.90
1979	D5771	-1.4	0.22	6018		-----	-----
1984	EN23015	-2	-0.20	6028	ISO3015	-2	-0.20
1995		-----	-----	6034		-----	-----
2129	EN23015	-3	-0.90	7006		-----	-----
2146		-----	-----	9057	In house	-1.2	0.36

normality	OK
n	125
outliers	2
mean (n)	-1.71
st.dev. (n)	0.809
R(calc.)	2.27
R(EN23015:94)	4.00

Lab 381: first reported 5
Lab 351 reported the Cloud Point as the equivalent Cloud Point to method ASTM D2500/EN23015 in accordance with ASTM D7683





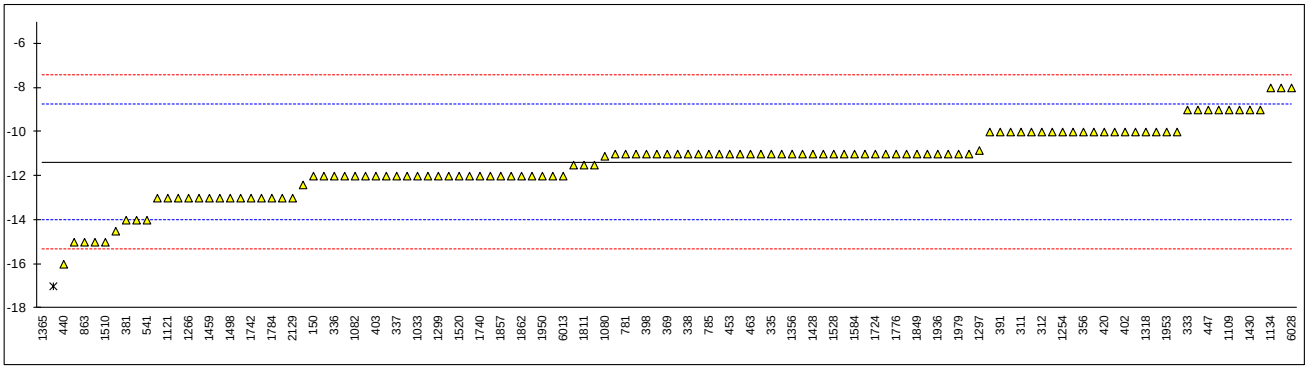
Determination of Cold Filter Plugging Point on sample #16025; result in °C

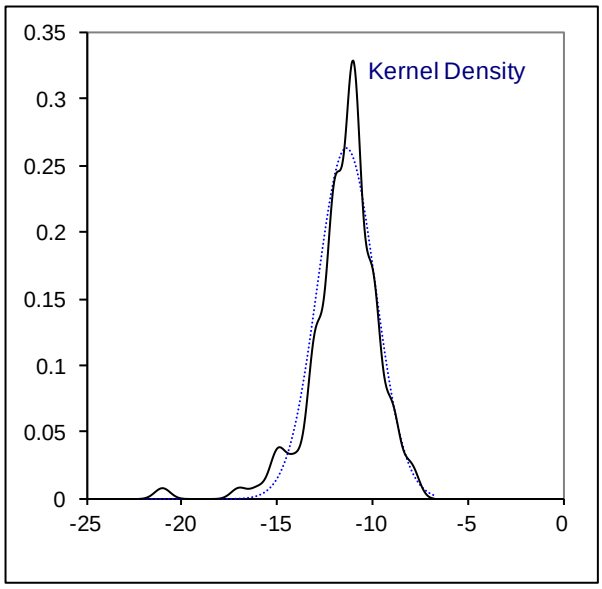
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	IP309	-8		2.57
120	EN116	-8	C	2.57	1146		-----		-----
140	EN116	-9.0		1.81	1161	EN116	-12.0		-0.47
150	EN116	-12		-0.47	1167	EN116	-10		1.05
159		-----		-----	1191	EN116	-11		0.29
171	D6371	-11		0.29	1194	EN116	-11		0.29
212		-----		-----	1199		-----		-----
237	D6371	-9		1.81	1201	EN116	-15		-2.75
238		-----		-----	1205		-----		-----
311	EN116	-10		1.05	1212	EN116	-14.5		-2.37
312	D6371	-10		1.05	1229	EN116	-10		1.05
323	EN116	-12		-0.47	1254	EN116	-10		1.05
331		-----		-----	1264	IP309	-12		-0.47
333	EN116	-9		1.81	1266	EN116	-13.0		-1.23
334	EN116	-10		1.05	1272	EN116	-10		1.05
335	EN116	-11		0.29	1297	D6371	-10.84		0.41
336	EN116	-12		-0.47	1299	IP309	-12		-0.47
337	EN116	-12	C	-0.47	1310	EN116	-13	C	-1.23
338	EN116	-11		0.29	1316	EN116	-12.0		-0.47
340	EN116	-11		0.29	1318	D6371	-10.0		1.05
342	D6371	-12		-0.47	1356	D6371	-11		0.29
345	EN116	-12		-0.47	1365	D6371	-21	R(0.01)	-7.31
349		-----		-----	1367	IP309	-17	R(0.05)	-4.27
350		-----		-----	1397	EN116	-11		0.29
351		-----		-----	1428	EN116	-11		0.29
353	IP309	-9		1.81	1430	EN116	-9		1.81
356	EN116	-10		1.05	1433	EN116	-15		-2.75
357		-----		-----	1457	EN116	-11		0.29
369	EN116	-11		0.29	1459	EN116	-13		-1.23
370	EN116	-11		0.29	1491	EN116	-13		-1.23
371	EN116	-10		1.05	1498	D6371	-13		-1.23
381	EN116	-14		-1.99	1510	IP309	-15		-2.75
391	EN116	-10		1.05	1520	EN116	-12		-0.47
398	EN116	-11		0.29	1528	EN116	-11		0.29
399		-----		-----	1556	EN116	-11		0.29
402	EN116	-10		1.05	1569	EN116	-13		-1.23
403	EN116	-12		-0.47	1584	EN116	-11		0.29
420	EN116	-10		1.05	1586	D6371	-12		-0.47
431	EN116	-13		-1.23	1631	EN116	-12.4		-0.77
432		-----		-----	1634		-----		-----
433		-----		-----	1654	EN116	-11.5		-0.09
440	IP309	-16		-3.51	1678		-----		-----
444		-----		-----	1681	EN116	-11.0		0.29
445	IP309	-11		0.29	1694		-----		-----
447	IP309	-9		1.81	1720		-----		-----
453	IP309	-11		0.29	1724	IP309	-11		0.29
463	EN116	-11		0.29	1730		-----		-----
485		-----		-----	1740	EN116	-12		-0.47
541	EN116	-14		-1.99	1741	EN116	-10		1.05
593		-----		-----	1742	EN116	-13		-1.23
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753	EN116	-11		0.29
704	EN116	-10		1.05	1771	EN116	-13		-1.23
781	EN116	-11		0.29	1773	EN116	-12.00		-0.47
784		-----		-----	1776	EN116	-11		0.29
785	D6371	-11		0.29	1782	D6371	-11		0.29
863	IP309	-15		-2.75	1784	EN116	-13		-1.23
873	EN116	-12		-0.47	1807	EN116	-9		1.81
874		-----		-----	1811	EN16329	-11.5		-0.09
875	EN116	-13		-1.23	1813		-----		-----
886		-----		-----	1832		-----		-----
902	D6371	-11		0.29	1849	EN116	-11		0.29
912		-----		-----	1854	EN116	-13		-1.23
962	IP309	-10		1.05	1857	EN116	-12		-0.47
963	EN116	-10		1.05	1858	IP309	-12		-0.47
1006	D6371	-14		-1.99	1862	EN116	-12		-0.47
1033	IP309	-12		-0.47	1872		-----		-----
1059	EN116	-11		0.29	1881	EN116	-11		0.29
1080	EN116	-11.1		0.21	1911	EN116	-11.5		-0.09
1082	EN116	-12		-0.47	1936	EN116	-11		0.29
1108	EN116	-11		0.29	1937	EN116	-11		0.29
1109	IP309	-9.0		1.81	1938	EN116	-12		-0.47
1121	IP309	-13.0		-1.23	1950	EN116	-12		-0.47
1126		-----		-----	1953	EN116	-10		1.05

1961		-----	-----	6013	EN116	-12	-0.47
1976	EN116	-12	-0.47	6014		-----	-----
1979	EN116	-11.0	0.29	6018		-----	-----
1984	EN116	-11	0.29	6028	EN116	-8	2.57
1995		-----	-----	6034	D6371	-10	1.05
2129	EN116	-13	-1.23	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	119
outliers	2
mean (n)	-11.38
st.dev. (n)	1.520
R(calc.)	4.26
R(EN116:15)	3.68

Lab 120: first reported -6
Lab 337: first reported -16
Lab 1310: first reported -16





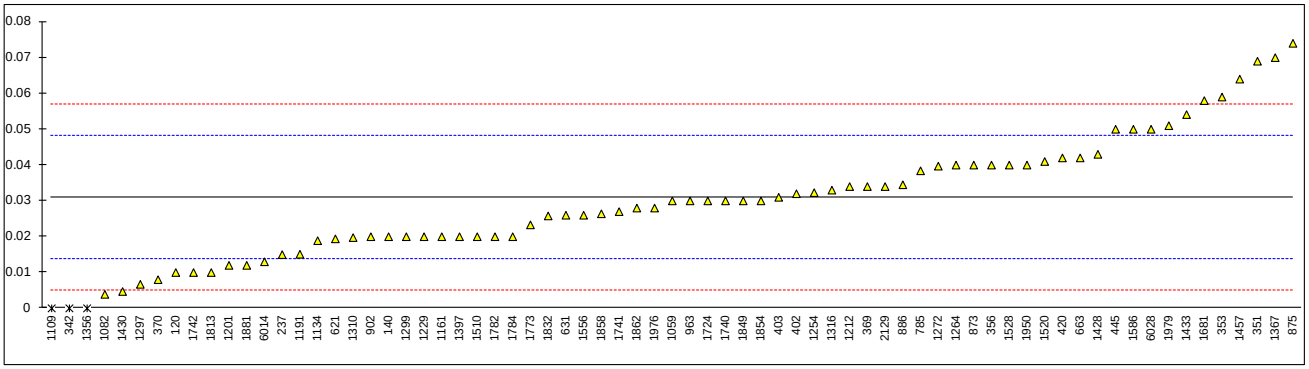
Determination of Carbon Residue on 10% residue on sample #16025; result in %M/M

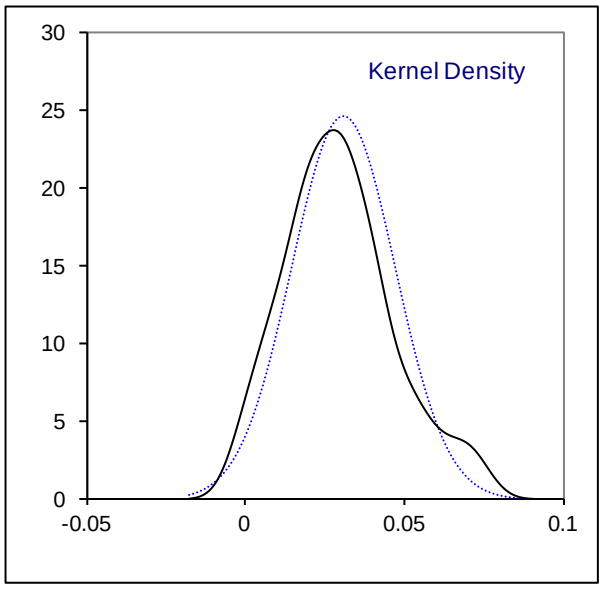
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4530	<0.1		-----	1134	IP398	0.018889		-1.40
120	ISO10370	0.01		-2.43	1146		-----		-----
140	ISO10370	0.02		-1.27	1161	ISO10370	0.02		-1.27
150	ISO10370	<0.10		-----	1167		-----		-----
159		-----		-----	1191	ISO10370	0.0151		-1.84
171	D4530	<0.1		-----	1194		-----		-----
212	ISO10370	<0.1		-----	1199		-----		-----
237	D189	0.015		-1.85	1201	ISO10370	0.012		-2.20
238		-----		-----	1205		-----		-----
311	ISO10370	<0.10		-----	1212	ISO10370	0.034		0.35
312		-----		-----	1229	ISO10370	0.02		-1.27
323	ISO10370	<0.10		-----	1254	ISO10370	0.0323		0.15
331		-----		-----	1264	D4530	0.04		1.04
333		-----		-----	1266		-----		-----
334	ISO10370	<0.10		-----	1272	ISO10370	0.0397		1.01
335		-----		-----	1297	D4530	0.0067		-2.81
336		-----		-----	1299	D4530	0.02		-1.27
337		-----		-----	1310	ISO10370	0.019753	C	-1.30
338		-----		-----	1316	ISO10370	0.033		0.23
340	ISO10370	<0.10		-----	1318		-----		-----
342	ISO10370	<0.1		-----	1356	ISO10370	0.00	ex,C	-3.59
345		-----		-----	1365	D4530	<0.10		-----
349		-----		-----	1367	IP398	0.07		4.51
350		-----		-----	1397	ISO10370	0.02		-1.27
351	ISO10370	0.069		4.40	1428	ISO10370	0.043		1.39
353	IP13	0.059		3.24	1430	D189	0.0047		-3.05
356	D4530	0.04		1.04	1433	ISO10370	0.0541		2.67
357		-----		-----	1457	ISO10370	0.064		3.82
369	ISO10370	0.034		0.35	1459		-----		-----
370	ISO10370	0.008		-2.66	1491		-----		-----
371		-----		-----	1498		-----		-----
381		-----		-----	1510	D4530	0.02		-1.27
391		-----		-----	1520	ISO10370	0.041		1.16
398		-----		-----	1528	ISO10370	0.040		1.04
399		-----		-----	1556	ISO10370	0.026		-0.58
402	ISO10370	0.032		0.11	1569	ISO10370	<0.01		-----
403	ISO10370	0.031		0.00	1584		-----		-----
420	ISO6615/ISO3405	0.042		1.27	1586	ISO10370	0.05		2.20
431		-----		-----	1631	ISO10370	<0.10		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681	D189	0.058		3.12
445	IP398	0.05		2.20	1694		-----		-----
447	IP398	<0.1		-----	1720		-----		-----
453	IP398	<0.10		-----	1724	D4530	0.03		-0.12
463	ISO10370	<0,10		-----	1730		-----		-----
485		-----		-----	1740	ISO10370	0.03		-0.12
541		-----		-----	1741	ISO10370	0.027		-0.46
593		-----		-----	1742	ISO10370	0.01		-2.43
621	D189	0.0194		-1.34	1746		-----		-----
631	D4530	0.026		-0.58	1749		-----		-----
663	D4530	0.042		1.27	1753		-----		-----
704	ISO10370	<0.10		-----	1771		-----		-----
781	ISO10370	<0.10		-----	1773	D189	0.0233		-0.89
784		-----		-----	1776		-----		-----
785	D4530	0.0384		0.85	1782	D4530	0.02		-1.27
863	ISO10370	<0.10		-----	1784	ISO10370	0.02		-1.27
873	D4530	0.04		1.04	1807		-----		-----
874	D4530	less 0.1		-----	1811		-----		-----
875	D4530	0.074		4.97	1813	D4530	0.010		-2.43
886	D4530	0.0345		0.40	1832		0.0258		-0.60
902	D4530	0.020		-1.27	1849	ISO10370	0.03		-0.12
912		-----		-----	1854	ISO10370	0.03		-0.12
962		-----		-----	1857		-----		-----
963	ISO10370	0.030		-0.12	1858	D4530	0.0264		-0.53
1006		-----		-----	1862	ISO10370	0.028		-0.35
1033		-----		-----	1872		-----		-----
1059	ISO10370	0.03		-0.12	1881	ISO10370	0.012		-2.20
1080		-----		-----	1911	ISO10370	<0,10		-----
1082	ISO10370	0.0039		-3.14	1936		-----		-----
1108		-----		-----	1937		-----		-----
1109	D4530	<0.1		-----	1938		-----		-----
1121		-----		-----	1950	ISO10370	0.04		1.04
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	ISO10370	<0,1	-----
1976	ISO10370	0.028	-0.35	6014	ISO10370	0.013	-2.08
1979	ISO10370	0.051	2.31	6018		-----	-----
1984		-----	-----	6028	ISO10370	0.05	2.20
1995		-----	-----	6034		-----	-----
2129	ISO10370	0.034	0.35	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	68
outliers	0 (+1ex)
mean (n)	0.03101
st.dev. (n)	0.016216
R(calc.)	0.04540
R(ISO10370:14)	0.02419

Test results of lab 1356 was excluded, as zero is not a real result
Lab 1310: first reported 0.09753
Lab 1356: first reported 0.089





Determination of Copper Corrosion (3 hrs at 50°C) on sample #16025;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D130	1a		-----	1134	D130	1b		-----
120	D130	1A		-----	1146		-----		-----
140	ISO2160	1A		-----	1161	ISO2160	1A		-----
150	D130	1a		-----	1167	ISO2160	1A		-----
159	D130	1A		-----	1191		-----		-----
171	D130	1a		-----	1194		-----		-----
212	D130	1A		-----	1199		-----		-----
237	D130	1A		-----	1201	D130	1a		-----
238	D130	1a		-----	1205		-----		-----
311	D130	1		-----	1212	ISO2160	1A		-----
312	D130	1a		-----	1229		-----		-----
323	ISO2160	1A		-----	1254	ISO2160	1a		-----
331		-----		-----	1264	D130	1b		-----
333		-----		-----	1266	ISO2160	1		-----
334	ISO2160	1		-----	1272	ISO2160	1 A		-----
335	ISO2160	1		-----	1297		-----		-----
336	ISO2160	1		-----	1299	D130	1A		-----
337		-----		-----	1310	ISO2160	1a		-----
338		-----		-----	1316	D130	1a		-----
340	ISO2160	1		-----	1318	D130	1a		-----
342	D130	1A		-----	1356		-----		-----
345	ISO2160	1A		-----	1365	D130	1A		-----
349		-----		-----	1367	IP154	1A		-----
350		-----		-----	1397	ISO2160	1		-----
351	ISO2160	1A		-----	1428	ISO2160	1a		-----
353	IP154	1a		-----	1430	D130	1a		-----
356	D130	1A		-----	1433	ISO2160	1		-----
357	ISO2160	1a		-----	1457	ISO2160	1A		-----
369	ISO2160	1A		-----	1459		-----		-----
370	ISO2160	1a		-----	1491	ISO2160	1a		-----
371	ISO2160	1a		-----	1498		-----		-----
381		-----		-----	1510	D130	1A		-----
391	D130	1A		-----	1520	ISO2160	1a		-----
398	ISO2160	1a		-----	1528	ISO2160	1a		-----
399	D130	1A		-----	1556	ISO2160	class 1		-----
402	ISO2160	clasa 1		-----	1569	ISO2160	1a		-----
403	ISO2160	clasa 1		-----	1584	D130	1a		-----
420		-----		-----	1586	D130	1A		-----
431		-----		-----	1631	ISO2160	1A		-----
432		-----		-----	1634	D130	1a		-----
433		-----		-----	1654	ISO2160	1A		-----
440	IP154	1A		-----	1678		-----		-----
444		-----		-----	1681	ISO2160	1a		-----
445	IP154	1a		-----	1694		-----		-----
447	D130	1a		-----	1720		-----		-----
453	IP154	1A		-----	1724	D130	1a		-----
463	ISO2160	1A		-----	1730		-----		-----
485	ISO2160	1		-----	1740	ISO2160	1A		-----
541	D130	1A		-----	1741	ISO2160	class 1A		-----
593		-----		-----	1742		-----		-----
621	D130	IA		-----	1746	D130	1A		-----
631	D130	1a		-----	1749		-----		-----
663	D130	1a		-----	1753		-----		-----
704	ISO2160	1a		-----	1771	ISO2160	class 1		-----
781	D130	1a		-----	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782	D130	1a		-----
863	D130	1a		-----	1784	D130	1A		-----
873	D130	1A		-----	1807	D130	1A		-----
874	D130	1a		-----	1811	ISO2160	1		-----
875	D130	1a		-----	1813	D130	1a		-----
886	D130	1a		-----	1832	ISO2160	1A		-----
902	D130	1A		-----	1849	ISO2160	1A		-----
912		-----		-----	1854	D130	1A		-----
962	D130	1A		-----	1857	D130	1 a		-----
963	D130	1a		-----	1858	D130	1a		-----
1006	D130	1A		-----	1862	ISO2160	1A		-----
1033	IP154	1a		-----	1872	ISO2160	1		-----
1059	ISO2160	1a		-----	1881	D130	1a		-----
1080	D130	1A		-----	1911	ISO2160	1a		-----
1082		-----		-----	1936		-----		-----
1108	ISO2160	1		-----	1937		-----		-----
1109	D130	1a		-----	1938		-----		-----
1121	IP154	1a		-----	1950	ISO2160	1a		-----
1126		-----		-----	1953	ISO2160	Class 1a		-----

1961	ISO2160	1A	-----	6013	ISO2160	1A	-----
1976		-----	-----	6014	ISO2160	1a	-----
1979	ISO2160	1a	-----	6018	ISO2160	1a	-----
1984		-----	-----	6028	ISO2160	1a	-----
1995		-----	-----	6034		-----	-----
2129	ISO2160	1a	-----	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	n.a.
n	117
outliers	n.a.
mean (n)	1 (1a)
st.dev. (n)	n.a.
R(calc.)	n.a.
R(ISO2160:98)	n.a.

Determination of Density at 15 °C on sample #16025; result in kg/m^3

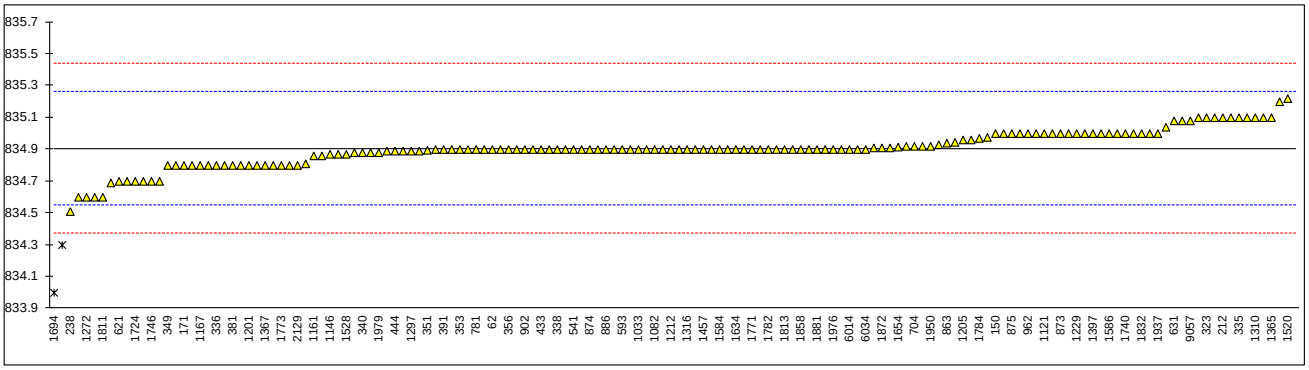
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4052	834.9		-0.03	1134	IP365	835.1		1.09
120	ISO12185	834.9		-0.03	1146	ISO12185	834.87		-0.20
140	D4052	834.9		-0.03	1161	ISO12185	834.86		-0.25
150	ISO12185	835.0		0.53	1167	ISO12185	834.8		-0.59
159	ISO12185	835.1		1.09	1191	ISO12185	834.9		-0.03
171	D4052	834.8		-0.59	1194		-----		-----
212	ISO12185	835.1		1.09	1199		-----		-----
237	D4052	834.8		-0.59	1201	ISO12185	834.8		-0.59
238	D4052	834.51		-2.21	1205	ISO12185	834.96		0.31
311	ISO12185	834.9		-0.03	1212	ISO12185	834.9		-0.03
312	ISO12185	834.9		-0.03	1229	ISO12185	835.0		0.53
323	ISO12185	835.1		1.09	1254	ISO12185	834.88		-0.14
331		-----		-----	1264	D4052	835.0		0.53
333	ISO12185	834.7		-1.15	1266	ISO3675	834.9	C	-0.03
334	ISO12185	835.0		0.53	1272	ISO3675	834.6		-1.71
335	ISO12185	835.1		1.09	1297	D4052	834.89		-0.08
336	ISO12185	834.8		-0.59	1299	D4052	834.8		-0.59
337	ISO12185	834.9		-0.03	1310	ISO12185	835.1		1.09
338	ISO12185	834.9		-0.03	1316	D4052	834.9		-0.03
340	ISO12185	834.88		-0.14	1318	D4052	834.89		-0.08
342	D4052	834.9		-0.03	1356	ISO12185	835.1		1.09
345	ISO12185	834.9		-0.03	1365	D4052	835.1		1.09
349	D4052	834.8		-0.59	1367	IP365	834.8		-0.59
350		-----		-----	1397	ISO12185	835.0		0.53
351	ISO12185	834.895		-0.06	1428	ISO12185	834.8		-0.59
353	IP365	834.9		-0.03	1430	D4052	834.9		-0.03
356	D4052	834.9		-0.03	1433		-----		-----
357	ISO12185	834.80		-0.59	1457	ISO12185	834.9		-0.03
369	ISO12185	834.9		-0.03	1459	ISO12185	834.86		-0.25
370	ISO12185	834.9		-0.03	1491	ISO12185	834.87		-0.20
371	ISO12185	834.8		-0.59	1498	D1298	834.6		-1.71
381	ISO12185	834.8		-0.59	1510	IP365	835.0		0.53
391	ISO12185	834.9		-0.03	1520	ISO12185	835.22		1.76
398	ISO12185	834.8		-0.59	1528	ISO12185	834.87		-0.20
399	D4052	834.6		-1.71	1556	ISO12185	834.93		0.14
402	ISO3675	834.92		0.08	1569	ISO12185	834.9		-0.03
403	ISO12185	834.88		-0.14	1584	ISO12185	834.9		-0.03
420	ISO12185	834.8		-0.59	1586	ISO12185	835.0		0.53
431	ISO12185	834.91		0.03	1631	ISO12185	834.9		-0.03
432	ISO12185	835.08		0.98	1634	ISO12185	834.9		-0.03
433	ISO12185	834.9		-0.03	1654	ISO12185	834.915		0.06
440	D4052	835.1		1.09	1678	ISO12185	835		0.53
444	D4052	834.89		-0.08	1681	ISO12185	834.96		0.31
445	IP365	835.0		0.53	1694	D1298	834.0	R(0.01)	-5.07
447	D4052	834.9		-0.03	1720		-----		-----
453	IP365	835.1		1.09	1724	D4052	834.7		-1.15
463	ISO12185	834.89		-0.08	1730	ISO12185	835.04		0.76
485	ISO12185	834.9		-0.03	1740	ISO12185	835.0		0.53
541	ISO12185	834.9		-0.03	1741	ISO12185	834.7		-1.15
593	D4052	834.9		-0.03	1742	ISO12185	834.9		-0.03
621	D4052	834.7	C	-1.15	1746	D4052	834.7		-1.15
631	D4052	835.08		0.98	1749	ISO3675	835.0		0.53
663	D4052	834.81		-0.53	1753	ISO3675	836.2	R(0.01)	7.25
704	ISO12185	834.92		0.08	1771	ISO12185	834.90		-0.03
781	ISO12185	834.9		-0.03	1773	ISO3675	834.80		-0.59
784	ISO12185	834.89		-0.08	1776	ISO12185	834.9		-0.03
785	D4052	835.0		0.53	1782	D4052	834.9		-0.03
863	ISO12185	834.94		0.20	1784	ISO12185	834.97		0.36
873	D4052	835.0		0.53	1807	ISO12185	834.9		-0.03
874	D4052	834.9		-0.03	1811	ISO12185	834.6		-1.71
875	D4052	835.0		0.53	1813	D4052	834.9		-0.03
886	D4052	834.9		-0.03	1832	ISO12185	835.0		0.53
902	D4052	834.9		-0.03	1849	ISO12185	834.976		0.40
912		-----		-----	1854	ISO12185	835.2		1.65
962	D4052	835.0		0.53	1857	ISO12185	834.9		-0.03
963	ISO12185	834.9		-0.03	1858	D4052	834.9		-0.03
1006	D4052	835.0		0.53	1862	ISO12185	834.90		-0.03
1033	IP365	834.9		-0.03	1872	ISO12185	834.91		0.03
1059	ISO12185	834.9		-0.03	1881	ISO12185	834.9		-0.03
1080	ISO12185	835.0		0.53	1911	ISO12185	834.91		0.03
1082	ISO12185	834.9		-0.03	1936	ISO12185	835.0		0.53
1108	ISO12185	834.92		0.08	1937	ISO12185	835.0		0.53
1109	D4052	834.69		-1.20	1938	ISO12185	834.9		-0.03
1121	IP365	835.0		0.53	1950	ISO12185	834.92		0.08
1126	ISO12185	834.9		-0.03	1953	In house	834.3	C,R(0.01)	-3.39

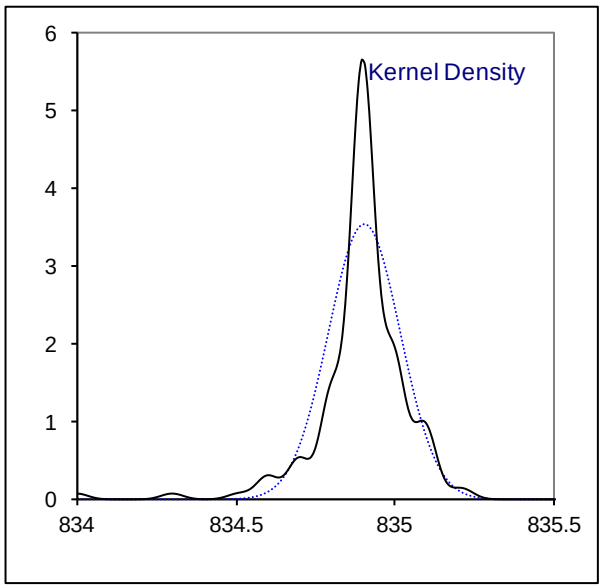
1961		-----		-----
1976	ISO12185	834.9		-0.03
1979	ISO12185	834.88	C	-0.14
1984	ISO12185	834.8		-0.59
1995		-----		-----
2129	D4052	834.8		-0.59
2146	ISO12185	834.945		0.22

6013	ISO12185	834.9		-0.03
6014	ISO12185	834.9		-0.03
6018	ISO12185	834.9		-0.03
6028	ISO3675	834.7		-1.15
6034	D4052	834.9		-0.03
7006		-----		-----
9057	D5002	835.08		0.98

normality	suspect
n	151
outliers	3
mean (n)	834.90
st.dev. (n)	0.113
R(calc.)	0.32
R(ISO12185:96)	0.50

Lab 621: first reported 873.7
Lab 1266: first reported 834.2
Lab 1953: first reported 8343 kg/m^3
Lab 1979: first reported 0.83488 kg/m^3
Lab 6028: also reported ISO12185 834.6





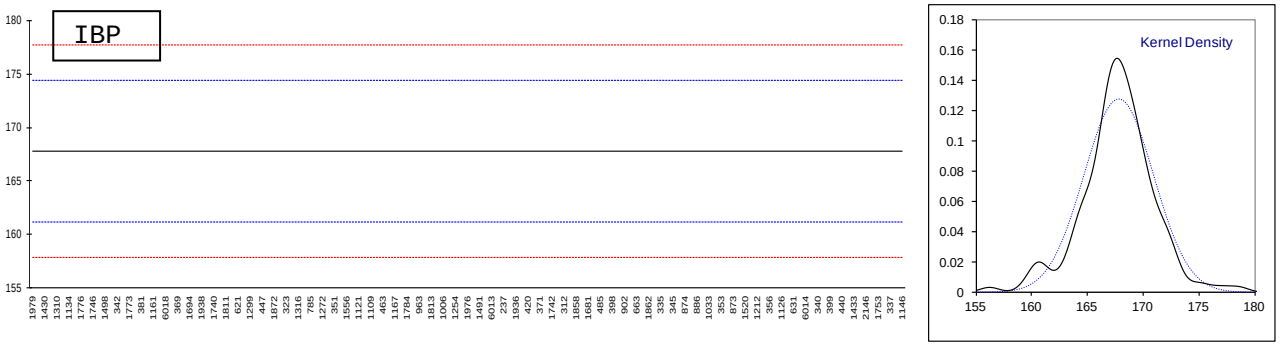
Determination of Distillation on sample #16025; result in °C

