Results of Proficiency Test
Gasoil (ASTM Spec)
September 2018

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis18G05ASTM – REVISED --

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SUMMARY OF CHANGES

This revised report replaces the original report iis18G05ASTM of December 2018.

It was discovered by a participant that the z-scores of the Distillation IBP were copied incorrectly.

The following page in this report have been revised only:

- Appendix 2: page 86, z-scores IBP for lab 851-1944

CONTENTS

1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies (iis) organizes every year proficiency tests for Gasoil for the ASTM specification. During the annual proficiency testing program of 2018/2019, it was decided to continue the proficiency test for the testing of Gasoil in accordance with the latest applicable version of ASTM D975 specification.
The number of participants per Gasoil PT: 168 laboratories in 77 different countries for the main round (iis18G05ASTM), 30 laboratories in 22 different countries for Cetane Number (iis18G05CN), 60 laboratories in 33 different countries for Total Contamination (iis18G05TC), and 48 laboratories in 27 different countries registered for Oxidation Stability (iis18G05OX). In total 179 laboratories did register for participation for the above Gas Oil PTs. See appendix 3 for the number of participants per country of the main round. In this report, the results of the 2018 Gasoil proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory.
Dependent on registration it was decided to send for the Gasoil main round 1.5L Gasoil labelled #18170, for the Cetane Number determination 4L Gasoil labelled #18171, for the Total Contamination determination 1L Gasoil labelled #18172 and for the Oxidation Stability determination 1L Gasoil labelled #18173.
The participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for the statistical evaluation.

2.1 ACCREDITATION

The Institute for Interlaboratory Studies (iis) 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 June 2018 (iis-protocol, version 3.5). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

Preparation of samples for PT on ultra low sulphur winter Gasoil (main round)

For the main round, approx. 550 litres of Gasoil was made available from several retain Gasoil batches. After homogenisation, 210 amber glass bottles of 1L and 210 amber glass bottles of 0.5L were filled and labelled #18170. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected from 1L and 0.5L samples.

	Density at 15°C in kg/m^3		Density at 15°C in kg/m^3
sample #18170-1	836.62	sample #18170-6	836.62
sample #18170-2	836.62	sample #18170-7	836.62
sample #18170-3	836.62	sample #18170-8	836.62
sample #18170-4	836.61	sample #18170-9	836.62
sample #18170-5	836.61	sample #18170-10	836.62

Table 1: homogeneity test results of subsamples #18170

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

	Density at 15°C in kg/m^3
r (observed)	0.01
reference test method	ASTM D4052:18
0.3*R (reference test method)	0.15

Table 2: evaluation of the repeatability of subsamples #18170

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

Preparation of samples for PT on Cetane Number

For the PT on Cetane Number, approx. 280 litres of Gasoil was made available from several retain Gasoil batches. After homogenisation, 279 amber glass bottles of 1L were filled and labelled #18171. The homogeneity of the 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		Density at 15°C in kg/m^3
sample #18171-1	834.84	sample #18171-6	834.85
sample #18171-2	834.85	sample #18171-7	834.85
sample #18171-3	834.84	sample #18171-8	834.84
sample #18171-4	834.84	sample #18171-9	834.85
sample #18171-5	834.84	sample #18171-10	834.85

Table 3: homogeneity test results of subsamples #18171

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

	Density at 15°C in kg/m^3
r (observed)	0.01
reference test method	ASTM D4052:18
0.3*R (reference test method)	0.15

Table 4: evaluation of the repeatability of subsamples #18171

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

Preparation of samples for PT on Total Contamination

For the PT on total Contamination in Gasoil, approx. 200 litres was purchased from the local market and homogenized.
To 1L glass bottles (labelled #18172) Arizona Dust material in an oil suspension was added to give a total contamination of at least 15 mg/kg. To do this, a defined volume of the fresh prepared and well shaken dust suspension was added to an empty bottle by means of a calibrated pipette. The addition was checked by weighing the bottle before and after addition. In total 92 bottles were prepared and subsequently filled up to 1L with Gasoil, and subsequently homogenized.

Preparation of samples for PT on Oxidation Stability in Gasoil

The necessary sample material of about 125 litres of Gasoil was purchased from a local petrol station. From this batch, after homogenisation, 75 amber glass bottles of 1 litre were filled and labelled #18173. The homogeneity of the 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		Density at 15°C in kg/m^3
sample #18173-1	836.12	sample #18173-5	836.12
sample #18173-2	836.12	sample #18173-6	836.11
sample #18173-3	836.12	sample #18173-7	836.13
sample #18173-4	836.12	sample #18173-8	836.13

Table 5: homogeneity test results of subsamples #18173

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

	Density at 15°C in kg/m^3
r (observed)	0.02
reference test method	ASTM D4052:18
0.3*R (reference test method)	0.15

Table 6: evaluation of the repeatability of subsamples #18173

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

Dependent on registration of each individual participant the following samples were sent on August 29, 2018: for the Gasoil main round 1 * 1 litre bottle and 1 * 0.5 litre bottle (both labelled #18170), for the Cetane Number determination 4 * 1 litre bottle (all labelled #18171), for the Total Contamination determination 1 * 1 litre bottle (labelled #18172) and for the Oxidation Stability determination 1 * 1 litre bottle (labelled #18173). An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSES

The participants were requested to determine on the samples of #18170: Acid number (total), Aromatics by FIA, Ash Content, Calculated Cetane Index (D976 and D4737), Cloud Point, Cold Filter Plugging Point (CFPP), Color ASTM, Conradson Carbon Residue, Ramsbottom Carbon Residue, Copper Corrosion, Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP, %V/V at 250°C and 350°C), FAME content, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR, Nitrogen, Pour Point (manual and/or automated), Sulphur, Water content and Water & Sediment (D2709 and D1796).
On the samples of #18171 was requested to determine: Cetane Number and Derived Cetane number (D6890 and D7668).
On sample #18172 was requested to determine: Particulate and Total Contamination.
On sample #18173 was requested to determine: Oxidation Stability (Filterable Insolubles, Adherent Insolubles and Total Insolubles).

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

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

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment.

Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalyses). Additional or corrected test results are used for data analysis and the original test results are placed under ‘Remarks’ in the test 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 June 2018 (iis-protocol, version 3.5).
For the statistical evaluation, the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

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

According to 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. In this PT, the criterion of ISO13528, paragraph 9.2.1, was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.

Finally, the reproducibilities were calculated from the standard deviations by multiplying these 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 reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

Furthermore, Kernel Density Graphs were made. The Kernel Density Graph 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 variation in this interlaboratory study.

The target standard deviation was calculated from the literature reproducibility by division with 2.8. In case no literature reproducibility was available, other target values were used. In some cases, a reproducibility based on former iis proficiency tests could be used.

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

The z-scores were calculated according to:

$z_{(target)}$ = (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. 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, a number of laboratories encountered problems with sample dispatch. For the main PT: nineteen participants reported test results after the final reporting date and eight participants did not report any test results at all.
For the PT on Cetane Number: two participants reported the test results after the final reporting date and four participants did not report any test results at all.
For the PT on Total Contamination: five participants reported the test results after the final reporting date and twelve participants did not report any test results at all.
For the Oxidation Stability PT: three participants reported the test results after the final reporting date and thirteen participants did not report any test results at all.

Finally, the reporting participants reported in total 3027 numerical test results. Observed were 84 outlying test results, which is 2.8%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER SAMPLE AND PER TEST

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

In the iis PT reports, ASTM test methods are referred to with a number (e.g. D976) and an added designation for the year that the test method was adopted or revised (e.g. D976:06). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D976:06 (2016)). In the test results tables of Appendix 1 only the test method number and year of adoption will be used.

Sample #18170 (main round)

Acid Number (total): This determination was not problematic. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D974:14e2.

Aromatics (FIA): This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D1319:15. One should be aware that this Gasoil does not meet the scope of ASTM D1319 (petroleum fractions should be distilling below 315°C).

Ash: This determination was not problematic at a concentration near or below the application range of the test method. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D482:13.

CCI D976: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D976:06(2016) and ASTM D976:80(1990)e1. The specification for Gasoil ASTM D975:17 table 1 refers to the version from 1980.

CCI D4737: This determination might not be problematic compared to the calculated reproducibility of iis17G05ASTM. Regretfully, no reproducibility is mentioned in ASTM D4737:10(2016). Five statistical outliers were observed and seven other test results were excluded.

Cloud Point: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D2500:17a.

CFPP: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D6371:17a or EN116:15.
Also, when the test results from ASTM D6371 and IP309/EN116 were evaluated separately, both the calculated reproducibilities are still not in agreement with the requirements of the corresponding reference test methods.

Color ASTM: This determination was not problematic. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1500:12(2017).

Conradson CR: This determination may be 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 of ASTM D189:06(2014).

Ramsbottom CR: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D524:15.

Copper Corrosion: This determination was not problematic. All reportin participants agreed on a result of 1 (or 1a or 1b).

Density at 15°C: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4052:18.

Distillation: This determination was not problematic. In total twenty statistical outliers were observed over eight parameters and one other test result was excluded. All calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ASTM D86:17 automated mode. When evaluated against the ASTM D86:17 manual mode the calculated reproducibilities of 95% rec. and FBP after rejection of the suspect data are not in agreement.

FAME: This determination may not problematic depending on the test method used. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D7371:14. When evaluated against the more strict requirements of EN14078:14 (range A or range B) the calculated calculated reproducibilities after rejection of the statistical outlier are not in agreement.

Flash Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D93:16a (procedure A).

Kinematic. Visc. 40°C: This determination may be problematic for a number of laboratories. Eight statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D445:17a.

Lubricity: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not agreement with the requirements of ASTM D6079:11(2016) and is not in agreement with the requirements of ISO12156:16 (procedure A or B).
When the test results from ASTM D6079 and ISO12156/IP450 were evaluated separately, the calculated reproducibility is not in agreement with the requirements of ISO12156/IP450, but is in agreement with the requirements of ASTM D6079:11(2016).

Nitrogen: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D4629:12(2017).

Pour Point: The determination was not problematic for the manual mode. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D97:17b.
Also for the automated mode the determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5950:14.

Sulphur: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5453:16e1.

Water: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of the ASTM D6304-A:16e1.

Water and Sediment (D2709 and D1796): This determination was not problematic. Almost all reporting laboratories agreed on a test result zero or close to zero (reported a “less than” test result). Therefore, no z-scores were calculated.

Sample #18171 (Cetane Number)

CN - D613: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D613:18.

DCN - D6890: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility for Derived Cetane Number (DCN) and for Ignition Delay (ID) are in agreement with the requirements of ASTM D6890:16e2.

DCN - D7668: This determination was not problematic for Derived Cetane Number (DCN). No statistical outliers were observed. The calculated reproducibility for DCN is in agreement with the requirements of ASTM D7668:17. The calculated reproducibility for Ignition Delay (ID) and for Combustion Delay (CD) are both not in agreement with the requirements of ASTM D7668:17.

Sample #18172 (Contamination)

The samples were spiked with a freshly prepared suspension of Arizona Dust. Therefore, minimum Particulate/Total Contamination to be found was known. The laboratories should be able to find at least 8.5 mg/L [12.5 mg/L $_{\text{(added amount)}}$ – 4 mg/L $_{\text{(R D6217:18)}}$] or at least 8.4 mg/kg [15.0 mg/L $_{\text{(added amount)}}$ – 6.6 mg/kg $_{\text{(R EN12662:14)}}$]. Test results below this minimal thresholds are excluded.

Particulate Contamination: This determination was problematic. One statistical outlier was observed and three test other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D6217:18.

Total Contamination: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN12662:14.

Sample #18173 (Oxidation Stability)

Filterable Insolubles (A): This determination was not problematic at this low level of 0.10 mg/100ml. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D2274:14.

Adherent Insolubles Insolubles (B): This determination was not problematic at this low level of 0.13 mg/100ml. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with ASTM D2274:14.

Total Insolubles (A+B): This determination was not problematic at this low level of 0.26 mg/100ml. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D2274:14.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of participating laboratories. The number of significant test results, the average results, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility derived from literature reference test methods (in casu ASTM, EN standards) or previous proficiency tests are presented in the next tables.

Parameter	unit	n	average	2.8 * sd	R (lit)
Acid Number (total)	mgKOH/g	73	0.03	0.02	0.04
Aromatics by FIA	%V/V	24	22.2	5.8	3.7
Ash content	%M/M	65	0.0008	0.0013	0.005
Calc. Cetane Index ASTM D976		88	53.4	0.6	2
Calc. Cetane Index ASTM D4737		98	52.9	0.9	n.a.
Cloud Point	°C	119	-6.7	2.5	4
Cold Filter Plugging Point	°C	95	-22.7	9.8	4.9
Color ASTM		71	1.0	0.2	1
Conradson Carbon Residue	%M/M	65	0.02	0.03	0.03
Ramsbottom Carbon Residue	%M/M	13	0.07	0.07	0.03
Copper Corrosion 3hrs at 50°C		113	1 (1a/1b)	n.a.	n.a.
Density at 15°C	kg/m^3	148	836.7	0.3	0.5
Initial Boiling Point	°C	123	167.4	7.3	9.2
Temp at 10% recovery	°C	127	207.8	4.9	4.6
Temp at 50% recovery	°C	127	275.0	2.8	3.0
Temp at 90% recovery	°C	127	332.5	4.2	5.0
Temp at 95% recovery	°C	130	346.7	7.0	8.5
Final Boiling Point	°C	127	355.7	6.0	7.1
Volume at 250°C	%V/V	117	31.3	2.4	2.7
Volume at 350°C	%V/V	115	95.9	1.7	2.7
FAME	%V/V	50	3.3	0.6	0.9
Flash Point PMcc	°C	146	61.5	4.2	4.4
Kinematic Viscosity at 40°C	mm^2/s	125	2.800	0.033	0.031
Lubricity by HFRR	µm	50	217	103	80
Nitrogen	mg/kg	37	43.4	12.9	5.6
Pour Point, manual	°C	82	-26.2	4.7	9
Pour Point, automated	°C	41	-25.9	5.0	6.1
Sulphur	mg/kg	116	8.6	2.8	2.9
Water	mg/kg	109	54.0	31.7	184.9
Water and Sediment (D2709)	%V/V	46	<0.05	n.a.	n.a.
Water and Sediment (D1796)	%V/V	24	<0.05	n.a.	n.a.

Table 7: reproducibilities of tests on sample #18170

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		16	54.8	4.2	4.7
DCN (D6890)		4	55.7	2.1	2.8
Iginition delay (D6890)		4	3.6	0.2	0.2
DCN (D7668)		8	56.1	1.2	1.6
Ignition delay (D7668)		8	2.8	0.2	0.1
Combustion delay (D7668)		8	4.3	0.1	0.1

Table 8: reproducibilities of tests on sample #18171

Parameters	unit	n	average	2.8 * sd	R (lit)
Particulate Contamination	mg/L	7	11.5	4.8	3.8
Total Contamination	mg/kg	33	17.6	11.8	7.0

Table 9: reproducibilities of tests on sample #18172

Parameters	unit	n	average	2.8 * sd	R (lit)
Oxidation Stab. Filt. Insol. A	mg/100mL	27	0.10	0.27	0.54
Oxidation Stab. Adher. Insol B	mg/100mL	27	0.13	0.44	0.54
Oxidation Stab. Tot. Insol. (A+B)	mg/100mL	29	0.26	0.50	0.76

Table 10: reproducibilities of tests on sample #18173

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 reference test methods. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE INTERLABORATORY STUDY OF SEPTEMBER 2018 WITH PREVIOUS PTS.

	Sept 2018	*Sept 2017*	*Sept 2016*	*Sept 2015*	*Sept 2014*
Number of reporting labs	170	181	199	165	163
Number of test results reported	3027	3341	3721	2996	3419
Statistical outliers	84	83	61	55	68
Percentage outliers	2.8%	2.5%	1.6%	1.8%	2.0%

Table 11: comparison with previous proficiency tests

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

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

Parameter	*Sept 2018*	*Sept 2017*	*Sept 2016*	*Sept 2015*	*Sept 2014*
Acid Number (total)	++	++	++	+	++
Aromatics by FIA	-	-	-	--	--
Ash content	++	(++)	(++)	(++)	(++)
Calc. Cetane Index ASTM D976	++	++	++	++	n.e.
Cloud Point	+	++	++	++	++
Cold Filter Plugging Point	--	--	-	-	-
Color ASTM	++	++	++	++	++
Conradson Carbon Residue	+/-	+	+	+/-	+
Ramsbottom Carbon Residue	--	+/-	-	--	--

Parameter	*Sept 2018*	*Sept 2017*	*Sept 2016*	*Sept 2015*	*Sept 2014*
Density at 15°C	+	++	+	++	++
Distillation	+	+	+	+	++
FAME	+	++	++	++	++
Flash Point PMcc	+/-	+	+/-	+	+
Kinematic Viscosity at 40°C	+/-	+/-	-	+/-	+
Lubricity by HFRR	-	++	-	--	--
Nitrogen	--	-	-	-	--
Pour Point (manual and auto)	+	++	++	+	++
Sulphur	+/-	+	+	+	++
Water	++	++	++	++	++
Cetane Number	+	+/-	+	+	++
DCN (D6890)	+	(--)	+/-	+/-	-
Ignition Delay (D6890)	+/-	(--)	+	+/-	--
DCN (D7668)	+	+	-	+/-	--
Ignition Delay (D7668)	--	-	+/-	+/-	--
Combustion Delay (D7668)	+/-	+/-	-	-	n.e.
Particulate Contamination mg/L	-	--	-	--	n.e.
Total Contamination mg/kg	-	-	+/-	--	--
Oxidation Stab. Filt. Insol. A	++	++	+/-	+/-	++
Oxidation Stab. Ad. Insol. B	+	+	+/-	+/-	n.e.
Oxidation Stab. Total Insol.	+	++	+	+	n.e.

Table 12: comparison determinations against the reference test method

The following performance categories were used:

++: group performed much better than the reference test method
+ : group performed better than the reference test method
+/-: group performance similar to the reference test method
- : group performed worse than the reference test method
-- : group performed much worse than the reference test method
n.e.: not evaluated

5 DISCUSSION

Recently, the JIG Bulletin No.117 / issue 30 November 2018 for analyses of Jet Fuels published a concern about the determination of Hydrocarbons by FIA according ASTM D1319 with a new batch of Fluorescent indicator dyed gel. ASTM D1319 is a very widely used test that has been around for decades. It is simple, robust and relatively inexpensive. At the heart of the test is a dyed silica gel. The gel has only ever been manufactured by one company. For various technical HSE and commercial reasons the gel can no longer be manufactured using the same components. Several alternative formulations have been tried, but none yield the same results as the original formulation. In use, the revised gels give misleading results. This is also acknowlegded in the letter to “CEN/TC 19/WG21 – FIA Dye issue” of 22 November 2018.
Nevertheless, iis cannot conclude whether this issue plays a role in the aromatics determination by FIA in this proficiency test of Gasoil as the determination has been problematic for years (see Table 12), it is advised that each participant evaluate this determination and check the dyed gel used.

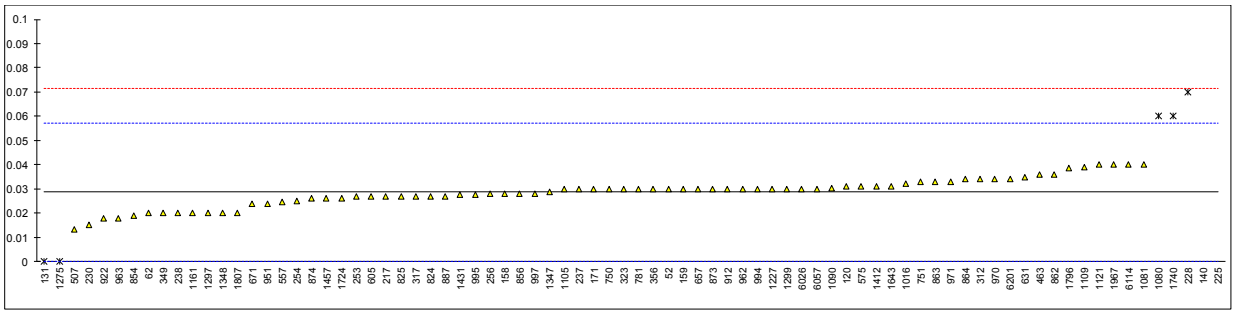
APPENDIX 1

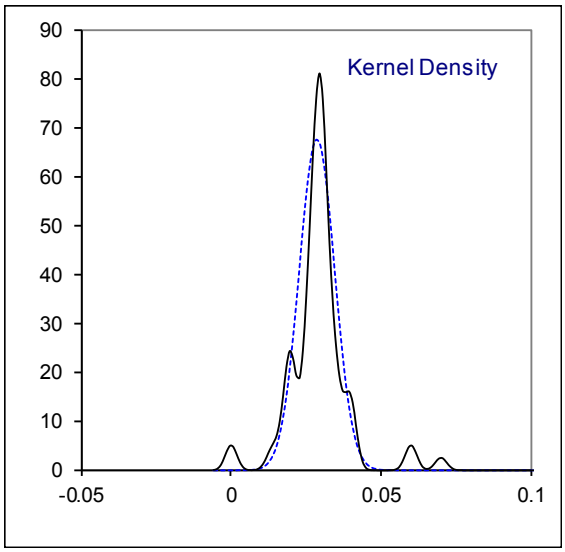
Determination of Acid Number (total) on sample #18170; results in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D974	0.03		0.10	851		-----		-----
53		-----		-----	854	D664	0.019		-0.67
62	D974	0.02		-0.60	856	D974	0.028		-0.04
90		-----		-----	862	D664-A	0.036		0.52
92		-----		-----	863	D974	0.033		0.31
120	D664-A	0.031		0.17	864	D974	0.034		0.38
131	D664-A	0	R(0.01)	-2.00	872		-----		-----
132		-----		-----	873	D974	0.03		0.10
140	D664-A	0.163	R(0.01)	9.41	874	D974	0.026		-0.18
150		-----		-----	886		-----		-----
158	D664-A	0.028		-0.04	887	D974	0.027		-0.11
159	D664-A	0.03		0.10	912	D974	0.03		0.10
169		-----		-----	922	D664-A	0.018		-0.74
171	D664-A	0.03		0.10	951	D974	0.0240		-0.32
175		-----		-----	962	D974	0.03		0.10
186		-----		-----	963	D974	0.018		-0.74
194		-----		-----	970	D974	0.034		0.38
203		-----		-----	971	D664-A	0.033		0.31
217	D974	0.027		-0.11	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D974	0.03		0.10
225	D974	0.27	R(0.01)	16.90	995	D974	0.0278		-0.06
228	D974	0.07	R(0.01)	2.90	996		-----		-----
230	D664-A	0.015		-0.95	997	D974	0.028		-0.04
237	D974	0.03		0.10	998		-----		-----
238	D974	0.02		-0.60	1006		-----		-----
240		-----		-----	1016	ISO6618	0.032		0.24
253	D974	0.027		-0.11	1033		-----		-----
254	D974	0.025		-0.25	1059		-----		-----
256	D974	0.028		-0.04	1080	D664-A	0.06	R(0.01)	2.20
258		-----		-----	1081	D664-A	0.0403		0.82
273		-----		-----	1090	D974	0.030246		0.11
312	D974	0.034		0.38	1105	D974	0.0298		0.08
317	D974	0.027		-0.11	1109	D974	0.039		0.73
323	D974	0.03		0.10	1121	D664-A	0.04		0.80
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161	D664-A	0.02		-0.60
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349	D664-A	0.02		-0.60	1199		-----		-----
353		-----		-----	1227	D664-A	0.03		0.10
355		-----		-----	1275	IP139	0.0	R(0.01)	-2.00
356	D974	0.03		0.10	1284		-----		-----
381		-----		-----	1297	D664-A	0.020		-0.60
433		-----		-----	1299	D664-A	0.03		0.10
463	D974	0.036		0.52	1347	D974	0.0288		0.01
485		-----		-----	1348	D974	0.02		-0.60
507	D664-A	0.0132		-1.08	1356	D664-A	<0.05		-----
511		-----		-----	1385		-----		-----
529		-----		-----	1412	D664-A	0.031		0.17
541	D974	<0.05		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557	D974	0.02458566		-0.28	1431	D664-A	0.0277		-0.07
558		-----		-----	1457	D974	0.026		-0.18
562		-----		-----	1498		-----		-----
575	D664-A	0.031		0.17	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605	D664-A	0.027		-0.11	1643	D664-A	0.031		0.17
614		-----		-----	1654		-----		-----
631	D974	0.035		0.45	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D974	0.03		0.10	1724	D664-A	0.026		-0.18
671	D974	0.02379		-0.34	1740	D664-A	0.06	R(0.01)	2.20
732		-----		-----	1783		-----		-----
733		-----		-----	1796	D664-A	0.0387		0.70
750	D664	0.03		0.10	1807	D664-A	0.02		-0.60
751	D974	0.033		0.31	1849		-----		-----
781	D974	0.03		0.10	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D974	0.027		-0.11	1937		-----		-----
825	D974	0.027		-0.11	1938		-----		-----
846		-----		-----	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D664-A	0.04		0.80	6057	D664-A	0.03		0.10
1968		-----		-----	6101		-----		-----
1984		-----		-----	6103		-----		-----
1995		-----		-----	6114	D664-A	0.04		0.80
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D664-A	0.03		0.10	6184		-----		-----
6045		-----		-----	6201	D974	0.034		0.38

normality	OK
n	73
outliers	7
mean (n)	0.0286
st.dev. (n)	0.00590
R(calc.)	0.0165
st.dev.(D974:14e2)	0.01429
R(D974:14e2)	0.04





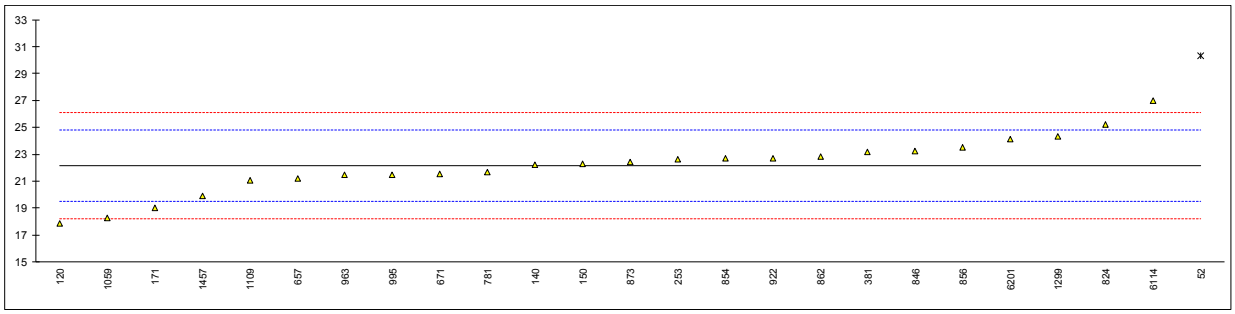
Determination of Aromatics by FIA on sample #18170; results in %V/V

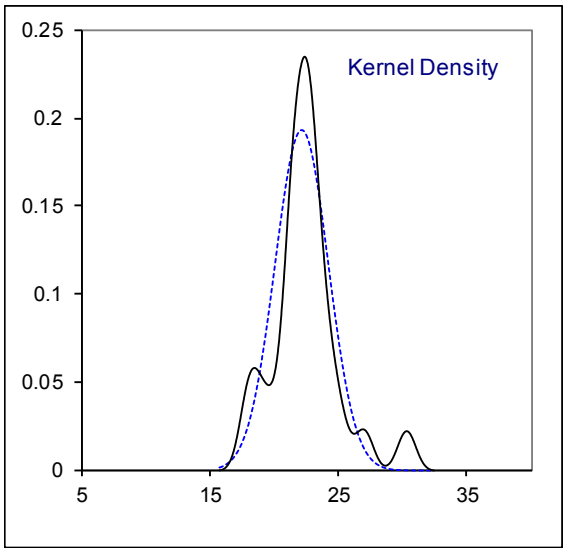
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1319	30.3	C,R(0.05)	6.16	851		-----		-----
53		-----		-----	854	D1319	22.7		0.41
62		-----		-----	856	D1319	23.5		1.02
90		-----		-----	862	D1319	22.8		0.49
92		-----		-----	863		-----		-----
120	D1319	17.9		-3.22	864		-----		-----
131		-----		-----	872		-----		-----
132		-----		-----	873	D1319	22.4		0.18
140	D1319	22.2		0.03	874		-----		-----
150	D1319	22.3		0.11	886		-----		-----
158		-----		-----	887		-----		-----
159		-----		-----	912		-----		-----
169		-----		-----	922	D1319	22.7		0.41
171	D1319	19.0		-2.39	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D1319	21.5		-0.50
194		-----		-----	970		-----		-----
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994		-----		-----
225		-----		-----	995	D1319	21.5		-0.50
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006		-----		-----
240		-----		-----	1016		-----		-----
253	D1319	22.60		0.33	1033		-----		-----
254		-----		-----	1059	D1319	18.3		-2.92
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1090		-----		-----
312		-----		-----	1105		-----		-----
317		-----		-----	1109	D1319	21.04		-0.85
323		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161		-----		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----	W	-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275		-----		-----
356		-----		-----	1284		-----		-----
381	D1319	23.2		0.79	1297		-----		-----
433		-----		-----	1299	EN12916	24.3		1.62
463		-----		-----	1347		-----		-----
485		-----		-----	1348		-----		-----
507		-----		-----	1356		-----		-----
511		-----		-----	1385		-----		-----
529		-----		-----	1412		-----		-----
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457	D1319	19.88		-1.72
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631		-----		-----	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D1319	21.2		-0.72	1724		-----		-----
671	D1319	21.55615		-0.46	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750		-----		-----	1807		-----		-----
751		-----		-----	1849		-----		-----
781	D1319	21.7		-0.35	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D1319	25.2		2.30	1937		-----		-----
825		-----		-----	1938		-----		-----
846	SH/T0606	23.21		0.80	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967		-----		-----	6057		-----		-----
1968		-----		-----	6101		-----		-----
1984		-----		-----	6103		-----		-----
1995		-----		-----	6114	D1319	27.0		3.66
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184		-----		-----
6045		-----		-----	6201	D1319	24.1		1.47

normality	OK
n	24
outliers	1
mean (n)	22.158
st.dev. (n)	2.0653
R(calc.)	5.783
st.dev.(D1319:15)	1.3214
R(D1319:15)	3.7

Lab 52 first reported 27.9
Lab 1194 test result 0.9 was withdrawn





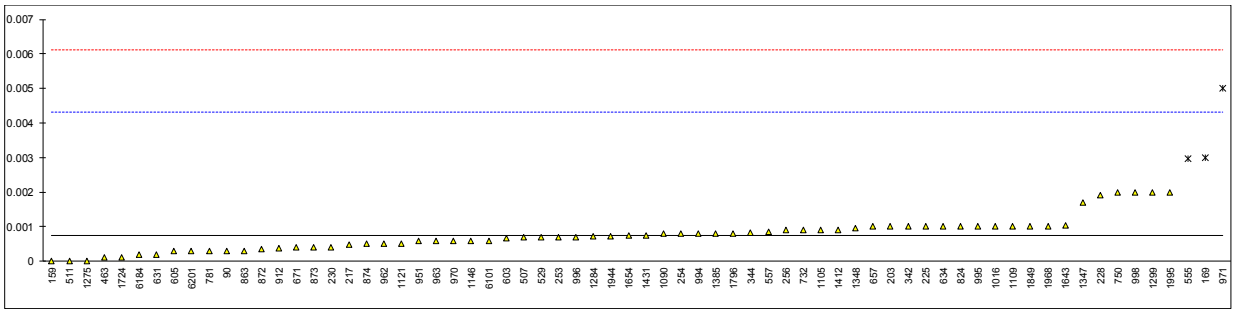
Determination of Ash on sample #18170; results in %M/M

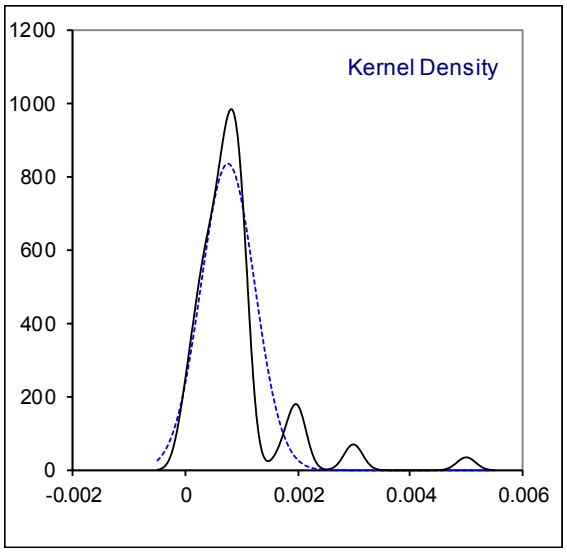
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	<0.001		-----	851		-----		-----
53		-----		-----	854	D482	<0.001		-----
62	D482	<0.001		-----	856	D482	<0.001		-----
90	D482	0.0003		-0.26	862	D482	<0.001		-----
92	D482	<0.001		-----	863	D482	0.0003		-0.26
120	D482	<0.001		-----	864	D482	<0.001		-----
131		-----		-----	872	D482	0.00035		-0.23
132		-----		-----	873	D482	0.0004		-0.20
140	D482	<0.001		-----	874	D482	0.0005		-0.14
150		-----		-----	886		-----		-----
158		-----		-----	887		-----		-----
159	D482	0.0		-0.42	912	D482	0.00038		-0.21
169	D482	0.003	R(0.01)	1.26	922	D482	<0.001		-----
171	D482	<0.001		-----	951	D482	0.0006		-0.09
175		-----		-----	962	D482	0.0005		-0.14
186		-----		-----	963	D482	0.0006		-0.09
194		-----		-----	970	D482	0.0006		-0.09
203	D482	0.001		0.14	971	D482	0.005	R(0.01)	2.38
217	D482	0.00049		-0.15	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D482	0.0008		0.02
225	D482	0.001		0.14	995	D482	0.001		0.14
228	D482	0.0019		0.64	996	D482	0.0007		-0.03
230	ISO6245	0.0004		-0.20	997		-----		-----
237	D482	<0.001		-----	998	D482	0.002		0.70
238		-----		-----	1006	D482	< 0.001		-----
240		-----		-----	1016	D482	0.001		0.14
253	D482	0.0007		-0.03	1033		-----		-----
254	D482	0.0008		0.02	1059	ISO6245	<0,001		-----
256	D482	0.0009		0.08	1080		-----		-----
258		-----		-----	1081		-----		-----
273	D482	<0.01		-----	1090	ISO6245	0.0007979		0.02
312		-----		-----	1105	D482	0.0009		0.08
317	D482	<0.001		-----	1109	D482	0.001		0.14
323	D482	< 0.001		-----	1121	D482	0.0005		-0.14
335		-----		-----	1126		-----		-----
336		-----		-----	1146	D482	0.0006		-0.09
337		-----		-----	1161	ISO6245	<0,001		-----
339		-----		-----	1182		-----		-----
342	ISO6245	0.001		0.14	1186		-----		-----
344	D482	0.00083		0.04	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275	IP4	0.000		-0.42
356	D482	Below 0.001		-----	1284	D482	0.00071		-0.03
381		-----		-----	1297		-----		-----
433		-----		-----	1299	D482	0.002		0.70
463	D482	0.0001		-0.37	1347	D482	0.0017		0.53
485		-----		-----	1348	D482	0.00095		0.11
507	D482	0.0007		-0.03	1356	ISO6245	<0.01		-----
511	D482	0.00		-0.42	1385	D482	0.0008		0.02
529	D482	0.00070		-0.03	1412	D482	0.0009		0.08
541	D482	<0.001		-----	1417		-----		-----
555	D482	0.00298	R(0.01)	1.24	1430		-----		-----
557	D482	0.00083908		0.05	1431	D482	0.00075		0.00
558		-----		-----	1457		-----		-----
562		-----		-----	1498		-----		-----
575	D482	<0.001		-----	1588		-----		-----
603	D482	0.00066		-0.05	1629		-----		-----
604		-----		-----	1634		-----		-----
605	D482	0.00029		-0.26	1643	D482	0.00103		0.15
614	D482	<0.001		-----	1654	ISO6245	0.00074		-0.01
631	D482	0.0002		-0.31	1709		-----		-----
634	D482	0.001		0.14	1720		-----		-----
657	D482	0.001		0.14	1724	D482	0.00012		-0.36
671	D482	0.00039		-0.21	1740		-----		-----
732	D482	0.0009		0.08	1783		-----		-----
733		-----		-----	1796	D482	0.0008		0.02
750	D482	0.002		0.70	1807		-----		-----
751		-----		-----	1849	ISO6245	0.001		0.14
781	D482	0.0003		-0.26	1881		-----		-----
785	D482	<0.002		-----	1906		-----		-----
798	D482	L 0.001		-----	1936		-----		-----
824	D482	0.001		0.14	1937		-----		-----
825	D482	L0.001		-----	1938		-----		-----
846	GB/T508	<0.001		-----	1944	D482	0.00072		-0.02

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D482	Less 0.001		-----	6057	D482	<0,001		-----
1968	D482	0.001		0.14	6101	D482	0.0006		-0.09
1984		-----		-----	6103		-----		-----
1995	D482	0.002		0.70	6114	D482	<0.001		-----
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184	ISO6245	0.00018		-0.32
6045		-----		-----	6201	D482	0.00029		-0.26

normality	not OK
n	65
outliers	3
mean (n)	0.0008
st.dev. (n)	0.00048
R(calc.)	0.0013
st.dev.(D482:13)	0.00179
R(D482:13)	0.005

Application range: 0.001 – 0.180 %M/M





Determination of Calculated Cetane Index, two variables ASTM D976 on sample #18170

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	53.2		-0.24	851	D976	53.6		0.32
53		-----		-----	854	D976	53.3		-0.10
62	D976	53.2		-0.24	856	D976	53.4		0.04
90	D976	53.48		0.15	862	D976	53.19		-0.25
92	D976	53.064		-0.43	863	D976	53.4		0.04
120	D976	52.99		-0.53	864	D976	53.3		-0.10
131	D976	53.0		-0.52	872	D976	53.6		0.32
132		-----		-----	873	D976	53.5		0.18
140	D976	53.4		0.04	874	D976	53.5		0.18
150	D976	53.1		-0.38	886	D976	53.5		0.18
158		-----		-----	887	D976	53.10		-0.38
159	D976	53.0		-0.52	912	D976	53.7		0.46
169		-----		-----	922	D976	53.4		0.04
171	D976	52.9		-0.66	951	D976	53.28		-0.13
175		-----		-----	962	D976	53.4		0.04
186		-----		-----	963	D976	53.5		0.18
194		-----		-----	970	D976	53.3		-0.10
203		-----		-----	971	D976	53.2		-0.24
217	D976	53.53		0.22	974		-----		-----
221		-----		-----	988	D976	53.3		-0.10
224		-----		-----	994	D976	53.4		0.04
225	D976	53.0		-0.52	995	D976	53.1		-0.38
228	D976	53.4		0.04	996	D976	51.79	E,R(0.01)	-2.21
230	D976	53.28		-0.13	997	D976	53.1		-0.38
237		-----		-----	998	D976	54.32	E,R(0.01)	1.33
238	D976	53.6		0.32	1006	D976	53.5		0.18
240		-----		-----	1016		-----		-----
253	D976	53.6		0.32	1033		-----		-----
254	D976	53.2		-0.24	1059		-----		-----
256	D976	53.3		-0.10	1080		-----		-----
258	D976	53.65		0.39	1081	D976	53.4		0.04
273		-----		-----	1090		-----		-----
312	D976	53.7		0.46	1105	D976	53.3		-0.10
317	D976	53.5		0.18	1109		-----		-----
323	D976	53.6		0.32	1121	D976	53.2		-0.24
335		-----		-----	1126		-----		-----
336	D976	53.4		0.04	1146	D976	53.6		0.32
337		-----		-----	1161		-----		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227	D976	53.24		-0.18
355	D976	53.1		-0.38	1275		-----		-----
356	D976	53.4	C	0.04	1284		-----		-----
381		-----		-----	1297	D976	53.5419		0.24
433		-----		-----	1299	D976	52.8		-0.80
463	D976	53.52		0.21	1347		-----		-----
485		-----		-----	1348		-----		-----
507	D976	53.41		0.06	1356		-----		-----
511	D976	52.9		-0.66	1385		-----		-----
529	D976	53.586		0.30	1412	D976	53.3		-0.10
541	D976	53.4		0.04	1417		-----		-----
555	D976	53.40		0.04	1430		-----		-----
557	D976	53.24135		-0.18	1431	D976	52.99		-0.53
558		-----		-----	1457	D976	53.3		-0.10
562	D976	53.4		0.04	1498	D976	53.6		0.32
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604	D976	53.836		0.65	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631	D976	53.74		0.52	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D976	53.4		0.04	1724	D976	53.5		0.18
671	D976	53.27		-0.14	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796	D976	54.5	R(0.01)	1.58
750	D976	53.5		0.18	1807	D976	53.0		-0.52
751		-----		-----	1849		-----		-----
781	D976	53.5		0.18	1881		-----		-----
785	D976	53.5		0.18	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D976	53.4		0.04	1937		-----		-----
825	D976	53.4		0.04	1938		-----		-----
846	GB/T11139	53.6		0.32	1944	D976	53.48		0.15

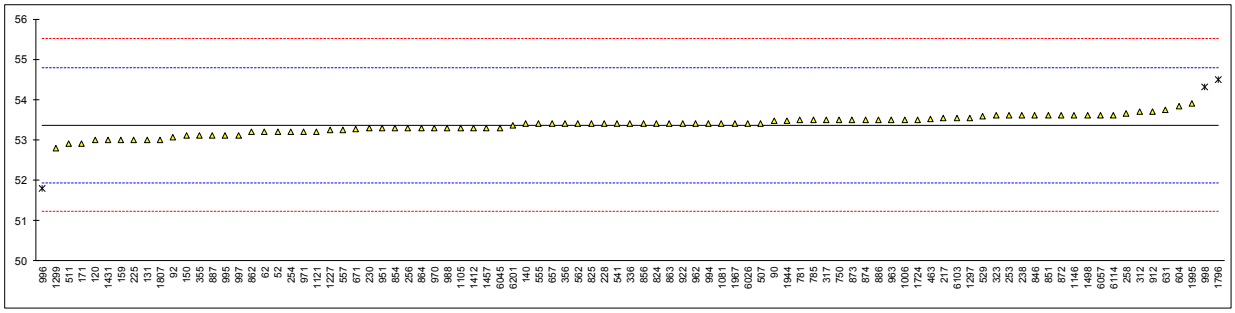
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D976	53.4		0.04	6057	D976	53.6		0.32
1968		-----		-----	6101		-----		-----
1984		-----		-----	6103	D976	53.54		0.24
1995	D976	53.9		0.74	6114	D976	53.6		0.32
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D976	53.4		0.04	6184		-----		-----
6045	D976	53.3		-0.10	6201	D976	53.3485		-0.03

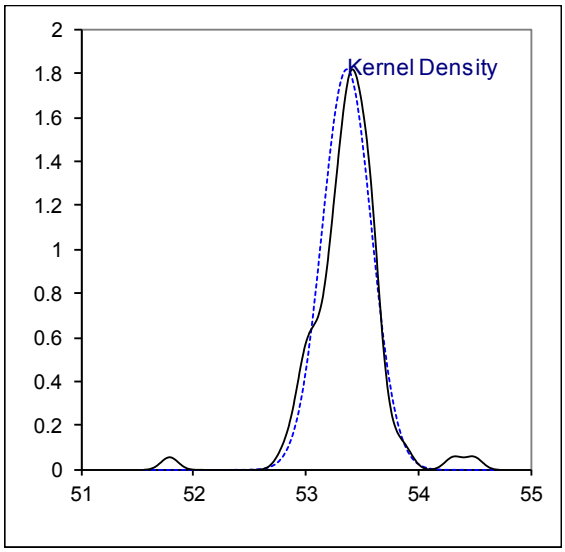
normality	OK
n	88
outliers	3
mean (n)	53.369
st.dev. (n)	0.2188
R(calc.)	0.613
st.dev.(D976:06)	0.7143
R(D976:06)	2

Lab 356 first reported 43.4

The CCI calculated by iis for labs marked with an E:
Lab 996: 53.18
Lab 998: 53.42 (density test result was corrected without correction of the CCI test result)

Please note: the reported CCI of labs marked with an E are used for the statistical evaluation





Determination of Calculated Cetane Index, four variables D4737 on sample #18170

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	52.8		-----	851	D4737-A	53.3		-----
53		-----		-----	854	D4737	52.9		-----
62		-----		-----	856	D4737	52.9		-----
90	D4737-A	53.09		-----	862	D4737	52.70		-----
92	D4737-B	52.551	Meth. A.	-----	863	D4737	53.0		-----
120	D4737-A	52.49		-----	864	D4737	52.8		-----
131	D4737-A	52.3	E	-----	872	D4737-A	53.1		-----
132		-----		-----	873	D4737-A	53		-----
140	D4737-A	53.0		-----	874	D4737-A	53.1		-----
150	D4737-A	52.6		-----	886	D4737-B	52.3	ex	-----
158		-----		-----	887	D4737-A	52.87		-----
159	D4737-A	52.8		-----	912	ISO4264	53.5		-----
169	D4737-A	53.1	E	-----	922		-----		-----
171	D4737-A	52.0		-----	951		-----		-----
175		-----		-----	962	D4737-A	52.9		-----
186		-----		-----	963	D4737-A	53.1		-----
194		-----		-----	970	D4737-A	52.7		-----
203		-----		-----	971	D4737-A	52.7		-----
217	D4737-A	53.16		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D4737-A	53.1		-----
225	D4737-A	52.6		-----	995	D4737-A	52.6		-----
228	D4737-A	53.0		-----	996	D4737-B	53.105	ex	-----
230	ISO4264	52.74		-----	997	D4737-A	52.6		-----
237		-----		-----	998	D4737	53.32	E,ex	-----
238		-----		-----	1006	D4737-A	53.2		-----
240		-----		-----	1016		-----		-----
253		-----		-----	1033		-----		-----
254		-----		-----	1059	ISO4264	52.9		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081	ISO4264	53.1		-----
273	D4737-A	53.01		-----	1090		-----		-----
312	D4737-A	53.5		-----	1105	D4737-A	52.9		-----
317	D4737-A	50.4	E,R(0.01)	-----	1109	D4737-A	52.6		-----
323	D4737-A	53.3		-----	1121	IP380	52.8		-----
335		-----		-----	1126		-----		-----
336	D4737-A	53.0		-----	1146		-----		-----
337		-----		-----	1161	ISO4264	53.1		-----
339		-----		-----	1182		-----		-----
342	ISO4264	52.9		-----	1186		-----		-----
344	D4737-A	53.19		-----	1194	D4737-A	50.9	R(0.01)	-----
349		-----		-----	1199		-----		-----
353	IP380	52.436		-----	1227		-----		-----
355	D4737-A	52.53		-----	1275	IP380	52.6		-----
356	D4737-A	53.0		-----	1284	D4737	53.0		-----
381	ISO4264	53.0		-----	1297		-----		-----
433		-----		-----	1299	D4737-A	52.4		-----
463	ISO4264	53.13		-----	1347	D4737-A	52.518		-----
485	D4737-A	53.4		-----	1348	D4737-A	53.249		-----
507	D4737-A	52.97		-----	1356	ISO4264	57	R(0.01)	-----
511	D4737	52.1		-----	1385	D4737-A	52.41		-----
529	D4737-A	53.070		-----	1412	D4737-A	52.9		-----
541	D4737-A	52.95		-----	1417		-----		-----
555	D4737	52.90		-----	1430		-----		-----
557	D4737	53.01496		-----	1431	D4737-A	52.22		-----
558		-----		-----	1457	D4737-A	52.8		-----
562		-----		-----	1498	D4737-A	53.2		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634	ISO4264	52.98		-----
605		-----		-----	1643		-----		-----
614	D4737-B	52.3	Meth. A	-----	1654	ISO4264	53.57		-----
631	D4737-A	53.29		-----	1709		-----		-----
634		-----		-----	1720	D4737-B	53.40	Meth. A	-----
657	D4737-A	53.1		-----	1724	D4737-A	53.2		-----
671	D4737-A	52.75		-----	1740	D4737-A	52.7		-----
732	ISO4264	52.4	E,ex	-----	1783		-----		-----
733		-----		-----	1796	D4737-A	54.1	E,R(0.05)	-----
750	D4737-A	53.0		-----	1807	D4737-B	51.4	ex	-----
751		-----		-----	1849	ISO4264	53.2		-----
781	D4737-A	53.2		-----	1881		-----		-----
785	D4737-A	53		-----	1906		-----		-----
798	D4737-A	53.2		-----	1936	ISO4264	53.0		-----
824	D4737-A	52.9		-----	1937	ISO4264	52.93		-----
825	D4737-A	53.1		-----	1938	ISO4264	52.89		-----
846	SH/T0694	53.11		-----	1944	D4737-A	53.05		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D4737-A	52.9		-----	6057	ISO4264	53.3		-----
1968	D4737-A	51	E,R(0.01)	-----	6101		-----		-----
1984	ISO4264	53.1		-----	6103	ISO4264	53.15		-----
1995	D4737	53.44		-----	6114	D4737-A	53.2		-----
6005	ISO4264	53.0		-----	6142		-----		-----
6018	ISO4264	53.5		-----	6170		-----		-----
6026	D4737-B	51.7	ex	-----	6184	ISO4264	53.2331		-----
6045	D4737-A	53.2		-----	6201	D4737-B	52.049	ex	-----

normality	OK
n	98
outliers	5 (+7 ex)
mean (n)	52.942
st.dev. (n)	0.3113
R(calc.)	0.872
st.dev.(D4737:10)	n.a.
R(D4737:10)	n.a.

Compare R(iis17G05ASTM) = 0.960

NB: The CCI reported with method B are excluded from the statistical evaluation as test method ASTM D4737 refers to method A in the scope. Calculation with method B is intended to use for Grade No 2-D S500 Diesel only.

Lab 92 Reported to use method B; iis calc CCI of 51.535. acc. to method B; The reported CCI appeared to be calculated with method A (iis calc. 52.551), therefore this test result is not excluded

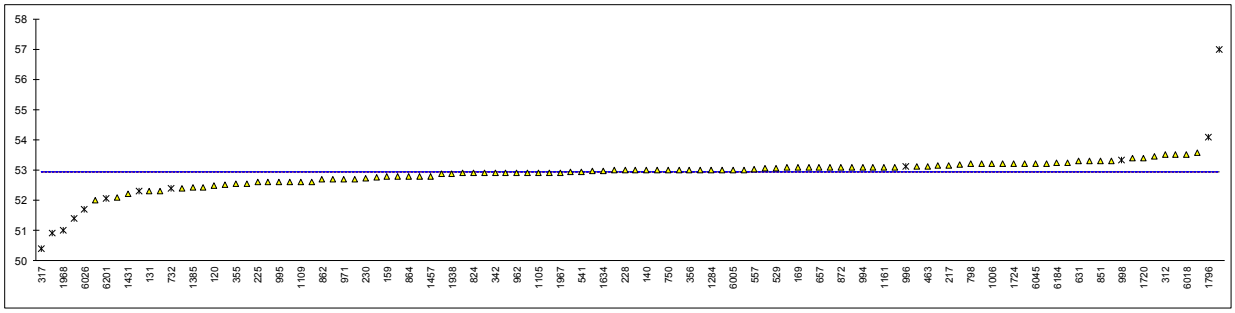
Lab 614 Reported to use method B; iis calc CCI of 51.3. acc. to method B; The reported CCI appeared to be calculated with method A (iis calc. 52.3), therefore this test result is not excluded

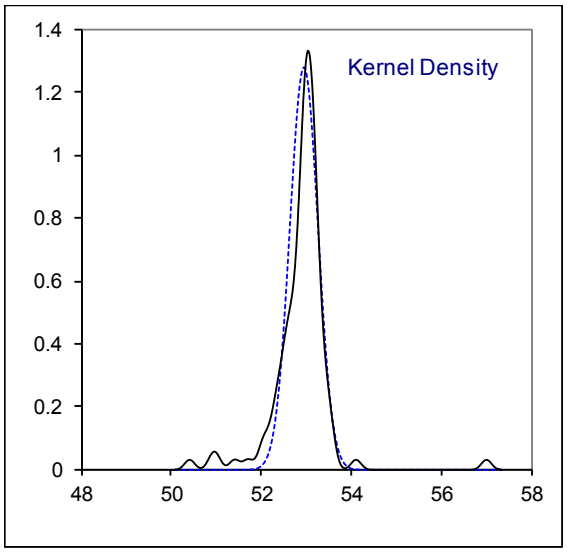
Lab 1720 Reported to use method B; iis calc CCI of 52.69. acc. to method B; The reported CCI appeared to be calculated with method A (iis calc. 53.41), therefore this test result is not excluded

<u>The CCI calculated with method A (if method not mentioned) by iis for labs marked with an E;</u>

Lab 131: 52.66
Lab 169: 52.70
Lab 317: 52.98
Lab 732: 53.1; calculated with method B, therefore excluded
Lab 998: 53.10; calculated with method B, therefore excluded; density was corrected without correction of CCI
Lab 1796: 53.2; distillation 50% recovered was corrected without correction of CCI
Lab 1968: 53.84

Please note: The reported CCI of labs marked with an E are also used for the statistical evaluation.



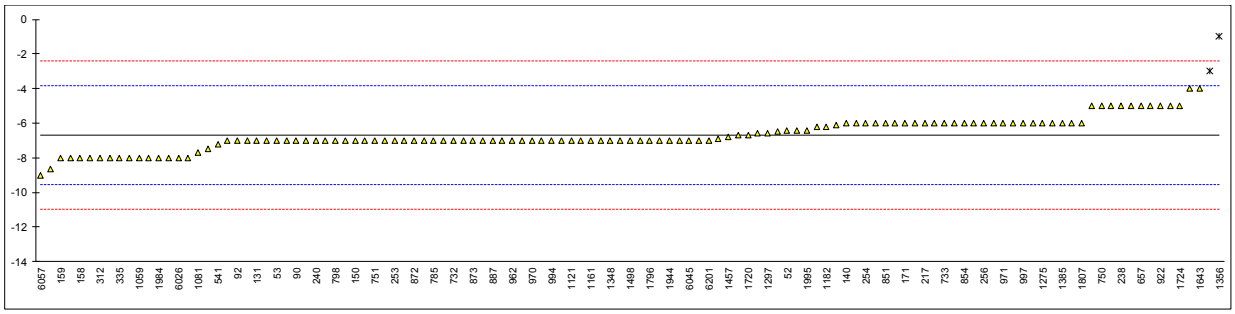


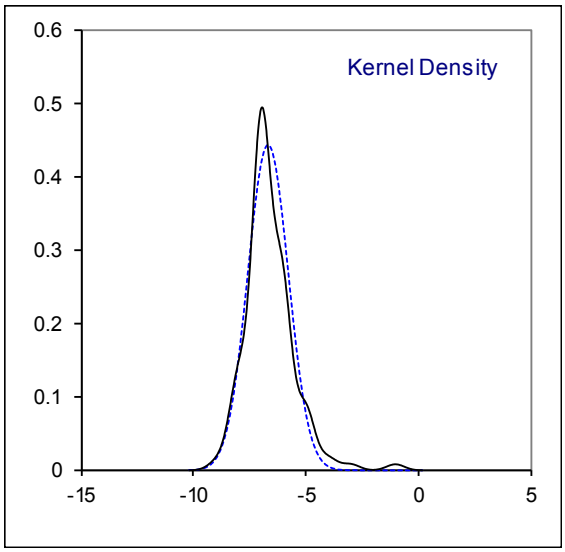
Determination of Cloud Point on sample #18170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5773	-6.4		0.19	851	D2500	-6		0.47
53	D2500	-7		-0.23	854	D2500	-6.0		0.47
62	D2500	-6		0.47	856	D2500	-6		0.47
90	D2500	-7		-0.23	862	D2500	-5		1.17
92	D2500	-7		-0.23	863	D2500	-6.0		0.47
120	D2500	-6.2		0.33	864	D2500	-5.0		1.17
131	D2500	-7		-0.23	872	D2500	-7		-0.23
132		-----		-----	873	D2500	-7		-0.23
140	D2500	-6.0		0.47	874	D2500	-7		-0.23
150	D5771	-7		-0.23	886		-----		-----
158	D2500	-8.0		-0.93	887	D2500	-7		-0.23
159	D2500	-8.0		-0.93	912	D2500	-5.0		1.17
169	D2500	-6.0		0.47	922	D2500	-5		1.17
171	D2500	-6		0.47	951	D2500	-7		-0.23
175		-----		-----	962	D2500	-7		-0.23
186		-----		-----	963	D2500	-7		-0.23
194		-----		-----	970	D2500	-7		-0.23
203	D2500	-7		-0.23	971	D2500	-6		0.47
217	D2500	-6		0.47	974		-----		-----
221		-----		-----	988	D2500	-7		-0.23
224		-----		-----	994	D2500	-7		-0.23
225		-----		-----	995	D2500	-7		-0.23
228	D2500	-7.0		-0.23	996	D2500	-6		0.47
230	D2500	-7.0		-0.23	997	D2500	-6		0.47
237	D2500	-7		-0.23	998	D2500	-5		1.17
238	D2500	-5		1.17	1006		-----		-----
240	D2500	-7		-0.23	1016	ISO3015	-6.5		0.12
253	D2500	-7		-0.23	1033	D7689	-6.7		-0.02
254	D2500	-6		0.47	1059	EN23015	-8		-0.93
256	D2500	-6.0		0.47	1080	D2500	-6.6		0.05
258		-----		-----	1081	D5771	-7.7		-0.72
273	D2500	-6		0.47	1090		-----		-----
312	D2500	-8		-0.93	1105	D2500	-6.0		0.47
317	D5771	-8		-0.93	1109	D5773	-6.4		0.19
323	D2500	-8		-0.93	1121	IP219	-7		-0.23
335	ISO3015	-8		-0.93	1126		-----		-----
336	D2500	-8		-0.93	1146	D2500	-7		-0.23
337	EN23015	-7		-0.23	1161	D2500	-7		-0.23
339		-----		-----	1182	D5773	-6.2		0.33
342	ISO3015	-7		-0.23	1186		-----		-----
344	D2500	-6.0		0.47	1194		-----		-----
349		-----		-----	1199		-----		-----
353	IP219	-7		-0.23	1227	D2500	-8		-0.93
355		-----		-----	1275	IP219	-6.0		0.47
356	D2500	-7		-0.23	1284	D5771	-6.9		-0.16
381	ISO3015	-3	R(0.05)	2.57	1297	D5773	-6.6		0.05
433		-----		-----	1299	D2500	-6		0.47
463	D2500	-7.5		-0.58	1347	D2500	-7		-0.23
485		-----		-----	1348	D2500	-7		-0.23
507	D2500	-5		1.17	1356	ISO3015	-1	R(0.01)	3.97
511		-----		-----	1385	D2500	-6		0.47
529	D2500	-6		0.47	1412	D2500	-7		-0.23
541	D5771	-7.2		-0.37	1417	IP444	-6		0.47
555		-----		-----	1430		-----		-----
557		-----		-----	1431	D2500	-8.64		-1.37
558		-----		-----	1457	D2500	-6.8		-0.09
562	D2500	-4		1.87	1498	D2500	-7		-0.23
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643	D2500	-4		1.87
614	D2500	-7		-0.23	1654		-----		-----
631	D2500	-7.0		-0.23	1709		-----		-----
634	D2500	-8		-0.93	1720	D2500	-6.7		-0.02
657	D2500	-5		1.17	1724	D2500	-5		1.17
671	D2500	-7.0		-0.23	1740	D2500	-7		-0.23
732	EN23015	-7.0		-0.23	1783		-----		-----
733	EN23015	-6.0		0.47	1796	D2500	-7		-0.23
750	D2500	-5		1.17	1807	D2500	-6		0.47
751	D2500	-7		-0.23	1849		-----		-----
781	D2500	-7		-0.23	1881	D2500	-7		-0.23
785	D7683	-7		-0.23	1906		-----		-----
798	D2500	-7		-0.23	1936		-----		-----
824	D2500	-7		-0.23	1937		-----		-----
825	D2500	-6		0.47	1938		-----		-----
846		-----		-----	1944	D2500	-7		-0.23