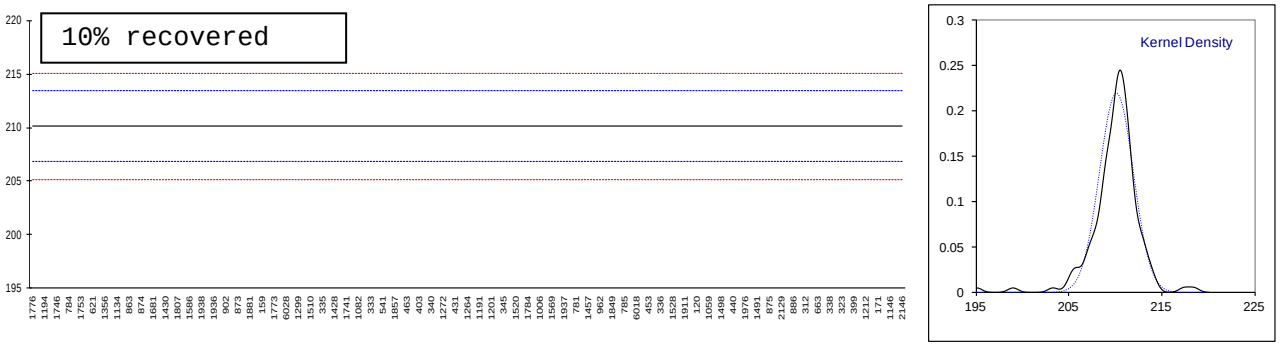
lab	method	mode	IBP	10%rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
62	D86	Automated	174.6	211.0	283.1	344.4	361.1	369.4	28.3	92.1
120	D86	Automated	167.8	211.4	281.3	343.1	362.4	364.7	29.0	91.9
140	ISO3405	Automated	167.2	210.3	281.4	341.1	356.7	365.6	29.1	93.3
150	ISO3405	Automated	163.7	210.2	280.0	339.7	353.9	362.8	29.6	93.9
159	D86	Automated	164.1	209.1	281.3	340.1	357.1	364.2	29.2	93.3
171	D86	Automated	167.0	213.8	282.0	341.1	354.8	361.7	29.3	94.8
212			-----	-----	-----	-----	-----	-----	-----	-----
237	D86	Manual	168.0	206.0	279.5	339.0	352.0	365.0	30.5	94.0
238	D86	Manual	168.0	207.0	280.0	340.0	355.0	363.0	30.0	93.5
311	ISO3405	Automated	167.3	210.2	281.8	342.5	358.3	368.0	29.1	92.9
312	ISO3405	Automated	168.5	212.3	282.3	340.7	355.8	363.3	28.5	93.5
323	ISO3405	Automated	166.6	212.9	282.1	343.1	361.8	366.1	28.4	92.3 C
331			-----	-----	-----	-----	-----	-----	-----	-----
333	ISO3405	Automated	167.1	210.0	281.2	340.4	354.9	365.4	29.5	93.6
334	ISO3405	Automated	169.6	206.7	279.6	339.8	354.8	366.6	30.5	93.7
335	ISO3405	Automated	169.2	209.6	281.5	342.9	359.6	368.0	29.4	92.7
336	ISO3405	Automated	171.5	211.2	281.1	341.8	357.7	366.0	29.9	93.0
337	ISO3405	Automated	175.4	213.0	282.2	340.9	354.1	367.4	28.4	93.8
338	ISO3405	Automated	171.9	212.7	281.7	342.9	359.8	367.2	28.2	92.6
340	ISO3405	Automated	171.5	210.2	281.4	342.2	357.5	365.9	29.2	93.0
342	D86	Automated	164.1	209.1	280.9	341.5	356.7	363.7	29.6	93.1
345	ISO3405	Automated	169.37	210.47	279.92	338.12	350.30	364.77	30.5	95
349			-----	-----	-----	-----	-----	-----	-----	-----
350			-----	-----	-----	-----	-----	-----	-----	-----
351	ISO3405	Automated	166.85	210.00	280.65	343.10	357.35	360.55	30.00	93.00
353	IP123	Automated	170.0	211.4	282.1	342.1	357.4	368.6	29.4	93.1
356	D86	Automated	170.5	212.7	282.3	341.1	356.8	366.0	28.2	93.4
357	ISO3405	Automated	171.8	211.8	281.8	341.2	355.7	365.4	29.2	93.4
369	ISO3405	Automated	165.0	209.2	282.9	343.9	357.7	366.1	28.4	93.0
370	ISO3405	Automated	164.3	208.8	280.1	341.4	354.4	365.8	29.4	93.2
371	ISO3405	Automated	168.3	210.4	280.8	341.7	357.1	368.2	29.0	93.0
381	ISO3405	Automated	164.3	210.9	280.6	340.0	354.0	368.5	29.7	94.0
391	ISO3405	Automated	167.6	211.1	281.8	341.8	356.8	365.2	29.0	93.3
398	ISO3405	Automated	168.9	213.6	281.7	342.9	358.3	366.9	29.1	92.5
399	ISO3405	Automated	171.9	213.1	282.9	340.9	354.4	367.9	27.9	93.7
402	ISO3405	Automated	166.5	209.1	282.3	341.3	355.6	361.6	29.3	93.3
403	ISO3405	Automated	169.0	210.2	281.4	340.6	354.8	363.2	29.1	93.6
420	ISO3405	Automated	168.2	211.0	281.7	342.9	360.4	365.9	29.0	92.6
431	D86	Manual	166.1	210.3	281.7	340.0	353.8	362.9	28.9	93.9
432			-----	-----	-----	-----	-----	-----	-----	-----
433			-----	-----	-----	-----	-----	-----	-----	-----
440	D86	Automated	171.9	211.6	280.9	341.7	356.1	367.8	29.3	93.3
444	D86	Automated	169.4	211.7	281.2	339.9	353.6	366.9	29.7	92.2
445	IP123	Automated	167.7	209.7	280.4	340.5	356.5	364.8	29.8	93.5
447	D86	Automated	166.2	210.6	280.6	340.8	355.8	365.7	29.4	-----
453	IP123	Automated	168.9	211.1	281.0	341.6	357.6	366.2	29.5	93.0
463	ISO3405	Automated	167.2	210.1	280.4	339.4	353.8	363.7	29.0	93.9
485	ISO3405	Automated	168.80	211.85	282.75	342.10	357.80	366.25	28.45	92.85
541	ISO3405		168.9	210.0	281.8	341.9	357.6	367.5	29.2	92.5
593	D86	Manual	170.4	207.5	280.7	342.9	360.0	370.0	31	93
621	D86	Manual	166.0	207.0	279.0	339.0	-----	-----	27.5	-----
631	D86	Manual	171.0	207.5	280.0	340.0	353.5	366.5	30.0	94.0
663	D86	Automated	169.0	212.6	281.4	340.8	356.1	364.7	28.90	93.60
704	ISO3405	Manual	169.0	210.8	280.8	338.7	351.7	364.7	29.8	94.7
781	ISO3405	Automated	165.9	210.8	280.9	340.7	356.1	365.4	29.2	93.5
784	ISO3405	Manual	167.5	205.6	282.6	343.7	360.7	365.8	29.5	92.0
785	D86	Automated	166.8	211.0	282.1	342.3	357.8	367.7	28.7	92.9
863	D86	Manual	168.5	207.5	280.0	338.5	353.5	363.5	30.0	94.0
873	D86	Manual	170.0	209.0	281.5	343.0	358.0	366.5	29.0	93.0
874	D86	Manual	169.5	208.0	282.5	345.0	360.0	366.0	29.0	92.5
875	D86	Automated	170.0	211.8	282.1	342.6	359.1	367.4	28.9	93.0
886	D86	Automated	169.6	212.1	281.3	340.8	355.3	359.3	-----	-----
902	D86	Automated	168.9	209.0	281.0	340.2	354.4	367.5	29.5	93.8
912			-----	-----	-----	-----	-----	-----	-----	-----
962	D86	Automated	165.7	210.9	282.1	341.5	356.2	365.0	28.9	93.2
963	ISO3405	Automated	167.5	210.5	281.7	340.1	355.9	365.0	29.2	93.6
1006	D86	Automated	167.6	210.6	282.2	341.4	355.7	367.3	-----	-----
1033	IP123	Automated	169.8	212.3	282.5	341.4	355.8	365.9	-----	-----
1059	ISO3405	Automated	167.6	211.4	282.0	342.0	358.2	367.7	28.8	92.9
1080			-----	-----	-----	-----	-----	-----	-----	-----
1082	ISO3405	Automated	166.3	209.9	281.7	341.9	357.7	365.7	29.2	93.0
1108	ISO3405	Automated	166.9	217.4 R(5)	284.3	341.5	355.2	366.6	26.1 R(5)	93.6
1109	D86	Automated	167.0	208.2	280.0	339.3	353.4	363.1	-----	-----
1121	IP123	Manual	167.0	209 C	280.0	341.0	358.0	361.0	31.0	92.0
1126	In house	Automated	170.7	213.2	282.8	344.6	359.8	373.0	28.3	91.9

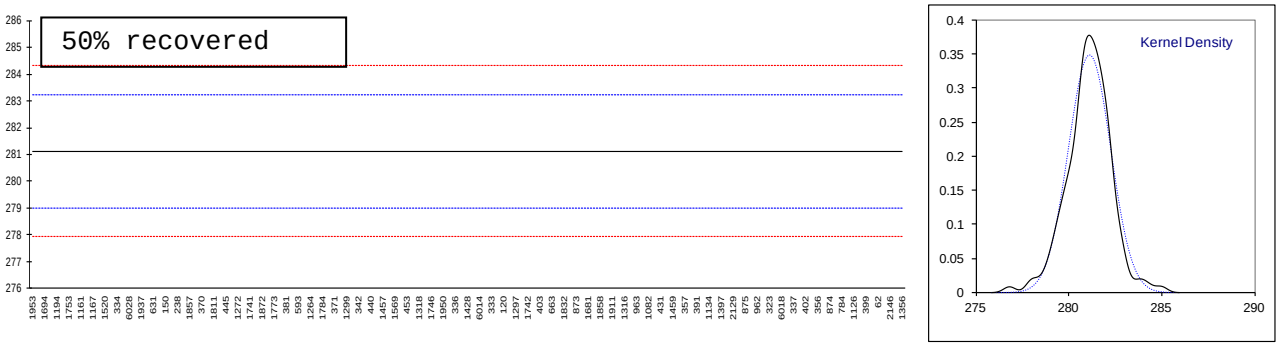
1134	IP123	Automated	160.7	207.4	282.0	342.6	358.2	367.9	29.3	92.8
1146	D86	Automated	178.6	214.2	283.7	342.7	356.8	370.4	28	93
1161	ISO3405	Automated	164.5 C	208.9	279.3	340.7	352.0	360.1	30.6	94.2
1167	ISO3405	Automated	167.2	207.2	279.4	341.7	358.1	367.0	30.3	93.5
1191	ISO3405	Automated	169.7	210.4	282.1	342.4	358.6	366.3	28.8	92.8
1194	D86	Automated	156.2 R(5)	203.3 R(5)	278.8	341.2	356	359.0 C	31.9	93.2
1199			-----	-----	-----	-----	-----	-----	-----	-----
1201	ISO3405	Automated	166.8	210.4	280.7	339.6	353.3	365.2	29.2	94.1
1205	D86	Automated	168.3	210.4	281.5	341.0	355.2	363.8	28.6	93.5
1212	ISO3405	Automated	170.3	213.2	280.9	340.0	355.0	363.9	29.7	94.2
1229	ISO3405	Automated	164.9	210.3	281.1	340.4	354.4	365.5	29.3	93.8
1254	ISO3405	Automated	167.6	211.2	281.6	340.9	357.1	365.6	28.7	93.2
1264	D86	Automated	160.7	210.3	280.7	340.7	355.0	366.4	30.3	93.8
1266	ISO3405	Automated	172.8	212.8	282.5	342.6	356.0	360.4	29.0	93.1
1272	ISO3405	Automated	166.8	210.2	280.4	340.5	353	360.1	30.2	93.9
1297	D86	Automated	163.1	209.6	281.3	341.8	357.3	365.6	29.904	93.053
1299	D86	Automated	166.1	209.2	280.8	341.1	355.2	364.9	29.4	93.5
1310	ISO3405	Automated	160.5	205	278.5 C	339	354	362	31.4	94
1316	D86	Automated	166.7	209.2	281.6	342.5	358.9	364.7	29.2	92.8
1318	D86	Automated	165.8	209.8	281.0	341.4	355.0	364.7	30.3	93.7
1356	ISO3405	Manual	171	207	285 C	346	356	368	29	92
1365	D86	Manual	170.0	208.0	278.0	339.0	356.0	360.0	31.0	94.0
1367			-----	-----	-----	-----	-----	-----	-----	-----
1397	ISO3405	Automated	172.6	211.8	282.0	340.7	355.7	368.0	29.1	93.5
1428	ISO3405	Automated	169.2	209.6	281.1	340.1	355.2	365.3	29.3	93.7
1430	D86	Automated	159.5	208.1	279.6	336.5	347.4	363.1	-----	-----
1433	ISO3405	Automated	172.4	210.9	280.7	338.9	352.6	363.2	29.4	94.2
1457	ISO3405	Automated	168.1	210.8	280.9	339.8	355.0	365.6	29.5	93.8
1459	ISO3405	Automated	167.6	211.1	281.7	339.7	354.6	366.0	28.5	93.7
1491	ISO3405	Automated	167.7	211.7	282.1	340.4	354.5	366.6	28.8	93.7
1498	D86	Automated	163.6	211.5	282.8	344.5	362.6	367.6	29	93
1510	D86	Automated	164.2	209.5	281.3	340.3	354.9	366.4	29.5	93.6
1520	ISO3405	Manual	170.0	210.5	279.5	340.0	356.0	363.0	30.0	93.0
1528	ISO3405	Automated	170.1	211.2	282.2	342.2	357.7	365.7	29	92.9
1556	ISO3405	Automated	166.9	211.2	280.9	341.3	356.5	364.6	29.3	93.3
1569	ISO3405	Automated	168.4	210.6	280.9	341.4	354.6	363.1	29.7	93.5
1584	ISO3405	Manual	168.0	209.0	280.5	341.0	355.5	364.0	29.5	93.5
1586	ISO3405	Automated	166.1	208.7	279.8	339.6	354.6	365.3	30.0	93.8
1631		Automated	-----	-----	-----	-----	356.4	-----	29.4	93.6
1634	ISO3405	Automated	165.0	209.9	282.0	341.4	356.1	366.6	29.1	93.1
1654		Automated	-----	-----	-----	-----	356.9	-----	29.2	93.2
1678			-----	-----	-----	-----	-----	-----	-----	-----
1681	ISO3405	Automated	168.6	208.0	281.5	341.5	355.9	366.3	29.6	93.0
1694	D86	Manual	165	210	278	339	353.5	363	30	93.5
1720			-----	-----	-----	-----	-----	-----	-----	-----
1724	D86	Automated	164.7	210.6	281	340.5	356.2	364.5	29.8	93.5
1730			-----	-----	-----	-----	-----	-----	-----	-----
1740	ISO3405	Automated	165.7	210.1	281.6	339.6	354.9	363.2	29.5	93.9
1741	ISO3405	Automated	160.4	209.7	280.5	340.5	355.0	365.0	29.8	93.6
1742	ISO3405	Automated	168.3	210.5	281.3	340.9	356.7	367.4	29.1	93.3
1746	D86	Manual	163.0	205.5	281.0	342.0	357.0	369.0	30.0	93.0
1749	ISO3405	Manual	167.5	214 C	279.5	341	357	364	31.5	93.0
1753	ISO3405		173	206	279	340	356	362	31	94
1771		Manual	----- W	208.4	280.5	339.6	350.6	369.6	31	95
1773	ISO3405	Manual	164.14	209.10	280.54	339.99	355.48	359.47	29.05	93.55
1776	ISO3405		161.4	195.1 R(1)	279.3	340.2	355.7	364.0	30.3	93.6
1782	D86	Automated	168.7	211.6	281.5	342.0	357.9	365.4	29.0	92.9
1784	D86	Automated	167.4	210.5	280.7	340.6	355.5	364.0	29.7	93.5
1807	ISO3405	Manual	165	208.3	280.2	339.6	353.5	365.9	29.7	93.9
1811	ISO3405	Automated	165.8	210.5	280.3	339.5	353.9	365.2	29.8	93.9
1813	D86	Automated	167.54	211.47	281.54	340.46	355.08	364.90	-----	-----
1832	ISO3405	Automated	166.9	208.0	281.4	341.1	356.1	367.8	31.0	95.2
1849	ISO3405	Automated	166.6	210.9	280.8	339.8	354	363.9	29.7	94.3
1854	ISO3405	Automated	169.1	211.3	280.9	341.2	355.6	363.9	29.3	93.4
1857	ISO3405	Automated	169.9	210.0	280.0	338.4	351.7	362.0	29.9	94.5
1858	D86	Manual	168.5	210.0	281.5	341.0	353.0	364.0	29.5	94.0
1862	ISO3405	Automated	169.0	209.1	281.1	340.3	354.5	363.5	30.0	93.3
1872	ISO3405		166.3 C	211.5 C	280.5 C	336.3	348.3	361.2 C	32.3 R(5)	-----
1881	ISO3405	Manual	177.0	209.0	281.0	344.0	362.5	365.0	29.0	92.0
1911	ISO3405	Automated	168.50	211.20	281.55	341.95	357.75	365.45	29.15	92.95
1936	ISO3405	Automated	168.0	208.9	280.3	339.2	353.3	365.5	30.3	94.1
1937	ISO3405		170.6	210.6	279.8	338.3	351.1	362.3	30.2	94.6
1938	ISO3405	Automated	165.3	208.8	280.0	339.9	354.5	365.3	30.3	93.7
1950	ISO3405	Manual	172.0	209.5	281.0	341.5	355.5	364.0	29.0	93.0
1953	ISO3405	Automated	160.5	199.0 R(1)	276.8 R(5)	338.7	352.2	365.2	38 R(1)	94.34
1961			-----	-----	-----	-----	-----	-----	-----	-----
1976	ISO3405	Automated	167.6	211.6	281.3	340.3	354.8	364.7	29.1	93.7
1979	ISO3405	Automated	137.3 R(1)	205.5	279.1	340.7	355.3	357.3	31.5	94.1
1984	ISO3405	Automated	166.8	210.6	281.0	341.6	357.8	365.4	29.6	93.6
1995			-----	-----	-----	-----	-----	-----	-----	-----

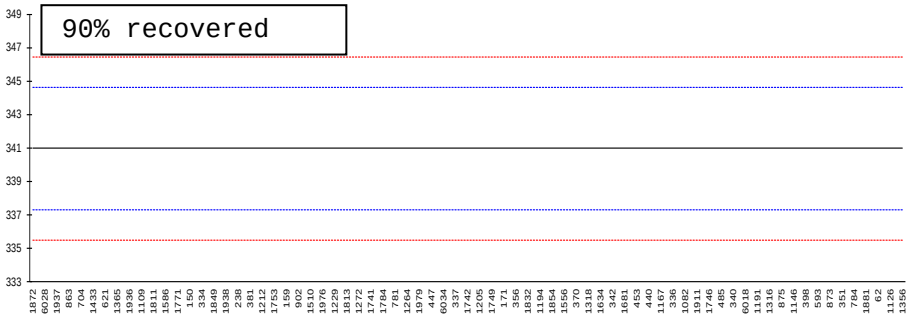
2129	ISO3405	Automated	170.9	211.8	282.0	341.1	355.5	367.8	28.9		93.4
2146	ISO3405	Automated	172.7	218.5 R(1)	283.9	344.0	359.8	368.3	26.7 R(5)		92.3
6013	ISO3405	Automated	167.8	210.3	280.5	339.2	353.6	363.6	29.4		94.1
6014	ISO3405		171	212.4	281.1	338.6	352.7	360.8	29.1		94.2
6018	ISO3405	Automated	164.7	211.0	282.1	342.2	357.6	366.6	28.9		92.9
6028	ISO3405	Automated	168.2	209.1	279.6	337.8	350.2	366.7	29.9		95.0
6034	D86	Automated	166.7	208.9	280.7	340.8	356.5	366.8	30.2		93.4
7006	D86		162.3	-----	-----	-----	-----	370.4	-----		-----
9057			-----	-----	-----	-----	-----	-----	-----		-----
	normality		suspect	OK	OK	OK	suspect	OK	OK		OK
	n		143	140	144	145	146	145	137		138
	outliers		2	5	1	0	0	0	4		0
	mean (n)		167.79	210.13	281.12	340.98	355.83	365.18	29.47		93.41
	st.dev. (n)		3.125	1.824	1.143	1.575	2.542	2.483	0.758		0.656
	R(calc.)		8.75	5.11	3.20	4.41	7.12	6.95	2.12		1.84
	R(ISO3405:11, autom.)		9.23	4.62	2.97	5.11	9.12	7.10	2.70		2.70
	R(ISO3405:11, man.)		(6.74)	(4.81)	(3.81)	(4.01)	(5.02)	(3.89)	(2.62)		(2.33)

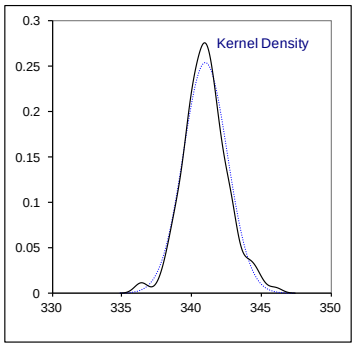
Lab 323: first reported 42.3
Lab 1121: first reported 204.0
Lab 1161: first reported 155.6
Lab 1194: first reported 3562.3
Lab 1310: first reported 278
Lab 1356: first reported 287
Lab 1749: first reported 204
Lab 1771: first reported 155.4
Lab 1872: first reported 126.4, 202.0, 274.6 and 349.5

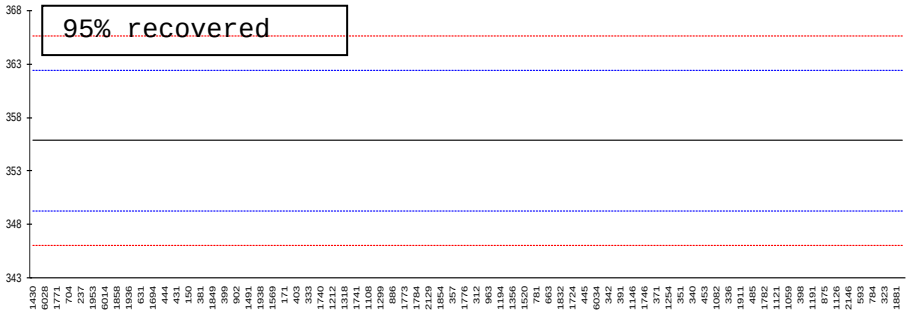


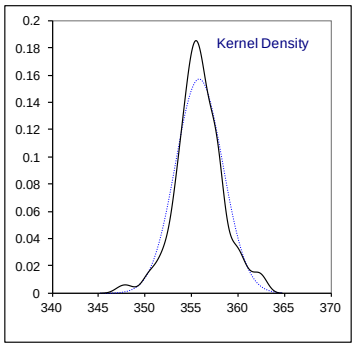


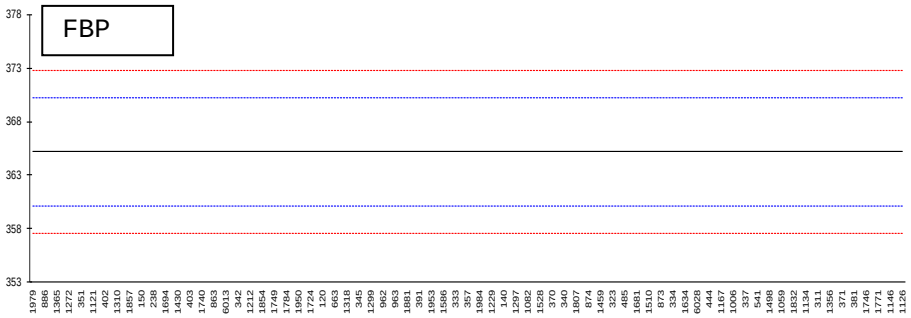


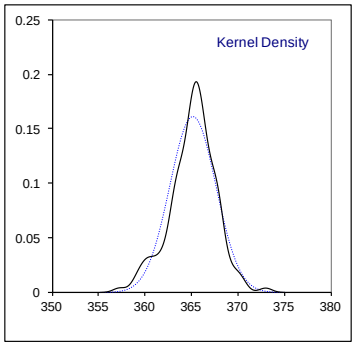

90% recovered

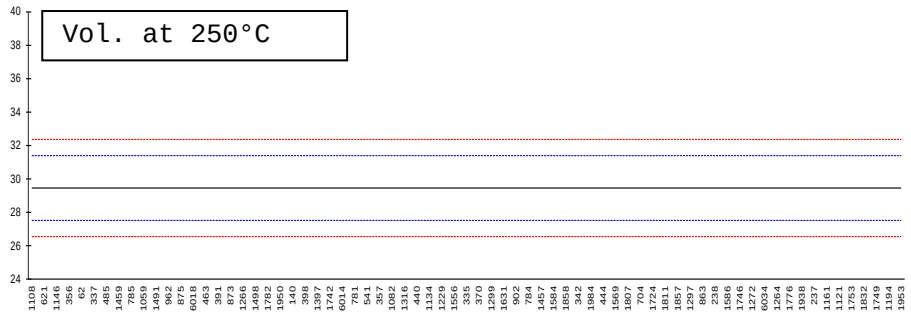

Kernel Density

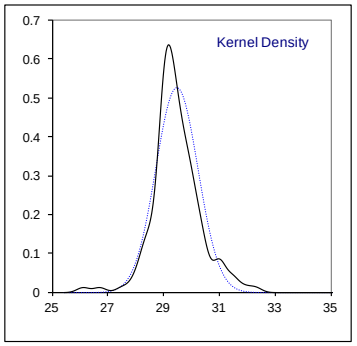

95% recovered

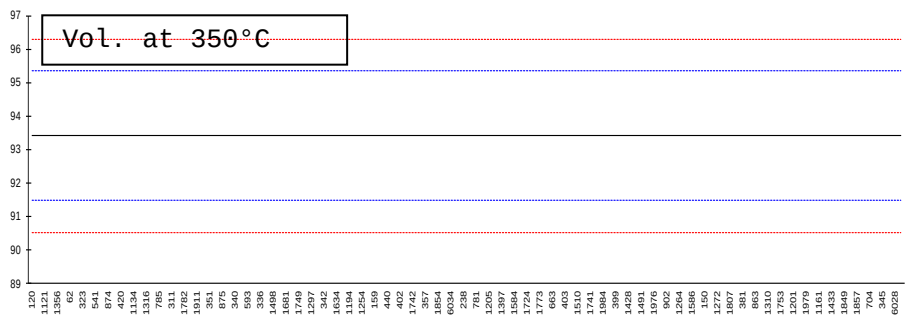

Kernel Density

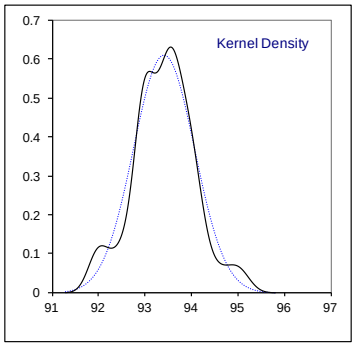

FBP


Kernel Density


Vol. at 250°C


Kernel Density


Vol. at 350°C


Kernel Density

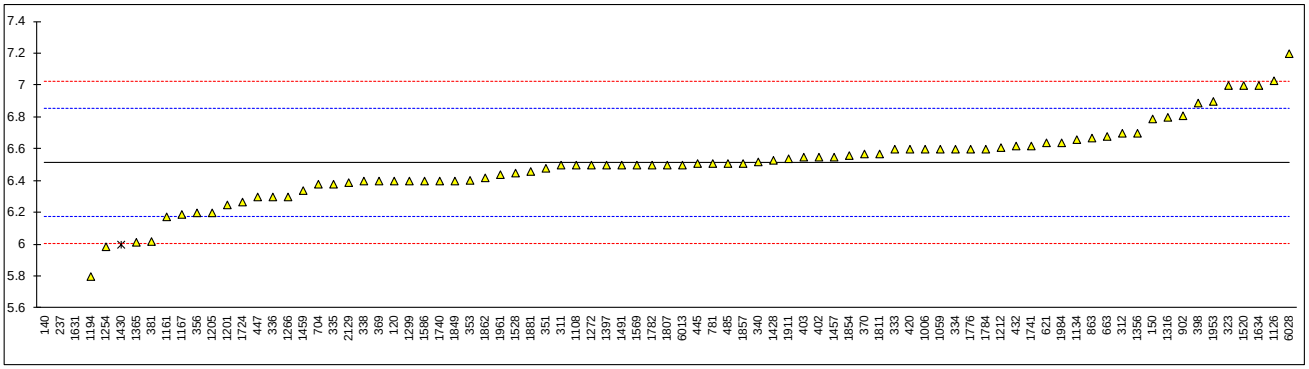
Determination of FAME on sample #16025; result in %V/V

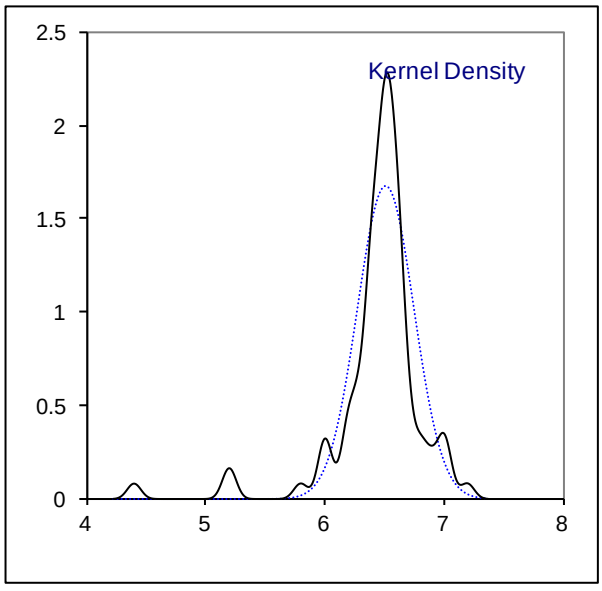
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	EN14078	6.66		0.86
120	D7371	6.4		-0.67	1146		-----		-----
140	EN14078	4.4	R(0.01)	-12.45	1161	EN14078	6.175		-2.00
150	EN14078	6.79		1.63	1167	EN14078	6.19		-1.91
159		-----		-----	1191		-----		-----
171		-----		-----	1194	EN14078	5.8		-4.21
212		-----		-----	1199		-----		-----
237	D7963	5.2	C,R(0.01)	-7.74	1201	EN14078	6.25		-1.55
238		-----		-----	1205	EN14078	6.2		-1.85
311	EN14078	6.5		-0.08	1212	EN14078	6.61		0.57
312	EN14078	6.7		1.10	1229		-----		-----
323	EN14078	7.0		2.86	1254	EN14078	5.987		-3.10
331		-----		-----	1264		-----		-----
333	EN14078	6.6		0.51	1266		6.3	C	-1.26
334	EN14078	6.6		0.51	1272	EN14078	6.5		-0.08
335	EN14078	6.38		-0.79	1297		-----		-----
336	EN14078	6.3		-1.26	1299	EN14078	6.4		-0.67
337		-----		-----	1310		-----		-----
338	EN14078	6.4		-0.67	1316	EN14078	6.8		1.69
340	EN14078	6.52		0.04	1318		-----		-----
342		-----		-----	1356	EN14078	6.7		1.10
345		-----		-----	1365	EN14078	6.015		-2.94
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN14078	6.5		-0.08
351	EN14078	6.48		-0.20	1428	EN14078	6.53		0.10
353	EN14078	6.404		-0.65	1430	D7806	6	ex	-3.03
356	EN14078	6.2	C	-1.85	1433		-----		-----
357		-----		-----	1457	EN14078	6.55		0.21
369	EN14078	6.4		-0.67	1459	EN14078	6.34		-1.02
370	EN14078	6.57		0.33	1491	EN14078	6.5		-0.08
371		-----		-----	1498		-----		-----
381	EN14078	6.02		-2.91	1510		-----		-----
391		-----		-----	1520	EN14078	7.00		2.86
398	EN14078	6.89		2.22	1528	EN14078	6.45		-0.38
399		-----		-----	1556		-----		-----
402	EN14078	6.55		0.21	1569	EN14078	6.5		-0.08
403	EN14078	6.55		0.21	1584		-----		-----
420	EN14078	6.6		0.51	1586	EN14078	6.4		-0.67
431		-----		-----	1631	EN14078	5.2	R(0.01)	-7.74
432	EN14078	6.62		0.63	1634	EN14078	7.0		2.86
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	EN14078	6.51		-0.02	1694		-----		-----
447	EN14078	6.3		-1.26	1720		-----		-----
453		-----		-----	1724	EN14078	6.268		-1.45
463		-----		-----	1730		-----		-----
485	EN14078	6.51		-0.02	1740	EN14078	6.4		-0.67
541		-----		-----	1741	EN14078	6.62		0.63
593		-----		-----	1742		-----		-----
621	EN14078	6.64		0.74	1746		-----		-----
631		-----		-----	1749		-----		-----
663	EN14078	6.68		0.98	1753		-----		-----
704	EN14078	6.38		-0.79	1771	EN14078	<0.05	C	-----
781	EN14078	6.51		-0.02	1773		-----		-----
784		-----		-----	1776	EN14078	6.6		0.51
785		-----		-----	1782	EN14078	6.5		-0.08
863	EN14078	6.67		0.92	1784	EN14078	6.6		0.51
873		-----		-----	1807	EN14078	6.5		-0.08
874		-----		-----	1811	EN14078	6.57		0.33
875		-----		-----	1813		-----		-----
886		-----		-----	1832		-----		-----
902	EN14078	6.81		1.75	1849	EN14078	6.4		-0.67
912		-----		-----	1854	EN14078	6.56		0.27
962		-----		-----	1857	EN14078	6.51		-0.02
963		-----		-----	1858		-----		-----
1006	EN14078	6.60		0.51	1862	EN14078	6.42		-0.55
1033		-----		-----	1872		-----		-----
1059	EN14078	6.6		0.51	1881	EN14078	6.46		-0.32
1080		-----		-----	1911	EN14078	6.54		0.15
1082		-----		-----	1936		-----		-----
1108	EN14078	6.5		-0.08	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126	EN14078	7.03		3.04	1953	In house	6.9		2.28

1961	EN14078	6.44		-0.43	6013	EN14078	6.5		-0.08
1976		-----		-----	6014		-----		-----
1979		-----		-----	6018		-----		-----
1984	EN14078	6.64		0.74	6028	EN14078	7.2	C	4.04
1995		-----		-----	6034		-----		-----
2129	EN14078	6.39		-0.73	7006		-----		-----
2146		-----		-----	9057		-----		-----

normality	suspect	
n	79	
outliers	3 (+1ex)	
mean (n)	6.514	
st.dev. (n)	0.2382	
R(calc.)	0.667	
R(EN14078:14)	0.475	Range B

Lab 237: first reported 5.73
Lab 356: first reported 5.3
Lab 1460: test result was excluded as the test result is rounded too far.
Lab 1266: first reported 5.5
Lab 1771: first reported 2.83
Lab 6028: first reported 72.0





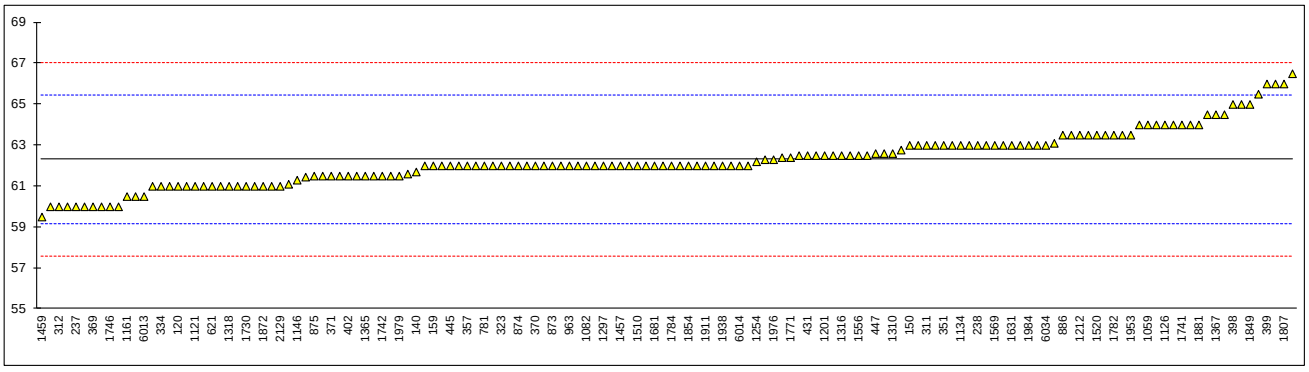
Determination of Flash Point PMcc on sample #16025; result in °C

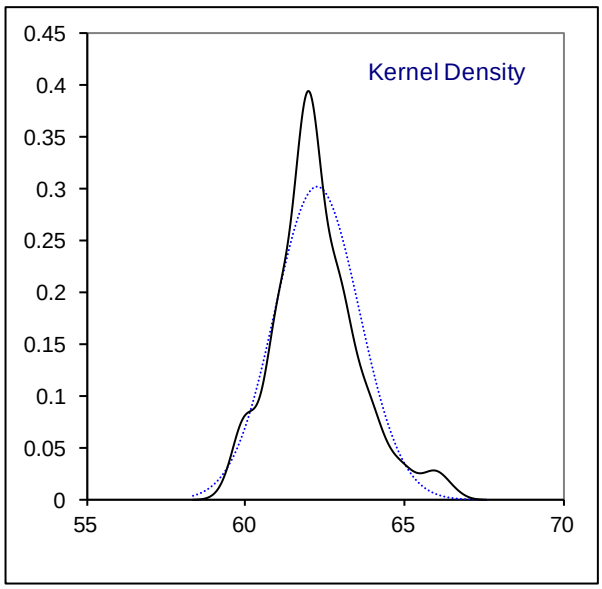
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D93	61.0		-0.82	1134	IP34	63.0		0.45
120	D93	61.0		-0.82	1146	D93	61.3		-0.63
140	ISO2719	61.7		-0.38	1161	ISO2719	60.5		-1.14
150	ISO2719	63.0		0.45	1167	ISO2719	62.0		-0.19
159	D93	62.0		-0.19	1191	ISO2719	60.0		-1.45
171	D93	61.0		-0.82	1194		-----		-----
212	ISO2719	62.0		-0.19	1199		-----		-----
237	D93	60.0		-1.45	1201	ISO2719	62.5		0.13
238	D93	63.0		0.45	1205		-----		-----
311	ISO2719	63.0		0.45	1212	ISO2719	63.5		0.76
312	ISO2719	60.0		-1.45	1229	ISO2719	62.0		-0.19
323	ISO2719	62.0		-0.19	1254	ISO2719	62.2		-0.06
331		-----		-----	1264	D93	61.0		-0.82
333	ISO2719	63.5		0.76	1266	ISO2719	62.5		0.13
334	ISO2719	61		-0.82	1272	ISO2719	61.5		-0.50
335	ISO2719	63.0		0.45	1297	D93	62.0		-0.19
336	ISO2719	64.0		1.08	1299	D93	60.5		-1.14
337	ISO2719	65.5		2.03	1310	ISO2719	62.6		0.19
338		-----		-----	1316	D93	62.5		0.13
340	ISO2719	63.0		0.45	1318	D93	61.0		-0.82
342	ISO2719	60.0		-1.45	1356	ISO2719	66		2.35
345	ISO2719	61.1		-0.76	1365	D93A	61.5		-0.50
349	D93	65		1.71	1367	IP34	64.5		1.40
350		-----		-----	1397	ISO2719	63.5		0.76
351	ISO2719	63.00		0.45	1428	ISO2719	61.5		-0.50
353	IP34	64.0		1.08	1430	D93	66.5		2.66
356	D93	63.0		0.45	1433	ISO2719	62.0		-0.19
357	ISO2719	62.0		-0.19	1457	ISO2719	62.0		-0.19
369	ISO2719	60.0		-1.45	1459	ISO2719	59.5		-1.77
370	ISO2719	62.0		-0.19	1491	ISO2719	62.0		-0.19
371	ISO2719	61.5		-0.50	1498	D93	62.5		0.13
381	ISO2719	62.0		-0.19	1510	IP34	62		-0.19
391	ISO2719	63.0		0.45	1520	ISO2719	63.5		0.76
398	ISO2719	65		1.71	1528	ISO2719	62		-0.19
399	ISO2719	66.0		2.35	1556	ISO2719	62.5		0.13
402	ISO2719	61.5		-0.50	1569	ISO2719	63.0		0.45
403	ISO2719	61.45		-0.53	1584		-----		-----
420	ISO2719	62.5		0.13	1586	ISO2719	63.0		0.45
431	ISO2719	62.5		0.13	1631	ISO2719	63.0		0.45
432	ISO2719	64.5		1.40	1634	ISO2719	63.1		0.51
433	ISO2719	61.0		-0.82	1654	ISO2719	62.5		0.13
440	IP34	62.6		0.19	1678		-----		-----
444	D93	61.6		-0.44	1681	ISO2719	62.0		-0.19
445	IP34	62.0		-0.19	1694	D93	61.0		-0.82
447	ISO2719	62.6		0.19	1720		-----		-----
453	IP34	62.0		-0.19	1724	D93	62		-0.19
463	ISO2719	62.0		-0.19	1730	ISO2719	61.0		-0.82
485	ISO2719	62.0		-0.19	1740	ISO2719	63.5		0.76
541	ISO2719	61.0		-0.82	1741	ISO2719	64		1.08
593	D93	63		0.45	1742	ISO2719	61.5		-0.50
621	D93	61.0		-0.82	1746	D93	60.0		-1.45
631	D93	60.0		-1.45	1749	D93	64		1.08
663	D93	62.4		0.07	1753	ISO2719	60		-1.45
704	ISO2719	64.0		1.08	1771	ISO2719	62.4		0.07
781	ISO2719	62.0		-0.19	1773	ISO2719	62.77		0.30
784	ISO2719	62.3		0.00	1776	ISO2719	61.0		-0.82
785	D93	60.0		-1.45	1782	D93	63.5		0.76
863	ISO2719	61.5		-0.50	1784	ISO2719	62		-0.19
873	D93	62.0		-0.19	1807	ISO2719	66.0		2.35
874	D93	62.0		-0.19	1811	ISO2719	64.5		1.40
875	D93	61.5		-0.50	1813	D93	62.00		-0.19
886	D93	63.5		0.76	1832	ISO2719	61.5		-0.50
902	D93	62.0		-0.19	1849	ISO2719	65		1.71
912		-----		-----	1854	ISO2719	62		-0.19
962	D93	62.0		-0.19	1857	ISO2719	63.5		0.76
963	ISO2719	62.0		-0.19	1858	D93	63.0		0.45
1006	D93	61.5		-0.50	1862	ISO2719	62.0		-0.19
1033	IP34	62.5		0.13	1872	ISO2719	61		-0.82
1059	ISO2719	64.0		1.08	1881	ISO2719	64.0		1.08
1080		-----		-----	1911	ISO2719	62.00		-0.19
1082	ISO2719	62.0		-0.19	1936	ISO2719	61		-0.82
1108	ISO2719	62.0		-0.19	1937	ISO2719	62		-0.19
1109	D93	62.0		-0.19	1938	ISO2719	62		-0.19
1121	IP34	61.0		-0.82	1950	ISO2719	62.0		-0.19
1126	ISO2719	64.0		1.08	1953	ISO2719	63.5		0.76

1961		-----	-----	6013	ISO2719	60.5	-1.14
1976	ISO2719	62.3	0.00	6014	ISO2719	62	-0.19
1979	ISO2719	61.5	-0.50	6018	ISO2719	63.0	0.45
1984	ISO2719	63.0	0.45	6028	ISO2719	62.0	-0.19
1995		-----	-----	6034	D93	63.0	0.45
2129	ISO2719	61.0	-0.82	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	148
outliers	0
mean (n)	62.29
st.dev. (n)	1.325
R(calc.)	3.71
R(ISO2719:02)	4.42

Lab 1433: also reported 62.5°C (Flash Point MFCCCP ASTM D7094)





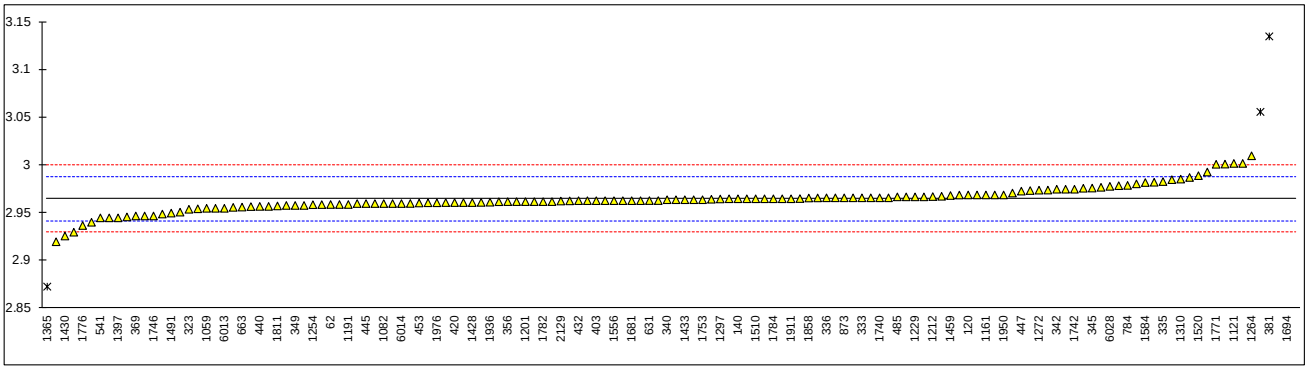
Determination of Kinematic Viscosity at 40°C on sample #16025; result in mm^2/s

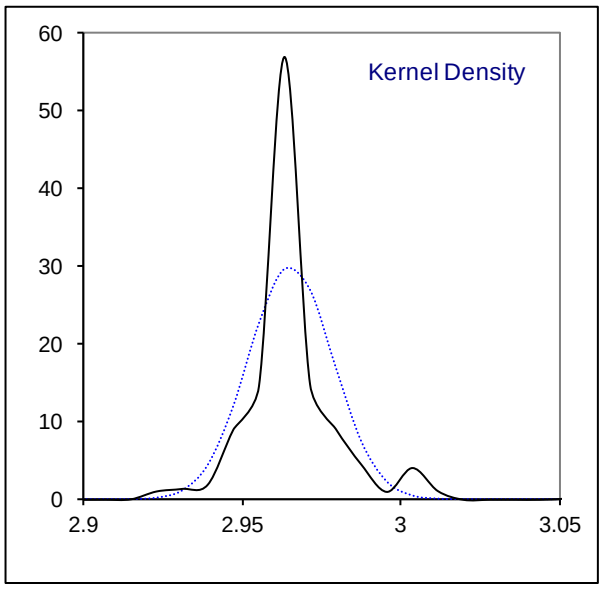
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D445	2.959		-0.48	1134	D445	2.9823		1.52
120	D445	2.969		0.38	1146	D445	2.9652		0.05
140	ISO3104	2.965		0.03	1161	ISO3104	2.969		0.38
150	ISO3104	2.956		-0.74	1167	ISO3104	2.962		-0.22
159	D445	2.966		0.12	1191	ISO3104	2.959		-0.48
171	D445	2.964		-0.05	1194		-----		-----
212	ISO3104	2.9873		1.95	1199		-----		-----
237	D445	3.001293		3.16	1201	ISO3104	2.962		-0.22
238	D445	2.946		-1.60	1205	ISO3104	2.92		-3.84
311	ISO3104	2.965		0.03	1212	D7042	2.9673		0.23
312	D445	2.959		-0.48	1229	ISO3104	2.967		0.21
323	ISO3104	2.954		-0.91	1254	ISO3104	2.9588		-0.50
331		-----		-----	1264	D7042	3.010		3.91
333	ISO3104	2.966		0.12	1266	ISO3104	2.957		-0.65
334	ISO3104	2.961		-0.31	1272	ISO3104	2.974	C	0.81
335	ISO3104	2.983		1.58	1297	D7042	2.9648		0.02
336	ISO3104	2.966		0.12	1299	D445	2.965		0.03
337	ISO3104	2.993		2.45	1310	ISO3104	2.985584		1.81
338		-----		-----	1316	D445	2.961		-0.31
340	ISO3104	2.964		-0.05	1318	D7042	3.05597	R(0.01)	7.87
342	ISO3104	2.975		0.90	1356	ISO3104	2.962		-0.22
345	ISO3104	2.9762		1.00	1365	D445	2.873	R(0.01)	-7.89
349	D445	2.958		-0.57	1367		-----		-----
350		-----		-----	1397	ISO3104	2.945		-1.69
351	ISO3104	2.9545		-0.87	1428	ISO3104	2.961		-0.31
353	ISO3104	2.9619		-0.23	1430	D445	2.926	C	-3.32
356	D445	2.962		-0.22	1433	ISO3104	2.964		-0.05
357	ISO3104	2.963		-0.14	1457	ISO3104	2.971		0.55
369	ISO3104	2.947		-1.52	1459	D7042	2.9684		0.33
370	ISO3104	2.9631		-0.13	1491	D7042	2.950	C	-1.26
371	ISO3104	2.949		-1.34	1498	D445	2.960		-0.40
381	D445	3.135	C,R(0.01)	14.68	1510	D445	2.965		0.03
391	ISO3104	2.963		-0.14	1520	ISO3104	2.9892		2.12
398		-----		-----	1528	ISO3104	2.9750		0.90
399	ISO3104	2.951		-1.17	1556	ISO3104	2.9630		-0.14
402	D445	2.9741		0.82	1569	ISO3104	2.9660		0.12
403	ISO3104	2.963		-0.14	1584	ISO3104	2.982		1.50
420	ISO3104	2.961		-0.31	1586	ISO3104	2.965		0.03
431	ISO3104	2.9770		1.07	1631	ISO3104	2.963		-0.14
432	D445	2.963		-0.14	1634		-----		-----
433		-----		-----	1654	ISO3104	2.9608		-0.33
440	D445	2.957		-0.65	1678		-----		-----
444	D445	2.9404	C	-2.08	1681	ISO3104	2.9630		-0.14
445	ISO3104	2.960		-0.40	1694	D445	3.4834	R(0.01)	44.68
447	D445	2.973		0.72	1720		-----		-----
453	ISO3104	2.96058		-0.35	1724	D445	2.964		-0.05
463	ISO3104	2.9628		-0.16	1730		-----		-----
485	ISO3104	2.967		0.21	1740	ISO3104	2.966		0.12
541	ISO3104	2.945	C	-1.69	1741	ISO3104	2.9601		-0.39
593	D445	2.945		-1.69	1742	ISO3104	2.975		0.90
621	D445	3.153	C,R(0.01)	16.23	1746	D445	2.947		-1.52
631	D445	2.9631		-0.13	1749	ISO3104	3.002		3.22
663	D445	2.9563		-0.72	1753	ISO3104	2.964		-0.05
704	ISO3104	2.9689		0.37	1771	ISO3104	3.0011		3.14
781	ISO3104	2.976		0.98	1773	ISO3104	2.9645		-0.01
784	ISO3104	2.979		1.24	1776	D7042	2.937		-2.38
785	D445	2.969		0.38	1782	D7042	2.962		-0.22
863	ISO3104	2.969		0.38	1784	D445	2.965		0.03
873	D445	2.966		0.12	1807	ISO3104	2.967		0.21
874	D445	2.967		0.21	1811	ISO3104	2.9575		-0.61
875	D445	2.960		-0.40	1813	D445	2.955		-0.83
886	D445	2.96		-0.40	1832	ISO3104	2.9612		-0.29
902	D445	2.930		-2.98	1849	ISO3104	2.965		0.03
912		-----		-----	1854	ISO3104	2.963		-0.14
962	D445	2.947		-1.52	1857	D445	2.962		-0.22
963	ISO3104	2.958		-0.57	1858	D445	2.9658		0.10
1006	D445	2.9568		-0.67	1862	ISO3104	2.9676		0.26
1033	IP71	4.912	R(0.01)	167.73	1872	ISO3104	2.958		-0.57
1059	ISO3104	2.955		-0.83	1881	ISO3104	2.985		1.76
1080	D7042	2.9806		1.38	1911	ISO3104	2.9650		0.03
1082	ISO3104	2.960		-0.40	1936	ISO3104	2.9614		-0.28
1108	ISO3104	2.966	C	0.12	1937	ISO3104	2.966		0.12
1109	D445	2.9736		0.77	1938	ISO3104	2.9589		-0.49
1121	IP71	3.002		3.22	1950	ISO3104	2.969		0.38
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	ISO3104	2.955	-0.83
1976	ISO3104	2.9608	-0.33	6014	ISO3104	2.960	-0.40
1979	ISO3104	2.9659	0.11	6018		-----	-----
1984	ISO3104	2.9787005	1.21	6028	ISO3104	2.978	1.15
1995		-----	-----	6034		-----	-----
2129	ISO3104	2.96262	-0.17	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	not OK
n	136
outliers	6
mean (n)	2.9646
st.dev. (n)	0.01334
R(calc.)	0.0373
R(ISO3104:94)	0.0325

Lab 381: first reported 3.102
Lab 444: first reported 3.1329
Lab 541: first reported 3.022
Lab 621: first reported 2.913
Lab 1108: first reported 3.090
Lab 1272: first reported -10
Lab 1430: first reported: 2.894
Lab 1491: first reported 2.8010





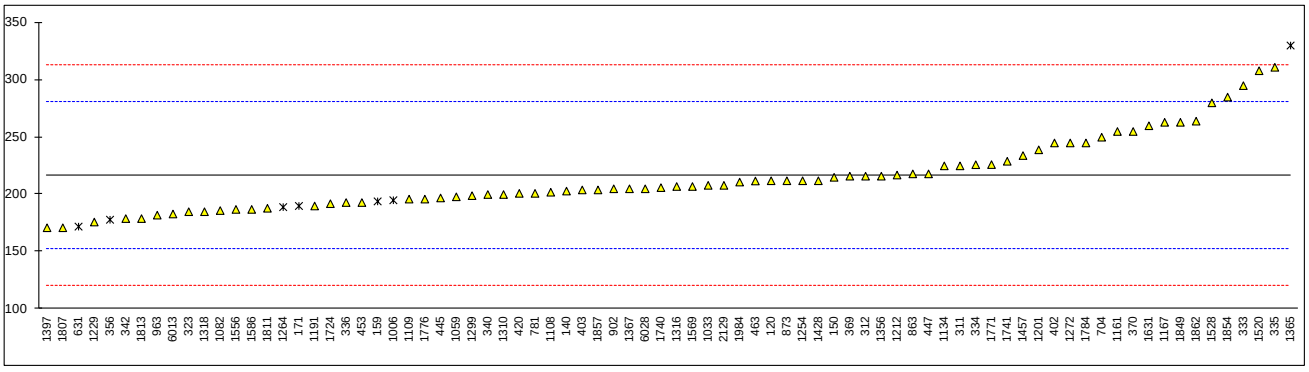
Determination of Lubricity by HFRR at 60 °C on sample #16025; result in µm

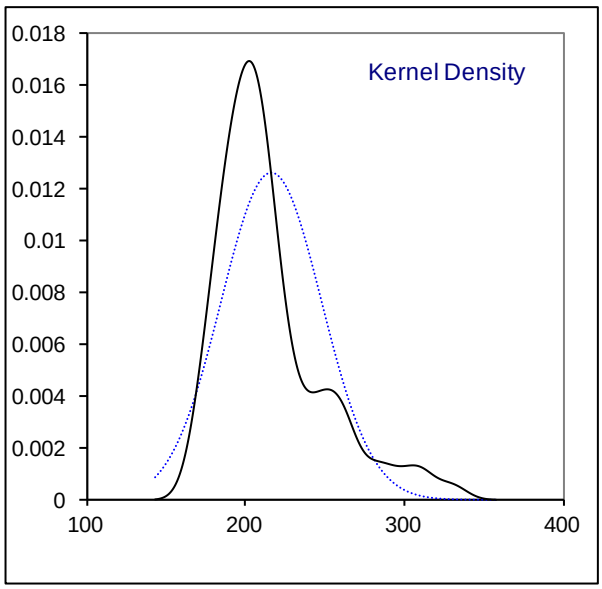
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	ISO12156-1	225		0.27
120	ISO12156-1	212.0		-0.14	1146		-----		-----
140	ISO12156-1	203		-0.42	1161	ISO12156-1	255.0		1.20
150	ISO12156-1	215		-0.04	1167	ISO12156-1	263		1.45
159	D6079	194	ex	-0.70	1191	ISO12156-1	190		-0.82
171	D6079	190	ex	-0.82	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	ISO12156-1	239		0.70
238		-----		-----	1205		-----		-----
311	ISO12156-1	225		0.27	1212	ISO12156-1	217		0.02
312	ISO12156-1	216		-0.01	1229	ISO12156-1	176		-1.26
323	ISO12156-1	185		-0.98	1254	ISO12156-1	212		-0.14
331		-----		-----	1264	D6079	189	ex	-0.85
333	ISO12156-1	295		2.45	1266		-----		-----
334	ISO12156-1	226		0.30	1272	ISO12156-1	245		0.89
335	ISO12156-1	311		2.94	1297		-----		-----
336	ISO12156-1	193		-0.73	1299	ISO12156-1	199		-0.54
337		-----		-----	1310	ISO12156-1	200		-0.51
338		-----		-----	1316	ISO12156-1	207		-0.29
340	ISO12156-1	200		-0.51	1318	ISO12156-1	185		-0.98
342	ISO12156-1	179		-1.16	1356	ISO12156-1	216		-0.01
345		-----		-----	1365	ISO12156-1	330	R(0.05)	3.54
349		-----		-----	1367	IP450	205		-0.35
350		-----		-----	1397	ISO12156-1	171		-1.41
351		-----		-----	1428	ISO12156-1	212		-0.14
353		-----		-----	1430		-----		-----
356	D6079	178	ex	-1.19	1433		-----		-----
357		-----		-----	1457	ISO12156-1	234		0.55
369	ISO12156-1	216		-0.01	1459		-----		-----
370	ISO12156-1	255		1.20	1491		-----		-----
371		-----		-----	1498		-----		-----
381		-----		-----	1510		-----		-----
391		-----		-----	1520	ISO12156-1	308		2.85
398		-----		-----	1528	ISO12156-1	280		1.98
399		-----		-----	1556	ISO12156-1	187		-0.91
402	ISO12156-1	245		0.89	1569	ISO12156-1	207		-0.29
403	ISO12156-1	204		-0.38	1584		-----		-----
420	ISO12156-1	201		-0.48	1586	ISO12156-1	187		-0.91
431		-----		-----	1631	ISO12156-1	260		1.36
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	ISO12156-1	197		-0.60	1694		-----		-----
447	ISO12156-1	218		0.05	1720		-----		-----
453	ISO12156-1	193		-0.73	1724	IP450	192		-0.76
463	ISO12156-1	211.8		-0.14	1730		-----		-----
485		-----		-----	1740	ISO12156-1	206		-0.32
541		-----		-----	1741	ISO12156-1	229		0.39
593		-----		-----	1742		-----		-----
621		-----		-----	1746		-----		-----
631	D7688	172	ex	-1.38	1749		-----		-----
663		-----		-----	1753		-----		-----
704	ISO12156-1	250		1.05	1771	ISO12156-1	226.1		0.30
781	ISO12156-1	201		-0.48	1773		-----		-----
784		-----		-----	1776	ISO12156-1	196		-0.63
785		-----		-----	1782		-----		-----
863	ISO12156-1	218		0.05	1784	ISO12156-1	245		0.89
873	ISO12156-1	212		-0.14	1807	ISO12156-1	171		-1.41
874		-----		-----	1811	ISO12156-1	188		-0.88
875		-----		-----	1813	IP450	179.0		-1.16
886		-----		-----	1832		-----		-----
902	ISO12156-1	205		-0.35	1849	ISO12156-1	263		1.45
912		-----		-----	1854	ISO12156-1	285		2.14
962		-----		-----	1857	ISO12156-1	204		-0.38
963	ISO12156-1	182		-1.07	1858		-----		-----
1006	D6079	195	ex	-0.66	1862	ISO12156-1	264		1.48
1033	IP450	208		-0.26	1872		-----		-----
1059	ISO12156-1	198		-0.57	1881		-----		-----
1080		-----		-----	1911		-----		-----
1082	ISO12156-1	186		-0.94	1936		-----		-----
1108	ISO12156-1	202		-0.45	1937		-----		-----
1109	IP450	196		-0.63	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	ISO12156-1	183	-1.04
1976		-----	-----	6014		-----	-----
1979		-----	-----	6018		-----	-----
1984	ISO12156-1	210.86	-0.17	6028	ISO12156-1	205	-0.35
1995		-----	-----	6034		-----	-----
2129	ISO12156-1	208	-0.26	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	not OK
n	73
outliers	1 (+6ex)
mean (n)	216.353
st.dev. (n)	31.5863
R(calc.)	88.442
R(ISO12156:16)	90.000

ex = result excluded, calculation procedure of test method is different than ISO12156





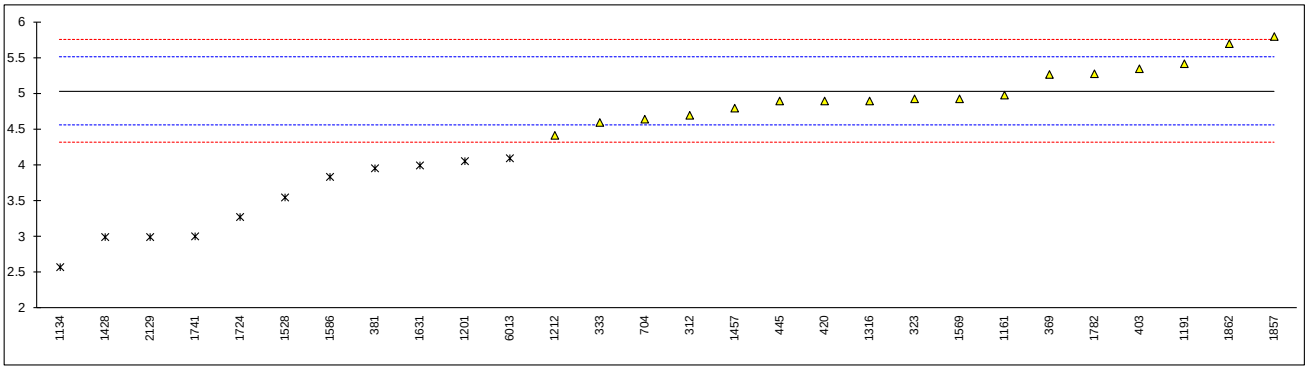
Determination of Manganese on sample #16025; result in mg/L

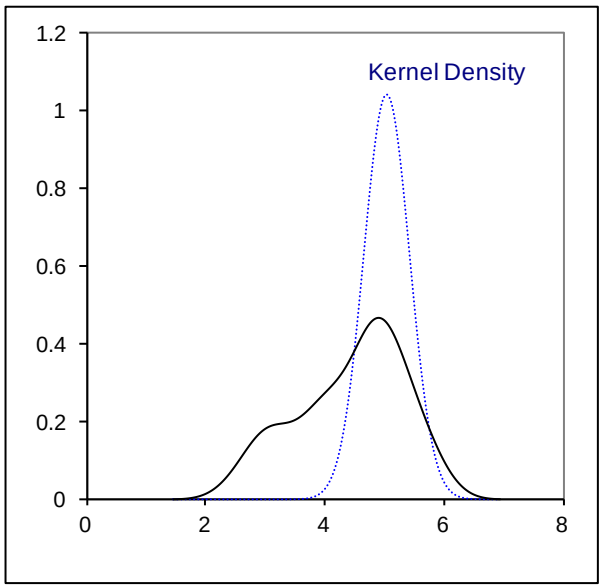
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	EN16576	2.58	ex	-10.22
120	EN16576	<0.5	false negative?	<-18.91	1146		-----		-----
140		-----		-----	1161	EN16576	4.982	C	-0.20
150		-----		-----	1167		-----		-----
159		-----		-----	1191	D5185	5.42	C	1.62
171		-----		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN16576	4.06	ex	-4.05
238		-----		-----	1205		-----		-----
311		-----		-----	1212	EN16576	4.42		-2.55
312	D7111	4.7	C	-1.38	1229		-----		-----
323	EN16576	4.93		-0.42	1254		-----		-----
331		-----		-----	1264		-----		-----
333	EN16576	4.6		-1.80	1266		-----		-----
334		-----		-----	1272	EN16576	<1.0	C	-----
335		-----		-----	1297		-----		-----
336		-----		-----	1299		-----		-----
337		-----		-----	1310		-----		-----
338		-----		-----	1316	In house	4.9		-0.55
340		-----		-----	1318		-----		-----
342		-----		-----	1356		-----		-----
345		-----		-----	1365		-----		-----
349		-----		-----	1367		-----		-----
350		-----		-----	1397		-----		-----
351		-----		-----	1428	EN16576	3.0	ex	-8.47
353		-----		-----	1430		-----		-----
356		-----		-----	1433		-----		-----
357		-----		-----	1457	EN16576	4.80		-0.96
369	EN16576	5.27		1.00	1459		-----		-----
370		-----		-----	1491		-----		-----
371		-----		-----	1498		-----		-----
381	D3831	3.96	ex	-4.47	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528	IP592	3.553	ex	-6.16
399		-----		-----	1556		-----		-----
402		-----		-----	1569	In house	4.93		-0.42
403	EN16576	5.35		1.33	1584		-----		-----
420	EN16576	4.9		-0.55	1586	EN16576	3.84	ex	-4.97
431		-----		-----	1631	EN16576	4.0	ex	-4.30
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	EN16576	4.9		-0.55	1694		-----		-----
447		-----		-----	1720		-----		-----
453		-----		-----	1724	EN16576	3.28	ex	-7.30
463		-----		-----	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN16576	3.010	ex	-8.43
593		-----		-----	1742		-----		-----
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	EN16576	4.646		-1.61	1771		-----		-----
781		-----		-----	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782	EN16576	5.28		1.04
863		-----		-----	1784		-----		-----
873		-----		-----	1807		-----		-----
874		-----		-----	1811		-----		-----
875		-----		-----	1813		-----		-----
886		-----		-----	1832		-----		-----
902		-----		-----	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857	EN16576	5.8		3.21
963		-----		-----	1858		-----		-----
1006		-----		-----	1862	EN16576	5.7		2.79
1033		-----		-----	1872		-----		-----
1059		-----		-----	1881		-----		-----
1080		-----		-----	1911		-----		-----
1082		-----		-----	1936		-----		-----
1108		-----		-----	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----		-----	6013	In house	4.1	ex	-3.88
1976		-----		-----	6014		-----		-----
1979		-----		-----	6018		-----		-----
1984		-----		-----	6028		-----		-----
1995		-----		-----	6034		-----		-----
2129	D7111	3.0	ex	-8.47	7006		-----		-----
2146		-----		-----	9057		-----		-----

normality	OK		
n	17		
outliers	0 (+11ex)	spike:	
mean (n)	5.031	5	recovery <99%
st.dev. (n)	0.3837		
R(calc.)	1.074		
R(EN16576:14)	0.671		

Lab 312: first reported 9.17
Lab 1161: first reported 1.13
Lab 1191: first reported 7.72
Lab 1272: first reported 0.3
Lab 1316: reported result in mg/kg





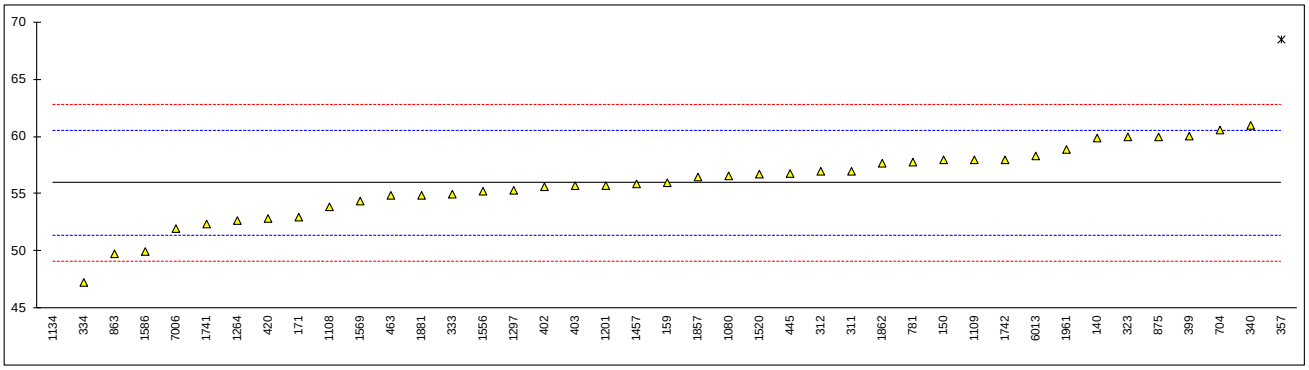
Determination of Nitrogen on sample #16025; result in mg/kg