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D2500	-7		-0.23	6057	D2500	-9		-1.63
1968		-----		-----	6101	D2500	-8		-0.93
1984	EN23015	-8		-0.93	6103		-----		-----
1995	D5771	-6.4		0.19	6114	D2500	-6.1		0.40
6005	ISO3015	-8		-0.93	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D2500	-8		-0.93	6184	ISO3015	-7		-0.23
6045	D2500	-7		-0.23	6201	D2500	-7		-0.23

normality	OK
n	119
outliers	2
mean (n)	-6.68
st.dev. (n)	0.902
R(calc.)	2.53
st.dev.(D2500:17a)	1.429
R(D2500:17a)	4



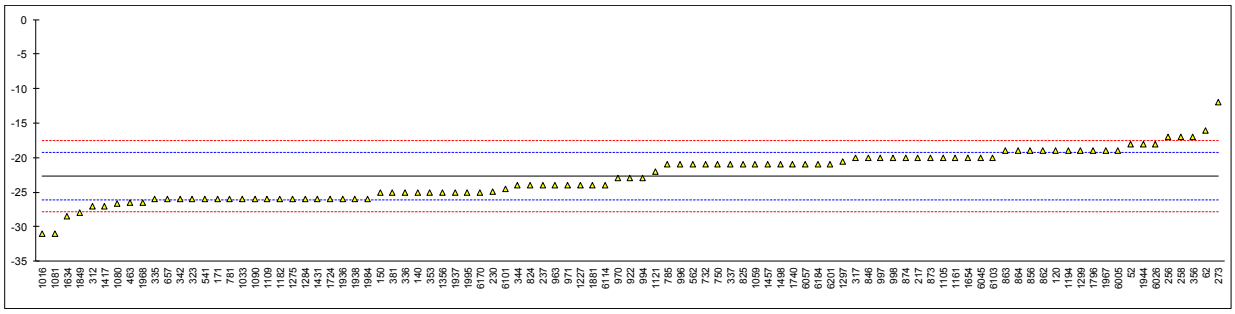


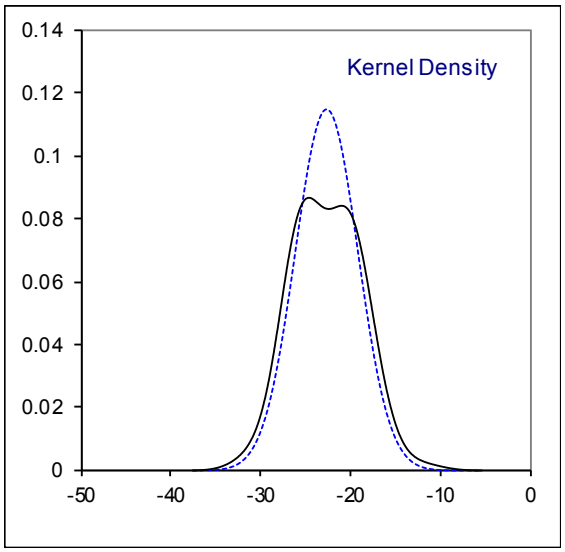
Determination of Cold Filter Plugging Point on sample #18170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6371	-18		2.70	851		-----		-----
53		-----		-----	854		-----		-----
62	D6371	-16		3.85	856	D6371	-19		2.12
90		-----		-----	862	D6371	-19		2.12
92		-----		-----	863	D6371	-19.0		2.12
120	D6371	-19.0		2.12	864	D6371	-19.0		2.12
131		-----		-----	872		-----		-----
132		-----		-----	873	EN116	-20		1.55
140	D6371	-25		-1.33	874	D6371	-20		1.55
150	D6371	-25		-1.33	886		-----		-----
158		-----		-----	887		-----		-----
159		-----		-----	912		-----		-----
169		-----		-----	922	D6371	-23		-0.18
171	D6371	-26		-1.91	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D6371	-24		-0.76
194		-----		-----	970	D6371	-23		-0.18
203		-----		-----	971	IP309	-24		-0.76
217	D6371	-20		1.55	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D6371	-23		-0.18
225		-----		-----	995		-----		-----
228		-----		-----	996	D6371	-21		0.97
230	IP309	-24.97		-1.31	997	D6371	-20		1.55
237	D6371	-24		-0.76	998	D6371	-20.0		1.55
238		-----		-----	1006		-----		-----
240		-----		-----	1016	EN116	-31		-4.79
253		-----		-----	1033	IP309	-26		-1.91
254		-----		-----	1059	EN116	-21		0.97
256	IP309	-17.0		3.27	1080	D6371	-26.6		-2.25
258	IP309	-17		3.27	1081	EN116	-31		-4.79
273	IP309	-12		6.15	1090	EN116	-26		-1.91
312	D6371	-27		-2.48	1105	D6371	-20.0		1.55
317	EN116	-20		1.55	1109	IP309	-26.0		-1.91
323	D6371	-26		-1.91	1121	IP309	-22		0.39
335	EN116	-26		-1.91	1126		-----		-----
336	EN116	-25		-1.33	1146		-----		-----
337	EN116	-21		0.97	1161	EN116	-20		1.55
339		-----		-----	1182	EN116	-26.0		-1.91
342	D6371	-26		-1.91	1186		-----		-----
344	EN116	-24		-0.76	1194	EN116	-19		2.12
349		-----		-----	1199		-----		-----
353	IP309	-25		-1.33	1227	EN116	-24		-0.76
355		-----		-----	1275	IP309	-26.0		-1.91
356	EN116	-17		3.27	1284	D6371	-26.0		-1.91
381	EN116	-25		-1.33	1297	D6371	-20.6		1.20
433		-----		-----	1299	EN116	-19		2.12
463	EN116	-26.5		-2.20	1347		-----		-----
485		-----		-----	1348		-----		-----
507		-----		-----	1356	D6371	-25		-1.33
511		-----		-----	1385		-----		-----
529		-----		-----	1412		-----		-----
541	D6371	-26		-1.91	1417	IP309	-27		-2.48
555		-----		-----	1430		-----		-----
557		-----		-----	1431	D6371	-26.0		-1.91
558		-----		-----	1457	EN116	-21		0.97
562	D6371	-21		0.97	1498	D6371	-21		0.97
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634	D6371	-28.5		-3.35
605		-----		-----	1643		-----		-----
614		-----		-----	1654	EN116	-20.0		1.55
631		-----		-----	1709		-----		-----
634		-----		-----	1720		-----		-----
657	IP309	-26		-1.91	1724	IP309	-26		-1.91
671		-----		-----	1740	D6371	-21		0.97
732	EN116	-21.0		0.97	1783		-----		-----
733		-----		-----	1796	D6371	-19		2.12
750	EN116	-21		0.97	1807		-----		-----
751		-----		-----	1849	EN116	-28		-3.06
781	D6371	-26		-1.91	1881	EN116	-24		-0.76
785	D6371	-21		0.97	1906		-----		-----
798		-----		-----	1936	EN116	-26		-1.91
824	D6371	-24		-0.76	1937	EN116	-25		-1.33
825	D6371	-21		0.97	1938	EN116	-26		-1.91
846	SH/T0248	-20		1.55	1944	D6371	-18		2.70

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	IP309	-19		2.12	6057	EN116	-21		0.97
1968	EN116	-26.5		-2.20	6101	D6371	-24.5		-1.04
1984	EN116	-26		-1.91	6103	EN116	-20		1.55
1995	D6371	-25		-1.33	6114	IP309	-24		-0.76
6005	EN116	-19.0		2.12	6142		-----		-----
6018		-----		-----	6170	D6371	-25		-1.33
6026	D6371	-18		2.70	6184	EN116	-21		0.97
6045	D6371	-20		1.55	6201	D6371	-21		0.97

		Only D6371	Only IP309/EN116
normality	OK	OK	OK
n	95	46	48
outliers	0	0	0
mean (n)	-22.69	-22.31	-23.10
st.dev. (n)	3.481	3.103	3.814
R(calc.)	9.75	8.69	10.68
st.dev.(D6371:17a)	1.737	1.723	1.567
R(D6371:17a)	4.86	4.83	---
compare			
R(EN116:15)	4.36	---	4.39





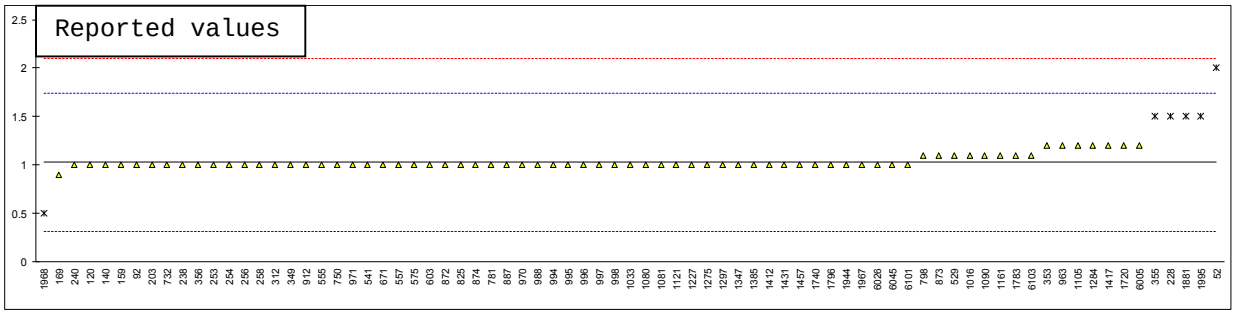
Determination of Color ASTM on sample #18170;

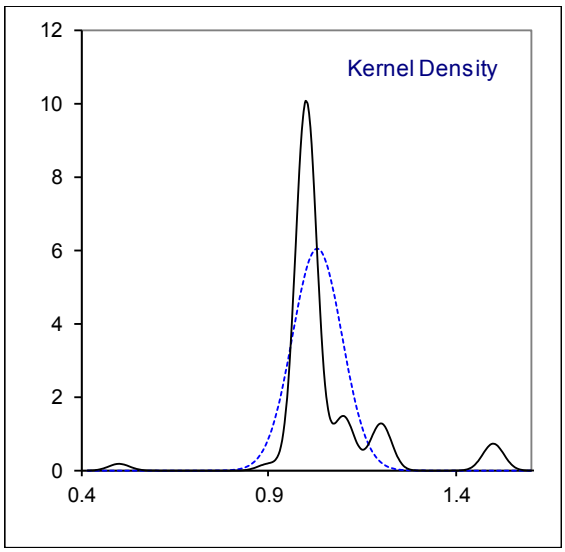
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6045	2	R(0.01)	2.72	851		-----		-----
53		-----		-----	854	D1500	L1.0		-----
62	D1500	L1.0		-----	856	D1500	L1.0		-----
90		-----		-----	862	D1500	L1.0		-----
92	D1500	1.0		-0.08	863	D1500	L1.0		-----
120	D1500	1.0		-0.08	864	D1500	L1.0		-----
131		-----		-----	872	D1500	1.0		-0.08
132		-----		-----	873	D6045	1.1		0.20
140	D1500	1.0		-0.08	874	D1500	1.0		-0.08
150	D6045	L1.5		-----	886		-----		-----
158		-----		-----	887	D1500	1.0		-0.08
159	D6045	1.0		-0.08	912	D1500	1.0		-0.08
169	D6045	0.9		-0.36	922	D1500	L1.0		-----
171	D1500	L1.0		-----	951	D1500	L 1.0		-----
175		-----		-----	962	D1500	L1.5		-----
186		-----		-----	963	D1500	1.2		0.48
194		-----		-----	970	D1500	1.0		-0.08
203	D1500	1		-0.08	971	D1500	1.0		-0.08
217	D1500	<1,0		-----	974		-----		-----
221		-----		-----	988	D1500	1.0		-0.08
224		-----		-----	994	D1500	1.0		-0.08
225		-----		-----	995	D1500	1.0		-0.08
228	D1500	1.5	R(0.01)	1.32	996	D1500	1.0		-0.08
230	D1500	L1.5		-----	997	D1500	1.0		-0.08
237	D1500	L1.5		-----	998	D1500	1		-0.08
238	D1500	1.0		-0.08	1006		-----		-----
240	D1500	1		-0.08	1016	D1500	1.1		0.20
253	D1500	1.0		-0.08	1033	D1500	1.0		-0.08
254	D1500	1.0		-0.08	1059	D1500	L1,5		-----
256	D1500	1.0		-0.08	1080	D1500	1.0		-0.08
258	D6756	1.0		-0.08	1081	D6045	1.0		-0.08
273	D1500	L0.5		-----	1090	D6045	1.1		0.20
312	D1500	1.0		-0.08	1105	D6045	1.2		0.48
317	D1500	L1.0		-----	1109	D1500	L1.5		-----
323	D1500	L1.5		-----	1121	D1500	1.0		-0.08
335		-----		-----	1126		-----		-----
336	D1500	L1.5		-----	1146		-----		-----
337		-----		-----	1161	D1500	1.1		0.20
339		-----		-----	1182		-----		-----
342	D1500	L 1.0		-----	1186		-----		-----
344	D1500	<1.5		-----	1194		-----		-----
349	D6045	1		-0.08	1199		-----		-----
353	D6045	1.2		0.48	1227	D1500	1		-0.08
355	D1500	1.5	R(0.01)	1.32	1275	D1500	1.0		-0.08
356	D1500	1.0		-0.08	1284	D6045	1.2		0.48
381		-----		-----	1297	D1500	1		-0.08
433		-----		-----	1299	D1500	L1.5		-----
463	D1500	L1.5		-----	1347	D1500	1.0		-0.08
485	D1500	L 1,0		-----	1348		-----		-----
507	D1500	L1.0		-----	1356		-----		-----
511	D6045	L1.5		-----	1385	D1500	1.0		-0.08
529	D1500	1.1		0.20	1412	D1500	1		-0.08
541	D1500	1.0		-0.08	1417	D6045	1.2		0.48
555	D1500	1		-0.08	1430		-----		-----
557	D1500	1.0		-0.08	1431	D1500	1.0		-0.08
558		-----		-----	1457	D1500	1.0		-0.08
562		-----		-----	1498		-----		-----
575	D1500	1.0		-0.08	1588		-----		-----
603	D1500	1.0		-0.08	1629		-----		-----
604	D1500	L1.5		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614	D1500	L1.5		-----	1654		-----		-----
631	D6045	<1.5		-----	1709		-----		-----
634	D1500	L1.0		-----	1720	D1500	1.2		0.48
657	D1500	L1		-----	1724		-----		-----
671	D1500	1.0		-0.08	1740	D1500	1		-0.08
732	D1500	1.0		-0.08	1783	D6045	1.1		0.20
733		-----		-----	1796	D1500	1.0		-0.08
750	D1500	1.0		-0.08	1807	D1500	<1		-----
751		-----		-----	1849		-----		-----
781	D1500	1.0		-0.08	1881	D1500	1.5	R(0.01)	1.32
785	D6045	less 1.5		-----	1906		-----		-----
798	D6045	1.1		0.20	1936		-----		-----
824	D6045	<1.5		-----	1937		-----		-----
825	D1500	1.0		-0.08	1938		-----		-----
846	GB/T6540	<1.0		-----	1944	D1500	1.0		-0.08

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D1500	1.0		-0.08	6057	D1500	L1,5		-----
1968	D1500	0.5	R(0.01)	-1.48	6101	D1500	1.0		-0.08
1984		-----		-----	6103	D6045	1.1		0.20
1995	D1500	1.5	R(0.01)	1.32	6114	D1500	L1.0		-----
6005	D1500	1.2		0.48	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D1500	1.0		-0.08	6184		-----		-----
6045	D1500	1		-0.08	6201	D1500	<1.0		-----

		all values calculated *
	normality	not OK	OK
	n	71	114
	outliers	6	2
	mean (n)	1.03	1.03
	st.dev. (n)	0.066	0.186
	R(calc.)	0.19	0.52
	st.dev.(D1500:12)	0.357	0.357
	R(D1500:12)	1	1

* In the calculation of the mean, standard deviation and the reproducibility, a reported value of 'L y' or '< y' is changed into y-0.25 (for example L2.5 is changed into 2.25)





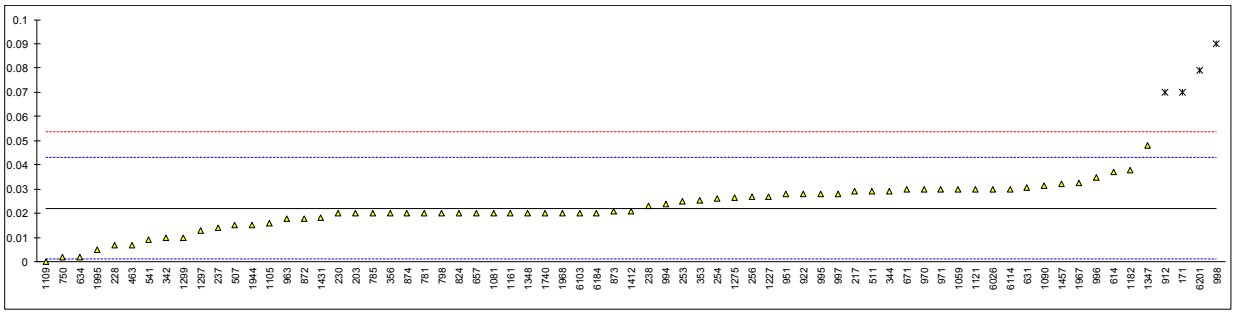
Determination of Conradson Carbon Residue (Micro method) on 10% residue on sample #18170; results in %M/M

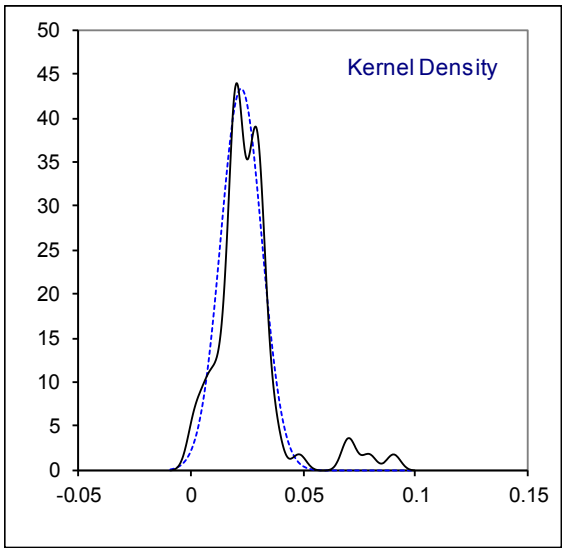
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	<0.1		-----	851		-----		-----
53		-----		-----	854	D4530	<0.1		-----
62		-----		-----	856	D4530	<0.1		-----
90		-----		-----	862	D4530	<0.1		-----
92	D4530	<0.1		-----	863	D4530	<0.1		-----
120		-----		-----	864	D4530	<0.1		-----
131		-----		-----	872	D4530	0.018		-0.39
132		-----		-----	873	D4530	0.021		-0.11
140	D4530	<0.1		-----	874	D4530	0.02		-0.20
150		-----		-----	886		-----		-----
158		-----		-----	887		-----		-----
159		-----		-----	912	D189	0.07	R(0.01)	4.55
169		-----		-----	922	D189	0.028		0.56
171	D189	0.07	R(0.01)	4.55	951	D189	0.028		0.56
175		-----		-----	962		-----		-----
186		-----		-----	963	D189	0.018		-0.39
194		-----		-----	970	D4530	0.03		0.75
203	D189	0.02		-0.20	971	D4530	0.03		0.75
217	D189	0.029		0.65	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D189	0.024		0.18
225		-----		-----	995	D189	0.028		0.56
228	D189	0.007		-1.44	996	D189	0.035		1.22
230	ISO10370	0.020		-0.20	997	D189	0.028		0.56
237	D189	0.014		-0.77	998	D189	0.09	C,R(0.01)	6.45
238	D189	0.023		0.08	1006		-----		-----
240		-----		-----	1016	ISO10370	<0.1		-----
253	D189	0.025		0.27	1033		-----		-----
254	D189	0.026		0.37	1059	ISO10370	0.03		0.75
256	D189	0.027		0.46	1080		-----		-----
258		-----		-----	1081	ISO10370	0.02		-0.20
273	D4530	<0.01		-----	1090	ISO10370	0.0315		0.89
312		-----		-----	1105	D4530	0.0160		-0.58
317	D4530	<0.10		-----	1109	D4530	0.00		-2.11
323	D4530	< 0.10		-----	1121	IP398	0.03		0.75
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161	ISO10370	0.02		-0.20
339		-----		-----	1182	ISO10370	0.038		1.51
342	ISO10370	0.01		-1.15	1186		-----		-----
344	D4530	0.0291		0.66	1194		-----		-----
349		-----		-----	1199		-----		-----
353	IP13	0.0254		0.31	1227	D4530	0.027		0.46
355		-----		-----	1275	IP398	0.02659		0.42
356	D4530	0.02		-0.20	1284		-----		-----
381		-----		-----	1297	D4530	0.013		-0.87
433		-----		-----	1299	D4530	0.01		-1.15
463	ISO10370	0.007		-1.44	1347	D189	0.0479		2.45
485		-----		-----	1348	D189	0.02		-0.20
507	D189	0.015		-0.68	1356		-----		-----
511	D189	0.029		0.65	1385		-----		-----
529		-----		-----	1412	D189	0.021		-0.11
541	D189	0.009		-1.25	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431	D4530	0.0181		-0.38
558		-----		-----	1457	D4530	0.032		0.94
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603	D4530	<0.10		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614	D189	0.037		1.41	1654		-----		-----
631	D4530	0.0308		0.82	1709		-----		-----
634	D189	0.002		-1.92	1720		-----		-----
657	D4530	0.02		-0.20	1724	D4530	<0,1		-----
671	D4530	0.03	C	0.75	1740	D4530	0.02		-0.20
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750	D4530	0.002		-1.92	1807		-----		-----
751		-----		-----	1849	ISO10370	<0,1		-----
781	D4530	0.02		-0.20	1881		-----		-----
785	ISO10370	0.02		-0.20	1906		-----		-----
798	D4530	0.02		-0.20	1936		-----		-----
824	D4530	0.02		-0.20	1937		-----		-----
825		-----		-----	1938		-----		-----
846	GB/T17144	<0.1		-----	1944	ISO10370	0.0153		-0.65

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D189	0.0326		0.99	6057	D4530	<0,01		-----
1968	D189	0.02		-0.20	6101		-----		-----
1984		-----		-----	6103	ISO10370	0.02		-0.20
1995	D189	0.005		-1.63	6114	D4530	0.03		0.75
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D189	0.03		0.75	6184	ISO10370	0.02005		-0.20
6045		-----		-----	6201	D4530	0.079	R(0.01)	5.41

normality	OK
n	65
outliers	4
mean (n)	0.0221
st.dev. (n)	0.00920
R(calc.)	0.0258
st.dev.(D189:06)	0.01052
R(D189:06)	0.0294

Lab 671 first reported 0.22
Lab 998 first reported 0.16



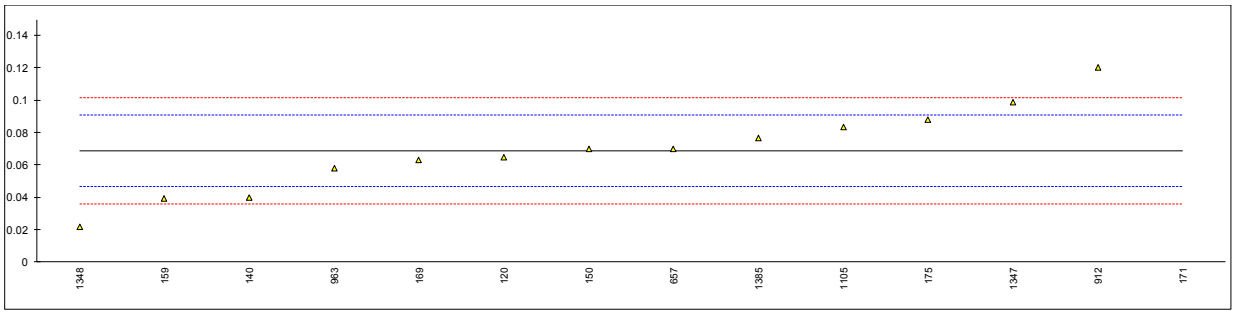


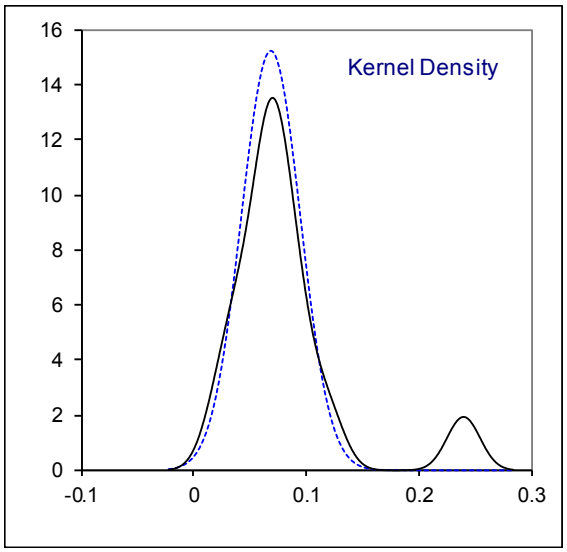
Determination of Ramsbottom Carbon Residue on 10% residue on sample #18170; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	851		-----		-----
53		-----		-----	854		-----		-----
62		-----		-----	856		-----		-----
90		-----		-----	862		-----		-----
92		-----		-----	863		-----		-----
120	D524	0.06465		-0.37	864		-----		-----
131		-----		-----	872		-----		-----
132		-----		-----	873		-----		-----
140	D524	0.04		-2.62	874		-----		-----
150	D524	0.07		0.12	886		-----		-----
158		-----		-----	887		-----		-----
159	D524	0.039		-2.71	912	D524	0.12		4.69
169	D524	0.06296		-0.52	922		-----		-----
171	D524	0.24	D(0.01)	15.66	951		-----		-----
175	D524	0.088		1.76	962		-----		-----
186		-----		-----	963	D524	0.058		-0.98
194		-----		-----	970		-----		-----
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994		-----		-----
225		-----		-----	995		-----		-----
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006		-----		-----
240		-----		-----	1016		-----		-----
253		-----		-----	1033		-----		-----
254		-----		-----	1059		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1090		-----		-----
312		-----		-----	1105	D524	0.0833		1.34
317		-----		-----	1109		-----		-----
323		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161		-----		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275		-----		-----
356		-----		-----	1284		-----		-----
381		-----		-----	1297		-----		-----
433		-----		-----	1299		-----		-----
463		-----		-----	1347	D524	0.0985		2.72
485		-----		-----	1348	D524	0.0219		-4.28
507		-----		-----	1356		-----		-----
511		-----		-----	1385	D524	0.0767		0.73
529		-----		-----	1412		-----		-----
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457		-----		-----
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631		-----		-----	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D524	0.07		0.12	1724		-----		-----
671		-----		-----	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750		-----		-----	1807		-----		-----
751		-----		-----	1849		-----		-----
781		-----		-----	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824		-----		-----	1937		-----		-----
825		-----		-----	1938		-----		-----
846		-----		-----	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967		-----		-----	6057		-----		-----
1968		-----		-----	6101		-----		-----
1984		-----		-----	6103		-----		-----
1995		-----		-----	6114		-----		-----
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184		-----		-----
6045		-----		-----	6201		-----		-----

normality	OK
n	13
outliers	1
mean (n)	0.0687
st.dev. (n)	0.02619
R(calc.)	0.0733
st.dev.(D524:15)	0.01094
R(D524:15)	0.0306





Determination of Copper Corrosion, 3 hrs at 50°C on sample #18170;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1a		-----	851		-----		-----
53		-----		-----	854	D130	1A		-----
62	D130	1b		-----	856	D130	1A		-----
90	D130	1a		-----	862	D130	1A		-----
92	D130	1a		-----	863	D130	1A		-----
120	D130	1A		-----	864	D130	1A		-----
131	D130	1a		-----	872	D130	1 a		-----
132		-----		-----	873	D130	1A		-----
140	D130	1a		-----	874	D130	1a		-----
150	D130	1a		-----	886		-----		-----
158	D130	1A		-----	887	D130	1a		-----
159	D130	1a		-----	912	D130	1A		-----
169	D130	1a		-----	922	D130	1A		-----
171	D130	1a		-----	951	D130	No 1		-----
175		-----		-----	962	D130	1A		-----
186		-----		-----	963	D130	1a		-----
194		-----		-----	970	D130	1a		-----
203	D130	1A		-----	971	D130	1a		-----
217	D130	1A		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D130	1a		-----
225	D130	1a		-----	995		-----		-----
228	D130	1A		-----	996	D130	1a		-----
230	D130	1a		-----	997		-----		-----
237	D130	1		-----	998	D130	1a		-----
238	D130	1a		-----	1006	D130	1A		-----
240	D130	1A		-----	1016	ISO2160	1A		-----
253	D130	1A		-----	1033	IP154	1b		-----
254	D130	1a		-----	1059	ISO2160	1a		-----
256	D130	1A		-----	1080		-----		-----
258	D130	1a		-----	1081	D130	1A		-----
273	D130	1a		-----	1090	ISO2160	1		-----
312		-----		-----	1105	D130	1		-----
317	D130	1a		-----	1109	D130	1a		-----
323	D130	1A		-----	1121	IP154	1a		-----
335	D130	1a		-----	1126		-----		-----
336	D130	1		-----	1146		-----		-----
337		-----		-----	1161	ISO2160	1a		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186	D130	1A		-----
344	D130	1a		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227	D130	1A		-----
355		-----		-----	1275	IP154	1A		-----
356	D130	1A		-----	1284		-----		-----
381		-----		-----	1297	D130	1A		-----
433		-----		-----	1299	D130	1A		-----
463	D130	1A		-----	1347	D130	1A		-----
485	ISO2160	1		-----	1348	D130	1A		-----
507	D130	1A		-----	1356		-----		-----
511	D130	1A		-----	1385	D130	1A		-----
529	D130	1A		-----	1412	D130	1a		-----
541	D130	1a		-----	1417	IP154	1B		-----
555	D130	1a		-----	1430		-----		-----
557	D130	1a		-----	1431	D130	1a		-----
558		-----		-----	1457	D130	1a		-----
562		-----		-----	1498		-----		-----
575	D130	1a		-----	1588		-----		-----
603	D130	1A		-----	1629		-----		-----
604		-----		-----	1634	D130	1a		-----
605		-----		-----	1643		-----		-----
614	D130	1a		-----	1654	ISO2160	1A		-----
631	D130	1a		-----	1709		-----		-----
634	D130	1a		-----	1720		-----		-----
657	D130	1A		-----	1724	D130	1a		-----
671	D130	1A		-----	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796	D130	1a		-----
750	D130	1A		-----	1807	D130	1a		-----
751		-----		-----	1849	ISO2160	1A		-----
781	D130	1A		-----	1881		-----		-----
785	ISO2160	1a		-----	1906		-----		-----
798	D130	1a		-----	1936		-----		-----
824	D130	1a		-----	1937		-----		-----
825	D130	1a		-----	1938		-----		-----
846	GB/T5096	1A		-----	1944	D130	1a		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D130	1		-----	6057	D130	1A		-----
1968	D130	1a		-----	6101	D130	1a		-----
1984		-----		-----	6103		-----		-----
1995	D130	1B		-----	6114	D130	1a		-----
6005	ISO2160	1a		-----	6142		-----		-----
6018	ISO2160	1a		-----	6170		-----		-----
6026	D130	1		-----	6184	ISO2160	1 a		-----
6045	D130	1a		-----	6201	D130	1A		-----

n	113
mean (n)	1/1a/1b

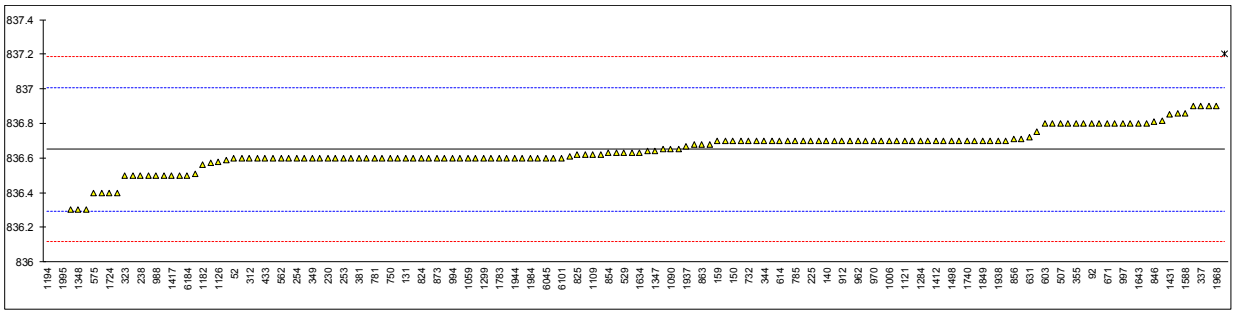
Determination of Density at 15°C on sample #18170; results in kg/m^3

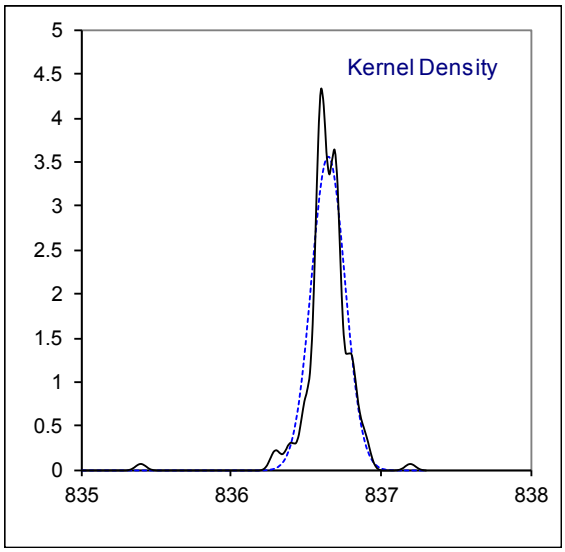
lab	method	org. value	conv. value	mark	z(targ)	lab	method	org. value	conv. value	mark	z(targ)
52	D4052	836.6 kg/m³	836.6		-0.29	851	D4052	0.8366 kg/l	836.6		-0.29
53	D4052	836.6 kg/m³	836.6		-0.29	854	D4052	836.63 kg/m³	836.63		-0.12
62	D4052	836.7 kg/m³	836.7		0.27	856	D4052	836.71 kg/m³	836.71		0.33
90	D4052	836.6 kg/m³	836.6		-0.29	862	D4052	836.71 kg/m³	836.71		0.33
92	D4052	836.8 kg/m³	836.8		0.83	863	D4052	836.68 kg/m³	836.68		0.16
120	D4052	836.9 kg/m³	836.9		1.39	864	D4052	836.64 kg/m³	836.64		-0.06
131	D4052	836.6 kg/l	836.6	U	-0.29	872	D4052	836.6 kg/m³	836.6		-0.29
132			-----		-----	873	D4052	0.8366 kg/l	836.6		-0.29
140	D4052	0.8367 kg/l	836.7		0.27	874	D4052	836.5 kg/m³	836.5		-0.85
150	D4052	0.8367 kg/l	836.7		0.27	886			-----		-----
158	D4052	836.86 kg/m³	836.86		1.17	887	D4052	836.6 kg/m³	836.6		-0.29
159	D4052	0.8367	836.7		0.27	912	D4052	836.7 kg/m³	836.7		0.27
169	D4052	836.7 kg/m³	836.7		0.27	922	D4052	0.8367 kg/l	836.7		0.27
171	D4052	836.7 kg/m³	836.7		0.27	951	D1298	836.3 kg/m³	836.3		-1.97
175	D4052	0.8366 kg/l	836.6		-0.29	962	D4052	836.7 kg/m³	836.7		0.27
186	D4052	836.9 kg/m³	836.9		1.39	963	D4052	0.8367 kg/l	836.7		0.27
194			-----		-----	970	D4052	0.8367 kg/l	836.7		0.27
203	D4052	836.6 kg/m³	836.6		-0.29	971	D4052	0.8367 kg/l	836.7		0.27
217			-----		-----	974			-----		-----
221			-----		-----	988	D1298	836.5 kg/m³	836.5		-0.85
224			-----		-----	994	D4052	836.6 kg/m³	836.6		-0.29
225	D4052	0.8367 kg/l	836.7		0.27	995	D4052	836.8 kg/m³	836.8		0.83
228	D1298	836.6 kg/m³	836.6		-0.29	996	D1298	836.6 kg/m³	836.6		-0.29
230	ISO12185	836.60 kg/m³	836.60		-0.29	997	D4052	836.8 kg/m³	836.8		0.83
237	D4052	836.8 kg/m³	836.8		0.83	998	D4052	0.8365 kg/m³	836.5	C,U	-0.85
238	D4052	836.5 kg/m³	836.5		-0.85	1006	D4052	836.7 kg/m³	836.7		0.27
240	D4052	836.8 kg/m³	836.8		0.83	1016			-----		-----
253	D4052	836.6 kg/m³	836.6		-0.29	1033			-----		-----
254	D4052	836.6 kg/m³	836.6		-0.29	1059	D4052	836.6 kg/m³	836.6		-0.29
256	D4052	836.4 kg/m³	836.4		-1.41	1080	D4052	836.7 kg/m³	836.7		0.27
258	D4052	836.7 kg/m³	836.7		0.27	1081	D4052	836.68 kg/m³	836.68		0.16
273	D4052	836.5 kg/m³	836.5		-0.85	1090	ISO12185	836.65 kg/m³	836.65		-0.01
312	D4052	836.6 kg/m³	836.6		-0.29	1105	D4052	0.8368 kg/l	836.8		0.83
317	D4052	0.8366 kg/l	836.6		-0.29	1109	D4052	0.83662 kg/l	836.62		-0.17
323	D4052	836.5 kg/m³	836.5		-0.85	1121	D4052	836.7 kg/m³	836.7		0.27
335	D4052	836.7 kg/m³	836.7		0.27	1126	D4052	836.58 kg/m³	836.58		-0.40
336	D4052	836.6 kg/m³	836.6		-0.29	1146	D4052	0.83663 kg/l	836.63		-0.12
337	D4052	836.9 kg/m³	836.9		1.39	1161	ISO12185	836.57 kg/m³	836.57		-0.45
339			-----		-----	1182	ISO12185	836.564 kg/m³	836.564		-0.49
342	D4052	836.7 kg/m³	836.7		0.27	1186	D1298	834.0	834.0	R(0.01)	-14.85
344	D4052	836.7 kg/m³	836.7		0.27	1194	ISO12185	832.7 kg/m³	832.7	R(0.01)	-22.13
349	D4052	0.8366 kg/l	836.6		-0.29	1199			-----		-----
353	IP365	836.7 kg/m³	836.7		0.27	1227	D4052	836.7 kg/m³	836.7		0.27
355	D4052	836.8 kg/m³	836.8		0.83	1275	IP365	836.6 kg/m³	836.6		-0.29
356	D4052	836.6 kg/m³	836.6		-0.29	1284	D4052		836.70		0.27
381	ISO12185	836.6 kg/m³	836.6		-0.29	1297	D4052	0.83659 kg/l	836.59		-0.34
433	ISO12185	836.6 kg/m³	836.6		-0.29	1299	D4052	836.6	836.6		-0.29
463	D4052	836.65 kg/m³	836.65		-0.01	1347	D4052	836.64 kg/m³	836.64		-0.06
485	D4052	836.6 kg/m³	836.6		-0.29	1348	D4052	836.3 kg/m³	836.3		-1.97
507	D4052	836.80 kg/m³	836.80		0.83	1356	ISO12185	836.7 kg/m³	836.7		0.27
511	D4052	836.51 kg/m³	836.51		-0.79	1385	D4052	836.6 kg/m³	836.6		-0.29
529	D4052	836.63 kg/m³	836.63		-0.12	1412	D4052	836.7 kg/m³	836.7		0.27
541	D4052	0.8367 kg/l	836.7		0.27	1417	IP365	836.5 kg/m³	836.5		-0.85
555	D4052	836.61 kg/m³	836.61		-0.23	1430			-----		-----
557	D4052	836.81666 kg/m³	836.81666		0.93	1431	D4052	836.85 kg/m³	836.85		1.11
558	D4052	836.68 kg/m³	836.68		0.16	1457	D4052	0.8367 kg/l	836.7		0.27
562	D1298	836.6 kg/m³	836.6	C	-0.29	1498	D4052	836.7 kg/m³	836.7		0.27
575	D4052	0.8364 kg/l	836.4		-1.41	1588	ISO12185	836.86 kg/m³	836.86		1.17
603	D4052	836.8 kg/m³	836.8		0.83	1629			-----		-----
604	D4052	836.63 kg/m³	836.63		-0.12	1634	D4052	836.63 kg/m³	836.630		-0.12
605	D4052	836.62 kg/m³	836.62		-0.17	1643	D4052	0.8368 kg/l	836.8		0.83
614	D4052	0.8367 kg/l	836.7		0.27	1654	ISO12185	836.652 kg/m³	836.652		0.00
631	D4052	0.83672 kg/l	836.72		0.39	1709	D4052	836.7 kg/m³	836.7		0.27
634	D4052	0.83675 kg/l	836.75		0.55	1720	D4052	836.8 kg/m³	836.8		0.83
657	D4052	836.8 kg/m³	836.8		0.83	1724	D1298	836.4 kg/m³	836.4		-1.41
671	D4052	836.8 kg/m³	836.8		0.83	1740	D4052	836.7 kg/m³	836.7		0.27
732	ISO12185	836.7 kg/m³	836.7		0.27	1783	D4052	0.8366 kg/l	836.6		-0.29
733	ISO12185	836.8 kg/m³	836.8		0.83	1796	D4052	836.62 kg/m³	836.62		-0.17
750	D4052	836.6 kg/m³	836.6		-0.29	1807	D4052	836.7 kg/m³	836.7		0.27
751	D1298	836.6 kg/m³	836.6		-0.29	1849	ISO12185	836.7 kg/m³	836.7		0.27
781	D4052	836.6 kg/m³	836.6		-0.29	1881	ISO12185	0.8366 kg/l	836.6		-0.29
785	D4052	0.8367 kg/l	836.7		0.27	1906			-----		-----
798	D4052	836.6 kg/m³	836.6		-0.29	1936	ISO12185	836.7 kg/m³	836.7		0.27
824	D4052	836.6 kg/m³	836.6		-0.29	1937	ISO12185	836.67 kg/m³	836.67		0.11
825	D4052	0.83662 kg/l	836.62		-0.17	1938	ISO12185	836.7 kg/m³	836.7		0.27
846	SH/T0604	836.81 kg/m³	836.81		0.89	1944	D1298	836.6 kg/m³	836.6		-0.29

lab	method	org. value	conv. value	mark	z(targ)	lab	method	org. value	conv. value	mark	z(targ)
1967	D1298	836.6 kg/m³	836.6		-0.29	6057	D4052	836.6 kg/m³	836.6		-0.29
1968	ISO3675	836.9 kg/m³	836.9		1.39	6101	D4052	836.6 kg/m³	836.6		-0.29
1984	ISO12185	836.6 kg/m³	836.6		-0.29	6103	ISO3675	837.2 kg/m³	837.2	R(0.01)	3.07
1995	D4052		835.4	R(0.01)	-7.01	6114	D4052	0.8365 kg/l	836.5		-0.85
6005	ISO12185	836.6 kg/m³			-----	6142			-----		-----
6018	ISO12185	836.6 kg/m³	836.6		-0.29	6170	ISO3675	836.4 kg/m³	836.4		-1.41
6026	D1298	0.8363 kg/l	836.3		-1.97	6184	ISO3675	836.5 kg/m³	836.5		-0.85
6045	D4052	836.6 kg/m³	836.6		-0.29	6201	D4052	0.8367 kg/l	836.7		0.27

normality	suspect
n	148
outliers	4
mean (n)	836.65
st.dev. (n)	0.112
R(calc.)	0.31
st.dev.(D4052:18)	0.179
R(D4052:18)	0.50

Lab 562 first reported 863.7 kg/m³
Lab 998 first reported 833.9 kg/m³, corrected to 0.8365 kg/m³ (unit error)





Determination of Distillation on sample #18170; results in °C

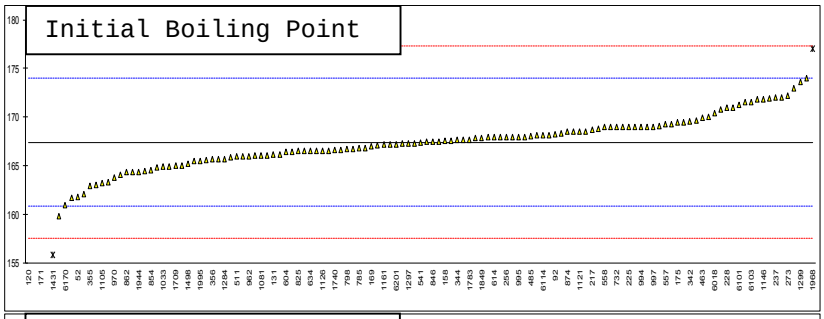
lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
52	D86-A	161.8		208.2		274.0		331.5		346.4		355.1	
53		-----		-----		-----		-----		-----		-----	
62	D86-A	167.5		205.3		274.4		331.6		345.9		355.1	
90	D86-M	-----		-----		-----		-----		-----		-----	
92	D86-A	168.2		205.3		274.5		330.5		347.1		357.3	
120	D86-A	109.1	R(1)	205.2		274.3		331.9		346.2		354.8	
131	D86-A	166.2		204.7		274.7		333.7		348.7		349.6	
132		-----		-----		-----		-----		-----		-----	
140	D86-A	167.9		207.5		275.2		332.0		346.5		355.5	
150	D86-A	151.5	C,R(1)	206.8		273.8		330.2		343.8		349.3	
158		167.6		205.0		275.1		333.6		348.1		353.4	
159	D86-A	163.3		206.7		274.1		331.8		346.4		355.4	
169	D86-A	167.0		207.8		273.7		335.4		353.2		358.1	
171	D86-A	149.7	R(1)	200.8	R(5)	273.0		332.2		347.1		352.6	
175	D86-A	169.5		206.8		275.9		334.2		349.6		355.8	
186		-----		-----		-----		-----		-----		-----	
194		-----		-----		-----		-----		-----		-----	
203		-----		-----		-----		-----		-----		-----	
217	D86-A	168.7		208.3		274.9		330.5		343.7		354.9	
221		-----		-----		-----		-----		-----		-----	
224		-----		-----		-----		-----		-----		-----	
225	D86-M	169.0		207.0		273.5		331.0		341.5		354.0	
228		171.0		208.0		275.0		330.0		341.0		357.0	
230		168.0		206.5		274.5		331.0		344.5		358.5	
237	D86-M	172.0		208.0		274.0		329.0		340.0		354.0	
238	D86-M	170.0		208.0		276.0		332.0		346.0		358.0	
240		-----		-----		-----		-----		-----		-----	
253	D86-M	166.5		209.0		276.0		334.0		349.5		356.0	
254	D86-M	169.0		207.0		274.0		332.0		345.0		355.0	
256	D86-M	168.0		207.0		274.0		333.0		347.0		353.0	
258	D86-A	171.0		211.0		276.5		331.2		343.5		351.0	
273		172.2		209.4		274.1		330.2		342.8		349.8	
312	D86-A	171.5		211.2		276.3		332.0		346.4		355.3	
317	D86-A	164.1		206.8		275.6		333.3		348.3		356.3	
323	D86-A	170.8		209.9		276.0		334.2		351.8		355.4	
335		-----		-----		-----		-----		-----		-----	
336	D86-A	167.3		207.1		275.4		332.2		345.9		356.1	
337		-----		-----		-----		-----		-----		-----	
339		-----		-----		-----		-----		-----		-----	
342		169.6		207.4		275.1		332.7		347.6		356.1	
344	D86-A	167.7		209.3		275.9		332.9		347.8		356.9	
349		-----		-----		-----		-----		-----		-----	
353	IP123-A	166.0		205.4		273.4		332..8		347.7		356.2	
355	D86-M	162.96		205.955		273.950		331.195		348.445		355.695	
356	D86-A	165.7		208.0		275.3		332.5		345.8		357.2	
381	D86-A	171.9		209.1		274.8		329.3		342.1		352.2	
433		-----		-----		-----		-----		-----		-----	
463	D86-A	169.9		208.5		275.8		333.2		347.5		358.3	
485	D86-A	168.05		210.6		276.45		333.0		347.3		355.35	
507	D86-M	173.0		208.0		276.0		333.0		347.0		359.0	
511	D86-M	166.0		202.0		272.5		330		343.5		354	
529	D86-A	165.5		207.0		276.0		333.9		348.9		356.7	
541	D86-A	167.35		207.55		275.35		332.10		346.45		355.95	
555	D86	169		207		275		334		348		359	
557	D86	169.3		208.3		275.6		333.2		347.2		356.8	
558	NBR 9619	169		209		276		333		343		355	
562		-----		-----		-----		-----		-----		-----	
575		-----		-----		-----		-----		-----		-----	
603		-----		-----		-----		-----		-----		-----	
604	D86-A	166.4		209.4		277.3		331.7	C	354.4		356.0	
605		-----		-----		-----		-----		-----		-----	
614	D86-M	168		205		273		330		335	R(1)	335	R(1)
631	D86-M	169.0		208.0		277.0		335.0		348.5		358.0	
634	D86-M	166.5		205.5		274.0		332		343.5		351.5	
657	D86-A	171.8		209.8		275.3		331.3		344		357.2	
671	D86-A	168.0		206.7		274.8		333.2		347.9		349.0	
732	ISO3405-M	169.0		210.0		275.0		335.0		348.5		359.5	
733		-----		-----		-----		-----		-----		-----	
750	D86	168.0		207.0		275.5		333.5		350.0		358.5	
751		-----		-----		-----		-----		-----		-----	
781	D86-A	168.3		208.9		275.8		333.4		348.4		356.6	
785	D86-A	166.8		207.7		275.8		333.0		347.7		356.6	
798	D86-A	166.7		208.6		276.0		333.7		348.5		357.6	
824	D86-A	165.7		207.9		274.9		332.0		345.7		355.6	
825	D86-A	166.5		209.7		275.2		331.5		344.9		353.9	
846	GB/T6536-M	167.5		208.5		276.0		334.0		349.5		360.5	

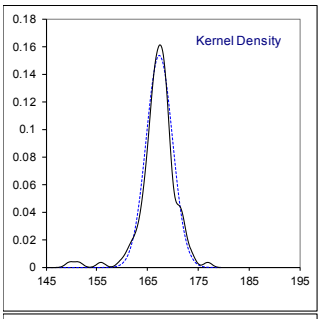
lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
851	D86-A	169.1		209.8		275.9		334.6		351.3		354.9	
854	D86-A	164.6		208.2		274.8		331.8		346.6		354.4	
856	D86-A	166.1		207.5		275.2		332.6		347.4		354.0	
862	D86-A	164.4		207.2		274.2		331.2		345.6		354.0	
863	D86-A	164.4		208.8		275.2		331.9		346.0		353.4	
864	D86-A	164.8		207.2		274.5		331.2		346.1		354.0	
872	D86-M	168.5		207.0		276.0		334.0		348.5		356.5	
873	D86-M	167.5		206.5		275.5		333.5		348.5		357.0	
874	D86-M	168.5		208.0		275.5		333.5		349.0		356.0	
886		-----		-----		-----		-----		-----		-----	
887	D86-M	166.5		210.0		273.5		332.5		344.5		356.0	
912		174		211		277		331		343		353	
922	D86-A	168.1		210.0		275.0		331.9		346.5		356.1	
951	D86-M	166.57		206.44		274.22		333.03		347.98		358.94	
962	D86-A	166.0		207.6		275.2		332.6		346.4		355.8	
963	D86-A	166.7		207.9		276.0		331.6		344.5		355.2	
970	D86-A	163.8		205.9		274.5		332.6		347.5		354.9	
971	D86-A	162.1		206.6		274.2		331.7		345.7		355.2	
974		-----		-----		-----		-----		-----		-----	
988	D86-M	169.5		207.5		274.5		332.0		347.0		355.0	
994	D86-M	169.0		209.0		275.0		334.0		348.0		356.0	
995	D86-M	168.0		207.0		274.0		335.0		346.0		357.0	
996	D86-M	169.0		206.0		274.0		333.0		347.0		356.0	
997	D86-M	169.0		207.0		274.0		333.0		346.0		357.0	
998	D86-M	172		209		275		333		340		353	
1006	D86-A	165.6		209.2		275.9		333.0		347.4		355.3	
1016		-----		-----		-----		-----		-----		-----	
1033	IP123-A	164.9		207.8		274.8		331.7		346.0		355.1	C
1059	ISO3405-A	169.7		208.5		274.5		331.4		346.1		355.3	
1080		-----		-----		-----		-----		-----		-----	
1081	D86-A	166.1		209.6		275.2		331.8		345.2		356.0	
1090		-----		-----		-----		-----		-----		-----	
1105		163.2		208.1		274.9		331.9		345.8		355.4	
1109	D86-A	166.2		206.0		274.0		330.4		343.4		354.9	
1121	IP123-M	168.5		206.5		275.0		332.0		345.0		359.0	
1126		166.5		211.8		274.8		333.4		346.3		352.8	
1146	D86-A	171.8		209.2		276.2		333.0		346.0		359.2	
1161	D86-A	167.2		207.5		275.8		333.1		346.5		358.8	
1182	D86-A	167.6		207.3		276.0		334.6		350.6		356.8	
1186	D86-M	140	R(1)	175	R(1)	260	R(1)	320	R(1)	334	R(1)	350	ex
1194		-----		-----		-----		-----		-----		-----	
1199		-----		-----		-----		-----		-----		-----	
1227	D86-A	164.9		206.6		275.6		332.8		347.4		354.1	
1275	IP123-A	163.0		206.1		273.7		331.4		346.1		353.8	
1284	D86-A	165.7		208.5		275.3		332.9		346.5		354.9	
1297		167.3		207.7		275.8		333.2		347.9		356.7	
1299	D86-A	173.6		208.4		272.1		328.3		343.4		351.4	
1347	D86-M	168		207		273		331		346		355	
1348	D86-A	161.7		210.5		275.0		331.5		345.2		356.9	
1356		-----		225	R(1)	291	R(1)	352	R(1)	-----		-----	
1385	D86-M	168.13		205.14		273.16		332.17		345.18		355.18	
1412	D86-M	168.5		208.0		275.0		333.5		348.5		356.5	
1417	ISO3405-A	167.7		211.1		276.9		334.7		351.4		356.1	
1430		-----		-----		-----		-----		-----		-----	
1431	D86-A	155.9	R(1)	203.3		273.5		332.1		347.6		351.1	
1457	D86-A	166.1		207.4		274.8		332.1		346.7		356.4	
1498	D86-A	165.2		208.0		276.3		335.6		352.5		356.6	
1588		-----		-----		-----		-----		-----		-----	
1629		-----		-----		-----		-----		-----		-----	
1634	D86-A	165.9		208.1		275.1		331.6		345.3		356.6	
1643		-----		-----		-----		-----		-----		-----	
1654		-----		-----		-----		-----		346.7		-----	
1709	D86-A	165.0		207.3		274.9		332.3		345.7		357.6	
1720	D86-A	159.8		213.0		275.6		333.2		347.4		357.6	
1724		166.4		210.2		275		332.3		347.1		357.2	
1740	D86-A	166.6		206.3		274.4		337.4		345.4		357.1	
1783		167.7		205.9		275.2		331.4		345.0		355.9	
1796	D86-A	168.8		208.2		276.0	C	336.3		351.5		360.1	
1807	D86-A	167.3	C	204.7		273.5		330.7		344.6		355.9	
1849	ISO3405-A	167.9		209.4		275.9		332.8		346.7		357.9	
1881		-----		-----		-----		-----		-----		-----	
1906		-----		-----		-----		-----		-----		-----	
1936	ISO3405-A	-----		-----		-----		-----		343.3		-----	
1937	ISO3405-A	-----		-----		-----		-----		344.0		-----	
1938	ISO3405-A	-----		-----		-----		-----		343.65		-----	
1944	D86-M	164.4		207.9		275.5		332.5		347.6		356.6	
1967	D86-M	165.0		207.0		275.0		333.0		347.5		357.0	
1968	ISO3405-M	177	R(5)	210		280	R(1)	330	C	342	C	355	C
1984	ISO3405-A	167.1		207.5		275.6		333.0		347.5		357.3	

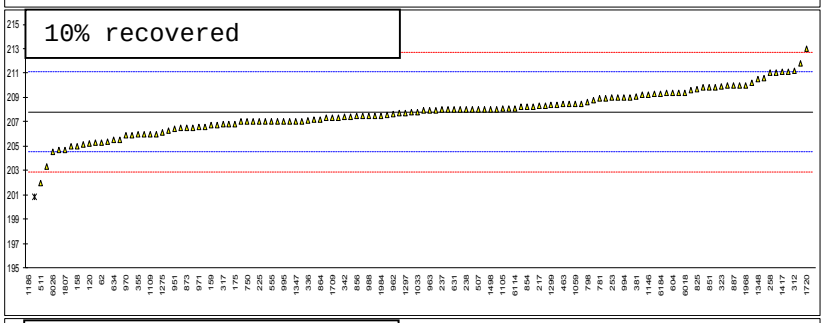
lab	method	IBP	mark	10% rec	mark	50% rec	mark	90% rec	mark	95% rec	mark	FBP	mark
1995	D86	165.5		206		275		332.5		346		354.5	
6005	ISO3405-A	166.6		207.3		275.7		333.0		348.0		355.8	
6018	ISO3405-A	170.4		209.4		276.8		334.3		349.8		357.6	
6026	D86-M	164.5		204.5		274.5		332.0		347.0		355.0	
6045	D86-A	169.3		211.1		274.8		333.2		347.0		354.8	
6057	D86-A	167.2		208.9		276.3		335.7		353.3		358.4	
6101	D86-A	171.25		208.4		273.26		329.1		-----	W	356.8	
6103	ISO3405-A	171.5		209.85		276.5		333.3		348.2		357.0	
6114	D86-A	168.1		208.1		276.1		333.7		348.8		357.6	
6142		-----		-----		-----		-----		-----		-----	
6170	D86-M	161.0		205.5		273.0		330.5		345.0		355.5	
6184	ISO3405-M	166.8		209.3		275.6		333.9		347.3		354.7	
6201	D86-A	167.2		208.0		275.0		332.3		346.6		357.0	
	normality	OK		OK		OK		OK		suspect		suspect	
	n	123		127		127		127		130		127	
	outliers	6		3		3		2		2		1 (+1 ex)	
	mean (n)	167.43		207.81		275.01		332.49		346.66		355.70	
	st.dev. (n)	2.601		1.755		1.010		1.502		2.492		2.135	
	R(calc.)	7.28		4.91		2.83		4.21		6.98		5.98	
	st.dev.(D86-A:17)	3.289		1.633		1.071		1.781		3.026		2.536	
	R(D86-A:17)	9.21		4.57		3.00		4.99		8.47		7.10	
	compare												
	R(D86-M:17)	6.56		4.66		3.87		3.92		4.89		3.86	

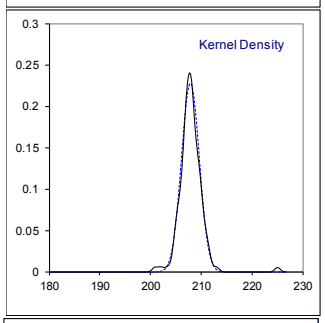
Please note: R(1) and R(5) means R(0.01) and R(0.05) respectively

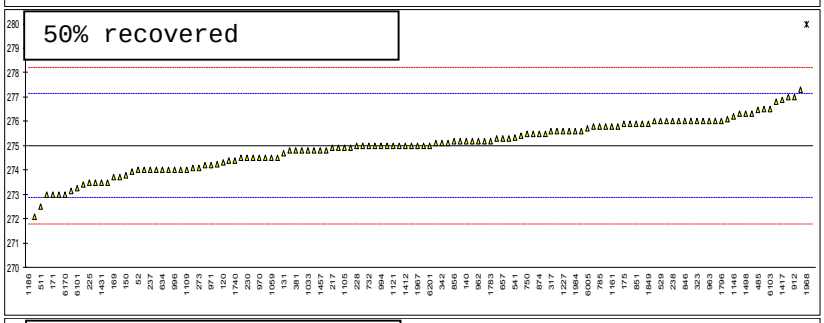
Lab 150 first reported 156.0
Lab 604 first reported 338.3
Lab 1033 first reported 97
Lab 1796 first reported 281.0
Lab 1807 first reported 107.3
Lab 1968 first reported 345, 361 and 368 respectively
Lab 6101 test result 335.5 was withdrawn