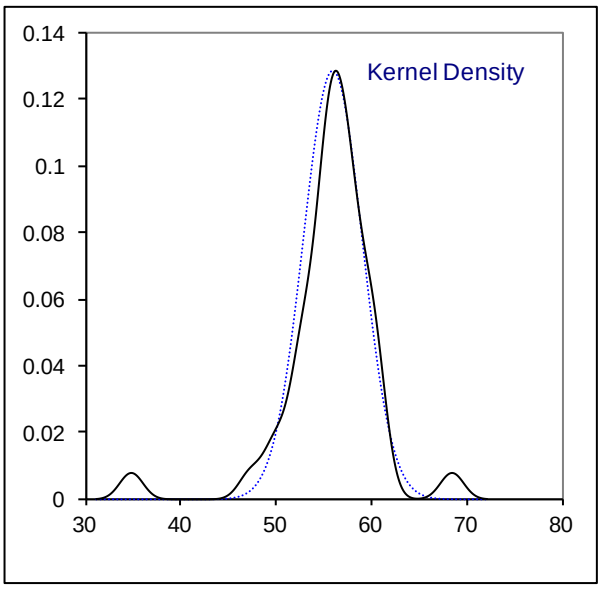
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	D5762	34.747	R(0.01)	-9.23
120		-----		-----	1146		-----		-----
140	D4629	59.9		1.72	1161		-----		-----
150	D4629	58		0.90	1167		-----		-----
159	D4629	56		0.02	1191		-----		-----
171	D4629	53		-1.28	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	D4629	55.75		-0.08
238		-----		-----	1205		-----		-----
311	D4629	57		0.46	1212		-----		-----
312	D4629	57	C	0.46	1229		-----		-----
323	D4629	60		1.77	1254		-----		-----
331		-----		-----	1264	D6069	52.7		-1.41
333	D4629	55		-0.41	1266		-----		-----
334	D4629	47.3		-3.76	1272		-----		-----
335		-----		-----	1297	D4629	55.34		-0.26
336		-----		-----	1299		-----		-----
337		-----		-----	1310		-----		-----
338		-----		-----	1316		-----		-----
340	D4629	61		2.20	1318		-----		-----
342		-----		-----	1356		-----		-----
345		-----		-----	1365		-----		-----
349		-----		-----	1367		-----		-----
350		-----		-----	1397		-----		-----
351		-----		-----	1428		-----		-----
353		-----		-----	1430		-----		-----
356		-----		-----	1433		-----		-----
357	D4629	68.5	R(0.05)	5.47	1457	D4629	55.9		-0.02
369		-----		-----	1459		-----		-----
370		-----		-----	1491		-----		-----
371		-----		-----	1498		-----		-----
381		-----		-----	1510		-----		-----
391		-----		-----	1520	D4629	56.749		0.35
398		-----		-----	1528		-----		-----
399	D4629	60.07		1.80	1556	D4629	55.26		-0.30
402	D4629	55.65		-0.13	1569	D4629	54.4	C	-0.67
403	D4629	55.74		-0.09	1584		-----		-----
420	D4629	52.88		-1.33	1586	D5762	50		-2.59
431		-----		-----	1631		-----		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	D4629	56.8		0.37	1694		-----		-----
447		-----		-----	1720		-----		-----
453		-----		-----	1724		-----		-----
463	D4629	54.9		-0.45	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	D4629	52.4		-1.54
593		-----		-----	1742	D4629	58		0.90
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	D4629	60.6		2.03	1771		-----		-----
781	D4629	57.8		0.81	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782		-----		-----
863	D4629	49.8		-2.68	1784		-----		-----
873		-----		-----	1807		-----		-----
874		-----		-----	1811		-----		-----
875	D4629	60.0		1.77	1813		-----		-----
886		-----		-----	1832		-----		-----
902		-----		-----	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857	D4629	56.5		0.24
963		-----		-----	1858		-----		-----
1006		-----		-----	1862	ISO3734	57.7		0.77
1033		-----		-----	1872		-----		-----
1059		-----		-----	1881	D4629	54.9		-0.45
1080	D4629	56.6		0.29	1911		-----		-----
1082		-----		-----	1936		-----		-----
1108	D5762	53.9		-0.89	1937		-----		-----
1109	D4629	58		0.90	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961	D4629	58.9	1.29	6013	D4629	58.34	1.04
1976		-----	-----	6014		-----	-----
1979		-----	-----	6018		-----	-----
1984		-----	-----	6028		-----	-----
1995		-----	-----	6034		-----	-----
2129		-----	-----	7006	D4629	52	-1.72
2146		-----	-----	9057		-----	-----

normality	OK
n	39
outliers	2
mean (n)	55.94
st.dev. (n)	3.103
R(calc.)	8.69
R(D4629:12)	6.43

Lab 312: first reported 77
Lab 1569: first reported 45.4





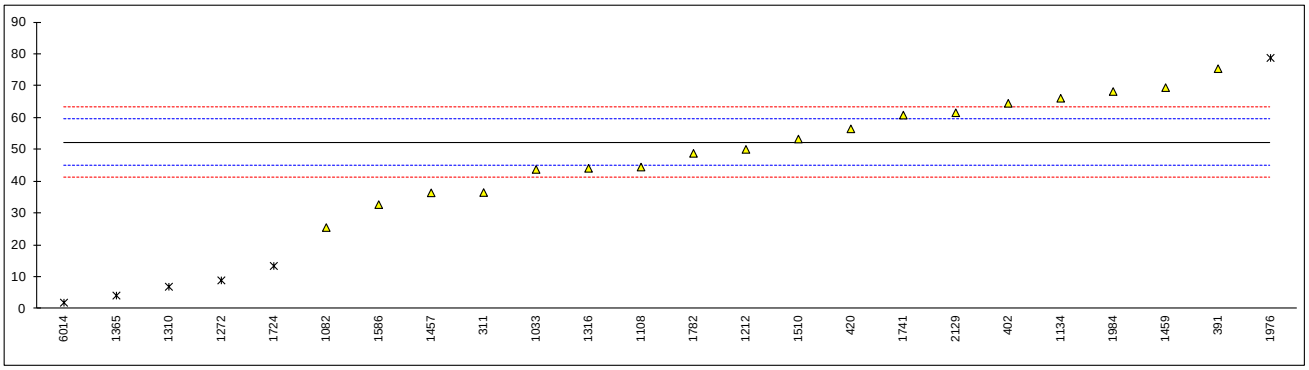
Determination of Oxidation Stability, accelerated on sample #16025; result in hrs

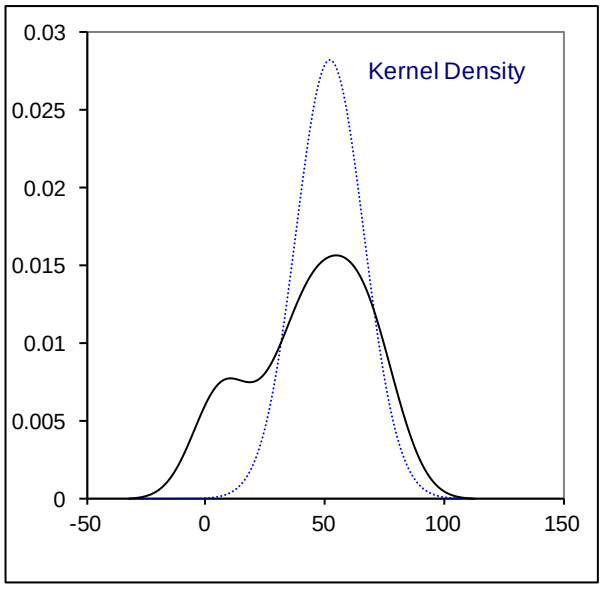
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	EN15751	66.21		3.80
120		-----		-----	1146		-----		-----
140		-----		-----	1161		-----		-----
150		-----		-----	1167		-----		-----
159		-----		-----	1191		-----		-----
171	EN15751	>48		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN15751	>24		-----
238		-----		-----	1205		-----		-----
311	EN15751	36.6		-4.24	1212	EN15751	50.15		-0.56
312	EN15751	>48		-----	1229		-----		-----
323		-----		-----	1254		-----		-----
331		-----		-----	1264		-----		-----
333		-----		-----	1266		-----		-----
334		-----		-----	1272	EN15751	9	R(0.05)	-11.73
335		-----		-----	1297		-----		-----
336		-----		-----	1299	EN15751	>20		-----
337		-----		-----	1310	ISO12205	7	ex	-12.28
338		-----		-----	1316	EN15751	44.2		-2.18
340	EN15751	>50		-----	1318		-----		-----
342		-----		-----	1356		-----		-----
345		-----		-----	1365	D2274	4.23	ex	-13.03
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN15751	>48		-----
351		-----		-----	1428	EN15751	>48		-----
353		-----		-----	1430		-----		-----
356		-----		-----	1433		-----		-----
357		-----		-----	1457	EN15751	36.5		-4.27
369		-----		-----	1459	EN15751	69.55		4.70
370		-----		-----	1491		-----		-----
371		-----		-----	1498		-----		-----
381		-----		-----	1510	EN15751	53.4		0.32
391	EN15751	75.5		6.32	1520		-----		-----
398		-----		-----	1528	EN15751	>48		-----
399		-----		-----	1556		-----		-----
402	EN15751	64.62		3.37	1569	EN15751	>48		-----
403		-----		-----	1584		-----		-----
420	EN15751	56.6		1.19	1586	EN15751	32.8		-5.27
431		-----		-----	1631		-----		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	EN15751	>48		-----	1694		-----		-----
447	EN15751	>20		-----	1720		-----		-----
453		-----		-----	1724	EN15751	13.53	R(0.05)	-10.50
463		-----		-----	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN15751	60.92		2.36
593		-----		-----	1742		-----		-----
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704		-----		-----	1771		-----		-----
781		-----		-----	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782	EN15751	48.9		-0.90
863		-----		-----	1784		-----		-----
873		-----		-----	1807	EN15751	>56		-----
874		-----		-----	1811		-----		-----
875		-----		-----	1813		-----		-----
886		-----		-----	1832		-----		-----
902		-----		-----	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857		-----		-----
963		-----		-----	1858		-----		-----
1006		-----		-----	1862		-----		-----
1033	EN15751	43.85		-2.27	1872		-----		-----
1059	EN15751	>48		-----	1881		-----		-----
1080		-----		-----	1911	EN15751	>48.0		-----
1082	EN15751	25.6		-7.23	1936		-----		-----
1108	EN15751	44.6		-2.07	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----		-----	6013		-----		-----
1976	EN16091	78.88	ex	7.24	6014	ISO12205	2	ex	-13.63
1979		-----		-----	6018		-----		-----
1984	EN15751	68.33		4.37	6028		-----		-----
1995		-----		-----	6034		-----		-----
2129	EN15751	61.66		2.56	7006		-----		-----
2146		-----		-----	9057		-----		-----

normality	OK
n	18
outliers	2 (+4ex)
mean (n)	52.22
st.dev. (n)	14.186
R(calc.)	39.72
R(EN15751:14)	10.31

Lab 1310: reported 7 g/m^3
Lab 1365: reported 4.23 mg/100ml
Lab 1976: converted result to EN15751 according to method EN16091
Lab 6014: reported 2 g/m^3
ex = result excluded as test method is not equivalent to EN15751





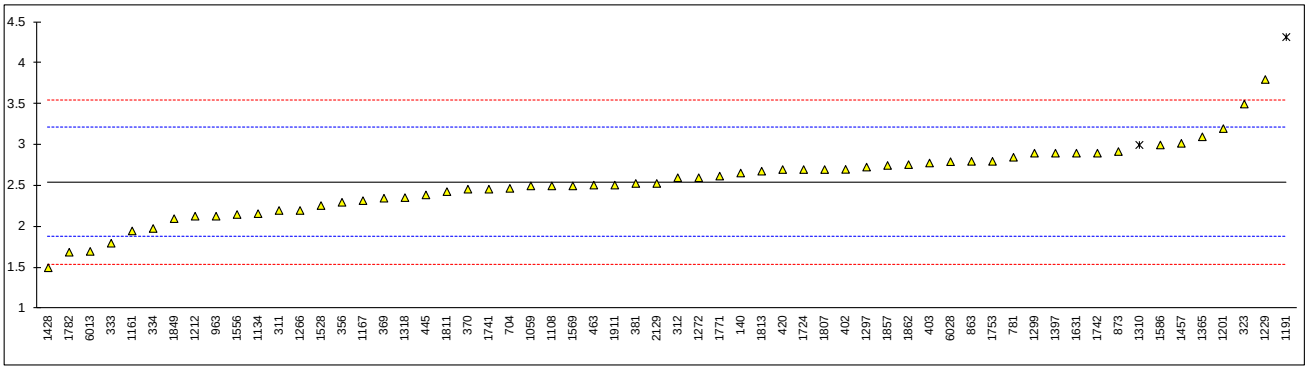
Determination of Poly-Aromatic Hydrocarbons on sample #16025; result in %M/M

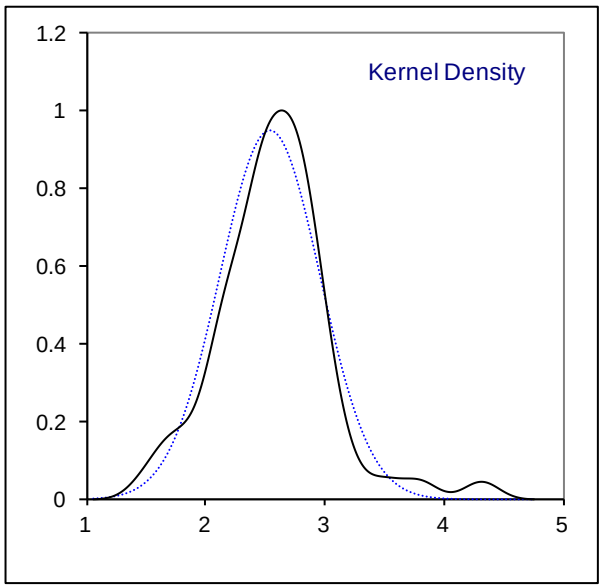
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	IP391	2.161		-1.14
120		-----		-----	1146		-----		-----
140	EN12916	2.6575		0.35	1161	EN12916	1.95		-1.77
150		-----		-----	1167	EN12916	2.32		-0.66
159		-----		-----	1191	EN12916	4.318	R(0.01)	5.32
171		-----		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN12916	3.2		1.97
238		-----		-----	1205		-----		-----
311	EN12916	2.2		-1.02	1212	EN12916	2.13		-1.23
312	EN12916	2.6		0.17	1229	EN12916	3.8	C	3.77
323	EN12916	3.5		2.87	1254		-----		-----
331		-----		-----	1264		-----		-----
333	EN12916	1.8		-2.22	1266		2.2		-1.02
334	EN12916	1.98		-1.68	1272	EN12916	2.6		0.17
335		-----		-----	1297	EN12916	2.73		0.56
336		-----		-----	1299	EN12916	2.9	E	1.07
337		-----		-----	1310	EN12916	3.0	ex,C	1.37
338		-----		-----	1316		-----		-----
340		-----		-----	1318	EN12916	2.357	C	-0.55
342		-----		-----	1356		-----		-----
345		-----		-----	1365	EN12916	3.1		1.67
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN12916	2.9		1.07
351		-----		-----	1428	EN12916	1.5		-3.12
353		-----		-----	1430		-----		-----
356	IP391	2.3		-0.72	1433		-----		-----
357		-----		-----	1457	EN12916	3.02		1.43
369	EN12916	2.35		-0.57	1459		-----		-----
370	EN12916	2.46		-0.25	1491		-----		-----
371		-----		-----	1498		-----		-----
381	EN12916	2.53	C	-0.04	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528	EN12916	2.26		-0.84
399		-----		-----	1556	EN12916	2.150803		-1.17
402	EN12916	2.702		0.48	1569	EN12916	2.5		-0.13
403	EN12916	2.78		0.71	1584		-----		-----
420	EN12916	2.7		0.47	1586	EN12916	3.0		1.37
431		-----		-----	1631	EN12916	2.9		1.07
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	IP391	2.39		-0.45	1694		-----		-----
447		-----		-----	1720		-----		-----
453		-----		-----	1724	IP391	2.7		0.47
463	EN12916	2.51		-0.10	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN12916	2.46		-0.25
593		-----		-----	1742	EN12916	2.9		1.07
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753	EN12916	2.8		0.77
704	EN12916	2.47		-0.22	1771	EN12916	2.62		0.23
781	EN12916	2.85		0.92	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782	EN12916	1.69		-2.55
863	EN12916	2.8		0.77	1784		-----		-----
873	EN12916	2.92		1.13	1807	EN12916	2.7		0.47
874		-----		-----	1811	EN12916	2.43		-0.34
875		-----		-----	1813	IP391	2.68		0.41
886		-----		-----	1832		-----		-----
902		-----		-----	1849	EN12916	2.10		-1.32
912		-----		-----	1854		-----		-----
962		-----		-----	1857	EN12916	2.75		0.62
963	EN12916	2.13		-1.23	1858		-----		-----
1006		-----		-----	1862	EN12916	2.76		0.65
1033		-----		-----	1872		-----		-----
1059	EN12916	2.5		-0.13	1881		-----		-----
1080		-----		-----	1911	EN12916	2.51		-0.10
1082		-----		-----	1936		-----		-----
1108	EN12916	2.5		-0.13	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	EN12916	1.7	-2.52
1976		-----	-----	6014		-----	-----
1979		-----	-----	6018		-----	-----
1984		-----	-----	6028	EN12916	2.7959	0.76
1995		-----	-----	6034		-----	-----
2129	EN12916	2.53	-0.04	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	suspect
n	58
outliers	1 (+1ex)
mean (n)	2.542
st.dev. (n)	0.4206
R(calc.)	1.178
R(EN12916:06)	0.935

Lab 381: first reported 1.27
Lab 1229: first reported as Tri+ Aromatics
Lab 1299: iis calculated 2.6
Lab 1310: first reported 6.05, test result excluded, because the results of Mono-, Di-, Tri+ - and Poly-Aromatic Hydrocarbons are outliers
Lab 1318: first reported 15.203





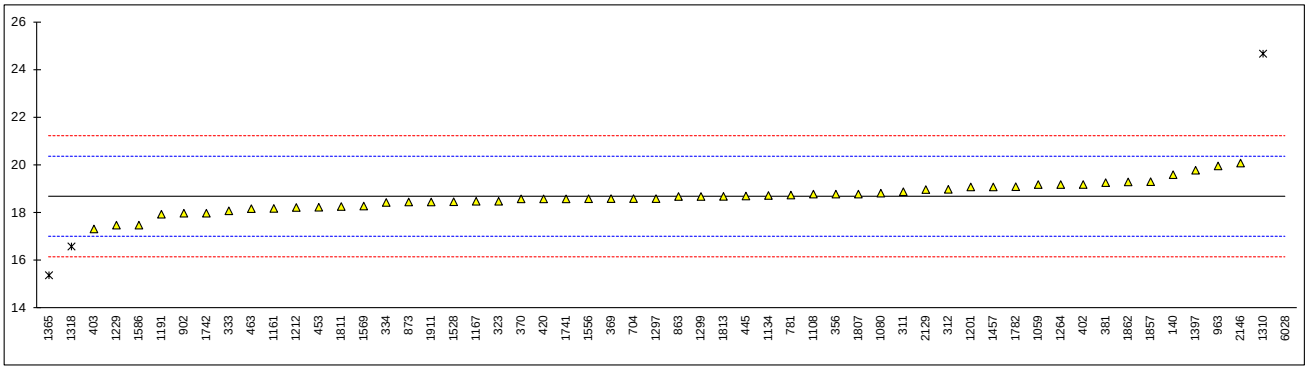
Determination of Mono-Aromatic Hydrocarbons on sample #16025; result in %M/M

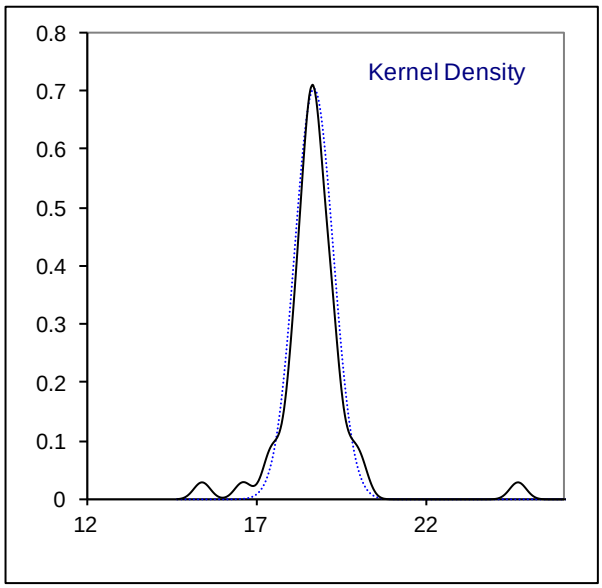
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	IP391	18.742		0.07
120		-----		-----	1146		-----		-----
140	EN12916	19.613		1.10	1161	EN12916	18.2		-0.58
150		-----		-----	1167	EN12916	18.50		-0.22
159		-----		-----	1191	EN12916	17.957		-0.87
171		-----		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN12916	19.1		0.49
238		-----		-----	1205		-----		-----
311	EN12916	18.9		0.25	1212	EN12916	18.24		-0.53
312	EN12916	19.0		0.37	1229	EN12916	17.5		-1.42
323	EN12916	18.5		-0.22	1254		-----		-----
331		-----		-----	1264	IP391	19.2		0.61
333	EN12916	18.1		-0.70	1266		-----		-----
334	EN12916	18.45		-0.28	1272		-----		-----
335		-----		-----	1297	EN12916	18.61		-0.09
336		-----		-----	1299	EN12916	18.7		0.02
337		-----		-----	1310	EN12916	24.68	C,R(0.01)	7.15
338		-----		-----	1316		-----		-----
340		-----		-----	1318	EN12916	16.606	C,R(0.05)	-2.48
342		-----		-----	1356		-----		-----
345		-----		-----	1365	EN12916	15.4	R(0.01)	-3.92
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN12916	19.8		1.33
351		-----		-----	1428		-----		-----
353		-----		-----	1430		-----		-----
356	IP391	18.8		0.13	1433		-----		-----
357		-----		-----	1457	EN12916	19.10		0.49
369	EN12916	18.61		-0.09	1459		-----		-----
370	EN12916	18.60		-0.10	1491		-----		-----
371		-----		-----	1498		-----		-----
381	EN12916	19.28	C	0.71	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528	EN12916	18.48		-0.25
399		-----		-----	1556	EN12916	18.60617		-0.10
402	EN12916	19.202		0.61	1569	EN12916	18.3		-0.46
403	EN12916	17.34		-1.61	1584		-----		-----
420	EN12916	18.6		-0.10	1586	EN12916	17.5		-1.42
431		-----		-----	1631		-----		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	IP391	18.72		0.04	1694		-----		-----
447		-----		-----	1720		-----		-----
453	IP391	18.25		-0.52	1724		-----	W	-----
463	EN12916	18.19		-0.59	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN12916	18.60		-0.10
593		-----		-----	1742	EN12916	18.0		-0.82
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	EN12916	18.61		-0.09	1771		-----		-----
781	EN12916	18.76		0.09	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782	EN12916	19.11		0.50
863	EN12916	18.7		0.02	1784		-----		-----
873	EN12916	18.47		-0.26	1807	EN12916	18.8		0.13
874		-----		-----	1811	EN12916	18.28		-0.49
875		-----		-----	1813	IP391	18.7045		0.02
886		-----		-----	1832		-----		-----
902	EN12916	18.0		-0.82	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857	EN12916	19.32		0.75
963	EN12916	19.98		1.54	1858		-----		-----
1006		-----		-----	1862	EN12916	19.31		0.74
1033		-----		-----	1872		-----		-----
1059	EN12916	19.2		0.61	1881		-----		-----
1080	EN12916	18.84		0.18	1911	EN12916	18.47		-0.26
1082		-----		-----	1936		-----		-----
1108	EN12916	18.8		0.13	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013		-----		-----
1976		-----	-----	6014		-----		-----
1979		-----	-----	6018		-----		-----
1984		-----	-----	6028	EN12916	31.1529	C,R(0.01)	14.87
1995		-----	-----	6034		-----		-----
2129	EN12916	18.99	0.36	7006		-----		-----
2146	EN12916	20.10	1.69	9057		-----		-----

normality	OK
n	52
outliers	4
mean (n)	18.687
st.dev. (n)	0.5684
R(calc.)	1.592
R(EN12916:06)	2.347

Lab 381: first reported 5.31
Lab 1310: first reported 44.47
Lab 1318: first reported 18.421
Lab 1724: first reported 15.7
Lab 6028: first reported 28.4022





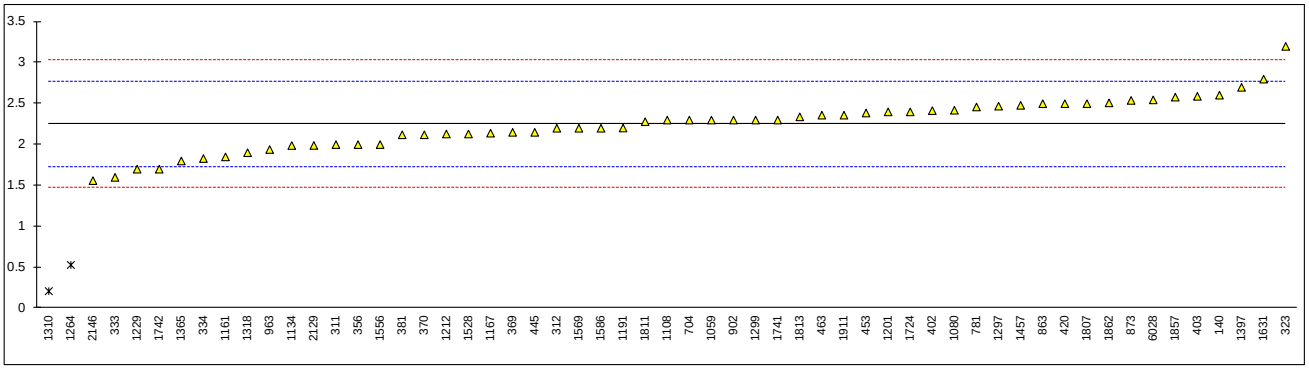
Determination of Di-Aromatic Hydrocarbons on sample #16025; result in %M/M

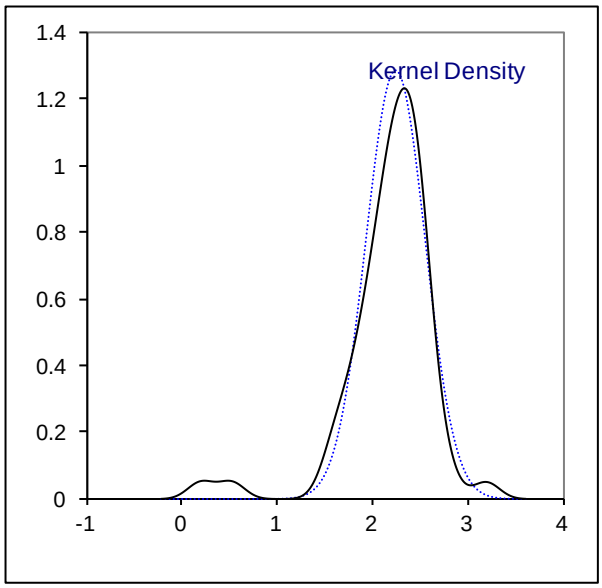
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	IP391	1.989		-1.00
120		-----		-----	1146		-----		-----
140	EN12916	2.604		1.36	1161	EN12916	1.85		-1.53
150		-----		-----	1167	EN12916	2.14		-0.42
159		-----		-----	1191	EN12916	2.203		-0.18
171		-----		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN12916	2.4		0.58
238		-----		-----	1205		-----		-----
311	EN12916	2.0		-0.96	1212	EN12916	2.13		-0.46
312	EN12916	2.2		-0.19	1229	EN12916	1.7		-2.11
323	EN12916	3.2		3.65	1254		-----		-----
331		-----		-----	1264	IP391	0.53	R(0.01)	-6.60
333	EN12916	1.6		-2.49	1266		-----		-----
334	EN12916	1.83		-1.61	1272		-----		-----
335		-----		-----	1297	EN12916	2.47		0.84
336		-----		-----	1299	EN12916	2.3		0.19
337		-----		-----	1310	EN12916	0.21	C,R(0.01)	-7.83
338		-----		-----	1316		-----		-----
340		-----		-----	1318	EN12916	1.901	C	-1.34
342		-----		-----	1356		-----		-----
345		-----		-----	1365	EN12916	1.8		-1.73
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN12916	2.7		1.73
351		-----		-----	1428		-----		-----
353		-----		-----	1430		-----		-----
356	IP391	2.0		-0.96	1433		-----		-----
357		-----		-----	1457	EN12916	2.48		0.88
369	EN12916	2.15		-0.38	1459		-----		-----
370	EN12916	2.12		-0.50	1491		-----		-----
371		-----		-----	1498		-----		-----
381	EN12916	2.12	C	-0.50	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528	EN12916	2.13		-0.46
399		-----		-----	1556	EN12916	2.0002395		-0.96
402	EN12916	2.415		0.63	1569	EN12916	2.2		-0.19
403	EN12916	2.59		1.31	1584		-----		-----
420	EN12916	2.5		0.96	1586	EN12916	2.2		-0.19
431		-----		-----	1631	EN12916	2.8		2.11
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	IP391	2.15		-0.38	1694		-----		-----
447		-----		-----	1720		-----		-----
453	IP391	2.386		0.52	1724	IP391	2.4		0.58
463	EN12916	2.36		0.42	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN12916	2.30		0.19
593		-----		-----	1742	EN12916	1.7		-2.11
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	EN12916	2.30		0.19	1771		-----		-----
781	EN12916	2.46		0.81	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782		-----		-----
863	EN12916	2.5		0.96	1784		-----		-----
873	EN12916	2.54		1.11	1807	EN12916	2.5		0.96
874		-----		-----	1811	EN12916	2.28		0.12
875		-----		-----	1813	IP391	2.3391		0.34
886		-----		-----	1832		-----		-----
902	EN12916	2.3		0.19	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857	EN12916	2.58		1.27
963	EN12916	1.94		-1.19	1858		-----		-----
1006		-----		-----	1862	EN12916	2.51		1.00
1033		-----		-----	1872		-----		-----
1059	EN12916	2.3		0.19	1881		-----		-----
1080	EN12916	2.42		0.65	1911	EN12916	2.36		0.42
1082		-----		-----	1936		-----		-----
1108	EN12916	2.3		0.19	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013		-----	-----
1976		-----	-----	6014		-----	-----
1979		-----	-----	6018		-----	-----
1984		-----	-----	6028	EN12916	2.5465	1.14
1995		-----	-----	6034		-----	-----
2129	EN12916	1.99	-1.00	7006		-----	-----
2146	EN12916	1.56	-2.65	9057		-----	-----

normality	OK
n	55
outliers	2
mean (n)	2.250
st.dev. (n)	0.3099
R(calc.)	0.868
R(EN12916:06)	0.730

Lab 381: first reported 0.84
Lab 1310: first reported 4.51
Lab 1318: first reported 4.429





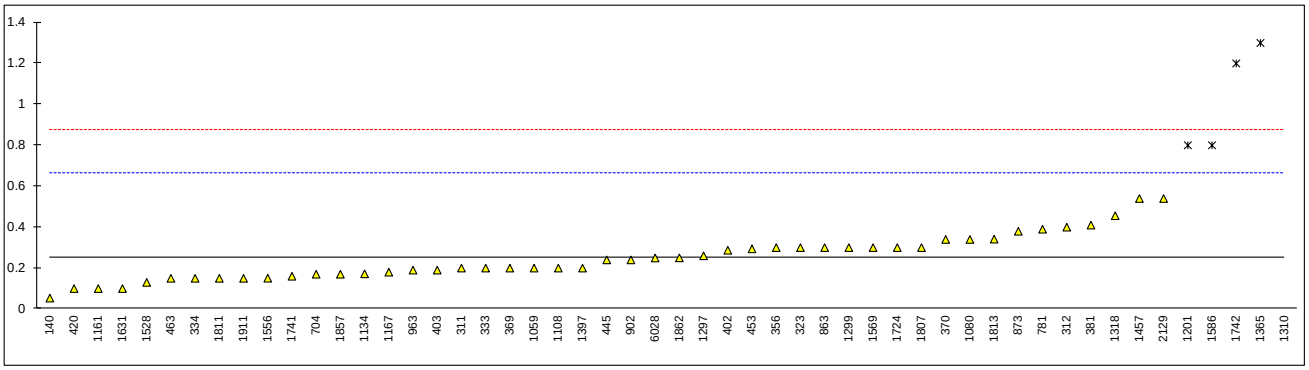
Determination of Tri^{+}-Aromatic Hydrocarbons on sample #16025; result in %M/M