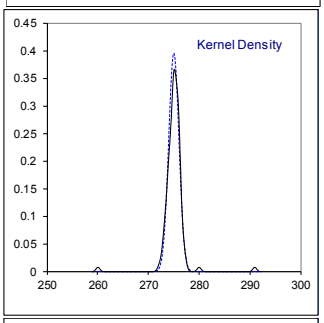

Initial Boiling Point

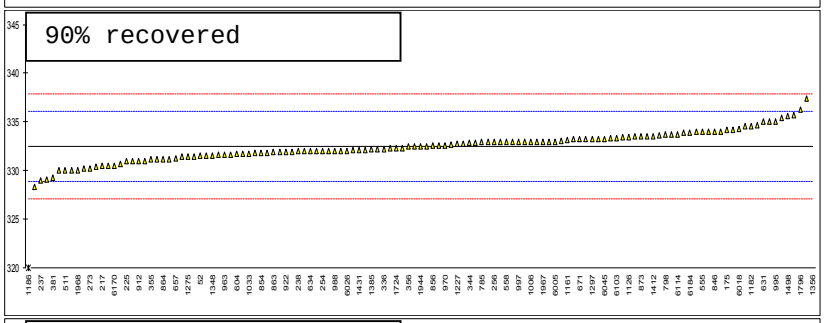

Kernel Density

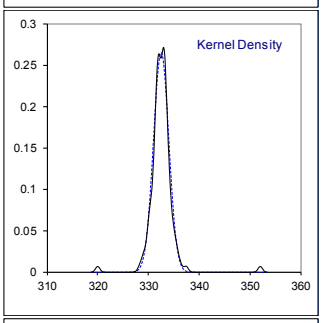

10% recovered

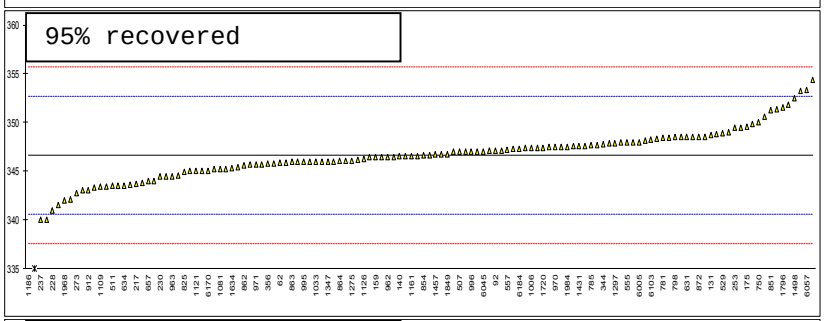

Kernel Density

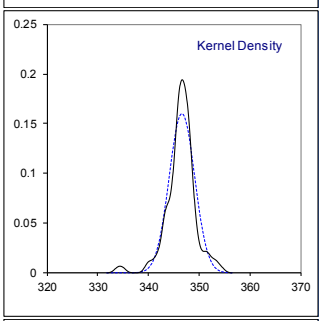

50% recovered

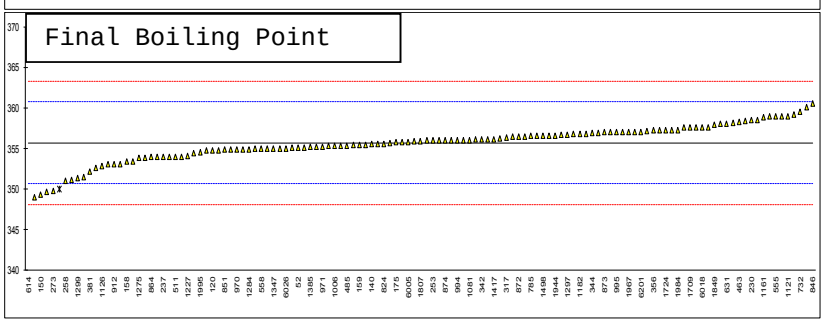

Kernel Density

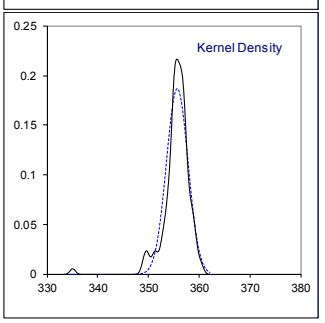

90% recovered


Kernel Density


95% recovered


Kernel Density


Final Boiling Point


Kernel Density

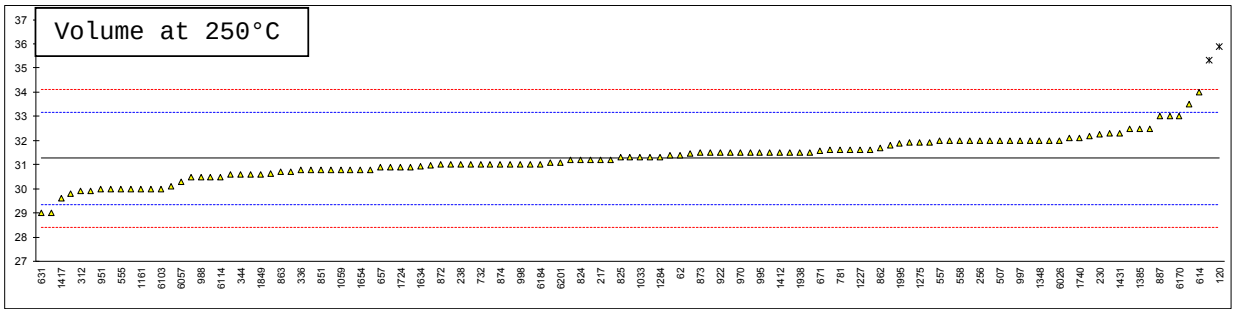
Determination of Distillation on sample #18170; results in %V/V

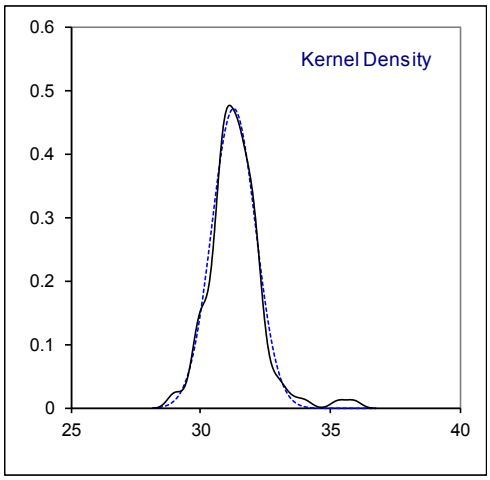
lab	method	Vol. 250 °C	mark	z(targ)	Vol. 350 °C	mark	z(targ)	%residue
52	D86-A	31.5		0.25	95.8		-0.06	1.3
53		-----		-----	-----		-----	-----
62	D86-A	31.4		0.14	94.9		-1.01	1.0
90	D86-M	-----		-----	-----		-----	-----
92	D86-A	32.3		1.09	95.7		-0.17	1.3
120	D86-A	35.9	R(0.01)	4.88	96.5		0.68	0.8
131	D86-A	-----		-----	-----		-----	2.3
132		-----		-----	-----		-----	-----
140	D86-A	-----		-----	-----		-----	1.4
150	D86-A	31.8		0.56	-----		-----	2.1
158		31.6		0.35	95.5		-0.38	1.6
159	D86-A	32.1		0.88	95.8		-0.06	1.4
169	D86-A	-----		-----	-----		-----	1.4
171	D86-A	35.3	R(0.01)	4.25	97.4		1.62	1.0
175	D86-A	-----		-----	-----		-----	1.4
186		-----		-----	-----		-----	-----
194		-----		-----	-----		-----	-----
203		-----		-----	-----		-----	-----
217	D86-A	31.2		-0.07	96.6		0.78	1.3
221		-----		-----	-----		-----	-----
224		-----		-----	-----		-----	-----
225	D86-M	33.5		2.35	96.5		0.68	1.4
228		31.0		-0.28	95.5		-0.38	1.2
230		32.25		1.04	96.96		1.16	1.2
237	D86-M	32.0		0.78	97.0		1.20	1.0
238	D86-M	31.0		-0.28	95.5		-0.38	1.5
240		-----		-----	-----		-----	-----
253	D86-M	31.5		0.25	95.0		-0.90	1.2
254	D86-M	-----		-----	-----		-----	-----
256	D86-M	32.0		0.78	96.0		0.15	-----
258	D86-A	-----		-----	-----		-----	-----
273		-----		-----	-----		-----	-----
312	D86-A	29.9		-1.44	95.9		0.04	1.0
317	D86-A	31.4		0.14	95.4		-0.48	1.5
323	D86-A	32.0		0.78	96.2		0.36	1.6
335		-----		-----	-----		-----	-----
336	D86-A	30.8		-0.49	95.9		0.04	1.0
337		-----		-----	-----		-----	-----
339		-----		-----	-----		-----	-----
342		31.2		-0.07	95.5		-0.38	-----
344	D86-A	30.6		-0.70	95.5		-0.38	1.0
349		-----		-----	-----		-----	-----
353	IP123-A	32.2		0.99	95.6		-0.27	1.4
355	D86-M	32		0.78	95.75		-0.11	0.75
356	D86-A	31.2		-0.07	96.2		0.36	1.8
381	D86-A	30.9		-0.38	97.0		1.20	1.4
433		-----		-----	-----		-----	-----
463	D86-A	30.6		-0.70	95.6		-0.27	1.5
485	D86-A	30.5		-0.80	95.7		-0.17	1.4
507	D86-M	32.0		0.78	96.0		0.15	0.50
511	D86-M	-----		-----	-----		-----	1.5
529	D86-A	31.0		-0.28	95.3		-0.59	1.4
541	D86-A	30.65		-0.65	95.75		-0.11	1.4
555	D86	30		-1.33	96		0.15	2.4
557	D86	32.0		0.78	95.2		-0.69	1.4
558	NBR 9619	32		0.78	97		1.20	1.6
562		-----		-----	-----		-----	-----
575		-----		-----	-----		-----	-----
603		-----		-----	-----		-----	-----
604	D86-A	30.0		-1.33	94.8		-1.11	1.4
605		-----		-----	-----		-----	-----
614	D86-M	34		2.88	-----		-----	5
631	D86-M	29		-2.38	96		0.15	1.1
634	D86-M	32.5		1.30	97.0		1.20	0.5
657	D86-A	30.9		-0.38	96.6		0.78	1.0
671	D86-A	31.565		0.32	-----		-----	3.2
732	ISO3405-M	31.0		-0.28	96.0		0.15	1.0
733		-----		-----	-----		-----	-----
750	D86	31.0		-0.28	95.5		-0.38	1.1
751		-----		-----	-----		-----	-----
781	D86-A	31.6		0.35	95.6		-0.27	1.2
785	D86-A	30.8		-0.49	95.6		-0.27	1.5
798	D86-A	30.8		-0.49	95.4		-0.48	1.5
824	D86-A	31.2		-0.07	96.0		0.15	1.4
825	D86-A	31.3		0.04	96.4		0.57	0.4
846	GB/T6536-M	-----		-----	-----		-----	1.5

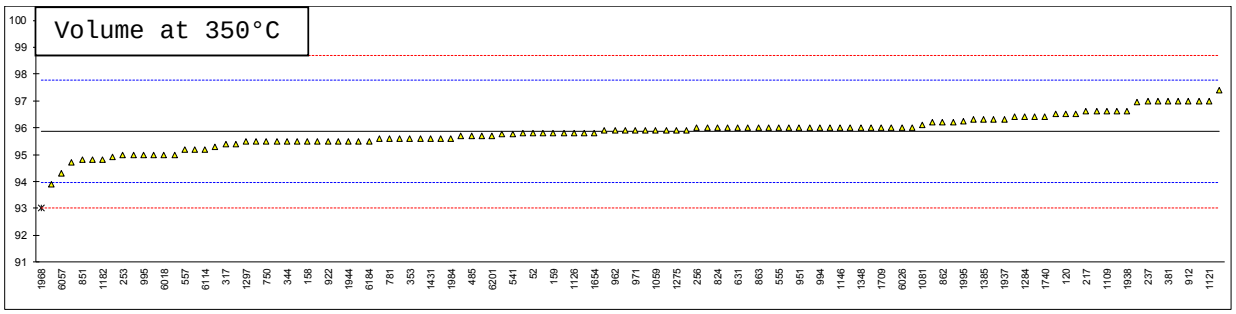
lab	method	Vol. 250 °C	mark	z(targ)	Vol. 350 °C	mark	z(targ)	%residue
851	D86-A	30.8		-0.49	94.8		-1.11	1.4
854	D86-A	31.3		0.04	95.8		-0.06	1.4
856	D86-A	31.1		-0.17	96.0		0.15	1.4
862	D86-A	31.7		0.46	96.2		0.36	1.4
863	D86-A	30.7		-0.59	96		0.15	1.4
864	D86-A	31.2		-0.07	95.8		-0.06	1.6
872	D86-M	31.0		-0.28	96.0		0.15	1.3
873	D86-M	31.5		0.25	95.5		-0.38	1.2
874	D86-M	31.0		-0.28	95.0		-0.90	1.3
886		-----		-----	-----		-----	-----
887	D86-M	33		1.83	96		0.15	1.35
912		29.0		-2.38	97.0		1.20	1.7
922	D86-A	31.5		0.25	95.5		-0.38	1.4
951	D86-M	30.0		-1.33	96.0		0.15	1.5
962	D86-A	31.0		-0.28	95.9		0.04	1.0
963	D86-A	30.6		-0.70	96.3		0.47	1.0
970	D86-A	31.5		0.25	95.8		-0.06	1.4
971	D86-A	31.6		0.35	95.9		0.04	1.3
974		-----		-----	-----		-----	-----
988	D86-M	30.5		-0.80	96.0		0.15	1.4
994	D86-M	31.5		0.25	96.0		0.15	1.0
995	D86-M	31.5		0.25	95.0		-0.90	1.1
996	D86-M	32.0		0.78	96.0		0.15	1.0
997	D86-M	32.0		0.78	95.0		-0.90	1.1
998	D86-M	31		-0.28	97		1.20	2
1006	D86-A	-----		-----	-----		-----	-----
1016		-----		-----	-----		-----	-----
1033	IP123-A	31.3		0.04	95.9		0.04	1.4
1059	ISO3405-A	30.8		-0.49	95.9		0.04	1.4
1080		-----		-----	-----		-----	-----
1081	D86-A	30.8		-0.49	96.1		0.26	1.3
1090		-----		-----	-----		-----	-----
1105		31.3		0.04	95.9		0.04	1.6
1109	D86-A	31.9		0.67	96.6		0.78	1.6
1121	IP123-M	33.0		1.83	97.0		1.20	1.5
1126		29.8		-1.54	95.8		-0.06	2.2
1146	D86-A	30		-1.33	96		0.15	0.8
1161	D86-A	30.0		-1.33	95.2		-0.69	1.1
1182	D86-A	30.5		-0.80	94.8		-1.11	-----
1186		-----		-----	-----		-----	-----
1194		-----		-----	-----		-----	-----
1199		-----		-----	-----		-----	-----
1227	D86-A	31.6		0.35	95.6		-0.27	1
1275	IP123-A	31.9		0.67	95.9		0.04	1.4
1284	D86-A	31.3		0.04	96.4		0.57	-----
1297		30.97		-0.31	95.48		-0.40	1.4
1299	D86-A	31.5		0.25	96.4		0.57	1.4
1347	D86-M	32		0.78	96		0.15	1.2
1348	D86-A	32		0.78	96		0.15	1.4
1356		-----		-----	-----		-----	-----
1385	D86-M	32.5		1.30	96.3		0.47	1.6
1412	D86-M	31.5		0.25	95.5		-0.38	-----
1417	ISO3405-A	29.6		-1.75	94.7		-1.22	1.2
1430		-----		-----	-----		-----	-----
1431	D86-A	32.3		1.09	95.6		-0.27	2.9
1457	D86-A	31.5		0.25	95.8		-0.06	1.6
1498	D86-A	32		0.78	96		0.15	1.4
1588		-----		-----	-----		-----	-----
1629		-----		-----	-----		-----	-----
1634	D86-A	30.95		-0.33	96.5		0.68	1.0
1643		-----		-----	-----		-----	-----
1654		30.8		-0.49	95.8		-0.06	1.4
1709	D86-A	31.6		0.35	96.0		0.15	1.5
1720	D86-A	29.9		-1.44	95.6		-0.27	-----
1724		30.9		-0.38	95.7		-0.17	1.5
1740	D86-A	32.1		0.88	96.4		0.57	0.4
1783		-----		-----	-----		-----	1.7
1796	D86-A	30.7		-0.59	93.9		-2.06	-----
1807	D86-A	32.5		1.30	96.3		0.47	1.4
1849	ISO3405-A	30.6		-0.70	95.9		0.04	1.4
1881		-----		-----	-----		-----	-----
1906		-----		-----	-----		-----	-----
1936	ISO3405-A	31.9		0.67	96.6		0.78	-----
1937	ISO3405-A	31.45		0.20	96.3		0.47	-----
1938	ISO3405-A	31.5		0.25	96.6		0.78	-----
1944	D86-M	31.0		-0.28	95.5		-0.38	1.6
1967	D86-M	31.5		0.25	96.0		0.15	0.5
1968	ISO3405-M	30		-1.33	93	R(0.01)	-3.01	0.5
1984	ISO3405-A	30.9		-0.38	95.6		-0.27	1.4

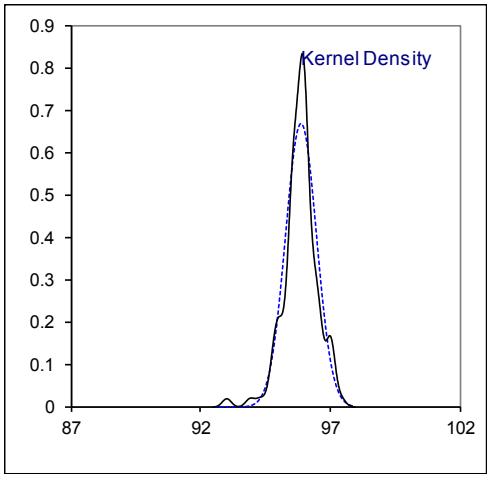
lab	method	Vol. 250 °C	mark	z(targ)	Vol. 350 °C	mark	z(targ)	%residue
1995	D86	31.878		0.65	96.25		0.41	1.3
6005	ISO3405-A	30.8		-0.49	95.5		-0.38	1.5
6018	ISO3405-A	30.1		-1.22	95.0		-0.90	0.9
6026	D86-M	32.0		0.78	96.0		0.15	1.0
6045	D86-A	-----		-----	-----		-----	-----
6057	D86-A	30.3		-1.01	94.3		-1.64	2.2
6101	D86-A	-----		-----	-----		-----	1.0
6103	ISO3405-A	30		-1.33	95		-0.90	1.4
6114	D86-A	30.5		-0.80	95.2		-0.69	1.9
6142		-----		-----	-----		-----	-----
6170	D86-M	33.0		1.83	96.0		0.15	1.5
6184	ISO3405-M	31.0		-0.28	95.5		-0.38	1.7
6201	D86-A	31.1		-0.17	95.7		-0.17	1.6

normality	OK	OK
n	117	115
outliers	2	1
mean (n)	31.26	95.86
st.dev. (n)	0.845	0.595
R(calc.)	2.36	1.67
st.dev.(D86-A:17)	0.950	0.950
R(D86-A:17)	2.66	2.66
compare		
R(D86-M:17)	2.56	2.48


Volume at 250°C


Kernel Density


Volume at 350°C

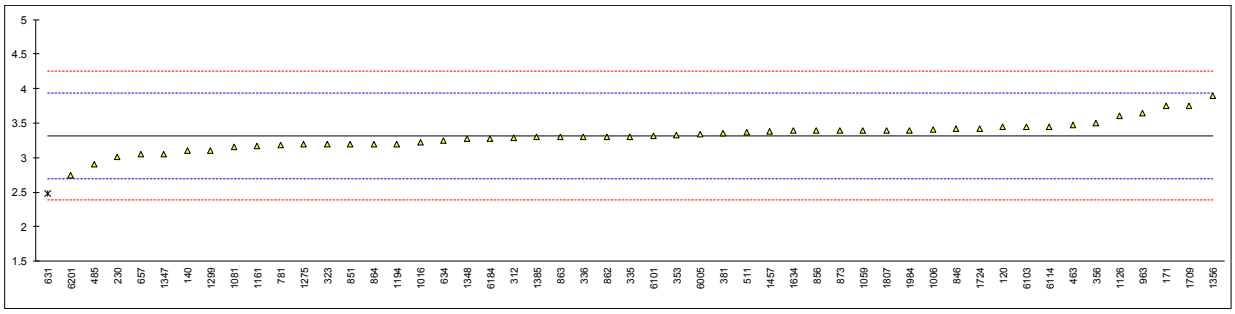

Kernel Density

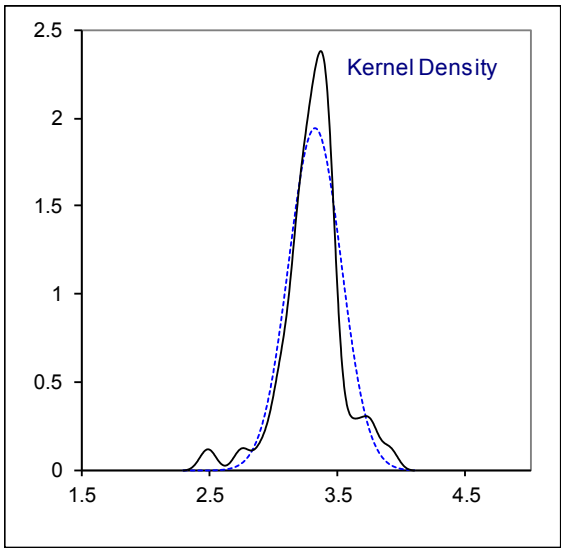
Determination of FAME Content on sample #18170; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	851	D7371	3.2		-0.38
53		-----		-----	854		-----		-----
62		-----		-----	856	EN14078	3.4		0.26
90		-----		-----	862	EN14078	3.3		-0.06
92		-----		-----	863	EN14078	3.30		-0.06
120	D7371	3.44		0.39	864	EN14078	3.20		-0.38
131		-----		-----	872		-----		-----
132		-----		-----	873	EN14078-A	3.4		0.26
140	D7371	3.10		-0.70	874		-----		-----
150		-----		-----	886		-----		-----
158		-----		-----	887		-----		-----
159		-----		-----	912		-----		-----
169		-----		-----	922		-----		-----
171	D7371	3.75		1.39	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D7371	3.65		1.07
194		-----		-----	970		-----		-----
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994		-----		-----
225		-----		-----	995		-----		-----
228		-----		-----	996		-----		-----
230	EN14078-A	3.01		-0.99	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006	D7371	3.41		0.29
240		-----		-----	1016	EN14078-A	3.22		-0.32
253		-----		-----	1033		-----		-----
254		-----		-----	1059	EN14078-B	3.4		0.26
256		-----		-----	1080		-----		-----
258		-----		-----	1081	EN14078-A	3.15		-0.54
273		-----		-----	1090		-----		-----
312	EN14078-A	3.29		-0.09	1105		-----		-----
317		-----		-----	1109		-----		-----
323	EN14078-A	3.2		-0.38	1121		-----		-----
335	EN14078-B	3.3		-0.06	1126	EN14078-A	3.6		0.91
336	EN14078-B	3.3		-0.06	1146		-----		-----
337		-----		-----	1161	EN14078-A	3.17		-0.48
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194	EN14078-A	3.2		-0.38
349		-----		-----	1199		-----		-----
353	EN14078-A	3.33		0.04	1227		-----		-----
355		-----		-----	1275	EN14078-A	3.19		-0.41
356	EN14078-A	3.5		0.58	1284		-----		-----
381	EN14078-A	3.36		0.13	1297		-----		-----
433		-----		-----	1299	EN14078-A	3.1		-0.70
463	EN14078-A	3.47		0.49	1347	EN14078-B	3.045		-0.88
485	EN14078-A	2.91		-1.32	1348	EN14078-A	3.273		-0.15
507		-----		-----	1356	D7371	3.9		1.87
511	D7371	3.3655		0.15	1385	EN14078-A	3.295		-0.08
529		-----		-----	1412		-----		-----
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457	EN14078-A	3.376		0.18
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634	D7371	3.39		0.23
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631	EN14078-A	2.485	R(0.05)	-2.69	1709	EN14078-A	3.75		1.39
634	EN14078-A	3.25		-0.22	1720		-----		-----
657	EN14078-A	3.045		-0.88	1724	EN14078-A	3.42		0.33
671		-----		-----	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750		-----		-----	1807	EN14078-A	3.4		0.26
751		-----		-----	1849		-----		-----
781	EN14078-A	3.185		-0.43	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824		-----		-----	1937		-----		-----
825		-----		-----	1938		-----		-----
846	GB/T235801	3.42		0.33	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967		-----		-----	6057		-----		-----
1968		-----		-----	6101	EN14078-A	3.314		-0.02
1984	EN14078-B	3.4		0.26	6103	EN14078-A	3.44		0.39
1995		-----		-----	6114	EN14078-A	3.44		0.39
6005	EN14078-A	3.347		0.09	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184	EN14078-A	3.28		-0.12
6045		-----		-----	6201	D7371	2.75		-1.83

normality	suspect
n	50
outliers	1
mean (n)	3.319
st.dev. (n)	0.2054
R(calc.)	0.575
st.dev.(D7371:14)	0.3105
R(D7371:14)	0.869
compare	
R(EN14078-A:14)	0.189
R(EN14078-B:14)	0.222





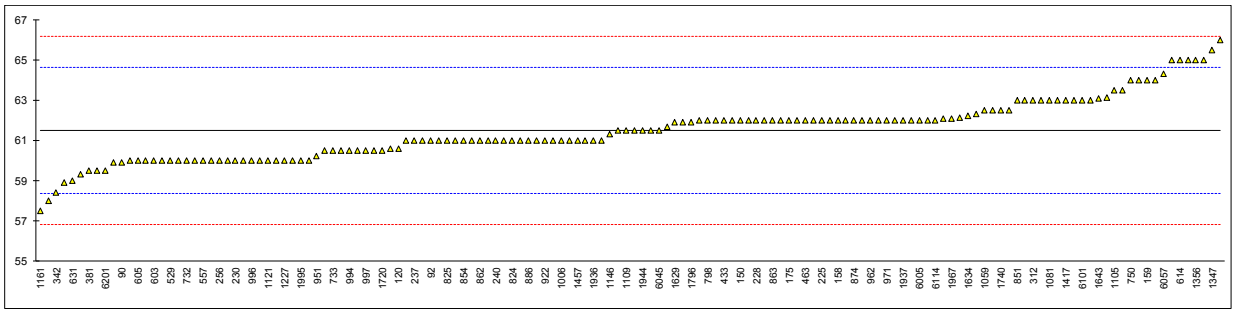
Determination of Flash Point PMcc, on sample #18170; results in °C

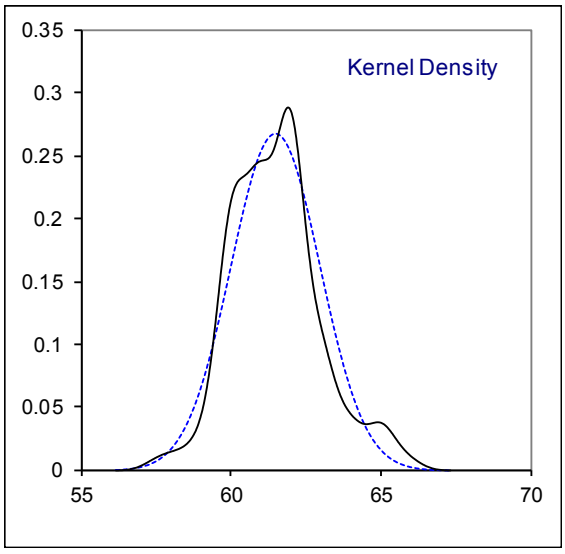
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	60.5		-0.64	851	D93-A	63		0.96
53	D93-A	60.0		-0.96	854	D93-A	61.0		-0.32
62	D93-C	62.0		0.32	856	D93-A	61.0		-0.32
90	D93-A	59.9		-1.02	862	D93-A	61.0		-0.32
92	D93-A	61.0		-0.32	863	D93-A	62.0		0.32
120	D93-A	60.6		-0.57	864	D93-A	62.0		0.32
131		-----		-----	872	D93-A	59.5		-1.28
132		-----		-----	873	D93-A	61.0		-0.32
140	D93-A	65.0		2.25	874	D93-A	62.0		0.32
150	D93-A	62.0		0.32	886	D93-A	61.0		-0.32
158	D93-A	62.0		0.32	887	D93-A	62.0		0.32
159	D93-A	64.0	C	1.61	912	D93-B	61.0		-0.32
169	D93-A	60.6		-0.57	922	D93-A	61		-0.32
171	D93-A	62.0		0.32	951	D93-A	60.24		-0.81
175	D93-A	62		0.32	962	D93-A	62.0		0.32
186	D93-A	58.89		-1.67	963	D93-A	62.0		0.32
194		-----		-----	970	D93-A	61		-0.32
203	D93-A	62		0.32	971	D93-A	62.0		0.32
217	D93-A	62.115		0.40	974		-----		-----
221		-----		-----	988	D93-A	62.3		0.52
224		-----		-----	994	D93-A	60.5		-0.64
225	D93-A	62.0		0.32	995	D93-A	60.5		-0.64
228	D93-A	62.0		0.32	996	D93-A	60.0		-0.96
230	D93-A	60.0		-0.96	997	D93-A	60.5		-0.64
237	D93-A	61.0		-0.32	998	D93	60.0		-0.96
238	D93-A	60.0		-0.96	1006	D93-A	61.0		-0.32
240	D93-A	61.0		-0.32	1016		-----		-----
253	D93-A	62		0.32	1033	IP34-A	60.5		-0.64
254	D93-A	60.5		-0.64	1059	ISO2719-A	62.5		0.64
256	D93-A	60.0		-0.96	1080		-----		-----
258	D93-A	61.98		0.31	1081	D93-A	63.0		0.96
273	D93-A	60		-0.96	1090		-----		-----
312	D93-A	63.0		0.96	1105	D93-A	63.5		1.29
317	D93-A	61.0		-0.32	1109	D93-A	61.5		0.00
323	D93-A	60.0		-0.96	1121	D93-A	60.0		-0.96
335	D93-B	62.0		0.32	1126		-----		-----
336	D93-A	61.5		0.00	1146	D93-A	61.3		-0.13
337		-----		-----	1161	ISO2719-A	57.5		-2.56
339	D93-A	62.1		0.39	1182	D93-A	60.0		-0.96
342	ISO2719-A	58.4		-1.99	1186		-----		-----
344	D93-A	61.0		-0.32	1194		-----		-----
349	D93-A	60		-0.96	1199		-----		-----
353	IP34-A	61.675		0.12	1227	D93-A	60		-0.96
355	D93-A	61.0		-0.32	1275	IP34-A	63.0		0.96
356	D93-A	63.0		0.96	1284	D93-A	61.0		-0.32
381	ISO2719-A	59.5		-1.28	1297	D93-B	61.5		0.00
433	ISO2719-A	62.0		0.32	1299	D93-A	62.5		0.64
463	D93-A	62.0		0.32	1347	D93-A	65.5		2.57
485	D93-A	61.0		-0.32	1348	D93-A	65		2.25
507	D93-A	63.00		0.96	1356	ISO2719-A	65		2.25
511	D93-A	60		-0.96	1385	D93-A	64.0		1.61
529	D93-A	60.0		-0.96	1412	D93-A	60.0		-0.96
541	D93-A	60.00		-0.96	1417	D93-A	63		0.96
555		-----		-----	1430		-----		-----
557	D93	60.0		-0.96	1431	D93-A	59.3		-1.41
558	D93	60.0		-0.96	1457	D93-A	61.0		-0.32
562		-----		-----	1498	D93-A	63.5		1.29
575	D93-A	62		0.32	1588		-----		-----
603	D93-A	60.0		-0.96	1629	D93-A	61.9		0.26
604	D93-A	64.0		1.61	1634	D93-A	62.2		0.45
605	D93-A	60.0		-0.96	1643	D93-A	63.1		1.03
614	D93-A	65		2.25	1654	ISO2719-A	62.0		0.32
631	D93-A	59.0		-1.60	1709		-----		-----
634	D93-A	61.0		-0.32	1720	D93-A	60.5		-0.64
657	D93-A	62.0		0.32	1724	D93-A	61		-0.32
671	D93-A	58.0		-2.24	1740	D93-A	62.5		0.64
732	ISO2719-A	60.0		-0.96	1783	D93-A	61.9		0.26
733	ISO2719-A	60.5		-0.64	1796	D93-A	61.9		0.26
750	D93-A	64.0		1.61	1807	D93-A	65.0		2.25
751		-----		-----	1849	ISO2719-A	62.5		0.64
781	D93-A	62.0		0.32	1881	ISO2719-A	66.0		2.89
785	D93-A	61.0		-0.32	1906		-----		-----
798	D93-A	62.0		0.32	1936	ISO2719-A	61.0		-0.32
824	D93-A	61.0		-0.32	1937	ISO2719-A	62		0.32
825	D93-A	61.0		-0.32	1938	ISO2719-A	61		-0.32
846	GB/T261	59.9		-1.02	1944	D93-A	61.5		0.00