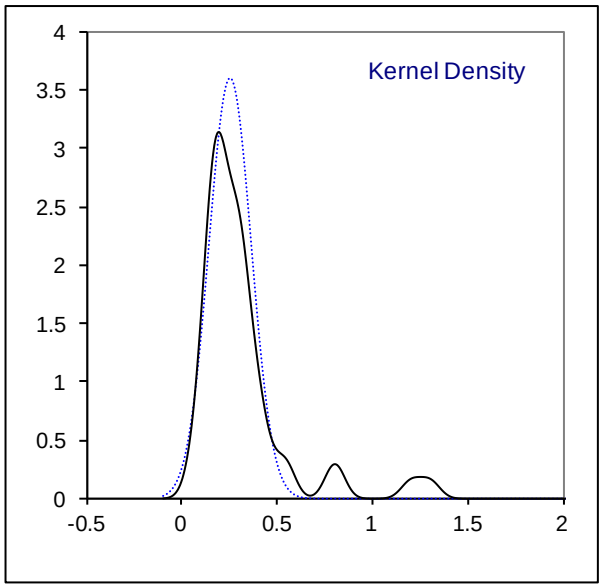
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	IP391	0.172		-0.37
120		-----		-----	1146		-----		-----
140	EN12916	0.05345		-0.94	1161	EN12916	0.1		-0.72
150		-----		-----	1167	EN12916	0.18		-0.33
159		-----		-----	1191		-----		-----
171		-----		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN12916	0.8	R(0.01)	2.65
238		-----		-----	1205		-----		-----
311	EN12916	0.2		-0.24	1212	EN12916	<0,1		-----
312	EN12916	0.4		0.73	1229		-----	C	-----
323	EN12916	0.3		0.24	1254		-----		-----
331		-----		-----	1264	IP391	<0.1		-----
333	EN12916	0.2		-0.24	1266		-----		-----
334	EN12916	0.15		-0.48	1272		-----		-----
335		-----		-----	1297	EN12916	0.26		0.05
336		-----		-----	1299	EN12916	0.3		0.24
337		-----		-----	1310	EN12916	2.79	C,R(0.01)	12.24
338		-----		-----	1316		-----		-----
340		-----		-----	1318	EN12916	0.456	C	1.00
342		-----		-----	1356		-----		-----
345		-----		-----	1365	EN12916	1.3	R(0.01)	5.06
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN12916	0.2		-0.24
351		-----		-----	1428		-----		-----
353		-----		-----	1430		-----		-----
356	IP391	0.3		0.24	1433		-----		-----
357		-----		-----	1457	EN12916	0.54		1.40
369	EN12916	0.20		-0.24	1459		-----		-----
370	EN12916	0.34		0.44	1491		-----		-----
371		-----		-----	1498		-----		-----
381	EN12916	0.41	C	0.77	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528	EN12916	0.13		-0.58
399		-----		-----	1556	EN12916	0.1505599		-0.48
402	EN12916	0.287		0.18	1569	EN12916	0.3		0.24
403	EN12916	0.19		-0.29	1584		-----		-----
420	EN12916	0.1		-0.72	1586	EN12916	0.8	R(0.01)	2.65
431		-----		-----	1631	EN12916	0.1		-0.72
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	IP391	0.24		-0.05	1694		-----		-----
447		-----		-----	1720		-----		-----
453	IP391	0.294		0.21	1724	IP391	0.3		0.24
463	EN12916	0.15		-0.48	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN12916	0.16		-0.43
593		-----		-----	1742	EN12916	1.2	R(0.01)	4.58
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	EN12916	0.17		-0.38	1771		-----		-----
781	EN12916	0.39		0.68	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782		-----		-----
863	EN12916	0.3		0.24	1784		-----		-----
873	EN12916	0.38		0.63	1807	EN12916	0.3		0.24
874		-----		-----	1811	EN12916	0.15		-0.48
875		-----		-----	1813	IP391	0.3414		0.44
886		-----		-----	1832		-----		-----
902	EN12916	0.24		-0.05	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857	EN12916	0.17		-0.38
963	EN12916	0.19		-0.29	1858		-----		-----
1006		-----		-----	1862	EN12916	0.25		0.00
1033		-----		-----	1872		-----		-----
1059	EN12916	0.2		-0.24	1881		-----		-----
1080	EN12916	0.34		0.44	1911	EN12916	0.15		-0.48
1082		-----		-----	1936		-----		-----
1108	EN12916	0.2		-0.24	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013		-----	-----
1976		-----	-----	6014		-----	-----
1979		-----	-----	6018		-----	-----
1984		-----	-----	6028	EN12916	0.2494	0.00
1995		-----	-----	6034		-----	-----
2129	EN12916	0.54	1.40	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	47
outliers	5
mean (n)	0.249
st.dev. (n)	0.1109
R(calc.)	0.310
R(EN12916:06)	0.581

Lab 381: first reported 0.43
Lab 1229: first reported3.8
Lab 1310: first reported 0
Lab 1318: first reported 0.774





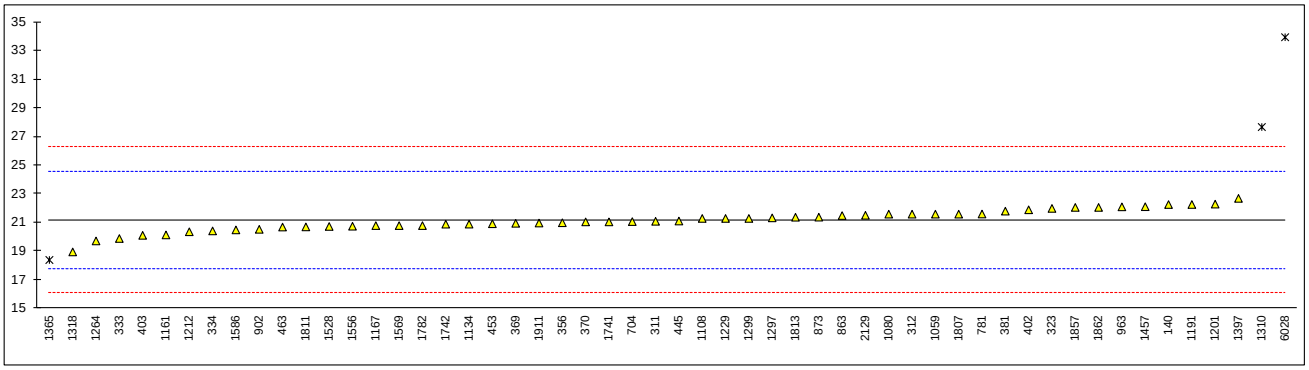
Determination of Total Aromatic Hydrocarbons on sample #16025; result in %M/M

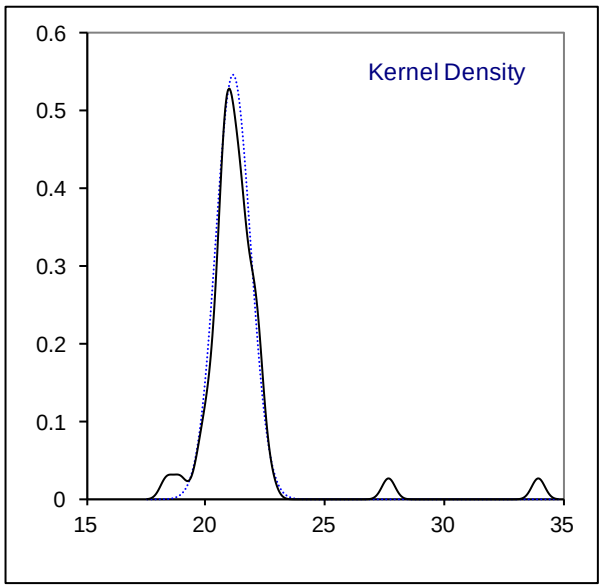
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134	IP391	20.903		-0.16
120		-----		-----	1146		-----		-----
140	EN12916	22.271		0.65	1161	EN12916	20.15		-0.60
150		-----		-----	1167	EN12916	20.8		-0.22
159		-----		-----	1191	EN12916	22.274		0.65
171		-----		-----	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	EN12916	22.3		0.67
238		-----		-----	1205		-----		-----
311	EN12916	21.1		-0.04	1212	EN12916	20.37		-0.47
312	EN12916	21.6		0.25	1229	EN12916	21.3		0.08
323	EN12916	22.0		0.49	1254		-----		-----
331		-----		-----	1264	IP391	19.73		-0.85
333	EN12916	19.9		-0.75	1266		-----		-----
334	EN12916	20.43		-0.44	1272		-----		-----
335		-----		-----	1297	EN12916	21.34		0.10
336		-----		-----	1299	EN12916	21.3		0.08
337		-----		-----	1310	EN12916	27.68	C,R(0.01)	3.85
338		-----		-----	1316		-----		-----
340		-----		-----	1318	EN12916	18.963	C	-1.31
342		-----		-----	1356		-----		-----
345		-----		-----	1365	EN12916	18.4	R(0.05)	-1.64
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN12916	22.7		0.90
351		-----		-----	1428		-----		-----
353		-----		-----	1430		-----		-----
356	IP391	21.0		-0.10	1433		-----		-----
357		-----		-----	1457	EN12916	22.12		0.56
369	EN12916	20.96		-0.13	1459		-----		-----
370	EN12916	21.06		-0.07	1491		-----		-----
371		-----		-----	1498		-----		-----
381	EN12916	21.81	C	0.38	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528	EN12916	20.74		-0.26
399		-----		-----	1556	EN12916	20.756973		-0.25
402	EN12916	21.904	C	0.43	1569	EN12916	20.8		-0.22
403	EN12916	20.12		-0.62	1584		-----		-----
420		-----		-----	1586	EN12916	20.5		-0.40
431		-----		-----	1631		-----		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445	IP391	21.12		-0.03	1694		-----		-----
447		-----		-----	1720		-----		-----
453	IP391	20.93		-0.14	1724		-----		-----
463	EN12916	20.70		-0.28	1730		-----		-----
485		-----		-----	1740		-----		-----
541		-----		-----	1741	EN12916	21.06		-0.07
593		-----		-----	1742	EN12916	20.9		-0.16
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	EN12916	21.08		-0.05	1771		-----		-----
781	EN12916	21.61		0.26	1773		-----		-----
784		-----		-----	1776		-----		-----
785		-----		-----	1782	EN12916	20.8		-0.22
863	EN12916	21.5		0.19	1784		-----		-----
873	EN12916	21.39		0.13	1807	EN12916	21.6		0.25
874		-----		-----	1811	EN12916	20.71		-0.27
875		-----		-----	1813	IP391	21.384		0.13
886		-----		-----	1832		-----		-----
902	EN12916	20.54		-0.37	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857	EN12916	22.07		0.53
963	EN12916	22.11		0.55	1858		-----		-----
1006		-----		-----	1862	EN12916	22.07		0.53
1033		-----		-----	1872		-----		-----
1059	EN12916	21.6		0.25	1881		-----		-----
1080	EN12916	21.6		0.25	1911	EN12916	20.98		-0.11
1082		-----		-----	1936		-----		-----
1108	EN12916	21.3		0.08	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013		-----		-----
1976		-----	-----	6014		-----		-----
1979		-----	-----	6018		-----		-----
1984		-----	-----	6028	EN12916	33.9488	C,R(0.01)	7.55
1995		-----	-----	6034		-----		-----
2129	EN12916	21.52	0.21	7006		-----		-----
2146		-----	-----	9057		-----		-----

normality	OK
n	51
outliers	3
mean (n)	21.172
st.dev. (n)	0.7309
R(calc.)	2.047
R(EN12916:06)	4.736

Lab 381: first reported 6.58
Lab 402: first reported 24.605
Lab 1310: first reported 50.52
Lab 1318: first reported 23.624
Lab 6028: first reported 31.1982



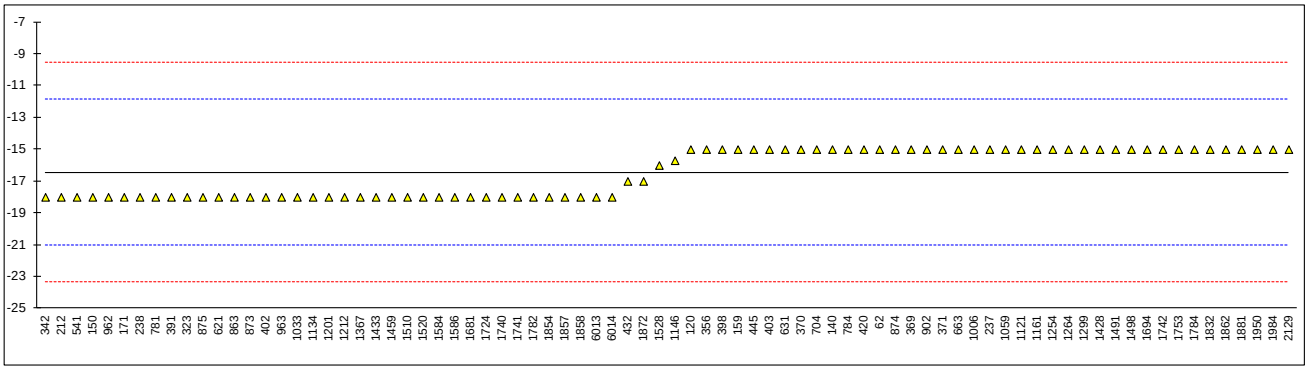


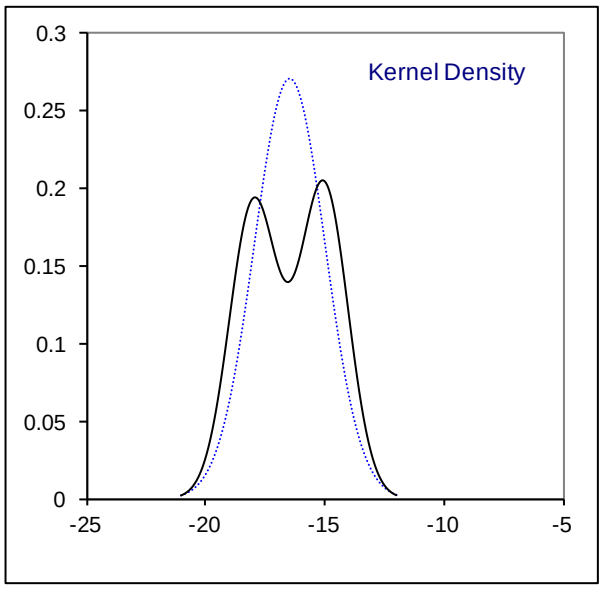
Determination of Pour Point, Manual on sample #16025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D97	-15		0.64	1134	IP15	-18		-0.67
120	D97	-15		0.64	1146	D97	-15.7		0.33
140	ISO3016	-15		0.64	1161	ISO3016	-15		0.64
150	ISO3016	-18		-0.67	1167		-----		-----
159	D97	-15		0.64	1191		-----		-----
171	D97	-18		-0.67	1194		-----		-----
212		-18		-0.67	1199		-----		-----
237	D97	-15		0.64	1201	ISO3016	-18		-0.67
238	D97	-18		-0.67	1205		-----		-----
311		-----		-----	1212	ISO3016	-18		-0.67
312		-----		-----	1229		-----		-----
323	ISO3016	-18		-0.67	1254	D97	-15		0.64
331		-----		-----	1264	D97	-15		0.64
333		-----		-----	1266		-----		-----
334		-----		-----	1272		-----		-----
335		-----		-----	1297		-----		-----
336		-----		-----	1299	D97	-15		0.64
337		-----		-----	1310		-----		-----
338		-----		-----	1316		-----		-----
340		-----		-----	1318		-----		-----
342	ISO3016	-18		-0.67	1356		-----		-----
345		-----		-----	1365	D97	<-42	False neg?	<-11.12
349		-----		-----	1367	IP15	-18		-0.67
350		-----		-----	1397		-----		-----
351		-----		-----	1428	ISO3016	-15		0.64
353		-----		-----	1430		-----		-----
356	D97	-15		0.64	1433	D97	-18		-0.67
357		-----		-----	1457		-----		-----
369	ISO3016	-15		0.64	1459	ISO3016	-18		-0.67
370	ISO3016	-15		0.64	1491	ISO3016	-15		0.64
371	ISO3016	-15		0.64	1498	D97	-15		0.64
381		-----		-----	1510	D97	-18		-0.67
391	ISO3016	-18		-0.67	1520	ISO3016	-18		-0.67
398	ISO3016	-15		0.64	1528	D97	-16		0.20
399	ISO3016	<-21		-----	1556		-----		-----
402	ISO3016	-18		-0.67	1569		-----		-----
403	ISO3016	-15		0.64	1584	ISO3016	-18		-0.67
420	D97	-15		0.64	1586	D97	-18		-0.67
431		-----		-----	1631		-----		-----
432	ISO3016	-17		-0.24	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681	ISO3016	-18.0		-0.67
445	IP15	-15		0.64	1694	D97	-15		0.64
447		-----		-----	1720		-----		-----
453		-----		-----	1724	D97	-18		-0.67
463		-----		-----	1730		-----		-----
485		-----		-----	1740	ISO3016	-18		-0.67
541	ISO3016	-18		-0.67	1741	ISO3016	-18		-0.67
593		-----		-----	1742	ISO3016	-15		0.64
621	D97	-18.0		-0.67	1746		-----		-----
631	D97	-15		0.64	1749		-----		-----
663	D97	-15		0.64	1753	ISO3016	-15		0.64
704	ISO3016	-15		0.64	1771		-----		-----
781	ISO3016	-18		-0.67	1773		-----		-----
784	ISO3016	-15		0.64	1776		-----		-----
785		-----		-----	1782	D97	-18		-0.67
863	ISO3016	-18		-0.67	1784	ISO3016	-15		0.64
873	D97	-18		-0.67	1807		-----		-----
874	D97	-15		0.64	1811		-----		-----
875	D97	-18		-0.67	1813		-----		-----
886		-----		-----	1832	ISO3016	-15.0		0.64
902	D97	-15		0.64	1849		-----		-----
912		-----		-----	1854	ISO3016	-18		-0.67
962	D97	-18		-0.67	1857	ISO3016	-18		-0.67
963	ISO3016	-18		-0.67	1858	D97	-18		-0.67
1006	D97	-15		0.64	1862	ISO3016	-15		0.64
1033	IP15	-18		-0.67	1872	ISO3016	-17		-0.24
1059	ISO3016	-15		0.64	1881	ISO3016	-15		0.64
1080		-----		-----	1911		-----		-----
1082		-----		-----	1936		-----		-----
1108		-----		-----	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121	IP15	-15		0.64	1950	ISO3016	-15		0.64
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	ISO3016	-18	-0.67
1976		-----	-----	6014	ISO3016	-18	-0.67
1979		-----	-----	6018		-----	-----
1984	ISO3016	-15	0.64	6028		-----	-----
1995		-----	-----	6034		-----	-----
2129	ISO3016	-15	0.64	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	80
outliers	0
mean (n)	-16.459
st.dev. (n)	1.4766
R(calc.)	4.135
R(ISO3016:94)	6.430





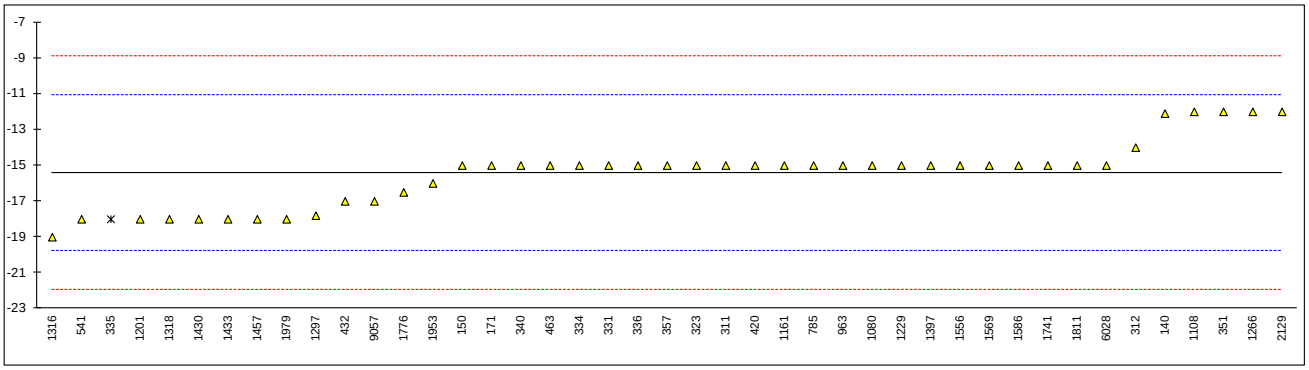
Determination of Pour Point, Automated on sample #16025; result in °C

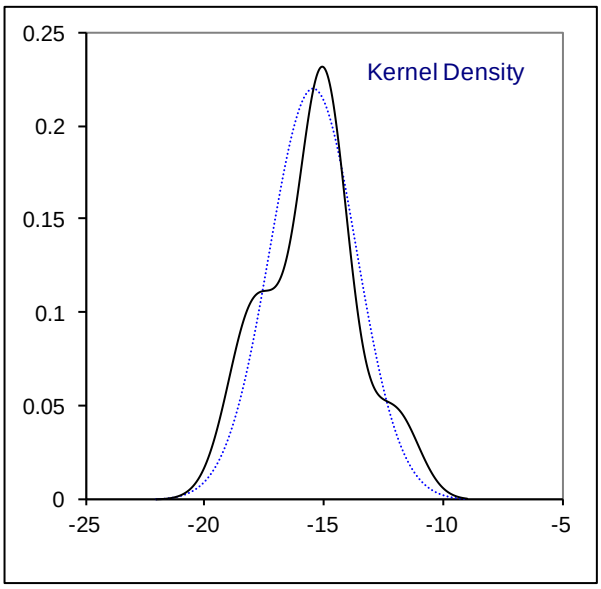
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62		-----		-----	1134		-----		-----
120		-----		-----	1146		-----		-----
140	D5950	-12.1		1.53	1161	D6749	-15		0.20
150	D5950	-15		0.20	1167		-----		-----
159		-----		-----	1191		-----		-----
171	D5950	-15		0.20	1194		-----		-----
212		-----		-----	1199		-----		-----
237		-----		-----	1201	D5950	-18		-1.18
238		-----		-----	1205		-----		-----
311	D5950	-15		0.20	1212		-----		-----
312	D5950	-14		0.66	1229	D7346	-15		0.20
323	D5950	-15		0.20	1254		-----		-----
331	D5950	-15		0.20	1264		-----		-----
333		-----		-----	1266		-12.0		1.58
334	D5950	-15		0.20	1272		-----		-----
335	ISO3016	-18	ex	-1.18	1297	D5950	-17.8		-1.08
336	D5950	-15		0.20	1299		-----		-----
337		-----		-----	1310		-----		-----
338		-----		-----	1316	D5950	-19.0		-1.63
340	D5950	-15	C	0.20	1318	D7346	-18		-1.18
342		-----		-----	1356		-----		-----
345		-----		-----	1365		-----		-----
349		-----		-----	1367		-----		-----
350		-----		-----	1397	D5950	-15		0.20
351	D6749	-12.0		1.58	1428		-----		-----
353		-----		-----	1430	D5950	-18		-1.18
356		-----		-----	1433	D6749	-18		-1.18
357	D5950	-15		0.20	1457	D5950	-18		-1.18
369		-----		-----	1459		-----		-----
370		-----		-----	1491		-----		-----
371		-----		-----	1498		-----		-----
381		-----		-----	1510		-----		-----
391		-----		-----	1520		-----		-----
398		-----		-----	1528		-----		-----
399		-----		-----	1556	In house	-15		0.20
402		-----		-----	1569	D5950	-15		0.20
403		-----		-----	1584		-----		-----
420	D6749	-15		0.20	1586	D5950	-15		0.20
431		-----		-----	1631		-----		-----
432	D5950	-17		-0.72	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678		-----		-----
444		-----		-----	1681		-----		-----
445		-----		-----	1694		-----		-----
447		-----		-----	1720		-----		-----
453		-----		-----	1724		-----		-----
463	D6892	-15		0.20	1730		-----		-----
485		-----		-----	1740		-----		-----
541	D5950	-18		-1.18	1741		-15		0.20
593		-----		-----	1742		-----		-----
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704		-----		-----	1771		-----		-----
781		-----		-----	1773		-----		-----
784		-----		-----	1776	D5950	-16.5		-0.49
785	D6749	-15.0		0.20	1782		-----		-----
863		-----		-----	1784		-----		-----
873		-----		-----	1807		-----		-----
874		-----		-----	1811	D5950	-15		0.20
875		-----		-----	1813		-----		-----
886		-----		-----	1832		-----		-----
902		-----		-----	1849		-----		-----
912		-----		-----	1854		-----		-----
962		-----		-----	1857		-----		-----
963	D5950	-15		0.20	1858		-----		-----
1006		-----		-----	1862		-----		-----
1033		-----		-----	1872		-----		-----
1059		-----		-----	1881		-----		-----
1080	D5950	-15.0		0.20	1911		-----		-----
1082		-----		-----	1936		-----		-----
1108	D5950	-12		1.58	1937		-----		-----
1109		-----		-----	1938		-----		-----
1121		-----		-----	1950		-----		-----
1126		-----		-----	1953	D6749	-16		-0.26

1961		-----	-----	6013		-----	-----
1976		-----	-----	6014		-----	-----
1979	D5950	-18.0	-1.18	6018		-----	-----
1984		-----	-----	6028	D5950	-15	0.20
1995		-----	-----	6034		-----	-----
2129	D5950	-12	1.58	7006		-----	-----
2146		-----	-----	9057	In house	-17	-0.72

normality	OK
n	42
outliers	0 (+1ex)
mean (n)	-15.438
st.dev. (n)	1.8175
R(calc.)	5.089
R(D5950:14)	6.100

Lab 335: test result excluded as reported test result is a manual method
Lab 340: first reported ASTM D97 as test method





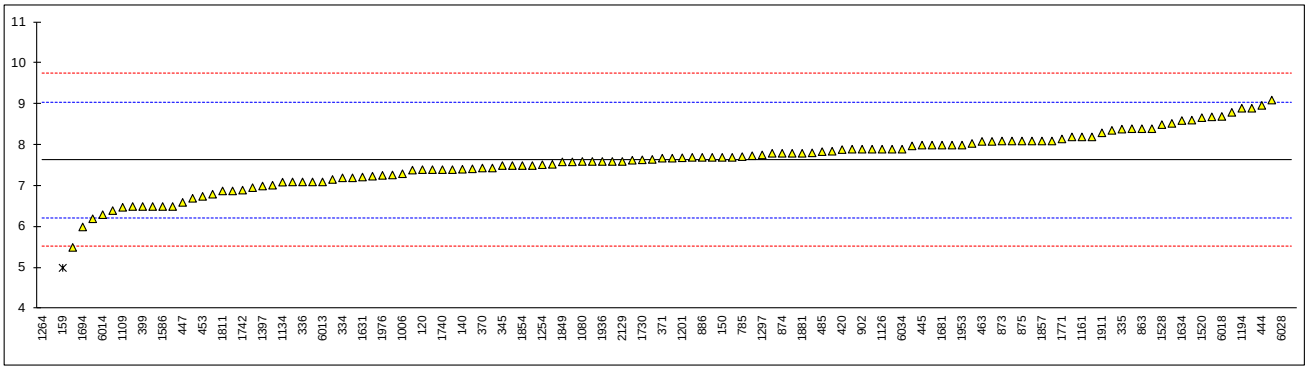
Determination of Sulphur on sample #16025; result in mg/kg

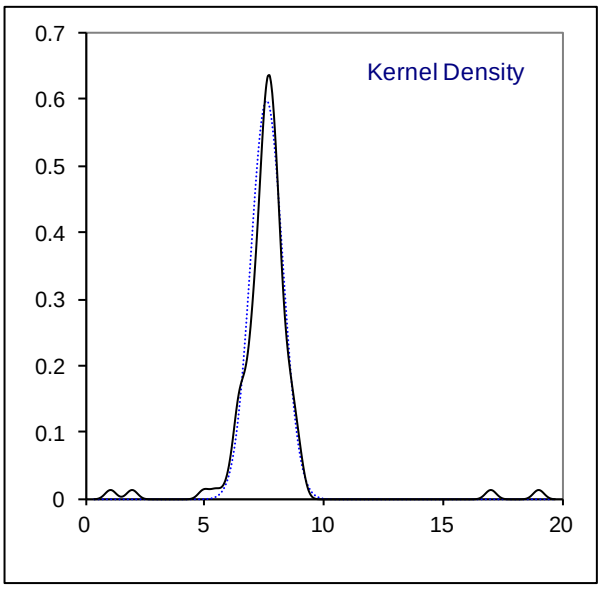
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5453	7.7		0.11	1134	IP490	7.095		-0.75
120	ISO20846	7.4		-0.32	1146		-----		-----
140	ISO20846	7.41		-0.30	1161	ISO20846	8.2		0.82
150	ISO20846	7.7		0.11	1167	ISO20846	7.53		-0.13
159	D5453	5.0	R(0.05)	-3.72	1191	ISO20846	7.2		-0.60
171	D5453	7.1		-0.74	1194	INH-7220	8.9		1.81
212		-----		-----	1199	ISO20884	7.44		-0.26
237		-----		-----	1201	ISO20846	7.69		0.09
238		-----		-----	1205	ISO20846	7.98		0.50
311	ISO20846	7.8		0.25	1212	ISO20846	7.85		0.32
312	D5453	7.1		-0.74	1229		-----		-----
323	ISO20846	7.7		0.11	1254	ISO20846	7.521		-0.15
331		-----		-----	1264	D5453	1.1	R(0.01)	-9.26
333	ISO20846	8.9		1.81	1266	ISO20846	8.36		1.04
334	ISO20846	7.2		-0.60	1272	ISO20846	8.1	C	0.67
335	ISO20846	8.39		1.09	1297	D5453	7.76		0.19
336	ISO20846	7.1		-0.74	1299	ISO20846	6.7		-1.31
337	ISO20846	7.9		0.39	1310	ISO20846	7.65		0.04
338	ISO20846	8.1		0.67	1316	ISO13032	8.4		1.10
340	ISO20846	8.69		1.51	1318	D5453	7.389		-0.33
342		-----		-----	1356	ISO8754	<300		-----
345	ISO20846	7.50		-0.18	1365	D4294	19	R(0.01)	16.14
349	D2622	6.5		-1.60	1367		-----		-----
350		-----		-----	1397	ISO20846	7.0		-0.89
351		-----		-----	1428	ISO20846	7.5		-0.18
353	IP531	5.5		-3.01	1430	in house	2	R(0.01)	-7.98
356	ISO20846	7.9		0.39	1433	ISO20846	7.7		0.11
357	ISO20846	8.8		1.67	1457	ISO20846	8.0		0.53
369	ISO20846	8.2		0.82	1459		-----		-----
370	ISO20846	7.44		-0.26	1491	ISO20846	7.9		0.39
371	ISO20846	7.68		0.08	1498	D5453	6.8		-1.17
381	D5453	8.61		1.40	1510		-----		-----
391		-----		-----	1520	ISO20846	8.67		1.48
398		-----		-----	1528	ISO20846	8.50		1.24
399	ISO20846	6.5		-1.60	1556	ISO20884	6.5		-1.60
402	ISO20846	8.53		1.28	1569	ISO20846	6.2		-2.02
403	ISO20846	8.04		0.59	1584		-----		-----
420	ISO20846	7.89		0.38	1586	D5453	6.5		-1.60
431		-----		-----	1631	ISO20846	7.22		-0.57
432		-----		-----	1634	ISO20846	8.6		1.38
433		-----		-----	1654	ISO20846	7.24		-0.55
440	D5453	6.96		-0.94	1678		-----		-----
444	D5453	8.97		1.91	1681	ISO13032	8.0		0.53
445	IP490	8.0		0.53	1694	D5453	6.0		-2.30
447	D5453	6.6		-1.45	1720		-----		-----
453	ISO20846	6.747		-1.25	1724	D5453	7.42		-0.29
463	D5453	8.09		0.66	1730	ISO20846	7.64		0.02
485	ISO20846	7.84		0.31	1740	ISO20846	7.4		-0.32
541	ISO20846	8.2		0.82	1741	ISO20846	8.09		0.66
593		-----		-----	1742	ISO20846	6.9		-1.03
621		-----		-----	1746	D5453	7.8		0.25
631	D5453	7.02		-0.86	1749		-----		-----
663	D5453	7.63		0.01	1753		-----		-----
704	ISO20846	7.74		0.16	1771	ISO13032	8.15		0.75
781	ISO20846	7.81		0.26	1773		-----		-----
784		-----		-----	1776	ISO20846	6.4		-1.74
785	ISO20846	7.718		0.13	1782	D5453	8.0		0.53
863	D5453	8.4		1.10	1784	ISO20846	7.6		-0.04
873	ISO20846	8.10		0.67	1807		-----		-----
874	ISO20846	7.8		0.25	1811	ISO20846	6.88		-1.06
875	ISO20846	8.1		0.67	1813	D2622	6.88		-1.06
886	D5453	7.7		0.11	1832	ISO20846	7.680		0.08
902	ISO20846	7.9		0.39	1849	ISO20846	7.59		-0.05
912		-----		-----	1854	ISO20846	7.5		-0.18
962		-----		-----	1857	ISO20846	8.1		0.67
963		-----		-----	1858	ISO20846	6.5		-1.60
1006	D5453	7.3		-0.46	1862	ISO20846	7.16		-0.66
1033		-----		-----	1872	ISO20884	7.59		-0.05
1059	ISO20846	7.4		-0.32	1881	ISO20846	7.80		0.25
1080	ISO20846	7.6		-0.04	1911	ISO20846	8.30		0.96
1082		-----		-----	1936	ISO20846	7.6		-0.04
1108	ISO20846	8.4		1.10	1937	ISO20846	7.4		-0.32
1109	D7039	6.48		-1.62	1938	ISO20846	7.6		-0.04
1121		-----		-----	1950	ISO20884	8.1		0.67
1126	ISO20846	7.90		0.39	1953	ISO13032	8		0.53

1961		-----	-----	6013	ISO20884	7.1		-0.74
1976	ISO20884	7.26	-0.52	6014	ISO20884	6.3		-1.88
1979		-----	-----	6018	ISO20846	8.7		1.53
1984	ISO20846	7.27	-0.50	6028	ISO8754	17.0	C,R(0.01)	13.30
1995		-----	-----	6034	D5453	7.9		0.39
2129	ISO20846	7.60	-0.04	7006	D5453	7.5		-0.18
2146	ISO8754	9.1	2.09	9057		-----		-----

normality	OK
n	121
outliers	5
mean (n)	7.625
st.dev. (n)	0.6659
R(calc.)	1.865
R(ISO20846:11)	1.974

Lab 1272: first reported 5
Lab 6028: first reported 12.0





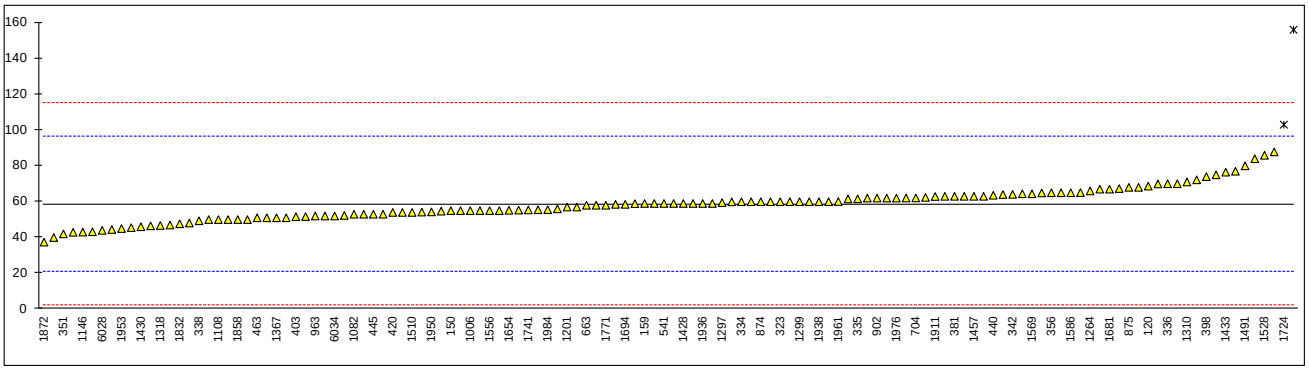
Determination of Water on sample #16025; result in mg/kg

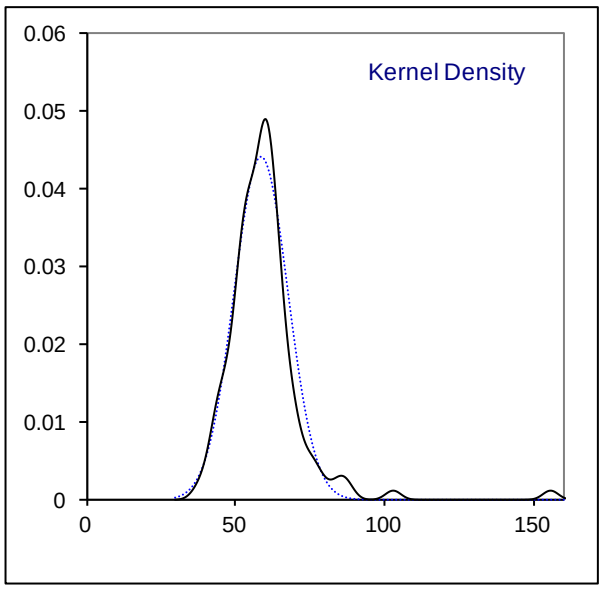
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D6304	55		-0.19	1134	IP439	62.405		0.21
120	ISO12937	68.7		0.54	1146	D6304	43		-0.82
140		-----		-----	1161	ISO12937	62.045		0.19
150	ISO12937	55		-0.19	1167	ISO12937	51.7		-0.36
159	D6304	59.0		0.03	1191	ISO12937	63		0.24
171	D6304	65		0.35	1194	ISO12937	44.47		-0.75
212		-----		-----	1199		-----		-----
237		-----		-----	1201	ISO12937	57		-0.08
238		-----		-----	1205		-----		-----
311	ISO12937	60		0.08	1212	ISO12937	65.1		0.35
312	ISO12937	75		0.88	1229	ISO12937	69.9		0.61
323	ISO12937	60		0.08	1254	ISO12937	46.95		-0.61
331		-----		-----	1264	E1064	66		0.40
333	ISO12937	50		-0.45	1266	ISO12937	55.3		-0.17
334	ISO12937	60		0.08	1272	ISO12937	64		0.29
335	ISO12937	61.6		0.17	1297	D6304	59.5		0.05
336	ISO12937	70		0.61	1299	ISO12937	60		0.08
337	ISO12937	60		0.08	1310	ISO12937	71		0.67
338	ISO12937	49.32		-0.49	1316	D6304	45.5		-0.69
340		-----		-----	1318	D6304	46.7		-0.63
342	ISO12937	64.1		0.30	1356		-----		-----
345	ISO12937	59		0.03	1365	IP439	60		0.08
349	D6304	62		0.19	1367	D6304	51		-0.40
350		-----		-----	1397	ISO12937	58		-0.03
351	ISO12937	42.0		-0.88	1428	ISO12937	59		0.03
353	IP438	156	R(0.01)	5.19	1430	D6304	46		-0.66
356	E1064	65		0.35	1433	ISO12937	76.490		0.96
357	ISO12937	77		0.99	1457	ISO12937	63		0.24
369	ISO12937	51		-0.40	1459	ISO12937	46.5		-0.64
370	ISO12937	54		-0.24	1491	ISO12937	80		1.15
371	D6304	54.7		-0.20	1498		-----		-----
381	ISO12937	63		0.24	1510	IP438	54		-0.24
391	ISO12937	70		0.61	1520	ISO12937	64.9		0.34
398	ISO12937	74		0.83	1528	ISO12937	85.9		1.46
399		-----		-----	1556	ISO12937	55		-0.19
402	ISO12937	61.5		0.16	1569	In house	64.4		0.31
403	ISO12937	51.6		-0.37	1584		-----		-----
420	ISO12937	54.0		-0.24	1586	ISO12937	65		0.35
431		-----		-----	1631	ISO12937	59.9		0.08
432		-----		-----	1634	ISO12937	57		-0.08
433		-----		-----	1654	ISO12937	55.20		-0.17
440	IP438	63.59		0.27	1678		-----		-----
444	IP438	58.9		0.02	1681	ISO12937	67		0.45
445	IP438	53		-0.29	1694	D6304	58.5		0.00
447	IP438	63		0.24	1720		-----		-----
453	IP438	55		-0.19	1724	D6304	103	R(0.01)	2.37
463	ISO12937	51.0		-0.40	1730		-----		-----
485	ISO12937	53		-0.29	1740	ISO12937	62		0.19
541	ISO12937	59		0.03	1741	ISO12937	55.4		-0.16
593		-----		-----	1742		-----		-----
621	D6304	67.0		0.45	1746		-----		-----
631	D6304	87.8		1.56	1749	ISO12937	54.19		-0.23
663	E1064	58		-0.03	1753		-----		-----
704	ISO12937	62.1		0.19	1771	ISO12937	58		-0.03
781	ISO12937	52.3		-0.33	1773		-----		-----
784		-----		-----	1776	ISO12937	68		0.51
785	D6304	67.322		0.47	1782	ISO12937	51.0		-0.40
863	ISO12937	64.4		0.31	1784	D6304	59.0		0.03
873	D6304	59		0.03	1807	ISO12937	84		1.36
874	D6304	60		0.08	1811	ISO12937	55.5		-0.16
875	D6304	68		0.51	1813		-----		-----
886		-----		-----	1832	ISO12937	47.64		-0.58
902	D6304	62		0.19	1849	ISO12937	56		-0.13
912		-----		-----	1854	D6304	63		0.24
962		-----		-----	1857	ISO12937	50		-0.45
963	ISO12937	52		-0.35	1858	IP438	50		-0.45
1006	D6304	55		-0.19	1862	ISO12937	50.0		-0.45
1033	IP438	43.201		-0.81	1872	ISO12937	37.4	C	-1.12
1059	ISO12937	60		0.08	1881	ISO12937	72.2		0.73
1080		-----		-----	1911	ISO12937	62.9		0.24
1082	ISO12937	53		-0.29	1936	ISO12937	59		0.03
1108	ISO12937	50		-0.45	1937	ISO12937	59		0.03
1109	D6304	58.5		0.00	1938	ISO12937	60		0.08
1121	IP438	52		-0.35	1950	IP439	54.3		-0.22
1126		-----		-----	1953	ISO12937	45		-0.72

1961	ISO12937	60.1	0.09	6013	ISO12937	55	-0.19
1976	ISO12937	62.0	0.19	6014	ISO12937	60	0.08
1979	ISO12937	48.08	-0.55	6018	ISO12937	40	-0.98
1984	ISO12937	55.55	-0.16	6028	ISO12937	44.0	-0.77
1995		-----	-----	6034	D6304	52	-0.35
2129	IP439	53	-0.29	7006		-----	-----
2146		-----	-----	9057	In house	42.89	-0.83

normality	suspect
n	128
outliers	2
mean (n)	58.485
st.dev. (n)	9.0754
R(calc.)	25.411
R(ISO12937:00)	52.592

Lab 1872: first reported 0.00374





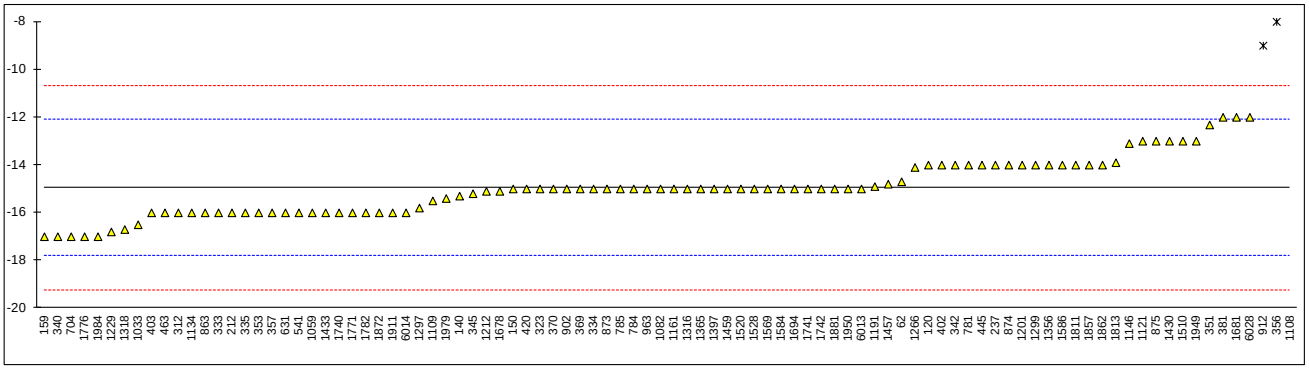
Determination of Cloud Point on sample #16026; result in °C

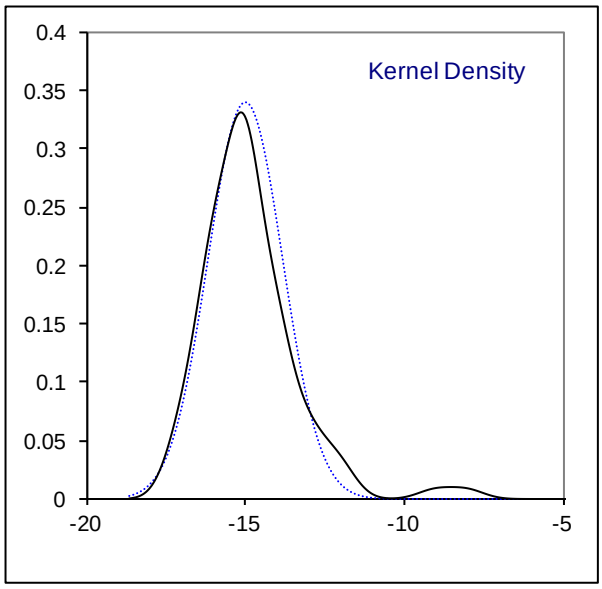
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D5773	-14.7		0.19	1134	IP219	-16		-0.72
120	D2500	-14		0.68	1146	D2500	-13.1		1.31
140	EN23015	-15.3		-0.23	1161	EN23015	-15		-0.02
150	EN23015	-15.0		-0.02	1167		-----		-----
159	D2500	-17		-1.42	1191	D5773	-14.9		0.05
171		-----		-----	1194		-----		-----
212	ISO3015	-16		-0.72	1199		-----		-----
237	D2500	-14		0.68	1201	EN23015	-14		0.68
238		-----		-----	1205		-----		-----
311		-----		-----	1212	EN23015	-15.1		-0.09
312	D2500	-16		-0.72	1229	D7683	-16.8		-1.28
323	EN23015	-15		-0.02	1254		-----		-----
331		-----		-----	1264		-----		-----
333	EN23015	-16		-0.72	1266	ISO3015	-14.1		0.61
334	EN23015	-15		-0.02	1272		-----		-----
335	EN23015	-16		-0.72	1297	D5771	-15.8		-0.58
336		-----		-----	1299	D2500	-14		0.68
337		-----		-----	1310		-----		-----
338		-----		-----	1316	D5771	-15		-0.02
340	EN23015	-17		-1.42	1318		-16.7		-1.21
342	ISO3015	-14		0.68	1356	ISO3015	-14		0.68
345	D5771	-15.2		-0.16	1365	D2500	-15		-0.02
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN23015	-15		-0.02
351	D7683	-12.32		1.85	1428		-----		-----
353	IP219	-16		-0.72	1430	D5771	-13		1.38
356	D2500	-8	C,R(0.01)	4.88	1433	ISO3015	-16		-0.72
357	D5771	-16		-0.72	1457	EN23015	-14.8		0.12
369	EN23015	-15		-0.02	1459	ISO3015	-15.0		-0.02
370	EN23015	-15		-0.02	1491		-----		-----
371		-----		-----	1498		-----		-----
381	ISO3015	-12	C	2.08	1510	D2500	-13		1.38
391		-----		-----	1520	EN23015	-15		-0.02
398		-----		-----	1528	EN23015	-15		-0.02
399		-----		-----	1556		-----		-----
402	EN23015	-14		0.68	1569	EN23015	-15		-0.02
403	EN23015	-16		-0.72	1584	EN23015	-15		-0.02
420	EN23015	-15		-0.02	1586	D5771	-14		0.68
431		-----		-----	1631		-----		-----
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440		-----		-----	1678	D2500	-15.1		-0.09
444		-----		-----	1681	ISO3015	-12.0		2.08
445	IP219	-14		0.68	1694	D2500	-15		-0.02
447		-----		-----	1720		-----		-----
453		-----		-----	1724		-----		-----
463	EN23015	-16		-0.72	1730		-----		-----
485		-----		-----	1740	D2500	-16		-0.72
541	EN23015	-16		-0.72	1741	ISO3015	-15		-0.02
593		-----		-----	1742	ISO3015	-15		-0.02
621		-----		-----	1746		-----		-----
631	D2500	-16		-0.72	1749		-----		-----
663		-----		-----	1753		-----		-----
704	ISO3015	-17		-1.42	1771	EN23015	-16		-0.72
781	EN23015	-14		0.68	1773		-----		-----
784	D2500	-15		-0.02	1776	EN23015	-17		-1.42
785	D2500	-15.0		-0.02	1782	D2500	-16		-0.72
863	D2500	-16		-0.72	1784		-----		-----
873	D2500	-15		-0.02	1807		-----		-----
874	D2500	-14		0.68	1811	EN23015	-14		0.68
875	D2500	-13		1.38	1813	D2500	-13.9		0.75
886		-----		-----	1832		-----		-----
902	EN23015	-15		-0.02	1849		-----		-----
912	D1500	-9.0	R(0.01)	4.18	1854		-----		-----
962		-----		-----	1857	EN23015	-14		0.68
963	EN23015	-15		-0.02	1858	EN23015	-14		0.68
1006		-----		-----	1862	ISO3015	-16		-0.72
1033	D5772	-16.5		-1.07	1872	EN23015	-15		-0.02
1059	EN23015	-16		-0.72	1881	ISO3015	-16.0		-0.72
1080		-----		-----	1911		-----		-----
1082	D5771	-15.0		-0.02	1936		-----		-----
1108	D5771	0.9	R(0.01)	11.11	1937		-----		-----
1109	D5773	-15.5		-0.37	1938	EN23015	-13		1.38
1121	IP219	-13		1.38	1950	EN23015	-15		-0.02
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	EN23015	-15	-0.02
1976		-----	-----	6014	EN23015	-16	-0.72
1979	D5771	-15.4	-0.30	6018		-----	-----
1984	EN23015	-17	-1.42	6028	ISO3015	-12	2.08
1995		-----	-----	6034		-----	-----
2129		-----	-----	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	91
outliers	3
mean (n)	-14.97
st.dev. (n)	1.171
R(calc.)	3.28
R(EN23015:94)	4.00

Lab 351 reported the Cloud Point as the equivalent Cloud Point to method ASTM D2500/EN23015 in accordance with ASTM D7683
Lab 356: first reported -10
Lab 381: first reported -10





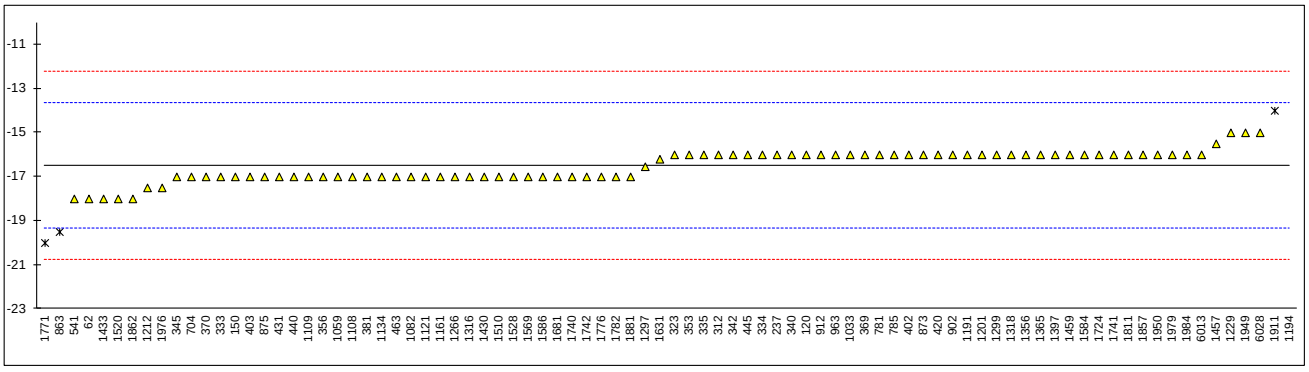
Determination of Cold Filter Plugging Point on sample #16026; result in °C

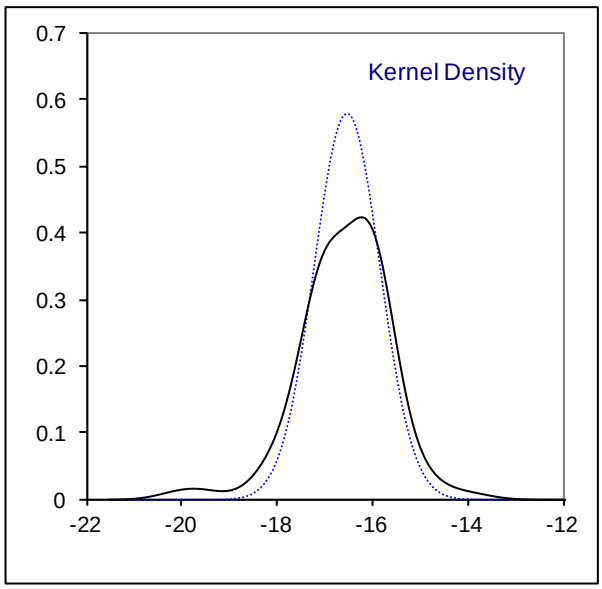
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D6371	-18		-1.04	1134	IP309	-17		-0.34
120	EN116	-16		0.36	1146		-----		-----
140		-----		-----	1161	EN116	-17.0		-0.34
150	EN116	-17.0		-0.34	1167		-----		-----
159		-----		-----	1191	EN116	-16		0.36
171		-----		-----	1194	EN116	17.3	R(0.01)	23.72
212		-----		-----	1199		-----		-----
237	D6371	-16		0.36	1201	EN116	-16		0.36
238		-----		-----	1205		-----		-----
311		-----		-----	1212	EN116	-17.5		-0.69
312	D6371	-16		0.36	1229	EN116	-15		1.06
323	EN116	-16		0.36	1254		-----		-----
331		-----		-----	1264		-----		-----
333	EN116	-17		-0.34	1266	EN116	-17.0		-0.34
334	EN116	-16		0.36	1272		-----		-----
335	EN116	-16		0.36	1297	D6371	-16.54		-0.02
336		-----		-----	1299	IP309	-16		0.36
337		-----		-----	1310		-----		-----
338		-----		-----	1316	EN116	-17		-0.34
340	EN116	-16		0.36	1318	D6371	-16		0.36
342	D6371	-16		0.36	1356	D6371	-16		0.36
345	EN116	-17		-0.34	1365	D6371	-16		0.36
349		-----		-----	1367		-----		-----
350		-----		-----	1397	EN116	-16		0.36
351		-----		-----	1428		-----		-----
353	IP309	-16		0.36	1430	EN116	-17		-0.34
356	EN116	-17		-0.34	1433	EN116	-18		-1.04
357		-----		-----	1457	EN116	-15.5		0.71
369	EN116	-16		0.36	1459	EN116	-16		0.36
370	EN116	-17		-0.34	1491		-----		-----
371		-----		-----	1498		-----		-----
381	EN116	-17		-0.34	1510	IP309	-17		-0.34
391		-----		-----	1520	EN116	-18		-1.04
398		-----		-----	1528	EN116	-17		-0.34
399		-----		-----	1556		-----		-----
402	EN116	-16		0.36	1569	EN116	-17		-0.34
403	EN116	-17		-0.34	1584	EN116	-16		0.36
420	EN116	-16		0.36	1586	D6371	-17		-0.34
431	EN116	-17		-0.34	1631	EN116	-16.2		0.22
432		-----		-----	1634		-----		-----
433		-----		-----	1654		-----		-----
440	IP309	-17		-0.34	1678		-----		-----
444		-----		-----	1681	EN116	-17.0		-0.34
445	IP309	-16		0.36	1694		-----		-----
447		-----		-----	1720		-----		-----
453		-----		-----	1724	IP309	-16		0.36
463	EN116	-17		-0.34	1730		-----		-----
485		-----		-----	1740	D6371	-17		-0.34
541	EN116	-18		-1.04	1741	EN116	-16		0.36
593		-----		-----	1742	EN116	-17		-0.34
621		-----		-----	1746		-----		-----
631		-----		-----	1749		-----		-----
663		-----		-----	1753		-----		-----
704	EN116	-17		-0.34	1771	EN116	-20	C,R(0.01)	-2.44
781	EN116	-16		0.36	1773		-----		-----
784		-----		-----	1776	EN116	-17		-0.34
785	D6371	-16.0		0.36	1782	D6371	-17		-0.34
863	EN116	-19.5	R(0.01)	-2.09	1784		-----		-----
873	EN116	-16		0.36	1807		-----		-----
874		-----		-----	1811	EN16329	-16		0.36
875	D6371	-17		-0.34	1813		-----		-----
886		-----		-----	1832		-----		-----
902	D6371	-16		0.36	1849		-----		-----
912	EN116	-16.0		0.36	1854		-----		-----
962		-----		-----	1857	EN116	-16		0.36
963	EN116	-16		0.36	1858	EN116	-18		-1.04
1006		-----		-----	1862		-----		-----
1033	IP309	-16		0.36	1872	EN116	-17		-0.34
1059	EN116	-17		-0.34	1881	EN116	-14.0	R(0.05)	1.76
1080		-----		-----	1911		-----		-----
1082	EN116	-17		-0.34	1936		-----		-----
1108	EN116	-17		-0.34	1937		-----		-----
1109	IP309	-17.0		-0.34	1938	EN116	-15		1.06
1121	IP309	-17.0		-0.34	1950	EN116	-16		0.36
1126		-----		-----	1953		-----		-----

1961		-----	-----	6013	EN116	-16	0.36
1976	EN116	-17.5	-0.69	6014		-----	-----
1979	EN116	-16.0	0.36	6018		-----	-----
1984	EN116	-16	0.36	6028	EN116	-15	1.06
1995		-----	-----	6034		-----	-----
2129		-----	-----	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	82
outliers	4
mean (n)	-16.52
st.dev. (n)	0.688
R(calc.)	1.93
R(EN116:15)	3.99

Lab 1771: first reported -26





Determination of Density at 15°C on sample #16026; result in kg/m^3

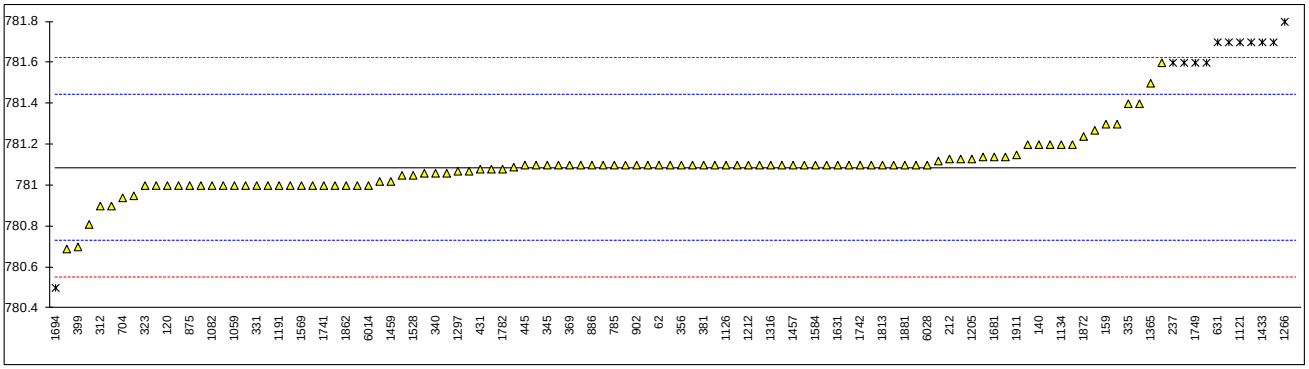
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D4052	781.1		0.08	1134	IP365	781.2		0.64
120	ISO12185	781.0		-0.48	1146	ISO12185	781.06		-0.15
140	D4052	781.2		0.64	1161	ISO12185	781.13		0.25
150	ISO12185	781.3		1.20	1167		-----		-----
159	D4052	781.3		1.20	1191	ISO12185	781.0		-0.48
171		-----		-----	1194		-----		-----
212	ISO12185	781.13		0.25	1199		-----		-----
237	D4052	781.6	R(0.01)	2.88	1201	ISO12185	781.1		0.08
238	D4052	780.81		-1.55	1205	ISO12185	781.13		0.25
311		-----		-----	1212	ISO12185	781.1		0.08
312	ISO12185	780.9		-1.04	1229	ISO12185	781.1		0.08
323	ISO12185	781.0		-0.48	1254		-----		-----
331	ISO12185	781.0		-0.48	1264		-----		-----
333	ISO12185	780.9		-1.04	1266	ISO3675	781.8	R(0.01)	4.00
334	ISO12185	781.2		0.64	1272		-----		-----
335	ISO12185	781.4		1.76	1297	D4052	781.07		-0.09
336		-----		-----	1299	D4052	781.0		-0.48
337		-----		-----	1310		-----		-----
338		-----		-----	1316	D4052	781.1		0.08
340	ISO12185	781.06	C	-0.15	1318	D4052	781.02		-0.37
342	D4052	781.1		0.08	1356	ISO12185	781.6	R(0.01)	2.88
345	ISO12185	781.1		0.08	1365	D4052	781.5		2.32
349	D4052	781.1		0.08	1367		-----		-----
350		-----		-----	1397	ISO12185	781.7	R(0.01)	3.44
351	ISO12185	781.14		0.30	1428		-----		-----
353	IP365	781.1		0.08	1430	D4052	781.1		0.08
356	D4052	781.1		0.08	1433	ISO12185	781.7	R(0.01)	3.44
357	ISO12185	781.09		0.02	1457	ISO12185	781.1		0.08
369	ISO12185	781.1		0.08	1459	ISO12185	781.02		-0.37
370	ISO12185	781.0		-0.48	1491		-----		-----
371		-----		-----	1498		-----		-----
381	ISO12185	781.1		0.08	1510	IP365	781.1		0.08
391	ISO12185	781.1		0.08	1520	ISO12185	781.05		-0.20
398		-----		-----	1528	ISO12185	781.05		-0.20
399	ISO12185	780.7		-2.16	1556		-----		-----
402	ISO12185	781.0		-0.48	1569	ISO12185	781.0		-0.48
403	ISO12185	781.0		-0.48	1584	ISO12185	781.1		0.08
420	ISO12185	781.1		0.08	1586	D4052	781.1		0.08
431	ISO12185	781.08		-0.03	1631	ISO12185	781.1		0.08
432	ISO12185	781.27		1.03	1634	ISO12185	781.1		0.08
433		-----		-----	1654		-----		-----
440	D4052	781.4		1.76	1678	ISO12185	781.2		0.64
444		-----		-----	1681	ISO12185	781.14		0.30
445	IP365	781.1		0.08	1694	D1298	780.5	R(0.01)	-3.28
447		-----		-----	1720		-----		-----
453		-----		-----	1724	D4052	781.0		-0.48
463	ISO12185	781.06		-0.15	1730		-----		-----
485		-----		-----	1740	D4052	781.7	R(0.01)	3.44
541	ISO12185	781.0		-0.48	1741	ISO12185	781.0		-0.48
593	D4052	834.9	ex	301.36	1742	ISO12185	781.1		0.08
621		-----		-----	1746		-----		-----
631	D4052	781.7	R(0.01)	3.44	1749	ISO12185	781.6	R(0.01)	2.88
663		-----		-----	1753		-----		-----
704	ISO12185	780.94		-0.82	1771	ISO12185	781.12		0.19
781	ISO12185	781.1		0.08	1773		-----		-----
784	ISO12185	781.0		-0.48	1776	ISO12185	781.1		0.08
785	D4052	781.1		0.08	1782	D4052	781.08		-0.03
863	D4052	781.1		0.08	1784		-----		-----
873	D4052	781.2		0.64	1807		-----		-----
874	D4052	781.1		0.08	1811	ISO12185	781.0		-0.48
875	D4052	781.0		-0.48	1813	D4052	781.1		0.08
886	D4052	781.1		0.08	1832		-----		-----
902	D4052	781.1		0.08	1849		-----		-----
912	D4052	781.08		-0.03	1854		-----		-----
962	D4052	781.7	R(0.01)	3.44	1857	ISO12185	781.1		0.08
963	ISO12185	781.6		2.88	1858	ISO12185	781.00		-0.48
1006		-----		-----	1862	ISO12185	781.24		0.86
1033	IP365	781.0		-0.48	1872	ISO12185	781.1		0.08
1059	ISO12185	781.0		-0.48	1881	ISO12185	781.15		0.36
1080		-----		-----	1911		-----		-----
1082	ISO12185	781.0		-0.48	1936		-----		-----
1108	ISO12185	781.1		0.08	1937		-----		-----
1109	D4052	780.69		-2.22	1938	ISO12185	781.6	R(0.01)	2.88
1121	IP365	781.7	R(0.01)	3.44	1950	ISO12185	781.14		0.30
1126	ISO12185	781.1		0.08	1953		-----		-----

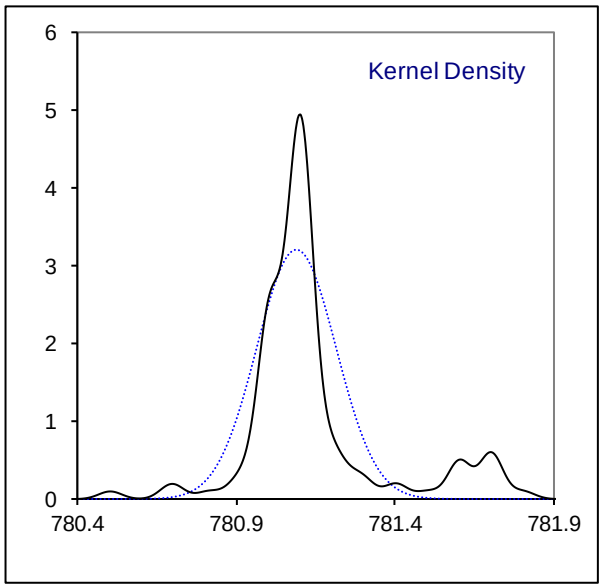
1961		-----		-----
1976	ISO12185	781.1		0.08
1979	ISO12185	781.07	C	-0.09
1984	ISO12185	780.95		-0.76
1995		-----		-----
2129		-----		-----
2146		-----		-----

6013	ISO12185	781.0		-0.48
6014	ISO12185	781.0		-0.48
6018		-----		-----
6028	ISO12185	781.1		0.08
6034		-----		-----
7006		-----		-----
9057		-----		-----

normality	not OK
n	99
outliers	12 (+1ex)
mean (n)	781.09
st.dev. (n)	0.125
R(calc.)	0.35
R(ISO12185:96)	0.50

Lab 340: first reported 780.43
Lab 593: test result excluded as this is test result for sample #16025
Lab 1979: first reported 0.78107 kg/m^3