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D93-A	62.1		0.39	6057	D93-A	64.3		1.80
1968	D93-A	61.5		0.00	6101	D93-A	63.0		0.96
1984	ISO2719-A	62.0		0.32	6103	ISO2719-A	62		0.32
1995	D93	60		-0.96	6114	D93-A	62.0		0.32
6005	ISO2719-A	62.0		0.32	6142		-----		-----
6018	ISO2719-A	63.0		0.96	6170	D93-A	63.0		0.96
6026	D93-A	60.0		-0.96	6184	ISO2719-A	63.125		1.05
6045	D93-A	61.5		0.00	6201	D93-A	59.5		-1.28

normality	OK
n	146
outliers	0
mean (n)	61.495
st.dev. (n)	1.4911
R(calc.)	4.175
st.dev.(D93-A:16a)	1.5593
R(D93-A:16a)	4.366

Lab 159 first reported 147.0





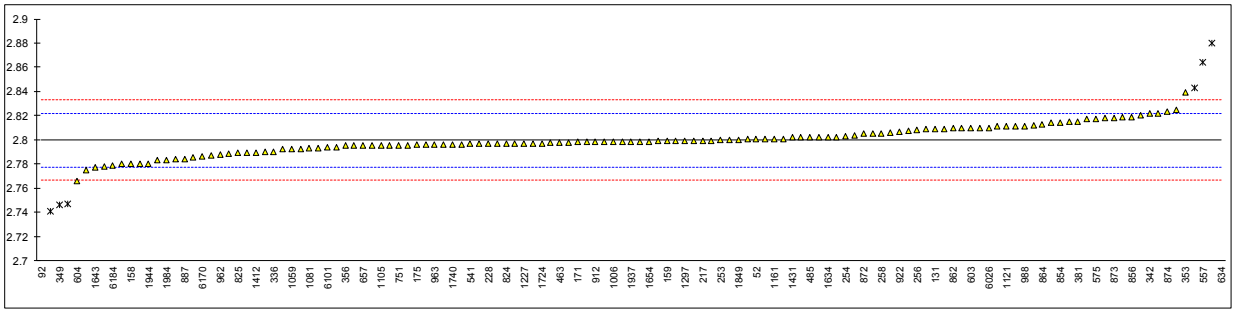
Determination of Kinematic Viscosity at 40°C, on sample #18170; results in mm^2/s

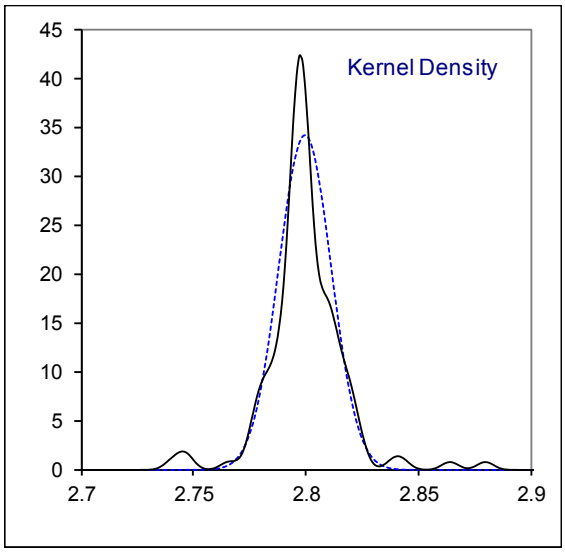
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.801		0.11	851	D445	2.811		1.01
53		-----		-----	854	D445	2.8141		1.29
62	D445	2.810		0.92	856	D445	2.8191		1.74
90		-----		-----	862	D445	2.810		0.92
92	D445	2.644	R(0.01)	-14.00	863	D445	2.8121		1.11
120	D445	2.797		-0.25	864	D445	2.813		1.19
131	D445	2.809		0.83	872	D445	2.805		0.47
132		-----		-----	873	D445	2.8180		1.64
140	D445	2.796		-0.34	874	D445	2.823		2.09
150	D445	2.805		0.47	886	D445	2.80		0.02
158	D445	2.78		-1.78	887	D445	2.784		-1.42
159	D445	2.799		-0.07	912	D445	2.798		-0.16
169	D445	2.780		-1.78	922	D7042	2.807		0.65
171	D445	2.798		-0.16	951	D445	2.7853		-1.30
175	D445	2.796		-0.34	962	D445	2.788		-1.06
186		-----		-----	963	D445	2.796		-0.34
194		-----		-----	970	D445	2.789		-0.97
203	D445	2.843	C,R(0.05)	3.89	971	D445	2.797		-0.25
217	D445	2.7994		-0.03	974		-----		-----
221		-----		-----	988	D445	2.81106		1.02
224		-----		-----	994	D445	2.799		-0.07
225	D445	2.815		1.37	995	D445	2.798		-0.16
228	D445	2.797		-0.25	996	D445	2.8092		0.85
230	D445	2.8086		0.79	997	D445	2.795		-0.43
237	D445	2.819	C	1.73	998	D445	2.88	R(0.01)	7.21
238		-----		-----	1006	D445	2.798		-0.16
240		-----		-----	1016		-----		-----
253	D445	2.8000		0.02	1033	IP71	2.801		0.11
254	D445	2.803		0.29	1059	ISO3104	2.792		-0.70
256	D445	2.808		0.74	1080	D7042	2.8076		0.70
258	D445	2.805129		0.48	1081	D445	2.793		-0.61
273	D445	2.792		-0.70	1090		-----		-----
312	D445	2.798		-0.16	1105	D445	2.795		-0.43
317	D445	2.797		-0.25	1109	D445	2.7783		-1.93
323	D445	2.783		-1.51	1121	IP71	2.811		1.01
335	D445	2.802		0.20	1126		-----		-----
336	D445	2.790		-0.88	1146	D445	2.7951		-0.42
337		-----		-----	1161	ISO3104	2.801		0.11
339		-----		-----	1182	D7042	2.7979		-0.17
342	ISO3104	2.8216	C	1.96	1186		-----		-----
344		-----		-----	1194		-----		-----
349	D445	2.746	R(0.01)	-4.83	1199		-----		-----
353	IP71	2.8391		3.53	1227	D445	2.797		-0.25
355	D445	2.7954161		-0.39	1275	IP71	2.798911		-0.08
356	D445	2.795		-0.43	1284	D445	2.7960		-0.34
381	ISO3104	2.815		1.37	1297	D7042	2.7990		-0.07
433		-----		-----	1299	D445	2.797		-0.25
463	D445	2.7977		-0.19	1347	D445	2.811		1.01
485	D445	2.802		0.20	1348	D445	2.7839		-1.43
507	D445	2.7991		-0.06	1356	ISO3104	2.801		0.11
511		-----		-----	1385	D445	2.794		-0.52
529		-----		-----	1412	D445	2.789		-0.97
541	D445	2.7967		-0.28	1417	IP71	2.802		0.20
555	D445	2.747	R(0.01)	-4.74	1430		-----		-----
557	D445	2.864277	R(0.01)	5.80	1431	D7042	2.8019		0.19
558		-----		-----	1457	D445	2.8003		0.05
562		-----		-----	1498	D445	2.798		-0.16
575	D445	2.8172		1.57	1588		-----		-----
603	D445	2.810	C	0.92	1629		-----		-----
604	D445	2.7659		-3.04	1634	D445	2.802		0.20
605	D445	2.8037		0.35	1643	D445	2.777		-2.05
614		-----		-----	1654	ISO3104	2.7984		-0.12
631	D445	2.7751		-2.22	1709		-----		-----
634	D445	2.952	C,R(0.01)	13.68	1720		-----		-----
657	D445	2.795		-0.43	1724	D445	2.797		-0.25
671	D445	2.81		0.92	1740	D445	2.796		-0.34
732	D445	2.795		-0.43	1783		-----		-----
733		-----		-----	1796	D445	2.7995		-0.02
750	D445	2.790		-0.88	1807	D445	2.787		-1.15
751	D445	2.7953		-0.40	1849	ISO3104	2.800		0.02
781	D445	2.817		1.55	1881	D445	2.8205		1.86
785	D445	2.825		2.27	1906		-----		-----
798	D445	2.822		2.00	1936	ISO3104	2.796		-0.34
824	D445	2.797		-0.25	1937	ISO3104	2.798		-0.16
825	D445	2.7890	C	-0.97	1938	ISO3104	2.7975		-0.20
846	GB/T265	2.818		1.64	1944	D445	2.78044		-1.74

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D445	2.8062		0.58	6057	D445	2.802		0.20
1968	D445	2.793		-0.61	6101	D445	2.79399		-0.52
1984	ISO3104	2.783		-1.51	6103	ISO3104	2.814		1.28
1995	D445	2.7886		-1.00	6114	D445	2.780		-1.78
6005	ISO3104	2.7407	R(0.01)	-5.31	6142		-----		-----
6018		-----		-----	6170	D445	2.786		-1.24
6026	D445	2.810		0.92	6184	ISO3104	2.77887	C	-1.88
6045	D445	2.798		-0.16	6201	D445	2.792		-0.70

normality	OK
n	125
outliers	8
mean (n)	2.7998
st.dev. (n)	0.01165
R(calc.)	0.0326
st.dev.(D445:17a)	0.01113
R(D445:17a)	0.0312

Lab 203 first reported 2.8425
Lab 237 first reported 2.837
Lab 342 first reported 5.9177
Lab 603 first reported 2.839
Lab 634 first reported 2.873
Lab 825 first reported 2.8536
Lab 6184 first reported 2.83503





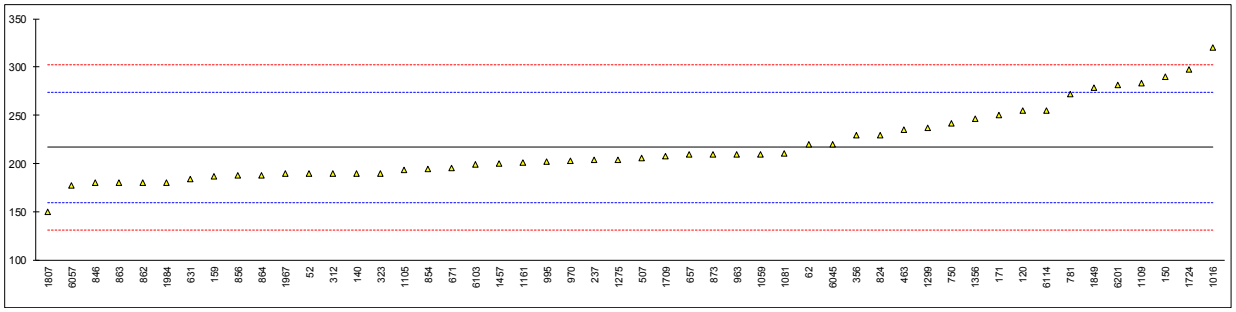
Determination of Lubricity by HFRR at 60°C, rel. humidity 30-85% on sample #18170; results in µm

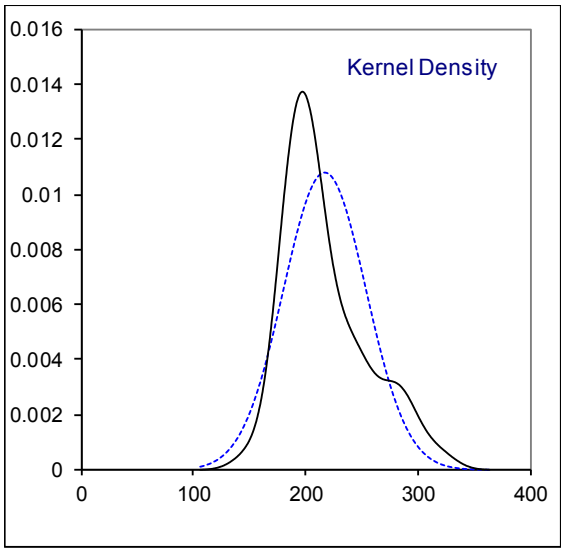
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6079	190		-0.95	851		-----		-----
53		-----		-----	854	D6079	195		-0.77
62	D6079	220		0.10	856	D6079	188		-1.02
90		-----		-----	862	ISO12156	180		-1.30
92		-----		-----	863	D6079	180		-1.30
120	D6079	255.0		1.33	864	D6079	188		-1.02
131		-----		-----	872		-----		-----
132		-----		-----	873	ISO12156-1 meth B	210		-0.25
140	D6079	190		-0.95	874		-----		-----
150	D6079	290		2.55	886		-----		-----
158		-----		-----	887		-----		-----
159	D6079	187		-1.05	912		-----		-----
169		-----		-----	922		-----		-----
171	D6079	250		1.15	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D6079	210		-0.25
194		-----		-----	970	D6079	203		-0.49
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994		-----		-----
225		-----		-----	995	D6079	202		-0.53
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237	D6079	204		-0.46	998		-----		-----
238		-----		-----	1006		-----		-----
240		-----		-----	1016	ISO12156-1 meth A	320		3.60
253		-----		-----	1033		-----		-----
254		-----		-----	1059	ISO12156-1 meth B	210		-0.25
256		-----		-----	1080		-----		-----
258		-----		-----	1081	ISO12156-1 meth A	210.5		-0.23
273		-----		-----	1090		-----		-----
312	ISO12156-1 meth A	190		-0.95	1105	D6079	194		-0.81
317		-----		-----	1109	IP450	283		2.31
323	D6079	190		-0.95	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161	ISO12156-1 (2006)	201.0		-0.56
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275	IP450	204		-0.46
356	ISO12156-1 (2006)	230	C	0.45	1284		-----		-----
381		-----		-----	1297		-----		-----
433		-----		-----	1299	ISO12156-1 (2006)	237		0.70
463	D6079	235.0		0.63	1347		-----		-----
485		-----		-----	1348		-----		-----
507	D6079	206.00		-0.39	1356	ISO12156-1 (2006)	247		1.05
511		-----		-----	1385		-----		-----
529		-----		-----	1412		-----		-----
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457	D6079	200.5		-0.58
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631	D7866	184		-1.16	1709	D6079	208		-0.32
634		-----		-----	1720		-----		-----
657	D6079	210		-0.25	1724	IP450	298		2.83
671	D6079	195.5		-0.75	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750	ISO12156-1	242		0.87	1807	ISO12156-1 (2006)	150		-2.35
751		-----		-----	1849	ISO12156-1 (2006)	279		2.17
781	D6079	272		1.92	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D6079	230		0.45	1937		-----		-----
825		-----		-----	1938		-----		-----
846	SH/T0765	180.0		-1.30	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D6079	189.5		-0.96	6057	ISO12156-1 (2006)	178		-1.37
1968		-----		-----	6101		-----		-----
1984	ISO12156-1 meth A	180		-1.30	6103	ISO12156-1 meth A	199.0		-0.63
1995		-----		-----	6114	ISO12156-1 (2006)	255		1.33
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184		-----		-----
6045	D6079	220		0.10	6201	D6079	281.5		2.26

		Only D6079	Only ISO 12156/IP450
normality	OK	suspect	OK
n	50	28	20
outliers	0	0	0
mean (n)	217.0	213.7	225.2
st.dev. (n)	36.93	30.30	44.68
R(calc.)	103.4	84.8	125.1
st.dev.(D6079:11)	28.57	28.57	28.57
R(D6079:11)	80	80	---
compare			
R(ISO 12156-A:16)	80 (digital camera)	---	80 (digital camera)
R(ISO 12156-B:16)	90 (visual)	---	90 (visual)

Lab 356 first reported 330



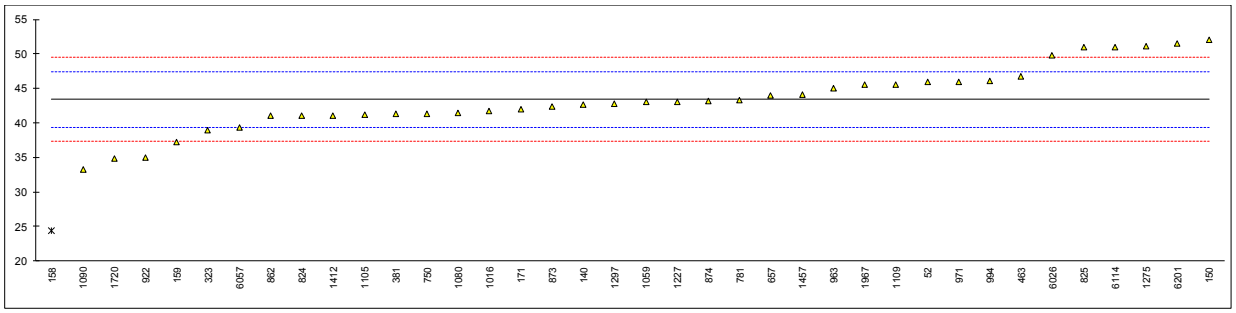


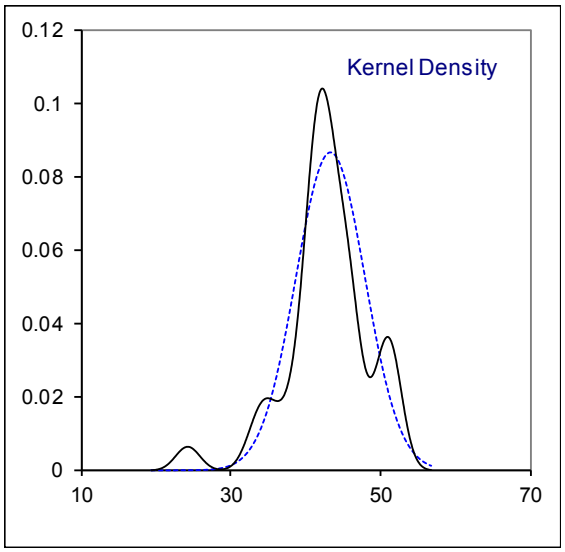
Determination of Nitrogen on sample #18170; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	46		1.28	851		-----		-----
53		-----		-----	854		-----		-----
62		-----		-----	856		-----		-----
90		-----		-----	862	D4629	41		-1.20
92		-----		-----	863		-----		-----
120		-----		-----	864		-----		-----
131		-----		-----	872		-----		-----
132		-----		-----	873	D4629	42.4		-0.50
140	D4629	42.6		-0.40	874	D4629	43.2		-0.11
150	D4629	52		4.26	886		-----		-----
158	D4629	24.37	R(0.01)	-9.45	887		-----		-----
159	D4629	37.16		-3.10	912		-----		-----
169		-----		-----	922	D4629	35		-4.18
171	D4629	42		-0.70	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D4629	45		0.79
194		-----		-----	970		-----		-----
203		-----		-----	971	D4629	46		1.28
217		-----		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D4629	46.1		1.33
225		-----		-----	995		-----		-----
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006		-----		-----
240		-----		-----	1016	D4629	41.68		-0.86
253		-----		-----	1033		-----		-----
254		-----		-----	1059	D4629	43		-0.21
256		-----		-----	1080	D4629	41.5		-0.95
258		-----		-----	1081		-----		-----
273		-----		-----	1090	D4629	33.24		-5.05
312		-----		-----	1105		41.2		-1.10
317		-----		-----	1109	D4629	45.6		1.08
323	D4629	39		-2.19	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161		-----		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227	D4629	43.0		-0.21
355		-----		-----	1275	D4629	51.11		3.82
356		-----		-----	1284		-----		-----
381	D4629	41.3		-1.05	1297	D4629	42.78		-0.32
433		-----		-----	1299		-----		-----
463	D4629	46.8		1.68	1347		-----		-----
485		-----		-----	1348		-----		-----
507		-----		-----	1356		-----		-----
511		-----		-----	1385		-----		-----
529		-----		-----	1412	D4629	41		-1.20
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457	D4629	44.1		0.34
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631		-----		-----	1709		-----		-----
634		-----		-----	1720	D4629	34.77		-4.29
657	D4629	44		0.29	1724		-----		-----
671		-----		-----	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750	D4629	41.36		-1.02	1807		-----		-----
751		-----		-----	1849		-----		-----
781	D4629	43.3		-0.06	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D4629	41		-1.20	1937		-----		-----
825	D4629	51		3.76	1938		-----		-----
846		-----		-----	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D4629	45.569		1.07	6057	D4629	39.3		-2.04
1968		-----		-----	6101		-----		-----
1984		-----		-----	6103		-----		-----
1995		-----		-----	6114	D5762	51		3.76
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D4629	49.82		3.18	6184		-----		-----
6045		-----		-----	6201	D4629	51.5		4.01

normality	OK
n	37
outliers	1
mean (n)	43.42
st.dev. (n)	4.613
R(calc.)	12.92
st.dev.(D4629:12)	2.015
R(D4629:12)	5.64



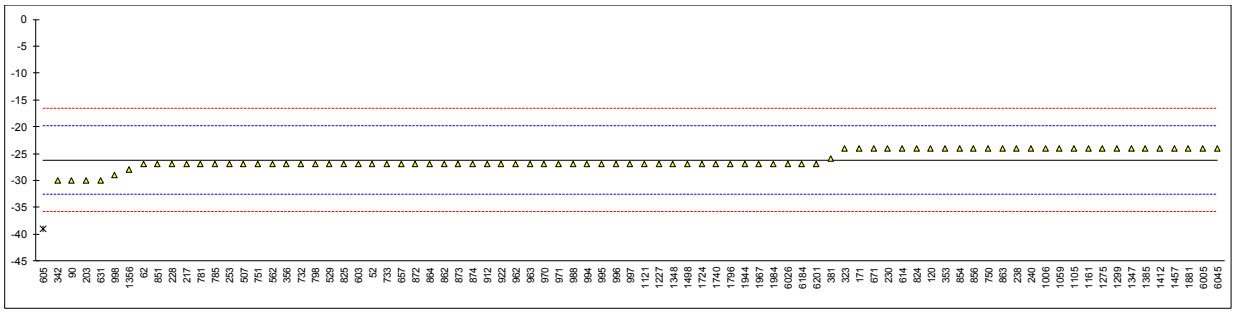


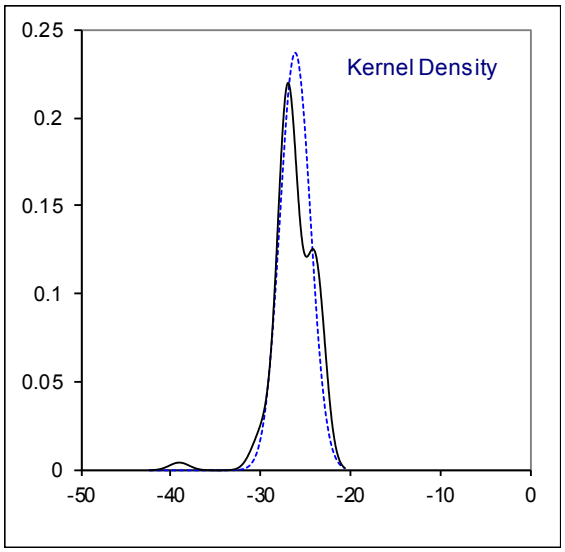
Determination of Pour Point, Manual on sample #18170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	-27		-0.25	851	D97	-27		-0.25
53		-----		-----	854	D97	-24		0.68
62	D97	-27		-0.25	856	D97	-24		0.68
90	D97	-30		-1.19	862	D97	-27		-0.25
92	D97	<-27		-----	863	D97	-24		0.68
120	D97	-24		0.68	864	D97	-27		-0.25
131		-----		-----	872	D97	-27		-0.25
132		-----		-----	873	D97	-27		-0.25
140		-----		-----	874	D97	-27		-0.25
150		-----		-----	886		-----		-----
158		-----		-----	887		-----		-----
159		-----		-----	912	D97	-27		-0.25
169	D97	<-30		-----	922	D97	-27		-0.25
171	D97	-24		0.68	951	D97	< -21		-----
175		-----		-----	962	D97	-27		-0.25
186		-----		-----	963	D97	-27		-0.25
194		-----		-----	970	D97	-27		-0.25
203	D97	-30		-1.19	971	D97	-27		-0.25
217	D97	-27		-0.25	974		-----		-----
221		-----		-----	988	D97	-27		-0.25
224		-----		-----	994	D97	-27		-0.25
225		-----		-----	995	D97	-27		-0.25
228	D97	-27		-0.25	996	D97	-27		-0.25
230	D97	-24.0		0.68	997	D97	-27		-0.25
237	D97	<-21		-----	998	D97	-29		-0.88
238	D97	-24		0.68	1006	D97	-24		0.68
240	D97	-24		0.68	1016		-----		-----
253	D97	-27		-0.25	1033		-----		-----
254		-----		-----	1059	ISO3016	-24		0.68
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1090		-----		-----
312		-----		-----	1105	D97	-24		0.68
317		-----		-----	1109	D97	<-21		-----
323	D97	-24		0.68	1121	IP15	-27		-0.25
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161	D97	-24		0.68
339		-----		-----	1182		-----		-----
342	ISO3016	-30		-1.19	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353	IP15	-24		0.68	1227	D97	-27		-0.25
355		-----		-----	1275	IP15	-24.0		0.68
356	D97	-27		-0.25	1284		-----		-----
381	ISO3016	-26		0.06	1297		-----		-----
433		-----		-----	1299	D97	-24		0.68
463		-----		-----	1347	D97	-24		0.68
485		-----		-----	1348	D97	-27		-0.25
507	D97	-27		-0.25	1356	ISO3016	-28		-0.57
511		-----		-----	1385	D97	-24		0.68
529	D97	-27		-0.25	1412	D97	-24		0.68
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457	D97	-24		0.68
562	D97	-27		-0.25	1498	D97	-27		-0.25
575		-----		-----	1588		-----		-----
603	D97	-27		-0.25	1629		-----		-----
604		-----		-----	1634		-----		-----
605	D97	-39	R(0.01)	-3.99	1643		-----		-----
614	D97	-24		0.68	1654		-----		-----
631	D97	-30		-1.19	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D97	-27		-0.25	1724	D97	-27		-0.25
671	D97	-24.0		0.68	1740	D97	-27		-0.25
732	D97	-27.0		-0.25	1783		-----		-----
733	D97	-27.0		-0.25	1796	D97	-27		-0.25
750	D97	-24		0.68	1807		-----		-----
751	D97	-27		-0.25	1849		-----		-----
781	D97	-27		-0.25	1881	D97	-24		0.68
785	D97	-27		-0.25	1906		-----		-----
798	D97	-27		-0.25	1936		-----		-----
824	D97	-24		0.68	1937		-----		-----
825	D97	-27		-0.25	1938		-----		-----
846		-----		-----	1944	D97	-27		-0.25

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D97	-27		-0.25	6057		-----		-----
1968		-----		-----	6101		-----		-----
1984	NFT60-105	-27		-0.25	6103		-----		-----
1995		-----		-----	6114		-----		-----
6005	ISO3016	-24		0.68	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026	D97	-27		-0.25	6184	ISO3016	-27		-0.25
6045	D97	-24		0.68	6201	D97	-27		-0.25

normality	OK
n	82
outliers	1
mean (n)	-26.18
st.dev. (n)	1.686
R(calc.)	4.72
st.dev.(D97:17b)	3.214
R(D97:17b)	9