Determination of Distillation on sample #16026; result in °C

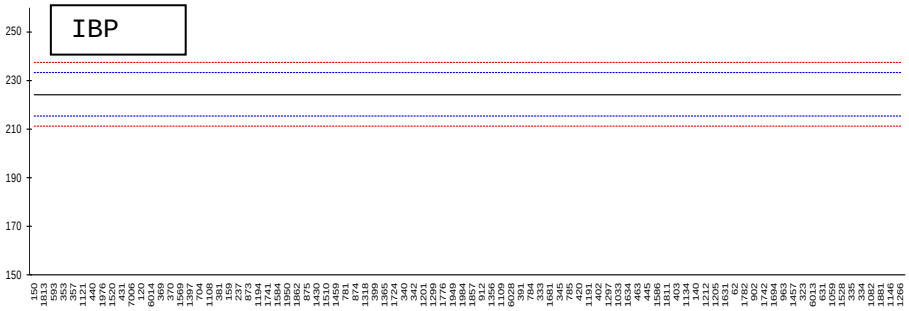
lab	method	mode	IBP	10%rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
62	D86	Automated	229.6	273.8	287.1	297.1	300.5	310.6	1.7	na
120	D86	Automated	193.0 R(5)	273.0	285.5	295.4	298.8	302.3	1.9	-----
140	ISO3405	Automated	228.7	272.9	285.9	295.4	298.3	306.2	2.9	-----
150	ISO3405	Automated	158.3 C,R(5)	274.6	285.8	295.4	298.1	303.5	3.4	100.0
159	D86	Automated	214.6	275.0	286.6	298.3	299.1	302.9	-----	-----
171			-----	-----	-----	-----	-----	-----	-----	-----
212			-----	-----	-----	-----	-----	-----	-----	-----
237	D86	Manual	215.0	270.5	285.0	294.0	298.0	307.0	2.5	NA
238			-----	-----	-----	-----	-----	-----	-----	-----
311			-----	-----	-----	-----	-----	-----	-----	-----
312		Automated	-----	274.2	286.2	295.7	298.8	306.3	-----	-----
323	ISO3405	Automated	231.4	275.5	286.9	297.2	301.3	306.6	0.9	97.3
331			-----	-----	-----	-----	-----	-----	-----	-----
333	ISO3405	Automated	225.7	272.6	285.6	295.2	298.2	305.6	1.6	-----
334	ISO3405	Automated	234	274.1	286.6	296.2	299.4	310.4	1	-----
335	ISO3405	Automated	233.9	273.1	286.7	296.3	299.2	310.1	1.2	-----
336			-----	-----	-----	-----	-----	-----	-----	-----
337			-----	-----	-----	-----	-----	-----	-----	-----
338			-----	-----	-----	-----	-----	-----	-----	-----
340	ISO3405	Automated	221.4	275.0	287.3	297.1	300.1	307.2	2.1	-----
342	D86	Automated	221.8	272.8	285.7	295.5	298.5	304.3	2.3	-----
345	ISO3405	Automated	225.84	272.43	285.80	295.34	297.88	306.72	2	na
349			-----	-----	-----	-----	-----	-----	-----	-----
350			-----	-----	-----	-----	-----	-----	-----	-----
351			-----	-----	-----	-----	-----	-----	-----	-----
353	IP123	Automated	172.5 R(5)	274.5	286.5	296.0	299.7	310.8	2.0	-----
356		Automated	-----	-----	-----	-----	-----	-----	-----	-----
357	ISO3405	Automated	173.4 R(5)	274.8	286.7	296.4	299.3	308.1	2.4	>95
369	ISO3405	Automated	194.1 R(5)	276.0	289.3 R(5)	298.8	301.0	308.2	1.3	-----
370	ISO3405	Automated	194.4 R(5)	273.7	287.0	296.7	299.6	305.1	1.2	-----
371			-----	-----	-----	-----	-----	-----	-----	-----
381	ISO3405	Automated	211.1	273.6	286.6	296.3	299.4	303.6	2.12	-----
391	ISO3405	Automated	225.4	274.6	287.0	296.8	300.1	306.6	-----	-----
398			-----	-----	-----	-----	-----	-----	-----	-----
399	ISO3405	Automated	220.1	277.7	287.1	296.6	299.3	313.7	0.8	99.2
402	ISO3405	Automated	226.7	273.4	286.2	296.0	299.8	304.5	1.2	0.0
403	ISO3405	Automated	228.4	272.9	285.7	295.4	298.5	305.6	1.3	0.0
420	ISO3405	Automated	226.1	274.6	286.0	295.8	299.1	305.6	1.0	-----
431	D86	Automated	186.7 R(5)	273.4	286.7	296.1	298.9	305.0	2.6	0
432			-----	-----	-----	-----	-----	-----	-----	-----
433			-----	-----	-----	-----	-----	-----	-----	-----
440	D86	Automated	176.9 R(5)	273.7	287.0	297.2	300.7	313.8	2.2	-----
444			-----	-----	-----	-----	-----	-----	-----	-----
445	IP123	Automated	227.7	273.0	285.3	295.2	298.4	306.9	1.5	>98
447			-----	-----	-----	-----	-----	-----	-----	-----
453			-----	-----	-----	-----	-----	-----	-----	-----
463	ISO3405	Automated	227.5	272.5	284.8	294.5	298.0	305.0	1.4	-----
485			-----	-----	-----	-----	-----	-----	-----	-----
541			-----	-----	-----	-----	-----	-----	-----	-----
593	D86	Manual	170.4 ex	207.5 ex	280.7 ex	342.9 ex	360 ex	370 ex	31 ex	93
621			-----	-----	-----	-----	-----	-----	-----	-----
631	D86	Manual	232.0	269.5	287.0	297.0	299.5	312.0	3.0	-----
663			-----	-----	-----	-----	-----	-----	-----	-----
704	ISO3405	Manual	207.0	272.8	285.8	296.0	299.0	309.0	1.3	-----
781	ISO3405	Automated	220.0	274.6	285.4	295.2	298.3	304.5	1.5	-----
784	ISO3405	Manual	225.5	275.8	287.8	298.9	300.9	309.9	1.5	-----
785	D86	Automated	226.0	273.8	286.5	296.4	299.6	306.5	1.9	-----
863			-----	-----	-----	-----	-----	-----	-----	-----
873	D86	Manual	215.0	273.0	285.5	295.5	298.5	307.0	2.0	N/A
874	D86	Manual	220.0	272.0	286.5	296.0	299.0	306.0	1.5	-----
875	D86	Automated	218.1	272.5	286.5	295.5	299.2	305.5	2.0	-----
886			-----	-----	-----	-----	-----	-----	-----	-----
902	D86	Automated	229.8	273.5	285.7	295.3	298.1	307.1	2.1	-----
912	D86	Manual	225.0	273.0	285.0	295.0	298.0	300.0	1.0	-----
962			-----	-----	-----	-----	-----	-----	-----	-----
963	ISO3405	Automated	231.1	273.8	285.2	294.4	297.5	306.1	1.1	98.0
1006			-----	-----	-----	-----	-----	-----	-----	-----
1033	IP123	Automated	226.8	274.2	286.9	296.7	299.7	307.3	-----	-----
1059	ISO3405	Automated	232.1	274.4	286.0	295.8	299.0	307.0	-----	-----
1080			-----	-----	-----	-----	-----	-----	-----	-----
1082	ISO3405	Automated	234.3	273.7	286.3	296.1	299.3	306.1	1.7	<0,1
1108	ISO3405	Automated	209.9	278.3	287.4	296.7	299.6	310.5	-----	-----
1109	D86	Automated	225.2	272.1	285.1	294.9	298.0	302.3	-----	-----
1121	ISO3405	Automated	175.0 R(5)	274.5	286.4	296.0	298.7	302.9	5.0 R(1)	n/a
1126			-----	-----	-----	-----	-----	-----	-----	-----

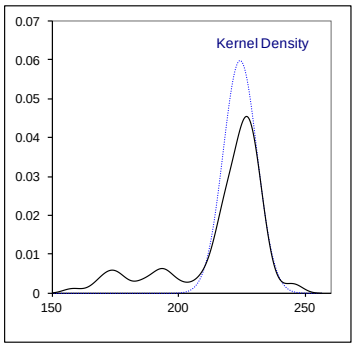
1134	IP123	Automated	228.5	274.4	287.2	296.8	299.7	311.0	1.9	-----
1146	D86	Automated	244.9 R(5)	275.9	287.5	296.8	299.7	316.4	1	n.a.
1161			-----	-----	-----	-----	-----	-----	-----	-----
1167			-----	-----	-----	-----	-----	-----	-----	-----
1191	ISO3405	Automated	226.3	274.3	286.2	295.9	299.1	306.2	1.6	>98,1
1194	D86	Automated	215.5	265 R(1)	285.3	296.3	299.2	300.4	4.3 R(5)	-----
1199			-----	-----	-----	-----	-----	-----	-----	-----
1201	ISO3405	Automated	222.2	271.9	285.2	295.5	299.5	303.8	2.1	> 97.2
1205	D86	Automated	229.2	274.5	286.5	296.2	299.2	304.5	-----	-----
1212	ISO3405	Automated	229.0	274.3	286.1	295.8	298.8	307.0	0.7	98.5
1229			-----	-----	-----	-----	-----	-----	-----	-----
1254			-----	-----	-----	-----	-----	-----	-----	-----
1264			-----	-----	-----	-----	-----	-----	-----	-----
1266	ISO3405	Automated	245.3 R(5)	275.2	287.7	297.4	300.0	306.5	0.9	-----
1272			-----	-----	-----	-----	-----	-----	-----	-----
1297	D86	Automated	226.7	272.7	286.1	295.8	298.8	305.3	1.980	-----
1299	D86	Automated	222.4	273.9	286.0	294.2	292.3 R(1)	293.0 R(1)	1.7	-----
1310			-----	-----	-----	-----	-----	-----	-----	-----
1316		Automated	-----	273.3	286.4	296.2	299.4	303.7	1.9	-----
1318	D86	Automated	220.0 W	272.7	285.7	295.7	298.4	305.3	2.2	-----
1356	ISO3405	Manual	225	272	285	295	298	300	3 C	-----
1365	D86	Manual	221.0 C	270.5	285.0	295.0	299.0	304.0	3.5	-----
1367			-----	-----	-----	-----	-----	-----	-----	-----
1397	ISO3405	Automated	201.6	275.1	286.8	296.3	299.7	307.6	1.2	-----
1428			-----	-----	-----	-----	-----	-----	-----	-----
1430	D86	Automated	218.6	272.1	286.0	295.4	298.0	306.6	-----	-----
1433			-----	-----	-----	-----	-----	-----	-----	-----
1457	ISO3405	Automated	231.2	273.2	285.5	295.2	298.4	306.7	1.3	-----
1459	ISO3405	Automated	218.8	273.6	286.4	292.2 R(5)	294.9 R(1)	300.1	1.0	-----
1491			-----	-----	-----	-----	-----	-----	-----	-----
1498			-----	-----	-----	-----	-----	-----	-----	-----
1510	D86	Automated	218.7	273.1	285.4	295.0	297.8	304.6	2.3	-----
1520	ISO3405	Manual	184.5 R(5)	269.0	284.0	294.0	297.0	301.0	-----	-----
1528	ISO3405	Automated	232.1	274.2	286.6	296.5	298.9	302.4	1.3	-----
1556			-----	-----	-----	-----	-----	-----	-----	-----
1569	ISO3405	Automated	198.2 R(5)	276.8	286.6	296.3	299.2	307.3	2.7	0
1584	ISO3405	Manual	217.0	273.0	285.0	295.0	298.0	307.0	2.0	-----
1586	D86	Automated	227.9	272.1	284.6	294.3	297.0	303.6	1.7	-----
1631	ISO3405	Automated	229.3	273.8	286.7	296.4	299.6	311.5	1.8	0
1634	ISO3405	Automated	226.9	275.0	288.2	298.1	301.3	307.9	4.8 R(1)	-----
1654			-----	-----	-----	-----	-----	-----	-----	-----
1678			-----	-----	-----	-----	-----	-----	-----	-----
1681	ISO3405	Automated	225.8	274.4	287.0	296.7	299.7	306.6	2.0	-----
1694	D86	Manual	230	273	286 C	296	299	305	3	-----
1720			-----	-----	-----	-----	-----	-----	-----	-----
1724	D86		221.3	272.5	285.6	288.2 R(1)	-----	287.4 R(1)	-----	-----
1730			-----	-----	-----	-----	-----	-----	-----	-----
1740		Automated	-----	-----	-----	-----	-----	-----	-----	-----
1741	ISO3405	Automated	216.5	273.1	286.4	296.1	298.9	306.1	2.3	-----
1742	ISO3405	Automated	229.9	273.2	285.3	294.9	297.8	305.4	-----	-----
1746			-----	-----	-----	-----	-----	-----	-----	-----
1749			-----	-----	-----	-----	-----	-----	-----	-----
1753			-----	-----	-----	-----	-----	-----	-----	-----
1771		Manual	----- W	270.5	283.5	291.5 R(1)	294.5 R(1)	306.5	3	-----
1773			-----	-----	-----	-----	-----	-----	-----	-----
1776	ISO3405	Automated	223.0	273.6	285.9	295.9	299.3	304.1	1.7	-----
1782	D86	Automated	229.7	273.9	285.7	295.5	298.6	304.6	1.7	-----
1784			-----	-----	-----	-----	-----	-----	-----	-----
1807			-----	-----	-----	-----	-----	-----	-----	-----
1811	ISO3405	Automated	228	272.4	286.0	295.7	298.2	302.9	2.4	-----
1813	D86	Automated	167.54 C,R(5)	274.49	285.60	295.53	298.65	305.51	-----	-----
1832			-----	-----	-----	-----	-----	-----	-----	-----
1849			-----	-----	-----	-----	-----	-----	-----	-----
1854			-----	-----	-----	-----	-----	-----	-----	-----
1857	ISO3405	Automated	224.6	272.8	285.3	294.8	297.7	305.0	1.3	-----
1858	ISO3405	Automated	218.0	275.0	287.1	296.8	299.8	307.8	1.0	-----
1862			-----	-----	-----	-----	-----	-----	-----	-----
1872	ISO3405	Manual	236.0	271.5	285.0	295.5	300.0	308.0	1.0	-----
1881			-----	-----	-----	-----	-----	-----	-----	-----
1911			-----	-----	-----	-----	-----	-----	-----	-----
1936		Automated	-----	-----	-----	-----	-----	-----	-----	-----
1937			-----	-----	-----	-----	-----	-----	-----	-----
1938	ISO3405	Manual	223.5	271.0	285.0	294.5	297.5	307.5	2.0	-----
1950	ISO3405	Manual	217.5	273.5	285.5	295.5	298.5	307.0	2.0	-----
1953			-----	-----	-----	-----	-----	-----	-----	-----
1961			-----	-----	-----	-----	-----	-----	-----	-----
1976	ISO3405	Automated	178.3 C,R(5)	274.9	285.9	295.8	298.9	306.8	1.9	100.0
1979			-----	-----	-----	-----	-----	-----	-----	-----
1984	ISO3405	Automated	224.5	273.6	285.7	295.2	298	305.8	1.6	-----
1995			-----	-----	-----	-----	-----	-----	-----	-----

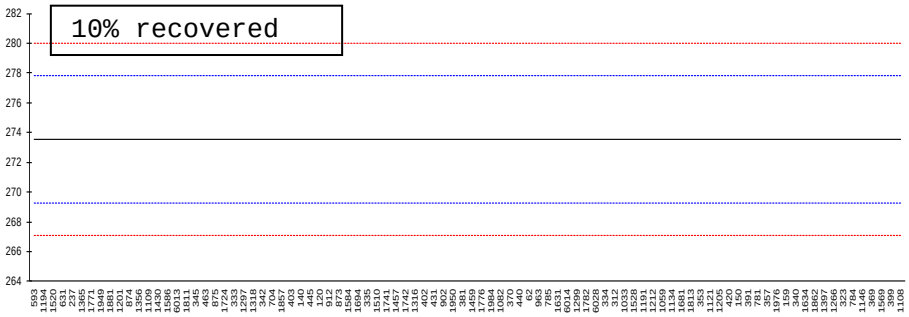
2129		Automated	-----	-----	-----	-----	-----	-----	-----	-----
2146			-----	-----	-----	-----	-----	-----	-----	-----
6013	ISO3405	Automated	231.4	272.2	284.6	294.6	297.3	300.8	1.8	-----
6014	ISO3405	Automated	193.8 R(5)	273.8	285.9	295.5	297.4	300.7	1.8	-----
6018			-----	-----	-----	-----	-----	-----	-----	-----
6028	ISO3405	Automated	225.3	273.9	285.5	294.9	297.2	305.8	1.9	0.0
6034			-----	-----	-----	-----	-----	-----	-----	-----
7006	D86		189.8 C,R(5)	-----	-----	-----	-----	311.2	-----	-----
9057			-----	-----	-----	-----	-----	-----	-----	-----
	normality		suspect	suspect	OK	suspect	OK	suspect	OK	n.a.
	n		72	90	90	88	87	90	75	18
	outliers		17 (+1ex)	1 (+1ex)	1 (+1ex)	3 (+1ex)	3 (+1ex)	2 (+1ex)	3 (+1ex)	n.a.
	mean (n)		224.25	273.55	286.05	295.88	298.92	306.17	1.80	n.a.
	st.dev. (n)		6.673	1.522	0.852	0.966	0.940	3.098	0.630	n.a.
	R(calc.)		18.68	4.26	2.39	2.70	2.63	8.67	1.76	n.a.
	R(ISO3405:11 autom)		12.33	6.02	2.97	4.44	6.72	7.10	2.70	n.a.
	R(ISO3405:11 man)		(7.39)	(3.44)	(2.17)	(2.18)	(3.17)	(3.71)	(2.2)	n.a.

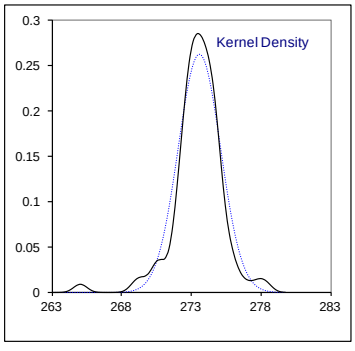
Lab 150: first reported 149.0
Lab 593: test results excluded as these are test results for sample #16025
Lab 1316: first reported 150.9
Lab 1356: first reported 183 and 5.5
Lab 1694: first reported 278
Lab 1771: first reported 165.4
Lab 1813: first reported 168.64
Lab 1976: first reported 166.5
Lab 7006: first reported 184.8

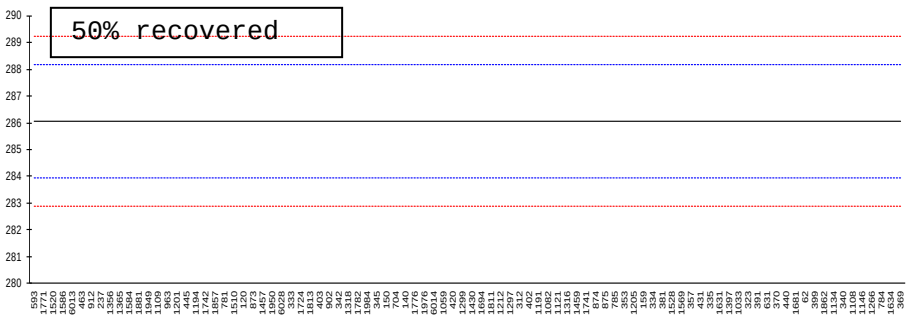
Comments on test results of Volume at 350°C:
Lab 353: 350°C not reached in this distillation
Lab 704: not observed
Lab 1194: out of specification
Lab 1459: doesn't reached
Lab 1881: 350°C was not reached during test. Recovery of 98.0%.
Lab 1984: Volume at 350°C is not specified because the final boiling point <350°C.

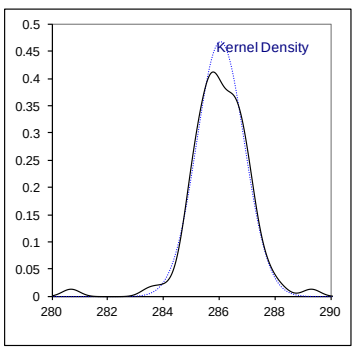


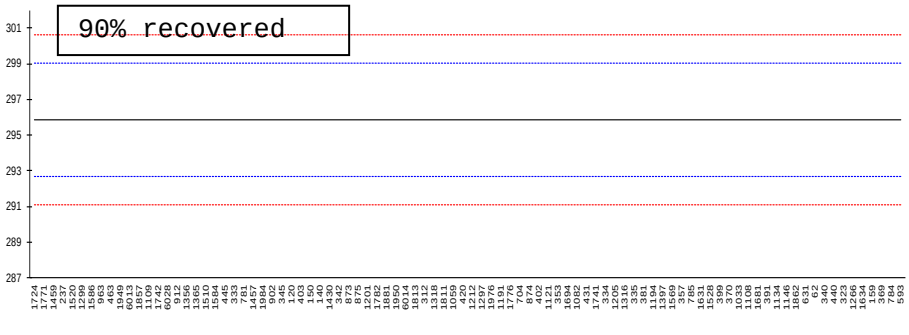


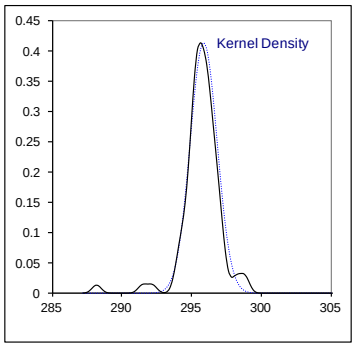


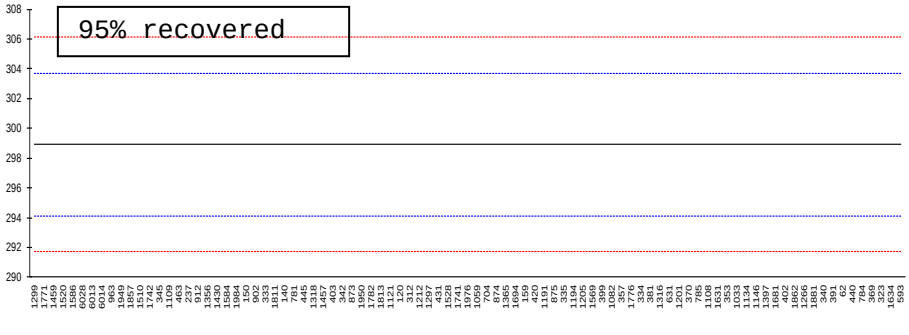


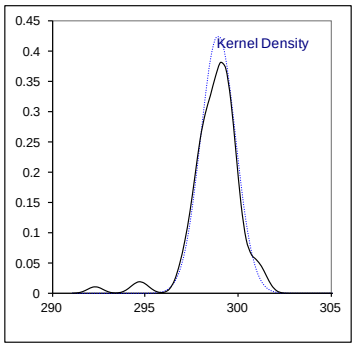


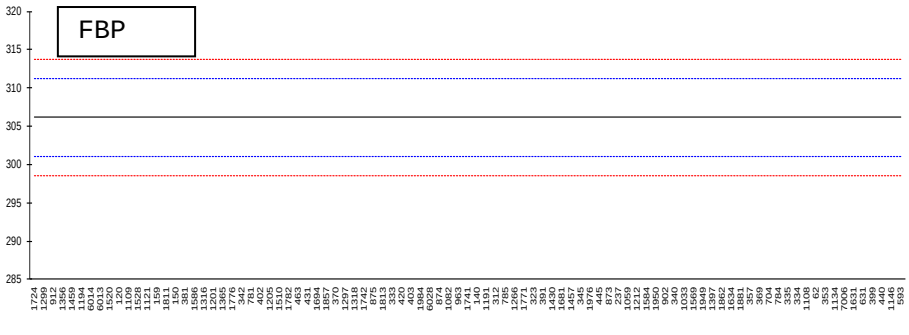


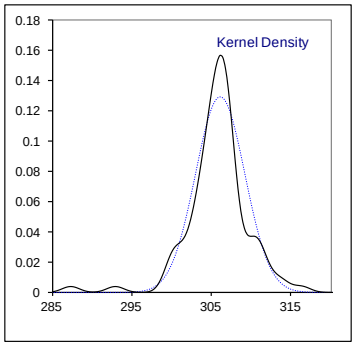

90% recovered

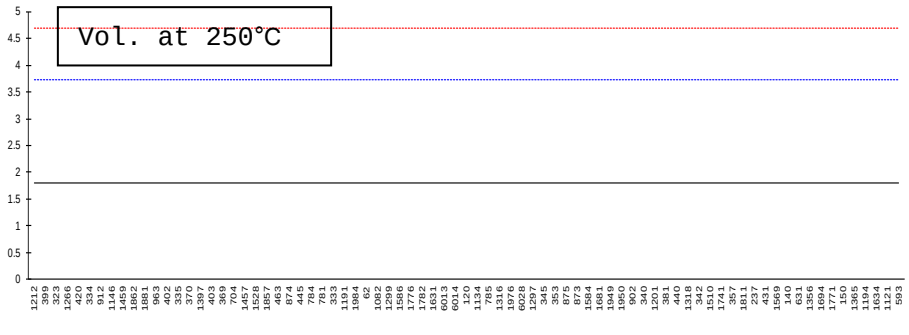

Kernel Density

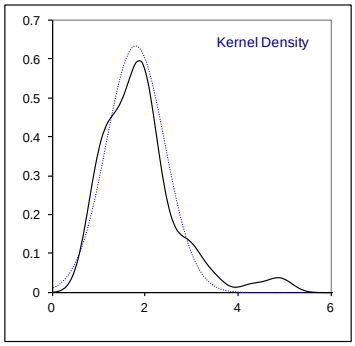

95% recovered


Kernel Density


FBP


Kernel Density


Vol. at 250°C


Kernel Density

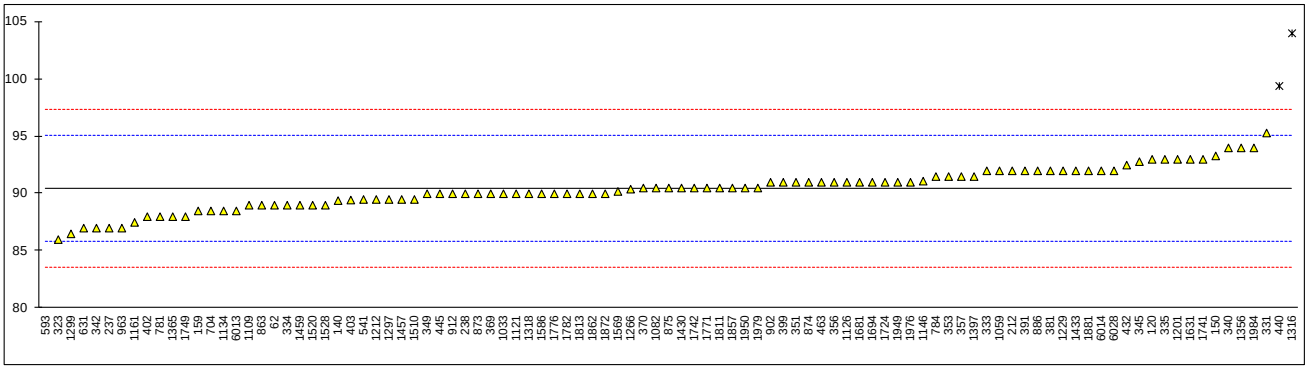
Determination of Flash Point PMcc on sample #16026; result in °C

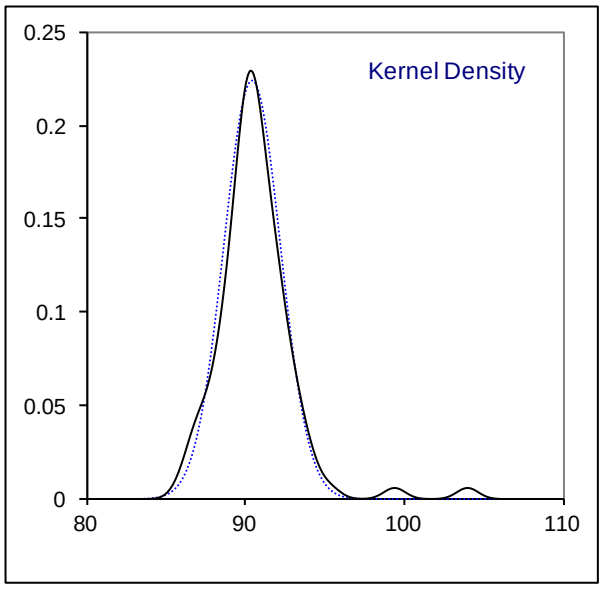
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
62	D93	89.0		-0.62	1134	IP34	88.5		-0.84
120	D93	93.0		1.12	1146	D93	91.1		0.29
140	ISO2719	89.4		-0.45	1161	ISO2719	87.5	C	-1.28
150	ISO2719	93.3		1.25	1167		-----		-----
159	D93	88.5		-0.84	1191		-----		-----
171		-----		-----	1194		-----		-----
212	ISO2719	92.0		0.69	1199		-----		-----
237	D93	87.0		-1.49	1201	ISO2719	93.0		1.12
238	D93	90.0		-0.19	1205		-----		-----
311		-----		-----	1212	ISO2719	89.5		-0.40
312		-----		-----	1229	ISO2719	92.0		0.69
323	ISO2719	86.0		-1.93	1254		-----		-----
331	D93	95.3		2.13	1264		-----		-----
333	ISO2719	92.0		0.69	1266	ISO2719	90.4		-0.01
334	ISO2719	89		-0.62	1272		-----		-----
335	ISO2719	93.0		1.12	1297	D93	89.5		-0.40
336		-----		-----	1299	D93	86.5		-1.71
337		-----		-----	1310		-----		-----
338		-----		-----	1316	D93	104	R(0.01)	5.92
340	ISO2719	94.0		1.56	1318	D93	90.0		-0.19
342	ISO2719	87.0		-1.49	1356	ISO2719	94		1.56
345	ISO2719	92.8		1.04	1365	D93A	88.0		-1.06
349	D93	90		-0.19	1367		-----		-----
350		-----		-----	1397	ISO2719	91.5		0.47
351	ISO2719	91.00		0.25	1428		-----		-----
353	IP34	91.5		0.47	1430	D93	90.5		0.03
356	D93	91.0		0.25	1433	ISO2719	92		0.69
357	ISO2719	91.5		0.47	1457	ISO2719	89.5		-0.40
369	ISO2719	90.0		-0.19	1459	ISO2719	89.0		-0.62
370	ISO2719	90.5		0.03	1491		-----		-----
371		-----		-----	1498		-----		-----
381	ISO2719	92.0		0.69	1510	IP34	89.5		-0.40
391	ISO2719	92.0		0.69	1520	ISO2719	89.0		-0.62
398		-----		-----	1528	ISO2719	89.0		-0.62
399	ISO2719	91.0		0.25	1556		-----		-----
402	ISO2719	88.0		-1.06	1569	ISO2719	90.2		-0.10
403	ISO2719	89.45		-0.43	1584		-----		-----
420		-----		-----	1586	D93	90.0		-0.19
431		-----		-----	1631	ISO2719	93.0		1.12
432	ISO2719	92.5		0.90	1634		-----		-----
433		-----		-----	1654		-----		-----
440	IP34	99.4	R(0.01)	3.91	1678		-----		-----
444		-----		-----	1681	ISO2719	91.0		0.25
445	IP34	90.0		-0.19	1694	D93	91.0		0.25
447		-----		-----	1720		-----		-----
453		-----		-----	1724	D93	91		0.25
463	ISO2719	91.0		0.25	1730		-----		-----
485		-----		-----	1740		-----		-----
541	ISO2719	89.5		-0.40	1741	ISO2719	93		1.12
593	D93	63	ex	-11.96	1742	ISO2719	90.5		0.03
621		-----		-----	1746		-----		-----
631	D93	87.0		-1.49	1749	D93	88		-1.06
663		-----		-----	1753		-----		-----
704	ISO2719	88.5		-0.84	1771	ISO2719	90.5		0.03
781	ISO2719	88.0		-1.06	1773		-----		-----
784	ISO2719	91.5		0.47	1776	ISO2719	90.0		-0.19
785		-----		-----	1782	D93	90.0		-0.19
863	D93	89.0		-0.62	1784		-----		-----
873	D93	90.0		-0.19	1807		-----		-----
874	D93	91.0		0.25	1811	ISO2719	90.5		0.03
875	D93	90.5		0.03	1813	D93	90.0		-0.19
886	D93	92.0		0.69	1832		-----		-----
902	D93	91.0		0.25	1849		-----		-----
912	ISO2719	90.0		-0.19	1854		-----		-----
962		-----		-----	1857	ISO2719	90.5		0.03
963	ISO2719	87.0		-1.49	1858	ISO2719	90.0		-0.19
1006		-----		-----	1862	ISO2719	90		-0.19
1033	IP34	90.0		-0.19	1872	ISO2719	92.0		0.69
1059	ISO2719	92.0		0.69	1881		-----		-----
1080		-----		-----	1911		-----		-----
1082	ISO2719	90.5		0.03	1936		-----		-----
1108		-----		-----	1937		-----		-----
1109	D93	89.0		-0.62	1938	ISO2719	91.0		0.25
1121	IP34	90.0		-0.19	1950	ISO2719	90.5		0.03
1126	ISO2719	91.0		0.25	1953		-----		-----

1961		-----	-----	6013	ISO2719	88.5	-0.84
1976	ISO2719	91	0.25	6014	ISO2719	92	0.69
1979	ISO2719	90.5	0.03	6018		-----	-----
1984	ISO2719	94.0	1.56	6028	ISO2719	92.0	0.69
1995		-----	-----	6034		-----	-----
2129		-----	-----	7006		-----	-----
2146		-----	-----	9057		-----	-----

normality	OK
n	96
outliers	2 (+1ex)
mean (n)	90.43
st.dev. (n)	1.783
R(calc.)	4.99
R(ISO2719:02)	6.42

Lab 593: test results excluded as these are test results for sample #16025
Lab 1161: first reported 83.0
Lab 1433: also reported 93°C according to D7094



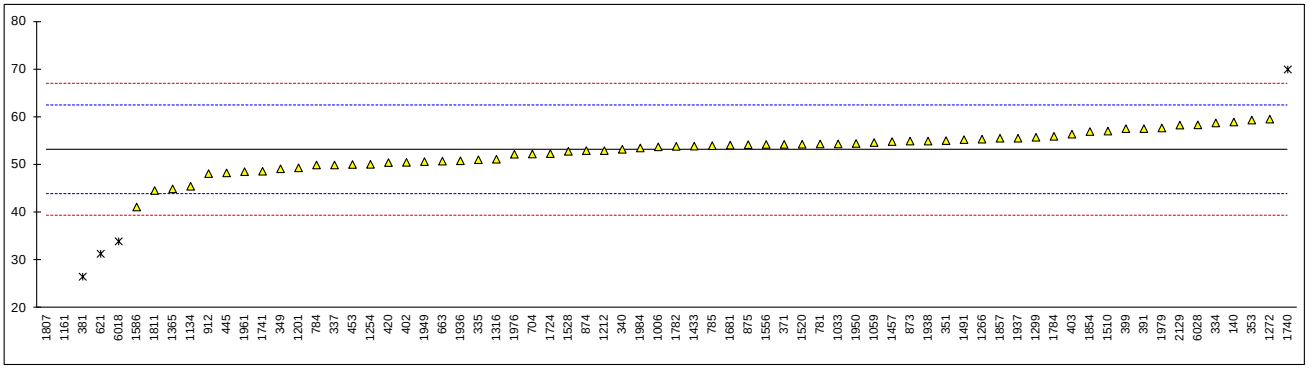


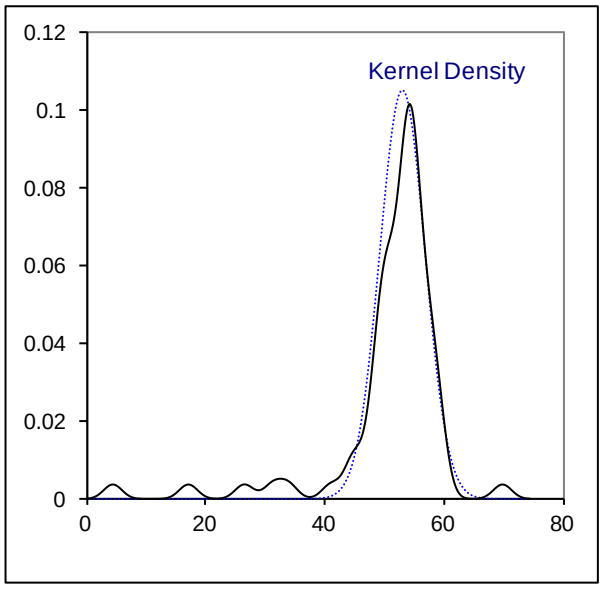
Determination of Total Contamination on sample #16027; result in mg/kg

lab	method	value	mark	z(targ)	vol. used	remarks
120		-----		-----	-----	
140	EN12662:2014	59		1.27	300	
150	EN12662:2014	>30		-----	300	
171		-----		-----	-----	
237		-----		-----	-----	
311		-----		-----	-----	
312	EN12662:2014	>30		-----	300	
323	EN12662:2014	>30.0		-----	300	
331	EN12662:2014	>30		-----	300	
334	EN12662:2014	58.8		1.23	300	
335	EN12662:2014	51.1		-0.45	310	
337	EN12662:2014	50.0		-0.69	300	
340	EN12662:2014	53.28		0.02	300	
349	EN12662:2014	49.2		-0.87	301	
351	EN12662:2014	55.1		0.42	305	
353	EN12662:2014	59.3997		1.36	380	
369	EN12662:2014	>30		-----	300	
370	EN12662:2014	>30		-----	300	
371	EN12662:2014	54.31		0.25	300	
381	EN12662:2014	26.6	C,R(0.01)	-5.79	297.6	first reported: 13.3
391	EN12662:2008	57.6		0.96	-----	
398		-----		-----	-----	
399	EN12662:2014	57.6		0.96	300	
402	EN12662:2014	50.55		-0.57	300	
403	EN12662:2014	56.45		0.71	300	
420	EN12662:1998	50.5		-0.58	300	
445	IP440	48.34		-1.05	493	
447		-----		-----	-----	
453	IP440	50.1		-0.67	300	
621	EN12662:2014	31.4	R(0.01)	-4.74	800	
663	EN12662:2014	50.8		-0.52	300	
704	EN12662:2014	52.30		-0.19	600	
781	EN12662:2014	54.4		0.27	300	
784	EN12662:2014	50		-0.69	300	
785	EN12662:2014	54.04		0.19	300	
873	EN12662:2014	55.0		0.40	300	
874	EN12662:2014	53.0		-0.04	300	
875	EN12662:2014	54.25		0.23	300	
902	EN12662:2014	>30		-----	200	
912	EN12662	48.19		-1.09	249.0	
963		-----		-----	-----	
1006	EN12662:2008	53.8		0.14	800	
1033	IP440	54.41		0.27	-----	
1059	EN12662:2014	54.70		0.33	295.7	
1134	IP440	45.54		-1.66	829.3	
1161	EN12662:2014	17.2	C,R(0.01)	-7.84	-----	first reported: 21.05
1201	EN12662:2014	49.4		-0.82	300	
1212	EN12662:1998	53.0		-0.04	300	
1254	EN12662:2014	50.13		-0.66	-----	
1266	EN12662:2014	55.4		0.48	800	
1272	EN12662	59.6		1.40	-----	
1299	EN12662:2014	55.8		0.57	300	
1316	EN12662:2014	51.2		-0.43	300	
1365	EN12662	45		-1.78	-----	
1397		-----		-----	-----	
1428		-----		-----	-----	
1433	EN12662:2014	53.95		0.17	300	
1457	EN12662:2014	54.9		0.38	296	
1491	EN12662:2014	55.31		0.47	300	
1510	EN12662:2014	57.1		0.86	-----	
1520	EN12662:2014	54.34		0.25	300	
1528	EN12662:2014	52.86		-0.07	300	
1556	EN12662:2014	54.3	C	0.25	251.2	first reported: 0.06
1586	EN12662:2014	41.2		-2.61	330.3	
1631	EN12662:2014	>30		-----	300	
1654	EN12662:2014	>30		-----	300	
1681	EN12662:2014	54.16		0.21	300	
1724	EN12662:2014	52.37		-0.18	300	
1740	EN12662:2014	70	C,R(0.01)	3.67	300	first reported: 76
1741	EN12662:2014	48.69		-0.98	300	
1782	IP440	53.9		0.16	800	
1784	EN12662:2014	56	C	0.62	300	first reported: 74
1807	EN12662:2014	4.5	R(0.01)	-10.60	246	Volume reported in grams
1811	EN12662:2014	44.65		-1.86	300	
1849	EN12662:2014	>30.0		-----	300	
1854	EN12662:2014	57		0.83	300	

1857	EN12662:2014	55.6		0.53	285	
1911	EN12662:2014	>30.0		-----	300	
1936	EN12662:2014	50.88		-0.50	-----	
1937	EN12662:2014	55.6		0.53	300	
1938	EN12662:2014	55.0		0.40	300	
1949	EN12662:2008	50.7		-0.54	800	
1950	EN12662:2014	54.5		0.29	300	
1961	EN12662:2014	48.6		-1.00	300	
1976	EN12662:1998	52.25		-0.20	299.5	
1979	EN12662:2008	57.748		1.00	800	
1984	EN12662:2014	53.56		0.08	290.8	
2129	EN12662:2014	58.35	C	1.13	610.3	first reported: 67.51
6018	EN12662:2014	34	R(0.01)	-4.18	300	
6028	EN12662:2014	58.4		1.14	300.0	

normality	OK
n	64
outliers	6
mean (n)	53.175
st.dev. (n)	3.7937
R(calc.)	10.622
R(EN12662:14)	12.853





APPENDIX 2

z-scores Distillation sample #16025

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
62	2.07	0.52	1.87	1.87	1.62	1.66	-1.22	-1.36
120	0.00	0.77	0.17	1.16	2.02	-0.19	-0.49	-1.57
140	-0.18	0.10	0.26	0.07	0.27	0.16	-0.39	-0.12
150	-1.24	0.04	-1.06	-0.70	-0.59	-0.94	0.13	0.51
159	-1.12	-0.63	0.17	-0.48	0.39	-0.39	-0.28	-0.12
171	-0.24	2.22	0.83	0.07	-0.32	-1.37	-0.18	1.44
212	-----	-----	-----	-----	-----	-----	-----	-----
237	0.06	-2.50	-1.53	-1.08	-1.18	-0.07	1.07	0.61
238	0.06	-1.90	-1.06	-0.53	-0.26	-0.86	0.55	0.09
311	-0.15	0.04	0.64	0.83	0.76	1.11	-0.39	-0.53
312	0.22	1.31	1.11	-0.15	-0.01	-0.74	-1.01	0.09
323	-0.36	1.68	0.92	1.16	1.83	0.36	-1.11	-1.15
331	-----	-----	-----	-----	-----	-----	-----	-----
333	-0.21	-0.08	0.07	-0.32	-0.29	0.09	0.03	0.19
334	0.55	-2.08	-1.43	-0.64	-0.32	0.56	1.07	0.30
335	0.43	-0.32	0.36	1.05	1.16	1.11	-0.08	-0.74
336	1.13	0.65	-0.02	0.45	0.57	0.32	0.44	-0.43
337	2.31	1.74	1.02	-0.04	-0.53	0.87	-1.11	0.40
338	1.25	1.55	0.55	1.05	1.22	0.80	-1.32	-0.84
340	1.13	0.04	0.26	0.67	0.51	0.28	-0.28	-0.43
342	-1.12	-0.63	-0.21	0.29	0.27	-0.58	0.13	-0.32
345	0.48	0.20	-1.13	-1.56	-1.70	-0.16	1.07	1.65
349	-----	-----	-----	-----	-----	-----	-----	-----
350	-----	-----	-----	-----	-----	-----	-----	-----
351	-0.28	-0.08	-0.44	1.16	0.47	-1.83	0.55	-0.43
353	0.67	0.77	0.92	0.62	0.48	1.35	-0.08	-0.32
356	0.82	1.55	1.11	0.07	0.30	0.32	-1.32	-0.01
357	1.22	1.01	0.64	0.12	-0.04	0.09	-0.28	-0.01
369	-0.85	-0.57	1.68	1.60	0.57	0.36	-1.11	-0.43
370	-1.06	-0.81	-0.96	0.23	-0.44	0.24	-0.08	-0.22
371	0.16	0.16	-0.30	0.40	0.39	1.19	-0.49	-0.43
381	-1.06	0.46	-0.49	-0.53	-0.56	1.31	0.24	0.61
391	-0.06	0.59	0.64	0.45	0.30	0.01	-0.49	-0.12
398	0.34	2.10	0.55	1.05	0.76	0.68	-0.39	-0.95
399	1.25	1.80	1.68	-0.04	-0.44	1.07	-1.63	0.30
402	-0.39	-0.63	1.11	0.18	-0.07	-1.41	-0.18	-0.12
403	0.37	0.04	0.26	-0.21	-0.32	-0.78	-0.39	0.19
420	0.13	0.52	0.55	1.05	1.40	0.28	-0.49	-0.84
431	-0.51	0.10	0.55	-0.53	-0.62	-0.90	-0.59	0.51
432	-----	-----	-----	-----	-----	-----	-----	-----
433	-----	-----	-----	-----	-----	-----	-----	-----
440	1.25	0.89	-0.21	0.40	0.08	1.03	-0.18	-0.12
444	0.49	0.95	0.07	-0.59	-0.68	0.68	0.24	-1.26
445	-0.03	-0.26	-0.68	-0.26	0.21	-0.15	0.34	0.09
447	-0.48	0.28	-0.49	-0.10	-0.01	0.20	-0.08	-----
453	0.34	0.59	-0.11	0.34	0.54	0.40	0.03	-0.43
463	-0.18	-0.02	-0.68	-0.86	-0.62	-0.58	-0.49	0.51
485	0.31	1.04	1.54	0.62	0.60	0.42	-1.06	-0.58
541	0.34	-0.08	0.64	0.51	0.54	0.91	-0.28	-0.95
593	0.79	-1.60	-0.40	1.05	1.28	1.90	1.58	-0.43
621	-0.54	-1.90	-2.00	-1.08	-----	-----	-2.05	-----
631	0.97	-1.60	-1.06	-0.53	-0.72	0.52	0.55	0.61
663	0.37	1.49	0.26	-0.10	0.08	-0.19	-0.59	0.19
704	0.37	0.40	-0.30	-1.25	-1.27	-0.19	0.34	1.34
781	-0.57	0.40	-0.21	-0.15	0.08	0.09	-0.28	0.09
784	-0.09	-2.75	1.39	1.49	1.49	0.24	0.03	-1.46
785	-0.30	0.52	0.92	0.72	0.60	0.99	-0.80	-0.53
863	0.22	-1.60	-1.06	-1.36	-0.72	-0.66	0.55	0.61
873	0.67	-0.69	0.36	1.11	0.67	0.52	-0.49	-0.43
874	0.52	-1.29	1.30	2.20	1.28	0.32	-0.49	-0.95
875	0.67	1.01	0.92	0.89	1.00	0.87	-0.59	-0.43
886	0.55	1.19	0.17	-0.10	-0.16	-2.32	-----	-----
902	0.34	-0.69	-0.11	-0.42	-0.44	0.91	0.03	0.40
912	-----	-----	-----	-----	-----	-----	-----	-----
962	-0.63	0.46	0.92	0.29	0.11	-0.07	-0.59	-0.22
963	-0.09	0.22	0.55	-0.48	0.02	-0.07	-0.28	0.19
1006	-0.06	0.28	1.02	0.23	-0.04	0.83	-----	-----
1033	0.61	1.31	1.30	0.23	-0.01	0.28	-----	-----
1059	-0.06	0.77	0.83	0.56	0.73	0.99	-0.70	-0.53
1080	-----	-----	-----	-----	-----	-----	-----	-----
1082	-0.45	-0.14	0.55	0.51	0.57	0.20	-0.28	-0.43
1108	-0.27	4.40	3.00	0.29	-0.19	0.56	-3.50	0.19
1109	-0.24	-1.17	-1.06	-0.92	-0.75	-0.82	-----	-----

1121	-0.24	-0.69	-1.06	0.01	0.67	-1.65	1.58	-1.46
1126	0.88	1.86	1.58	1.98	1.22	3.08	-1.22	-1.57
1134	-2.15	-1.66	0.83	0.89	0.73	1.07	-0.18	-0.64
1146	3.28	2.46	2.43	0.94	0.30	2.06	-1.53	-0.43
1161	-1.00	-0.75	-1.72	-0.15	-1.18	-2.00	1.17	0.82
1167	-0.18	-1.78	-1.62	0.40	0.70	0.72	0.86	0.09
1191	0.58	0.16	0.92	0.78	0.85	0.44	-0.70	-0.64
1194	-3.52	-4.14	-2.19	0.12	0.05	-2.44	2.52	-0.22
1199	-----	-----	-----	-----	-----	-----	-----	-----
1201	-0.30	0.16	-0.40	-0.75	-0.78	0.01	-0.28	0.71
1205	0.16	0.16	0.36	0.01	-0.19	-0.55	-0.90	0.09
1212	0.76	1.86	-0.21	-0.53	-0.26	-0.51	0.24	0.82
1229	-0.88	0.10	-0.02	-0.32	-0.44	0.12	-0.18	0.40
1254	-0.06	0.65	0.45	-0.04	0.39	0.16	-0.80	-0.22
1264	-2.15	0.10	-0.40	-0.15	-0.26	0.48	0.86	0.40
1266	1.52	1.62	1.30	0.89	0.05	-1.89	-0.49	-0.32
1272	-0.30	0.04	-0.68	-0.26	-0.87	-2.00	0.75	0.51
1297	-1.42	-0.32	0.17	0.45	0.45	0.16	0.45	-0.37
1299	-0.51	-0.57	-0.30	0.07	-0.19	-0.11	-0.08	0.09
1310	-2.21	-3.11	-2.47	-1.08	-0.56	-1.26	2.00	0.61
1316	-0.33	-0.57	0.45	0.83	0.94	-0.19	-0.28	-0.64
1318	-0.60	-0.20	-0.11	0.23	-0.26	-0.19	0.86	0.30
1356	0.97	-1.90	3.66	2.75	0.05	1.11	-0.49	-1.46
1365	0.67	-1.29	-2.94	-1.08	0.05	-2.04	1.58	0.61
1367	-----	-----	-----	-----	-----	-----	-----	-----
1397	1.46	1.01	0.83	-0.15	-0.04	1.11	-0.39	0.09
1428	0.43	-0.32	-0.02	-0.48	-0.19	0.05	-0.18	0.30
1430	-2.51	-1.23	-1.43	-2.45	-2.59	-0.82	-----	-----
1433	1.40	0.46	-0.40	-1.14	-0.99	-0.78	-0.08	0.82
1457	0.10	0.40	-0.21	-0.64	-0.26	0.16	0.03	0.40
1459	-0.06	0.59	0.55	-0.70	-0.38	0.32	-1.01	0.30
1491	-0.03	0.95	0.92	-0.32	-0.41	0.56	-0.70	0.30
1498	-1.27	0.83	1.58	1.93	2.08	0.95	-0.49	-0.43
1510	-1.09	-0.38	0.17	-0.37	-0.29	0.48	0.03	0.19
1520	0.67	0.22	-1.53	-0.53	0.05	-0.86	0.55	-0.43
1528	0.70	0.65	1.02	0.67	0.57	0.20	-0.49	-0.53
1556	-0.27	0.65	-0.21	0.18	0.21	-0.23	-0.18	-0.12
1569	0.19	0.28	-0.21	0.23	-0.38	-0.82	0.24	0.09
1584	0.06	-0.69	-0.59	0.01	-0.10	-0.47	0.03	0.09
1586	-0.51	-0.87	-1.25	-0.75	-0.38	0.05	0.55	0.40
1631	-----	-----	-----	-----	0.17	-----	-0.08	0.19
1634	-0.85	-0.14	0.83	0.23	0.08	0.56	-0.39	-0.32
1654	-----	-----	-----	-----	0.33	-----	-0.28	-0.22
1678	-----	-----	-----	-----	-----	-----	-----	-----
1681	0.25	-1.29	0.36	0.29	0.02	0.44	0.13	-0.43
1694	-0.85	-0.08	-2.94	-1.08	-0.72	-0.86	0.55	0.09
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-0.94	0.28	-0.11	-0.26	0.11	-0.27	0.34	0.09
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	-0.63	-0.02	0.45	-0.75	-0.29	-0.78	0.03	0.51
1741	-2.24	-0.26	-0.59	-0.26	-0.26	-0.07	0.34	0.19
1742	0.16	0.22	0.17	-0.04	0.27	0.87	-0.39	-0.12
1746	-1.45	-2.81	-0.11	0.56	0.36	1.51	0.55	-0.43
1749	-0.09	2.34	-1.53	0.01	0.36	-0.47	2.10	-0.43
1753	1.58	-2.50	-2.00	-0.53	0.05	-1.26	1.58	0.61
1771	-----	-1.05	-0.59	-0.75	-1.61	1.74	1.58	1.65
1773	-1.11	-0.63	-0.55	-0.54	-0.11	-2.25	-0.44	0.14
1776	-1.94	-9.11	-1.72	-0.42	-0.04	-0.47	0.86	0.19
1782	0.28	0.89	0.36	0.56	0.63	0.09	-0.49	-0.53
1784	-0.12	0.22	-0.40	-0.21	-0.10	-0.47	0.24	0.09
1807	-0.85	-1.11	-0.87	-0.75	-0.72	0.28	0.24	0.51
1811	-0.60	0.22	-0.77	-0.81	-0.59	0.01	0.34	0.51
1813	-0.07	0.81	0.40	-0.28	-0.23	-0.11	-----	-----
1832	-0.27	-1.29	0.26	0.07	0.08	1.03	1.58	1.85
1849	-0.36	0.46	-0.30	-0.64	-0.56	-0.51	0.24	0.92
1854	0.40	0.71	-0.21	0.12	-0.07	-0.51	-0.18	-0.01
1857	0.64	-0.08	-1.06	-1.41	-1.27	-1.26	0.44	1.13
1858	0.22	-0.08	0.36	0.01	-0.87	-0.47	0.03	0.61
1862	0.37	-0.63	-0.02	-0.37	-0.41	-0.66	0.55	-0.12
1872	-0.45	0.83	-0.59	-2.56	-2.31	-1.57	2.93	-----
1881	2.80	-0.69	-0.11	1.66	2.05	-0.07	-0.49	-1.46
1911	0.22	0.65	0.40	0.53	0.59	0.11	-0.33	-0.48
1936	0.06	-0.75	-0.77	-0.97	-0.78	0.12	0.86	0.71
1937	0.85	0.28	-1.25	-1.46	-1.45	-1.14	0.75	1.23
1938	-0.75	-0.81	-1.06	-0.59	-0.41	0.05	0.86	0.30
1950	1.28	-0.38	-0.11	0.29	-0.10	-0.47	-0.49	-0.43
1953	-2.21	-6.74	-4.07	-1.25	-1.11	0.01	8.84	0.96
1961	-----	-----	-----	-----	-----	-----	-----	-----
1976	-0.06	0.89	0.17	-0.37	-0.32	-0.19	-0.39	0.30
1979	-9.25	-2.81	-1.90	-0.15	-0.16	-3.11	2.10	0.71

1984	-0.30	0.28	-0.11	0.34	0.60	0.09	0.13	0.19
1995	-----	-----	-----	-----	-----	-----	-----	-----
2129	0.94	1.01	0.81	0.07	-0.10	1.03	-0.59	-0.01
2146	1.49	5.07	2.60	1.66	1.22	1.23	-2.88	-1.15
6013	0.00	0.10	-0.61	-0.97	-0.68	-0.62	-0.08	0.71
6014	0.97	1.37	-0.04	-1.30	-0.96	-1.73	-0.39	0.82
6018	-0.94	0.52	0.90	0.67	0.54	0.56	-0.59	-0.53
6028	0.13	-0.63	-1.45	-1.74	-1.73	0.60	0.44	1.65
6034	-0.33	-0.75	-0.42	-0.10	0.21	0.64	0.75	-0.01
7006	-1.66	-----	-----	-----	-----	2.06	-----	-----
9057	-----	-----	-----	-----	-----	-----	-----	-----

z-scores Distillation sample #16026

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
62	1.22	0.12	0.99	0.77	0.66	1.75	-0.11	-----
120	-7.09	-0.25	-0.52	-0.31	-0.05	-1.53	0.10	-----
140	1.01	-0.30	-0.14	-0.31	-0.26	0.01	1.14	-----
150	-14.97	0.49	-0.24	-0.31	-0.34	-1.05	1.66	-----
159	-2.19	0.68	0.52	1.52	0.08	-1.29	-----	-----
171	-----	-----	-----	-----	-----	-----	-----	-----
212	-----	-----	-----	-----	-----	-----	-----	-----
237	-2.10	-1.42	-0.99	-1.19	-0.38	0.33	0.72	-----
238	-----	-----	-----	-----	-----	-----	-----	-----
311	-----	-----	-----	-----	-----	-----	-----	-----
312	-----	0.30	0.14	-0.12	-0.05	0.05	-----	-----
323	1.62	0.91	0.80	0.83	0.99	0.17	-0.94	-----
331	-----	-----	-----	-----	-----	-----	-----	-----
333	0.33	-0.44	-0.42	-0.43	-0.30	-0.23	-0.21	-----
334	2.21	0.26	0.52	0.20	0.20	1.67	-0.83	-----
335	2.19	-0.21	0.61	0.26	0.12	1.55	-0.63	-----
336	-----	-----	-----	-----	-----	-----	-----	-----
337	-----	-----	-----	-----	-----	-----	-----	-----
338	-----	-----	-----	-----	-----	-----	-----	-----
340	-0.65	0.68	1.18	0.77	0.49	0.41	0.31	-----
342	-0.56	-0.35	-0.33	-0.24	-0.18	-0.74	0.51	-----
345	0.36	-0.52	-0.24	-0.34	-0.43	0.22	0.20	-----
349	-----	-----	-----	-----	-----	-----	-----	-----
350	-----	-----	-----	-----	-----	-----	-----	-----
351	-----	-----	-----	-----	-----	-----	-----	-----
353	-11.75	0.44	0.42	0.07	0.33	1.83	0.20	-----
356	-----	-----	-----	-----	-----	-----	-----	-----
357	-11.54	0.58	0.61	0.32	0.16	0.76	0.62	-----
369	-6.84	1.14	3.06	1.84	0.87	0.80	-0.52	-----
370	-6.78	0.07	0.90	0.51	0.28	-0.42	-0.63	-----
371	-----	-----	-----	-----	-----	-----	-----	-----
381	-2.98	0.02	0.52	0.26	0.20	-1.01	0.33	-----
391	0.26	0.49	0.90	0.58	0.49	0.17	-----	-----
398	-----	-----	-----	-----	-----	-----	-----	-----
399	-0.94	1.93	0.99	0.45	0.16	2.97	-1.04	-----
402	0.56	-0.07	0.14	0.07	0.37	-0.66	-0.63	-----
403	0.94	-0.30	-0.33	-0.31	-0.18	-0.23	-0.52	-----
420	0.42	0.49	-0.05	-0.05	0.08	-0.23	-0.83	-----
431	-8.52	-0.07	0.61	0.14	-0.01	-0.46	0.83	-----
432	-----	-----	-----	-----	-----	-----	-----	-----
433	-----	-----	-----	-----	-----	-----	-----	-----
440	-10.75	0.07	0.90	0.83	0.74	3.01	0.41	-----
444	-----	-----	-----	-----	-----	-----	-----	-----
445	0.78	-0.25	-0.71	-0.43	-0.22	0.29	-0.32	-----
447	-----	-----	-----	-----	-----	-----	-----	-----
453	-----	-----	-----	-----	-----	-----	-----	-----
463	0.74	-0.49	-1.18	-0.87	-0.38	-0.46	-0.42	-----
485	-----	-----	-----	-----	-----	-----	-----	-----
541	-----	-----	-----	-----	-----	-----	-----	-----
593	-12.22	-30.73	-5.04	29.66	25.46	25.17	30.28	-----
621	-----	-----	-----	-----	-----	-----	-----	-----
631	1.76	-1.88	0.90	0.70	0.24	2.30	1.24	-----
663	-----	-----	-----	-----	-----	-----	-----	-----
704	-3.92	-0.35	-0.24	0.07	0.03	1.12	-0.52	-----
781	-0.96	0.49	-0.61	-0.43	-0.26	-0.66	-0.32	-----
784	0.28	1.05	1.65	1.90	0.83	1.47	-0.32	-----
785	0.40	0.12	0.42	0.32	0.28	0.13	0.10	-----
863	-----	-----	-----	-----	-----	-----	-----	-----
873	-2.10	-0.25	-0.52	-0.24	-0.18	0.33	0.20	-----
874	-0.96	-0.72	0.42	0.07	0.03	-0.07	-0.32	-----
875	-1.40	-0.49	0.42	-0.24	0.12	-0.26	0.20	-----
886	-----	-----	-----	-----	-----	-----	-----	-----
902	1.26	-0.02	-0.33	-0.37	-0.34	0.37	0.31	-----

912	0.17	-0.25	-0.99	-0.56	-0.38	-2.43	-0.83	-----
962	-----	-----	-----	-----	-----	-----	-----	-----
963	1.56	0.12	-0.80	-0.94	-0.59	-0.03	-0.73	-----
1006	-----	-----	-----	-----	-----	-----	-----	-----
1033	0.58	0.30	0.80	0.51	0.33	0.45	-----	-----
1059	1.78	0.40	-0.05	-0.05	0.03	0.33	-----	-----
1080	-----	-----	-----	-----	-----	-----	-----	-----
1082	2.28	0.07	0.24	0.14	0.16	-0.03	-0.11	-----
1108	-3.26	2.21	1.27	0.51	0.28	1.71	-----	-----
1109	0.22	-0.67	-0.90	-0.62	-0.38	-1.53	-----	-----
1121	-11.18	0.44	0.33	0.07	-0.09	-1.29	3.31	-----
1126	-----	-----	-----	-----	-----	-----	-----	-----
1134	0.97	0.40	1.08	0.58	0.33	1.90	0.10	-----
1146	4.69	1.09	1.37	0.58	0.33	4.03	-0.83	-----
1161	-----	-----	-----	-----	-----	-----	-----	-----
1167	-----	-----	-----	-----	-----	-----	-----	-----
1191	0.47	0.35	0.14	0.01	0.08	0.01	-0.21	-----
1194	-1.99	-3.98	-0.71	0.26	0.12	-2.28	2.59	-----
1199	-----	-----	-----	-----	-----	-----	-----	-----
1201	-0.46	-0.77	-0.80	-0.24	0.24	-0.94	0.31	-----
1205	1.12	0.44	0.42	0.20	0.12	-0.66	-----	-----
1212	1.08	0.35	0.05	-0.05	-0.05	0.33	-1.14	-----
1229	-----	-----	-----	-----	-----	-----	-----	-----
1254	-----	-----	-----	-----	-----	-----	-----	-----
1264	-----	-----	-----	-----	-----	-----	-----	-----
1266	4.78	0.77	1.56	0.96	0.45	0.13	-0.94	-----
1272	-----	-----	-----	-----	-----	-----	-----	-----
1297	0.56	-0.39	0.05	-0.05	-0.05	-0.34	0.18	-----
1299	-0.42	0.16	-0.05	-1.06	-2.76	-5.19	-0.11	-----
1310	-----	-----	-----	-----	-----	-----	-----	-----
1316	-----	-0.12	0.33	0.20	0.20	-0.97	0.10	-----
1318	-0.96	-0.39	-0.33	-0.12	-0.22	-0.34	0.41	-----
1356	0.17	-0.72	-0.99	-0.56	-0.38	-2.43	1.24	-----
1365	-0.74	-1.42	-0.99	-0.56	0.03	-0.86	1.76	-----
1367	-----	-----	-----	-----	-----	-----	-----	-----
1397	-5.14	0.72	0.71	0.26	0.33	0.56	-0.63	-----
1428	-----	-----	-----	-----	-----	-----	-----	-----
1430	-1.28	-0.67	-0.05	-0.31	-0.38	0.17	-----	-----
1433	-----	-----	-----	-----	-----	-----	-----	-----
1457	1.58	-0.16	-0.52	-0.43	-0.22	0.21	-0.52	-----
1459	-1.24	0.02	0.33	-2.32	-1.68	-2.39	-0.83	-----
1491	-----	-----	-----	-----	-----	-----	-----	-----
1498	-----	-----	-----	-----	-----	-----	-----	-----
1510	-1.26	-0.21	-0.61	-0.56	-0.47	-0.62	0.51	-----
1520	-9.02	-2.12	-1.93	-1.19	-0.80	-2.04	-----	-----
1528	1.78	0.30	0.52	0.39	-0.01	-1.49	-0.52	-----
1556	-----	-----	-----	-----	-----	-----	-----	-----
1569	-5.91	1.51	0.52	0.26	0.12	0.45	0.93	-----
1584	-1.64	-0.25	-0.99	-0.56	-0.38	0.33	0.20	-----
1586	0.83	-0.67	-1.37	-1.00	-0.80	-1.01	-0.11	-----
1631	1.15	0.12	0.61	0.32	0.28	2.10	0.00	-----
1634	0.60	0.68	2.03	1.40	0.99	0.68	3.11	-----
1654	-----	-----	-----	-----	-----	-----	-----	-----
1678	-----	-----	-----	-----	-----	-----	-----	-----
1681	0.35	0.40	0.90	0.51	0.33	0.17	0.20	-----
1694	1.31	-0.25	-0.05	0.07	0.03	-0.46	1.24	-----
1720	-----	-----	-----	-----	-----	-----	-----	-----
1724	-0.67	-0.49	-0.42	-4.85	-----	-7.40	-----	-----
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	-----	-----	-----	-----	-----	-----	-----	-----
1741	-1.76	-0.21	0.33	0.14	-0.01	-0.03	0.51	-----
1742	1.28	-0.16	-0.71	-0.62	-0.47	-0.30	-----	-----
1746	-----	-----	-----	-----	-----	-----	-----	-----
1749	-----	-----	-----	-----	-----	-----	-----	-----
1753	-----	-----	-----	-----	-----	-----	-----	-----
1771	-----	-1.42	-2.40	-2.77	-1.84	0.13	1.24	-----
1773	-----	-----	-----	-----	-----	-----	-----	-----
1776	-0.28	0.02	-0.14	0.01	0.16	-0.82	-0.11	-----
1782	1.24	0.16	-0.33	-0.24	-0.13	-0.62	-0.11	-----
1784	-----	-----	-----	-----	-----	-----	-----	-----
1807	-----	-----	-----	-----	-----	-----	-----	-----
1811	0.85	-0.53	-0.05	-0.12	-0.30	-1.29	0.62	-----
1813	-12.87	0.44	-0.42	-0.22	-0.11	-0.26	-----	-----
1832	-----	-----	-----	-----	-----	-----	-----	-----
1849	-----	-----	-----	-----	-----	-----	-----	-----
1854	-----	-----	-----	-----	-----	-----	-----	-----
1857	0.08	-0.35	-0.71	-0.68	-0.51	-0.46	-0.52	-----
1858	-1.42	0.68	0.99	0.58	0.37	0.64	-0.83	-----
1862	-----	-----	-----	-----	-----	-----	-----	-----
1872	2.67	-0.95	-0.99	-0.24	0.45	0.72	-0.83	-----

1881	-----	-----	-----	-----	-----	-----	-----	-----
1911	-----	-----	-----	-----	-----	-----	-----	-----
1936	-----	-----	-----	-----	-----	-----	-----	-----
1937	-----	-----	-----	-----	-----	-----	-----	-----
1938	-0.17	-1.19	-0.99	-0.87	-0.59	0.52	0.20	-----
1950	-1.53	-0.02	-0.52	-0.24	-0.18	0.33	0.20	-----
1953	-----	-----	-----	-----	-----	-----	-----	-----
1961	-----	-----	-----	-----	-----	-----	-----	-----
1976	-10.43	0.63	-0.14	-0.05	-0.01	0.25	0.10	-----
1979	-----	-----	-----	-----	-----	-----	-----	-----
1984	0.06	0.02	-0.33	-0.43	-0.38	-0.15	-0.21	-----
1995	-----	-----	-----	-----	-----	-----	-----	-----
2129	-----	-----	-----	-----	-----	-----	-----	-----
2146	-----	-----	-----	-----	-----	-----	-----	-----
6013	1.62	-0.63	-1.37	-0.81	-0.68	-2.12	0.00	-----
6014	-6.91	0.12	-0.14	-0.24	-0.63	-2.16	0.00	-----
6018	-----	-----	-----	-----	-----	-----	-----	-----
6028	0.24	0.16	-0.52	-0.62	-0.72	-0.15	0.10	-----
6034	-----	-----	-----	-----	-----	-----	-----	-----
7006	-7.82	-----	-----	-----	-----	1.98	-----	-----
9057	-----	-----	-----	-----	-----	-----	-----	-----

APPENDIX 3

Number of participants per country

1 labs in	ALGERIA	2 labs in	LITHUANIA
1 lab in	ARGENTINA	2 labs in	MALTA
2 labs in	AUSTRALIA	1 lab in	MOROCCO
3 labs in	AUSTRIA	7 labs in	NETHERLANDS
2 labs in	BELGIUM	1 lab in	NIGER
1 lab in	BULGARIA	2 labs in	NIGERIA
1 lab in	CANADA	1 lab in	NORWAY
1 lab in	CHILE	1 lab in	PHILIPPINES
1 lab in	CHINA, People's Republic	5 labs in	POLAND
1 lab in	CROATIA	5 labs in	PORTUGAL
4 labs in	CYPRUS	4 labs in	ROMANIA
2 labs in	CZECH REPUBLIC	13 labs in	RUSSIAN FEDERATION
1 lab in	ECUADOR	2 labs in	SAUDI ARABIA
1 lab in	EGYPT	3 labs in	SERBIA
3 labs in	ESTONIA	1 lab in	SLOVENIA
6 labs in	FINLAND	9 labs in	SPAIN
10 labs in	FRANCE	1 lab in	SUDAN
5 labs in	GREECE	6 labs in	SWEDEN
1 lab in	HONG KONG	2 labs in	TAIWAN
1 lab in	HUNGARY	1 lab in	THAILAND
1 lab in	INDIA	1 lab in	TUNISIA
1 lab in	INDONESIA	14 labs in	TURKEY
1 lab in	IRAN, Islamic Republic of	1 lab in	UKRAINE
1 lab in	IRELAND	2 labs in	UNITED ARAB EMIRATES
3 labs in	ITALY	13 labs in	UNITED KINGDOM
5 labs in	LATVIA	5 labs in	UNITED STATES OF AMERICA

APPENDIX 4

Abbreviations:

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

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