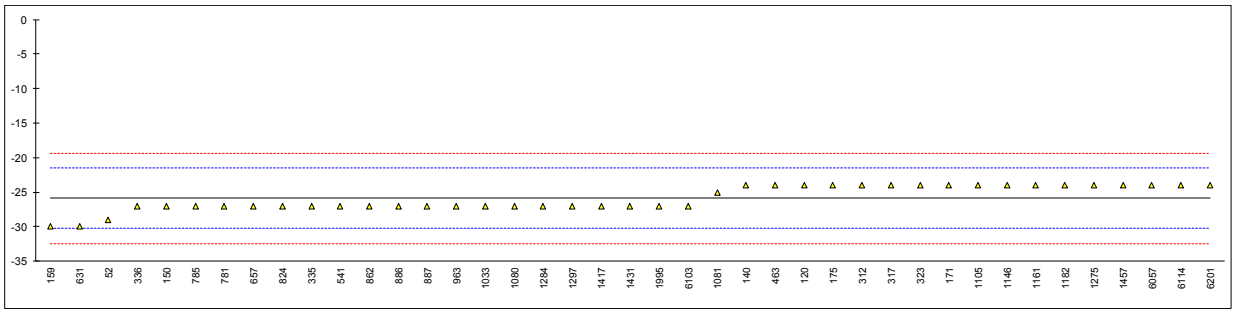
Determination of Pour Point, Automated, 3°C interval on sample #18170; results in °C

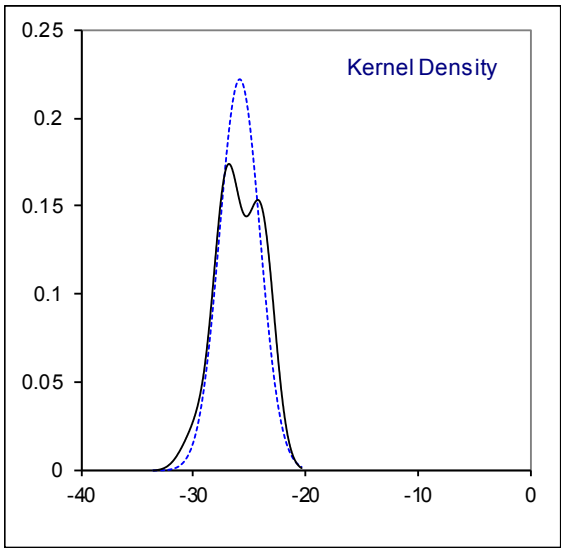
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5949	-29		-1.42	851		-----		-----
53		-----		-----	854		-----		-----
62		-----		-----	856		-----		-----
90		-----		-----	862	D5950	-27		-0.50
92		-----		-----	863		-----		-----
120	D5950	-24		0.87	864		-----		-----
131		-----		-----	872		-----		-----
132		-----		-----	873		-----		-----
140	D5949	-24.0		0.87	874		-----		-----
150	D5950	-27		-0.50	886	D5950	-27		-0.50
158		-----		-----	887	D6749	-27		-0.50
159	D5950	-30.0		-1.88	912		-----		-----
169		-----		-----	922		-----		-----
171	D5950	-24		0.87	951		-----		-----
175	D5950	-24		0.87	962		-----		-----
186		-----		-----	963	D5950	-27		-0.50
194		-----		-----	970		-----		-----
203		-----		-----	971		-----		-----
217		-----		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994		-----		-----
225		-----		-----	995		-----		-----
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006		-----		-----
240		-----		-----	1016		-----		-----
253		-----		-----	1033	D7346	-27		-0.50
254		-----		-----	1059		-----		-----
256		-----		-----	1080	D6749	-27		-0.50
258		-----		-----	1081	D5950	-25		0.41
273		-----		-----	1090		-----		-----
312	D5950	-24		0.87	1105	D5950	-24.0		0.87
317	D6749	-24		0.87	1109		-----		-----
323	D5950	-24		0.87	1121		-----		-----
335	D5950	-27		-0.50	1126		-----		-----
336	D5950	-27		-0.50	1146	D6892	-24		0.87
337		-----		-----	1161	D6749	-24		0.87
339		-----		-----	1182	D5949	-24		0.87
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275	IP15	-24.0		0.87
356		-----		-----	1284	D5950	-27		-0.50
381		-----		-----	1297	D5949	-27.0		-0.50
433		-----		-----	1299		-----		-----
463	D6892	-24		0.87	1347		-----		-----
485		-----		-----	1348		-----		-----
507		-----		-----	1356		-----		-----
511		-----		-----	1385		-----		-----
529		-----		-----	1412		-----		-----
541	D5950	-27		-0.50	1417	D5950	-27		-0.50
555		-----		-----	1430		-----		-----
557		-----		-----	1431	D5950	-27		-0.50
558		-----		-----	1457	D5950	-24		0.87
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631	D5950	-30.0		-1.88	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D5950	-27		-0.50	1724		-----		-----
671		-----		-----	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750		-----		-----	1807		-----		-----
751		-----		-----	1849		-----		-----
781	D5950	-27		-0.50	1881		-----		-----
785	D6749	-27		-0.50	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D6749	-27		-0.50	1937		-----		-----
825		-----		-----	1938		-----		-----
846		-----		-----	1944		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967		-----		-----	6057	D5950	-24		0.87
1968		-----		-----	6101		-----		-----
1984		-----		-----	6103	D5950	-27		-0.50
1995	D5950	-27		-0.50	6114	D5950	-24		0.87
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184		-----		-----
6045		-----		-----	6201	D5950	-24		0.87

normality	OK
n	41
outliers	0
mean (n)	-25.90
st.dev. (n)	1.800
R(calc.)	5.04
st.dev.(D5950:14)	2.179
R(D5950:14)	6.1

Lab 52 reported: used 1°C interval
Lab 1081 reported: used 1°C interval





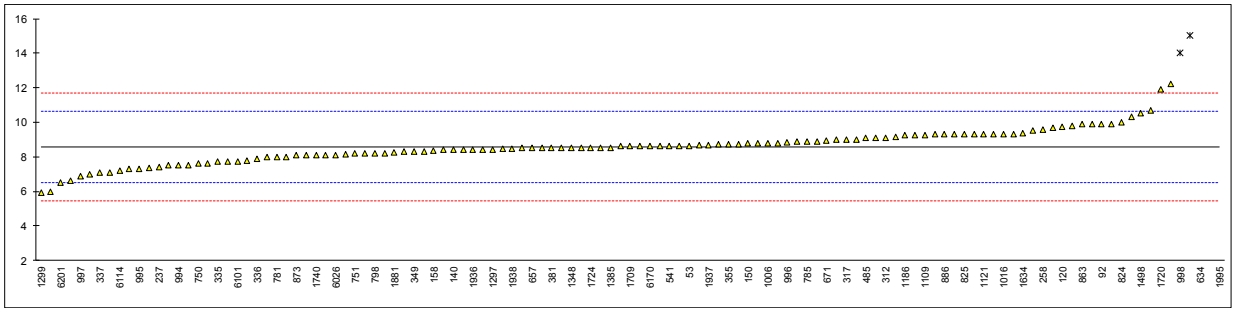
Determination of Sulphur on sample #18170; results in mg/kg

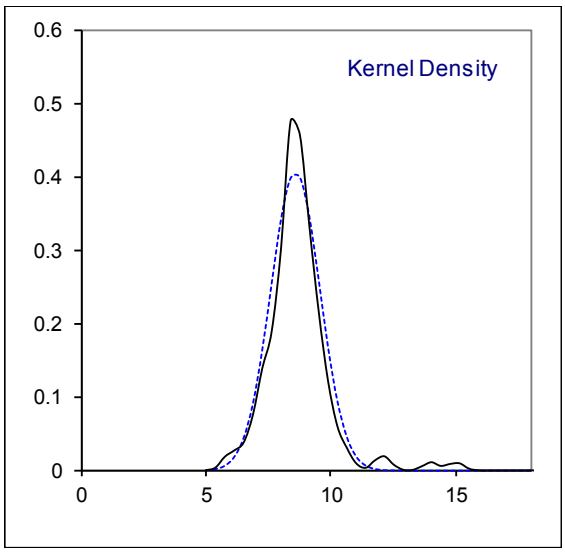
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	8.5		-0.08	851	D2622	8.9		0.31
53	D5453	8.644		0.06	854	D5453	9.15		0.55
62	D5453	8.4		-0.17	856	D5453	9.9		1.27
90		-----		-----	862	D5453	9.3		0.69
92	D5453	9.9		1.27	863	D5453	9.87		1.24
120	D5453	9.747		1.12	864	D5453	9.78		1.16
131		-----		-----	872	D5453	8.5		-0.08
132		-----		-----	873	ISO20846	8.1		-0.46
140	D2622	8.4		-0.17	874	D2622	7.8		-0.75
150	D5453	8.8		0.21	886	D5453	9.3		0.69
158	D5453	8.37		-0.20	887		-----		-----
159	D5453	8.8		0.21	912		-----		-----
169	D5453	8.97		0.37	922	D5453	6.6		-1.91
171	D5453	9.0		0.40	951	D4294	<17		-----
175	D5453	8.7		0.11	962		-----		-----
186	D4294	15	C,R(0.01)	6.18	963	D5453	8.4		-0.17
194		-----		-----	970	D5453	8.6		0.02
203	D4294	10.69		2.03	971	D5453	8.2		-0.37
217	D5453	9.32		0.71	974		-----		-----
221		-----		-----	988	D4294	8		-0.56
224		-----		-----	994	D5453	7.5		-1.04
225	D4294	50	R(0.01)	39.90	995	D5453	7.3		-1.23
228		-----		-----	996	D5453	8.83		0.24
230	ISO8754	<20		-----	997	D5453	6.9		-1.62
237	D5453	7.4		-1.14	998	D4294	14	R(0.01)	5.22
238		-----		-----	1006	D5453	8.8		0.21
240		-----		-----	1016	ISO20846	9.32		0.71
253		-----		-----	1033		-----		-----
254	D4294	<20		-----	1059	ISO20846	9.9		1.27
256	D4294	<20		-----	1080	D5453	8.5		-0.08
258	D5453	9.55		0.93	1081	ISO20846	8.62		0.04
273	D5453	7.11		-1.42	1090		-----		-----
312	D5453	9.11		0.51	1105	D7039	8.74		0.15
317	D5453	9.0		0.40	1109	D7039	9.24		0.63
323	D5453	8.1		-0.46	1121	D5453	9.31		0.70
335	ISO20846	7.7		-0.85	1126	ISO20846	9.1		0.50
336	D5453	7.9		-0.66	1146		-----		-----
337	ISO20846	7.1		-1.43	1161	ISO20846	8.42		-0.16
339	In house	<1000		-----	1182	ISO20846	5.99		-2.50
342		-----		-----	1186	D5453	9.23		0.63
344	D5453	8.286		-0.28	1194	INH-7220	12.2		3.49
349	D7039	8.3		-0.27	1199		-----		-----
353	ISO20846	7.354		-1.18	1227	D5453	8.3		-0.27
355	D2622	8.73		0.14	1275	IP490	9.29		0.68
356	ISO20846	9.3		0.69	1284	D5453	9.32		0.71
381	D5453	8.5		-0.08	1297	D5453	8.43		-0.15
433		-----		-----	1299	ISO20884	5.9		-2.58
463	D5453	8.17		-0.40	1347	D5453	7.99		-0.57
485	D5453	9.1		0.50	1348	D5453	8.5		-0.08
507		-----		-----	1356	ISO8754	<0.03	-f?/U?	<-8.24
511		-----		-----	1385	D5453	8.53		-0.05
529		-----		-----	1412	D5453	8.8		0.21
541	D5453	8.63		0.05	1417		-----		-----
555	D7039	7		-1.52	1430		-----		-----
557		-----		-----	1431	D7220	8.5		-0.08
558		-----		-----	1457	D5453	8.71		0.12
562		-----		-----	1498	D5453	10.5		1.85
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634	D5453	9.36		0.75
605		-----		-----	1643		-----		-----
614		-----		-----	1654	ISO20846	8.64		0.06
631	D4294	8.1886		-0.38	1709	D5453	8.6		0.02
634	D4294	20	C,R(0.01)	11.00	1720	D5453	11.92		3.22
657	D5453	8.5		-0.08	1724	D5453	8.5		-0.08
671	D5453	8.925		0.33	1740	D5453	8.1		-0.46
732	D4294	7.5		-1.04	1783		-----		-----
733	ISO20884	7.3		-1.23	1796	D4294	8.6		0.02
750	ISO20884	7.6		-0.95	1807	D5453	8.1		-0.46
751	D2622	8.1845		-0.38	1849	ISO20846	9.7		1.08
781	D5453	8.0		-0.56	1881	ISO20846	8.24		-0.33
785	ISO20846	8.9		0.31	1906		-----		-----
798	ISO20846	8.2		-0.37	1936	ISO20846	8.4		-0.17
824	D5453	10.0		1.37	1937	ISO20846	8.7		0.11
825	D5453	9.3		0.69	1938	ISO20846	8.47		-0.11
846	SH/T0689	9.24		0.63	1944	D5453	10.327		1.68

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	ISO20884	8.455		-0.12	6057	D5453	9.5		0.89
1968	ISO20846	8.9		0.31	6101	D1266	7.7		-0.85
1984	ISO20846	8.5		-0.08	6103		-----		-----
1995	D5453	100	R(0.01)	88.07	6114	D5453	7.2		-1.33
6005		-----		-----	6142		-----		-----
6018	ISO20846	7.7		-0.85	6170	D5453	8.60		0.02
6026	D4294	8.1		-0.46	6184	ISO20884	7.5		-1.04
6045	D5453	7.6		-0.95	6201	D5453	6.5		-2.00

normality	not OK
n	116
outliers	5
mean (n)	8.581
st.dev. (n)	0.9851
R(calc.)	2.758
st.dev.(D5453:16e1)	1.0380
R(D5453:16e1)	2.906

Lab 186 first reported 201.2
Lab 634 first reported 30
Lab 1356 possibly false negative test result or an error in reporting unit?



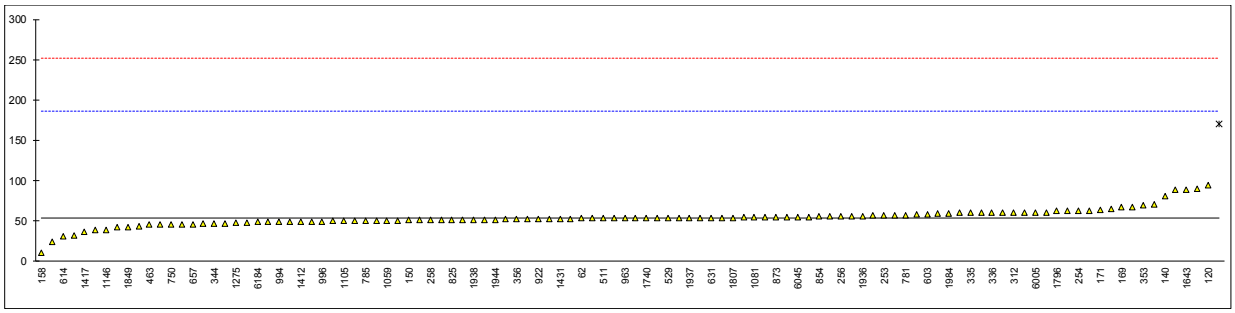


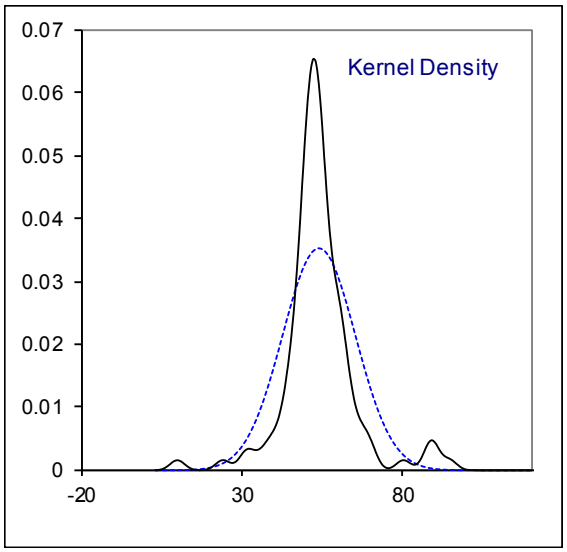
Determination of Water Content by KF on sample #18170; results in mg/kg

lab	method	org. value	conv. value	mark	z(targ)	lab	method	org. value	conv. value	mark	z(targ)
52	D6304-A	51 mg/kg	51		-0.04	851	D6304-A	55.9 mg/kg	55.9		0.03
53			-----		-----	854	D6304-A	55.2 mg/kg	55.2		0.02
62	D6304-A	53 mg/kg	53		-0.01	856			-----		-----
90	D6304-A	50 mg/kg	50		-0.06	862	D6304-A	51 mg/kg	51		-0.04
92	E203	0.017 %M/M	170	R(0.01)	1.76	863	D6304-A	49.1 mg/kg	49.1		-0.07
120	D6304-A	0.00945 %M/M	94.5		0.61	864	D6304-A	54 mg/kg	54		0.00
131			-----		-----	872			-----		-----
132			-----		-----	873	D6304-A	55 mg/kg	55		0.02
140	D6304-A	80.2 mg/kg	80.2		0.40	874	D6304-A		53		-0.01
150	D6304-A	51 mg/kg	51		-0.04	886			-----		-----
158	D4928	0.01	10		-0.67	887	D6304-A	53.5 mg/kg	53.5		-0.01
159			-----		-----	912	D6304-C	57.0 mg/kg	57.0		0.05
169	D6304-A	0.0067 %M/M	67		0.20	922	D6304-A	52 mg/kg	52		-0.03
171	D6304-A	64	64		0.15	951	D95	<0.05 %V/V	-----		-----
175			-----		-----	962			-----		-----
186			-----		-----	963	D6304-A	53 mg/kg	53		-0.01
194			-----		-----	970	D6304-A	53 mg/kg	53		-0.01
203	D6304-A	57.6 mg/kg	57.6		0.06	971	D6304-A	56 mg/kg	56		0.03
217	D6304-A	47.2 mg/kg	47.2		-0.10	974			-----		-----
221			-----		-----	988	D6304-A	59.8 mg/kg	59.8		0.09
224			-----		-----	994	D6304-A	49 mg/kg	49		-0.08
225			-----		-----	995	D6304-A	51 mg/kg	51		-0.04
228			-----		-----	996	D6304-A	49.3 mg/kg	49.3		-0.07
230	ISO 3733	<0.05 %V/V	-----		-----	997	D6304-A	49 mg/kg	49		-0.08
237			-----		-----	998			-----		-----
238			-----		-----	1006			-----		-----
240			-----		-----	1016	ISO12937	65.39 mg/kg	65.39		0.17
253	D6304-A	57 mg/kg	57		0.05	1033	IP438	24.13 mg/kg	24.13		-0.45
254	D6304-B	63 mg/kg	63		0.14	1059	ISO12937	50 mg/kg	50		-0.06
256	D6304	56 mg/kg	56		0.03	1080	D6304-A	59 mg/kg	59		0.08
258	E203	51 mg/kg	51		-0.04	1081	ISO12937	54.77 mg/kg	54.77		0.01
273	D6304-A	53 mg/kg	53		-0.01	1090			-----		-----
312	ISO12937	60.3 mg/kg	60.3		0.10	1105	D6304-A	49.8 mg.kg	49.8		-0.06
317	D6304-A	45 mg/kg	45		-0.14	1109	D6304-A	50 mg/kg	50		-0.06
323	D6304-A	55 mg/kg	55		0.02	1121	IP438	88.25 mg/kg	88.25		0.52
335	ISO12937	60 mg/kg	60		0.09	1126			-----		-----
336	ISO12937	60 mg/kg	60		0.09	1146	D6304-C	0.0039 %M/M	39		-0.23
337	ISO12937	51.8 mg/kg	51.8		-0.03	1161	D6304-A	49.678 mg/kg	49.678		-0.06
339			-----		-----	1182			-----		-----
342	ISO12937	56,4 mg/kg	56.4		0.04	1186			-----		-----
344	ISO12937	46.7 mg/kg	46.7		-0.11	1194	ISO12937	51.68 mg/kg	51.68		-0.03
349	D6304-A	60 mg/kg	60		0.09	1199			-----		-----
353	IP438	69.7 mg/kg	69.7		0.24	1227	D6304-A	49.9 mg/kg	49.9		-0.06
355			-----		-----	1275	IP438	0.0048 %M/M	48		-0.09
356	D6304-A	52 mg/kg	52		-0.03	1284			-----		-----
381	ISO12937	60 mg/kg	60		0.09	1297	D6304-A	52.30 mg/kg	52.30		-0.03
433			-----		-----	1299	ISO12937	70	70		0.24
463	D6304-A	45 mg/kg	45		-0.14	1347			-----		-----
485	D6304-A	42.0 mg/kg	42.0		-0.18	1348			-----		-----
507			-----		-----	1356	D6304-A	<0.02 mg/kg	<0.02		-----
511	D6304	53.0 mg/kg	53.0		-0.01	1385			-----		-----
529	D6304-A	53.42 mg/kg	53.42		-0.01	1412	D6304-A	49 mg/kg	49		-0.08
541	D6304-A	54.5 mg/kg	54.5		0.01	1417	D6304-A	36 mg/kg	36		-0.27
555			-----		-----	1430			-----		-----
557	D6304	67.40 mg/kg	67.40		0.20	1431	D6304-A	52.42 mg/kg	52.42		-0.02
558	D6304	89.4 mg/kg	89.4		0.54	1457	D6304-A	55 mg/kg	55		0.02
562			-----		-----	1498			-----		-----
575			-----		-----	1588			-----		-----
603	D6304-A	58 mg/kg	58		0.06	1629			-----		-----
604			-----		-----	1634	D6304-A	43.8 mg/kg	43.8		-0.15
605			-----		-----	1643	ISO6296	0.0089 %M/M	89		0.53
614	D6304-C	31 mg/kg	31		-0.35	1654	ISO12937	52.72 mg/kg	52.72		-0.02
631	D6304-B	54 mg/kg	54		0.00	1709			-----		-----
634	D6304-A	32.25 mg/kg	32.25		-0.33	1720			-----		-----
657	D6304-A	46 mg/kg	46		-0.12	1724	D6304-A	62.8 mg/kg	62.8		0.13
671			-----		-----	1740	D6304-A	53 mg/kg	53		-0.01
732			-----		-----	1783			-----		-----
733	ISO12937	49 mg/kg	49		-0.08	1796	IP439	62 mg/kg	62		0.12
750	EN12937	45 mg/kg	45		-0.14	1807	ISO12937	54 mg/kg	54		0.00
751			-----		-----	1849	ISO12937	42 mg/kg	42		-0.18
781	D6304-A	57.2 mg/kg	57.2		0.05	1881			-----		-----
785	D6304-A	50 mg/kg	50		-0.06	1906	D6304-C	46.52 mg/kg	46.52		-0.11
798			-----		-----	1936	ISO12937	0.0056 %M/M	56		0.03
824	D6304-A	52 mg/kg	52		-0.03	1937	ISO12937	53.5 mg/kg	53.5		-0.01
825	D6304-A	51 mg/kg	51		-0.04	1938	ISO12937	51	51		-0.04
846			-----		-----	1944	D6304-A	51.688 mg/kg	51.688		-0.03

lab	method	org. value	conv. value	mark	z(targ)	lab	method	org. value	conv. value	mark	z(targ)
1967	D6304-A	53.775 mg/kg	53.775		0.00	6057	ISO12937	60.5 mg/kg	60.5		0.10
1968	D6304-A	38.98 mg/kg	38.98		-0.23	6101	ISO12937	55 mg/kg	55		0.02
1984	ISO12937	59 mg/kg	59		0.08	6103	ISO12937	63 mg/kg	63		0.14
1995	D6304	0.0053	53		-0.01	6114	D6304-A	45 mg/kg	45		-0.14
6005	ISO12937	60.8 mg/kg	60.8		0.10	6142			-----		-----
6018	ISO12937	60.85 mg/kg	60.85		0.10	6170			-----		-----
6026			-----		-----	6184	ISO12937	48.55 mg/kg	48.55		-0.08
6045	D6304-A	55 mg/kg	55		0.02	6201	D6304-A	48.0 mg/kg	48.0		-0.09

normality	not OK
n	109
outliers	1
mean (n)	53.96
st.dev. (n)	11.329
R(calc.)	31.72
st.dev.(D6304-A:16e1)	66.036
R(D6304-A:16e1)	184.90





Determination of Water and Sediment (D2709) on sample #18170; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	851		-----		-----
53		-----		-----	854	D2709	<0.01		-----
62	D2709	<0.01		-----	856		-----		-----
90		-----		-----	862	D2709	<0.01		-----
92	D2709	0		-----	863	D2709	<0.01		-----
120	D2709	0.005		-----	864	D2709	<0.01		-----
131		-----		-----	872		-----		-----
132		-----		-----	873		-----		-----
140	D2709	<0.01		-----	874	D2709	0		-----
150	D2709	<0.01		-----	886		-----		-----
158		-----		-----	887		-----		-----
159		-----		-----	912		-----		-----
169	D2709	0.000		-----	922	D2709	<0.05		-----
171	D2709	<0.01		-----	951	D473	<0.007 %M/M		-----
175		-----		-----	962		-----		-----
186		-----		-----	963	D2709	0.005		-----
194		-----		-----	970	D2709	0.00		-----
203	D2709	<0.05		-----	971	D2709	0.00		-----
217	D2709	0		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D2709	<0.01		-----
225		-----		-----	995		-----		-----
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006	D2709	0		-----
240		-----		-----	1016		-----		-----
253		-----		-----	1033		-----		-----
254		-----		-----	1059		-----		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1090		-----		-----
312		-----		-----	1105	D2709	0.005		-----
317		-----		-----	1109	D2709	<0.01		-----
323	D2709	< 0.01		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161		-----		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344	D2709	<0.05		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275		-----		-----
356		-----		-----	1284		-----		-----
381		-----		-----	1297		-----		-----
433		-----		-----	1299	D2709	<0.01		-----
463		-----		-----	1347	D2709	0		-----
485		-----		-----	1348	D2709	0		-----
507	D2709	0.0000		-----	1356		-----		-----
511	D2709	0.00		-----	1385	D2709	0		-----
529		-----		-----	1412		-----		-----
541	D2709	<0.05		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557	D2709	<0.05		-----	1431		-----		-----
558		-----		-----	1457		-----		-----
562		-----		-----	1498	D2709	0.005		-----
575	D2709	<0.05		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614		-----		-----	1654		-----		-----
631	D2709	<0.01		-----	1709		-----		-----
634	D2709	0.00		-----	1720		-----		-----
657	D2709	<0.01		-----	1724		-----		-----
671		-----		-----	1740	D2709	<0.01		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750		-----		-----	1807		-----		-----
751		-----		-----	1849		-----		-----
781	D2709	<0.01		-----	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D2709	<0.01		-----	1937		-----		-----
825	D2709	L0.01		-----	1938		-----		-----
846		-----		-----	1944	D2709	<0.05		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967	D2709	Less 0.01		-----	6057		-----		-----
1968		-----		-----	6101	D2709	0.000		-----
1984		-----		-----	6103	ISO3734	< 0.005		-----
1995		-----		-----	6114		-----		-----
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184		-----		-----
6045	D2709	<0.05		-----	6201		-----		-----

normality	suspect
n	46
outliers	0
mean (n)	<0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
st.dev.(D2709:16)	n.a.
R(D2709:16)	n.a.

Determination of Water and Sediment (D1796) on sample #18170; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	851		-----		-----
53		-----		-----	854		-----		-----
62	D1796	0		-----	856		-----		-----
90		-----		-----	862		-----		-----
92		-----		-----	863		-----		-----
120		-----		-----	864		-----		-----
131		-----		-----	872		-----		-----
132		-----		-----	873		-----		-----
140	D1796	0.00		-----	874	D1796	0.00		-----
150		-----		-----	886	D1796	<0.05		-----
158		-----		-----	887		-----		-----
159		-----		-----	912		-----		-----
169		-----		-----	922	D1796	<0.05		-----
171	D1796	0.00		-----	951		-----		-----
175		-----		-----	962		-----		-----
186		-----		-----	963		-----		-----
194		-----		-----	970	D1796	0.00		-----
203		-----		-----	971	D1796	0.00		-----
217	D1796	0		-----	974		-----		-----
221		-----		-----	988		-----		-----
224		-----		-----	994	D1796	0		-----
225		-----		-----	995		-----		-----
228		-----		-----	996		-----		-----
230		-----		-----	997		-----		-----
237		-----		-----	998		-----		-----
238		-----		-----	1006		-----		-----
240		-----		-----	1016		-----		-----
253		-----		-----	1033		-----		-----
254		-----		-----	1059	D1796	<0,05		-----
256		-----		-----	1080		-----		-----
258		-----		-----	1081		-----		-----
273		-----		-----	1090		-----		-----
312		-----		-----	1105		-----		-----
317		-----		-----	1109	D1796	0.000		-----
323		-----		-----	1121		-----		-----
335		-----		-----	1126		-----		-----
336		-----		-----	1146		-----		-----
337		-----		-----	1161		-----		-----
339		-----		-----	1182		-----		-----
342		-----		-----	1186		-----		-----
344		-----		-----	1194		-----		-----
349		-----		-----	1199		-----		-----
353		-----		-----	1227		-----		-----
355		-----		-----	1275		-----		-----
356		-----		-----	1284		-----		-----
381		-----		-----	1297		-----		-----
433		-----		-----	1299	D1796	0.0		-----
463		-----		-----	1347	D1796	0		-----
485		-----		-----	1348		-----		-----
507	D1796	0.00		-----	1356		-----		-----
511	D1796	0.00		-----	1385		-----		-----
529	D1796	0.0		-----	1412		-----		-----
541		-----		-----	1417		-----		-----
555		-----		-----	1430		-----		-----
557		-----		-----	1431		-----		-----
558		-----		-----	1457		-----		-----
562		-----		-----	1498		-----		-----
575		-----		-----	1588		-----		-----
603		-----		-----	1629		-----		-----
604		-----		-----	1634		-----		-----
605		-----		-----	1643		-----		-----
614	D1796	<0.025		-----	1654		-----		-----
631	D1796	<0.01		-----	1709		-----		-----
634		-----		-----	1720		-----		-----
657	D1796	<0.025		-----	1724		-----		-----
671		-----		-----	1740		-----		-----
732		-----		-----	1783		-----		-----
733		-----		-----	1796		-----		-----
750		-----		-----	1807		-----		-----
751		-----		-----	1849		-----		-----
781	D1796	0		-----	1881		-----		-----
785		-----		-----	1906		-----		-----
798		-----		-----	1936		-----		-----
824	D1796	0.00		-----	1937		-----		-----
825	D1796	0		-----	1938		-----		-----
846		-----		-----	1944		-----		-----

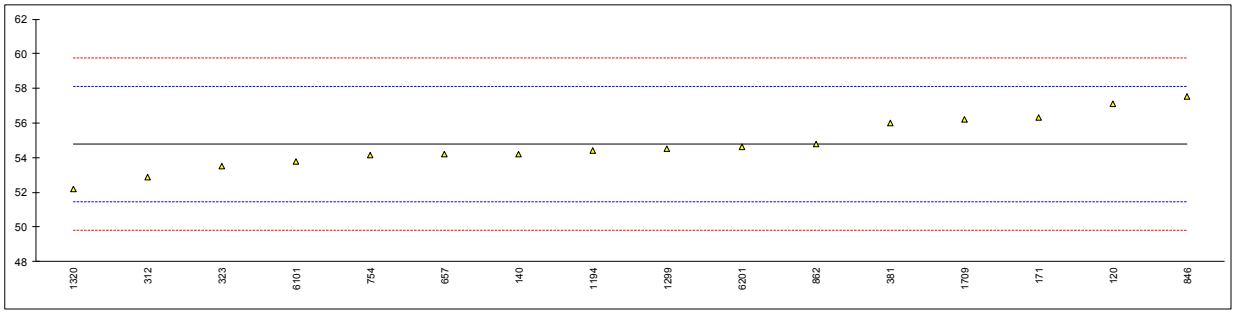
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1967		-----		-----	6057		-----		-----
1968		-----		-----	6101	D1796	0.000		-----
1984		-----		-----	6103		-----		-----
1995		-----		-----	6114		-----		-----
6005		-----		-----	6142		-----		-----
6018		-----		-----	6170		-----		-----
6026		-----		-----	6184		-----		-----
6045		-----		-----	6201		-----		-----

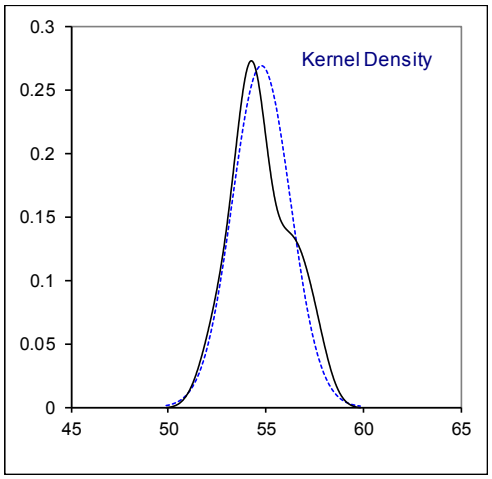
normality	suspect
n	24
outliers	0
mean (n)	<0.05
st.dev. (n)	n.a.
R(calc.)	n.a.
st.dev.(D2709:16)	n.a.
R(D2709:16)	n.a.

Determination of Cetane Number (ASTM D613) of sample #18171

lab	method	value	mark	z(targ)	remarks
120	D613	57.1		1.40	
140	D613	54.2		-0.34	
150		-----		-----	
171	D613	56.3		0.92	
312	D613	52.86		-1.15	
323	D613	53.5		-0.76	
336		-----		-----	
356		-----		-----	
381	D613	56.0		0.74	
657	D613	54.2		-0.34	
754	D613	54.17		-0.36	
846	GB/T386	57.52		1.66	
862	D613	54.8		0.02	
922		-----		-----	
1059		-----		-----	
1065		-----		-----	
1080		-----		-----	
1081		-----		-----	
1161		-----		-----	
1194	D613	54.4		-0.22	
1275		-----		-----	
1299	D613	54.5		-0.16	
1320	ISO5165	52.2		-1.55	
1457		-----		-----	
1709	D613	56.2		0.86	
1807		-----		-----	
6057		-----		-----	
6101	D613	53.75		-0.61	
6142		-----		-----	
6201	D613	54.6		-0.10	

normality	OK
n	16
outliers	0
mean (n)	54.77
st.dev. (n)	1.484
R(calc.)	4.16
st.dev.(D613:18)	1.659
R(D613:18)	4.65

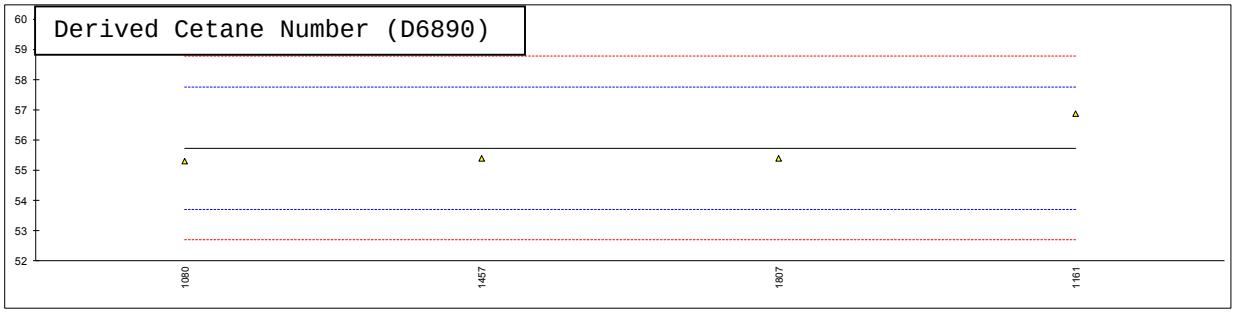


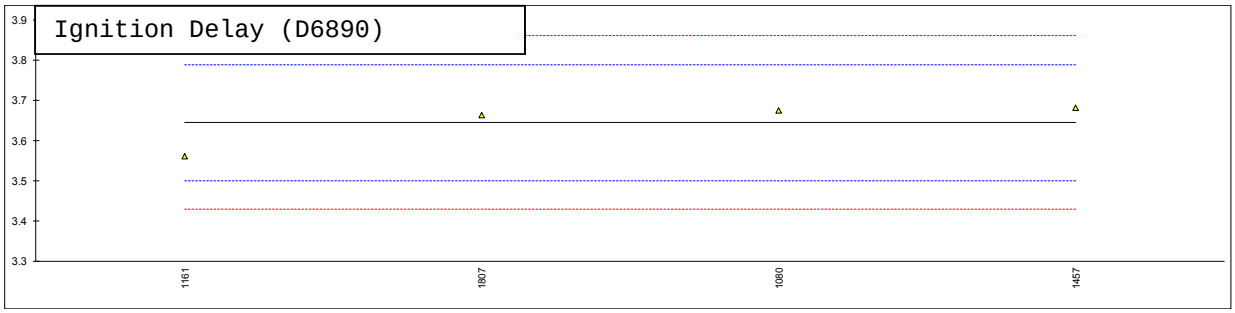


Determination of Derived Cetane Number (D6890) of sample #18171

lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	Air Temp. (°C)
120		-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----
171		-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----
336		-----		-----	-----		-----	-----
356		-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----
754		-----		-----	-----		-----	-----
846		-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----
922		-----		-----	-----		-----	-----
1059		-----		-----	-----		-----	-----
1065		-----		-----	-----		-----	-----
1080	D6890	55.3		-0.43	3.674		0.41	-----
1081		-----		-----	-----		-----	-----
1161	EN15195	56.86		1.11	3.56		-1.18	585.2
1194		-----		-----	-----		-----	-----
1275		-----		-----	-----		-----	-----
1299		-----		-----	-----		-----	-----
1320		-----		-----	-----		-----	-----
1457	D6890	55.38		-0.35	3.682		0.52	579.9
1709		-----		-----	-----		-----	-----
1807	D6890	55.4		-0.33	3.663		0.25	585.2
6057		-----		-----	-----		-----	-----
6101		-----		-----	-----		-----	-----
6142		-----		-----	-----		-----	-----
6201		-----		-----	-----		-----	-----

normality	unknown	unknown
n	4	4
outliers	0	0
mean (n)	55.74	3.64
st.dev. (n)	0.751	0.057
R(calc.)	2.10	0.16
st.dev.(D6890:16e2)	1.014	0.072
R(D6890:16e2)	2.84	0.20





Determination of Derived Cetane Number (D7668) of sample #18171

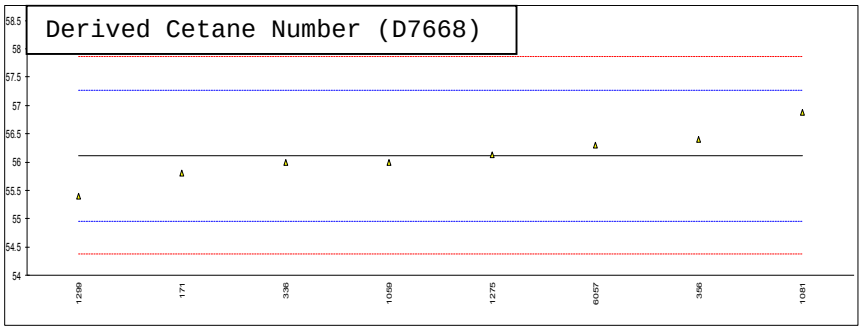
lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	CD (ms)	mark	z(targ)	W. T. (°C)
120		-----		-----	-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----		-----	-----
171	D7668	55.8		-0.54	2.72		-1.22	4.26		0.03	599.99
312		-----		-----	-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----		-----	-----
336	D7668	56.0	E	-0.20	2.87		2.11	4.36		2.43	600.0
356	D7668	56.4		0.49	2.74		-0.77	4.23		-0.69	610
381		-----		-----	-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----		-----	-----
754		-----		-----	-----		-----	-----		-----	-----
846		-----		-----	-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----		-----	-----
922		-----		-----	-----		-----	-----		-----	-----
1059	D7668	56.0		-0.20	2.8707		2.12	4.2590		0.00	595.2
1065		-----		-----	-----		-----	-----		-----	-----
1080		-----		-----	-----		-----	-----		-----	-----
1081	D7668	56.88		1.32	2.7223		-1.16	4.1923		-1.59	596.63
1161		-----		-----	-----		-----	-----		-----	-----
1194		-----		-----	-----		-----	-----		-----	-----
1275	D7668	56.13		0.03	2.6862		-1.96	4.2391		-0.47	598.19
1299	D7668	55.4		-1.23	2.78		0.11	4.30		0.99	589.2
1320		-----		-----	-----		-----	-----		-----	-----
1457		-----		-----	-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----		-----	-----
1807		-----		-----	-----		-----	-----		-----	-----
6057	D7668	56.3		0.32	2.81		0.78	4.23		-0.69	591.89
6101		-----		-----	-----		-----	-----		-----	-----
6142		-----		-----	-----		-----	-----		-----	-----
6201		-----		-----	-----		-----	-----		-----	-----

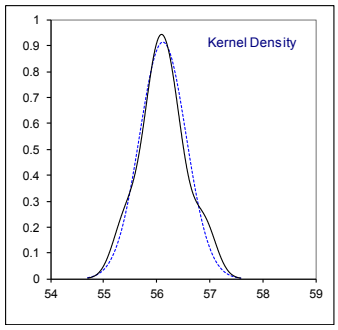
normality	unknown	unknown	unknown
n	8	8	8
outliers	0	0	0
mean (n)	56.114	2.775	4.259
st.dev. (n)	0.4372	0.0700	0.0513
R(calc.)	1.224	0.196	0.144
st.dev.(D7668:17)	0.5806	0.0452	0.0417
R(D7668:17)	1.626	0.126	0.117

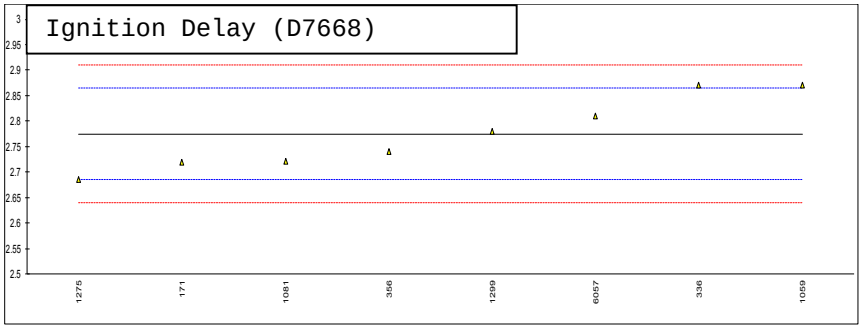
W.T. = Chamber Wall Temperature

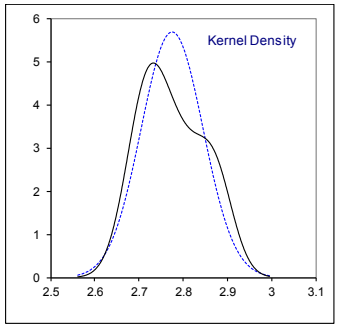
The DCN calculated by iis for labs marked with an E:
Lab 336: 54.5

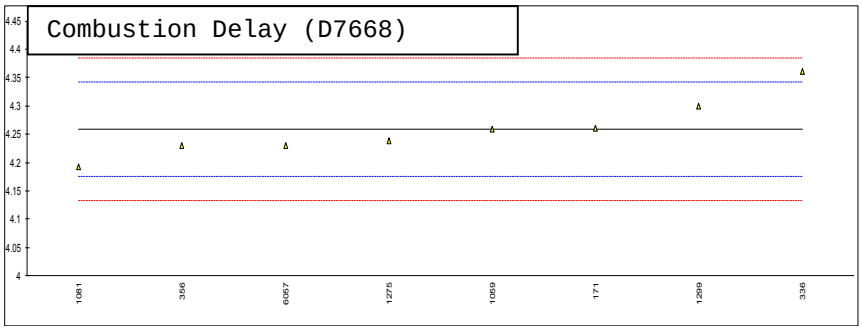
Please note: the reported CCI of labs marked with an E are used for the statistical evaluation

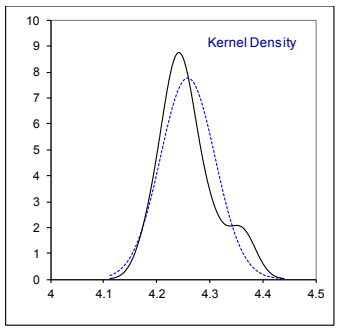

Derived Cetane Number (D7668)
58.5
58
57.5
57
56.5
56
55.5
55
54.5
54
1299
171
336
1059
1275
6057
356
1081


Kernel Density
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
54
55
56
57
58
59


Ignition Delay (D7668)
3
2.95
2.9
2.85
2.8
2.75
2.7
2.65
2.6
2.55
2.5
1275
171
1081
356
1299
6057
336
1059


Kernel Density
6
5
4
3
2
1
0
2.5
2.6
2.7
2.8
2.9
3
3.1

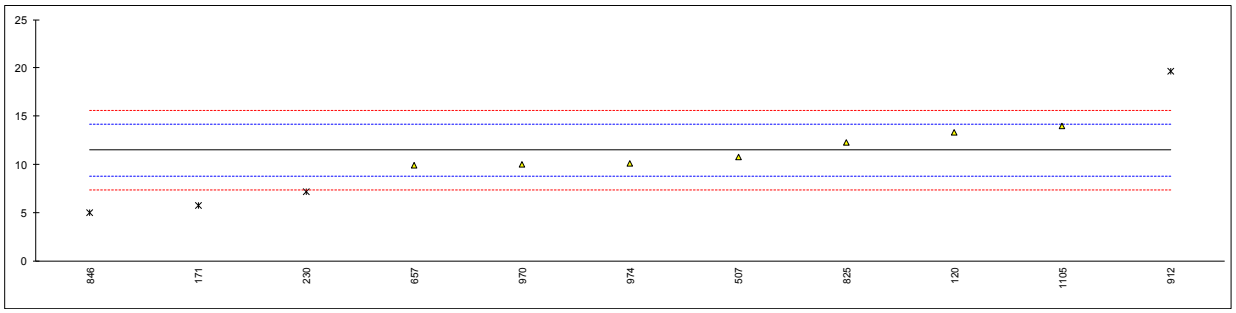

Combustion Delay (D7668)
4.45
4.4
4.35
4.3
4.25
4.2
4.15
4.1
4.05
4
1081
356
6057
1275
1059
171
1299
336

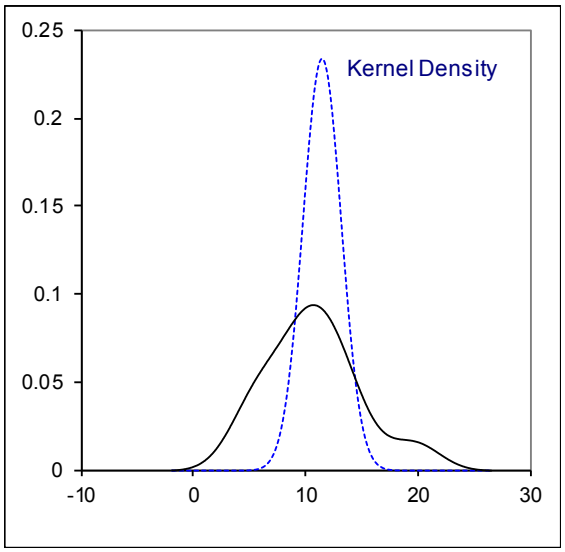

Kernel Density
10
9
8
7
6
5
4
3
2
1
0
4
4.1
4.2
4.3
4.4
4.5

Determination of Particulate Contamination on sample #18172; results in mg/L

lab	method	Part.C	mark	z(targ)	Vol. filtered	No. of filtrations	Remarks
120	D6217	13.29		1.31	940	1	
132		-----		-----	-----	-----	
140		-----		-----	-----	-----	
150		-----		-----	-----	-----	
171	D6217	5.8	ex	-4.16	450	1	test result excluded, see §4.1
230	D6217	7.2	ex	-3.14	950	1	test result excluded, see §4.1
237		-----		-----	-----	-----	
273		-----		-----	-----	-----	
317		-----		-----	-----	-----	
323		-----		-----	-----	-----	
333		-----		-----	-----	-----	
335		-----		-----	-----	-----	
336		-----		-----	-----	-----	
342		-----		-----	-----	-----	
349		-----		-----	-----	-----	
353		-----		-----	-----	-----	
356		-----		-----	-----	-----	
463		-----		-----	-----	-----	
507	D6217	10.83		-0.49	1000	2	
575		-----		-----	-----	-----	
603		-----		-----	-----	-----	
657	D6217	9.9		-1.17	1000	1	
798		-----		-----	-----	-----	
825	D6217	12.3		0.59	1000	1	
846	GB/T33400	5.0	ex	-4.75	300	-----	test result excluded, see §4.1
862		-----		-----	-----	-----	
873		-----		-----	-----	-----	
874		-----		-----	-----	-----	
912	D6217	19.7	G(0.05)	6.00	300	1	
922		-----		-----	-----	-----	
970	D6217	10.0		-1.09	1000	-----	
974	D6217	10.1		-1.02	1000	1	
994		-----		-----	-----	-----	
1006		-----		-----	-----	-----	
1016		-----		-----	-----	-----	
1033		-----		-----	-----	-----	
1059		-----		-----	-----	-----	
1064		-----		-----	-----	-----	
1081		-----		-----	-----	-----	
1105	D6217	14.043		1.86	940	1	
1161		-----		-----	-----	-----	
1299		-----		-----	-----	-----	
1431		-----		-----	-----	-----	
1457		-----		-----	-----	-----	
1654		-----		-----	-----	-----	
1724		-----		-----	-----	-----	
1807		-----		-----	-----	-----	
1849		-----		-----	-----	-----	
1936		-----		-----	-----	-----	
1937		-----		-----	-----	-----	
1938		-----		-----	-----	-----	
1982		-----		-----	-----	-----	
1984		-----		-----	-----	-----	
6005		-----		-----	-----	-----	
6018		-----		-----	-----	-----	
6057		-----		-----	-----	-----	
6101		-----		-----	-----	-----	
6170		-----		-----	-----	-----	
6201		-----		-----	-----	-----	
9090		-----		-----	-----	-----	

normality	OK		
n	7		
outliers	1 (+3 ex)	spiked	
mean (n)	11.49	12.5	Recovery <88%
st.dev. (n)	1.709		
R(calc.)	4.79		
st.dev.(D6217:18)	1.368		
R(D6217:18)	3.83		

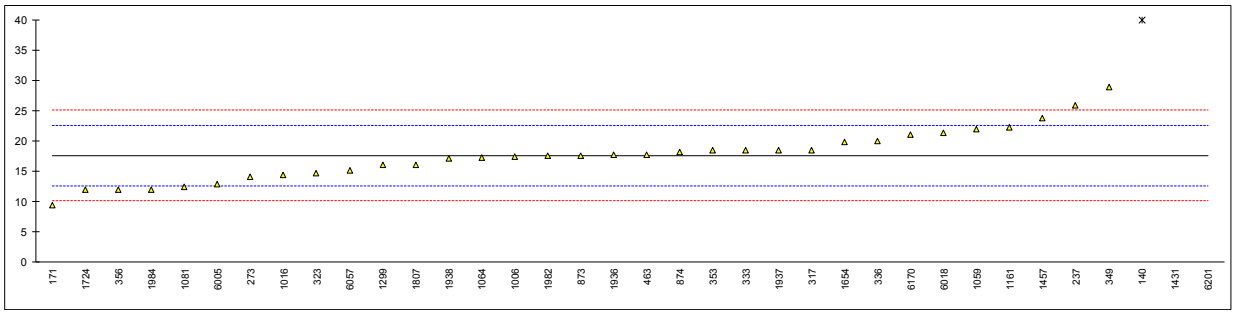

25
20
15
10
5
0
846
171
230
657
970
974
507
825
120
1105
912

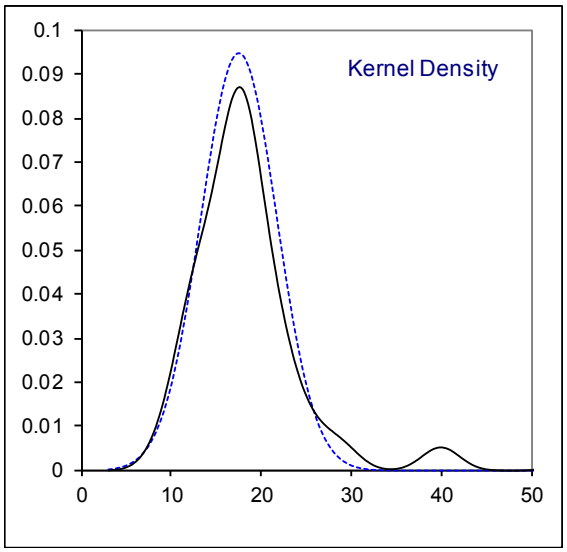

Kernel Density
0.25
0.2
0.15
0.1
0.05
0
-10
0
10
20
30

Determination of Total Contamination on sample #18172; results in mg/kg

lab	method	Total C.	mark	z(targ)	incomplete	vol. filtered (mL)	stopped (min)	remarks
120		-----		-----	-----	-----	-----	
132		-----		-----	-----	-----	-----	
140	EN12662:2014	40.0	R(0.01)	8.96	NO	300	-----	
150		-----		-----	-----	-----	-----	
171	EN12662:2014	9.4		-3.27	NO	-----	-----	
230		-----		-----	-----	-----	-----	
237	EN12662:2014	25.8		3.28	-----	-----	-----	
273	IP440	14.08		-1.40	-----	-----	-----	
317	EN12662:2014	18.54		0.38	YES	300	-----	
323	EN12662:2014	14.7		-1.15	-----	300	-----	
333	EN12662:2014	18.5		0.36	NO	-----	-----	
335		-----		-----	-----	-----	-----	
336	EN12662:2014	20.0		0.96	NO	300	-----	
342		-----		-----	-----	-----	-----	
349	EN12662:2014	28.9		4.52	NO	300	-----	
353	EN12662:2014	18.483		0.36	NO	625	2.5	
356	IP440	12.0		-2.23	NO	300	-----	
463	EN12662:2014	17.75		0.06	NO	350	No	
507		-----		-----	-----	-----	-----	
575		-----		-----	-----	-----	-----	
603		-----		-----	-----	-----	-----	
657		-----		-----	-----	-----	-----	
798		-----		-----	-----	-----	-----	
825		-----		-----	-----	-----	-----	
846		-----		-----	-----	-----	-----	
862	EN12662	<12		-----	-----	-----	-----	
873	EN12662:2014	17.6		0.00	NO	300	-----	
874	EN12662:2014	18.1		0.20	NO	-----	-----	
912		-----		-----	-----	-----	-----	
922		-----		-----	-----	-----	-----	
970		-----		-----	-----	-----	-----	
974		-----		-----	-----	-----	-----	
994		-----		-----	-----	-----	-----	
1006	EN12662:2014	17.4		-0.08	NO	300	-----	
1016	EN12662:2014	14.44		-1.26	NO	300	-----	
1033		-----		-----	-----	-----	-----	
1059	EN12662:2014	22.0		1.76	NO	296.5	-----	
1064	EN12662:2014	17.31		-0.11	NO	300	-----	
1081	EN12662:2014	12.4		-2.07	NO	340	-----	
1105		-----		-----	-----	-----	-----	
1161	EN12662:2014	22.3		1.88	-----	-----	-----	
1299	EN12662:2014	16.0		-0.64	YES	300	-----	
1431	EN12662:2008	55.64	R(0.01)	15.22	NO	450	-----	
1457	EN12662:2014	23.82		2.49	NO	310	-----	
1654	EN12662:2014	19.80		0.88	-----	-----	-----	
1724	IP440	11.99		-2.24	NO	-----	-----	
1807	EN12662:2014	16.0		-0.64	NO	320	-----	
1849	EN12662:2014	<12		-----	-----	-----	-----	
1936	EN12662:2014	17.7		0.04	NO	300	3	
1937	EN12662:2014	18.5		0.36	NO	300	3.0	
1938	EN12662:2014	17.1		-0.20	NO	300	3	
1982	EN12662:2014	17.5		-0.04	NO	284	0.83	
1984	EN12662:2014	12		-2.23	NO	-----	-----	
6005	EN12662:2014	12.8		-1.91	NO	300	2	
6018	EN12662:2014	21.3		1.48	NO	300	2	
6057	EN12662:2014	15.2		-0.95	NO	-----	-----	
6101		-----		-----	-----	-----	-----	
6170	EN12662:2014	21.0		1.36	-----	-----	-----	
6201	EN12662:2014	90.0	R(0.01)	28.95	NO	300	-----	
9090		-----		-----	-----	-----	-----	

normality	OK		
n	33		
outliers	3	spiked	
mean (n)	17.59	15.0	Recovery <117%
st.dev. (n)	4.213		
R(calc.)	11.80		
st.dev.(EN12662:14)	2.501		
R(EN12662:14)	7.00		

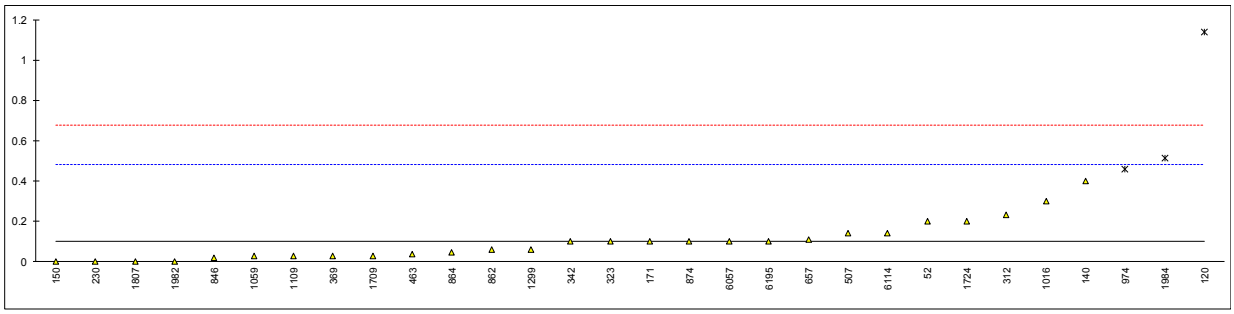

40
35
30
25
20
15
10
5
0
171
1724
356
1984
1081
6005
273
1016
323
6057
1299
1807
1938
1064
1006
1982
873
1936
463
874
353
333
1937
317
1654
336
6170
6018
1059
1161
1457
237
349
140
1431
6201


Kernel Density
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
10
20
30
40
50

Determination of Oxidation Stability Filterable Insolubles (A) on sample #18173; results in mg/100ml

lab	method	org. value	conv. value	mark	z(targ)	remarks
52	D2274	0.2 mg/100ml	0.2	C	0.53	first reported 2.8 mg/100ml
120	D2274	1.14 mg/100ml	1.14	R(0.01)	5.43	
132			-----		-----	
140	D2274	0.4 mg/100ml	0.4		1.57	
150	D2274	0.0 mg/100ml	0.0		-0.51	
158			-----		-----	
171	D2274	0.1 mg/100ml	0.1		0.01	
230	ISO12205	0.0 mg/100ml	0.0		-0.51	
237					-----	
312	D2274	0.23 mg/100ml	0.23		0.68	
323	D2274	1 g/m³	0.1		0.01	
342	ISO12205	1 g/m³	0.1		0.01	
344			-----		-----	
356			-----		-----	
369	D2274	0.03 mg/100ml	0.03		-0.36	
463	ISO12205	0.37 g/m³	0.037		-0.32	
507	D2274	0.14 mg/100ml	0.14		0.22	
575			-----		-----	
657	D2274	0.11 mg/100ml	0.11		0.06	
846	SH/T0175	0.02 mg/100ml	0.02		-0.41	
862	D2274	0.06 mg/100ml	0.06		-0.20	
864	D2274	0.045 mg/100ml	0.045		-0.28	
874	D2274	0.1 mg/100ml	0.10		0.01	
922			-----		-----	
970			-----		-----	
974	D2274	0.457 mg/100ml	0.457	R(0.05)	1.87	
1016	ISO12205	0.3 mg/100ml	0.3	C	1.05	first reported 0 mg/100ml
1033			-----		-----	
1059	D2274	0.0286 mg/100ml	0.0286		-0.36	
1105			-----		-----	
1109	D2274	0.0286 mg/100ml	0.0286		-0.36	
1161			-----		-----	
1299	D2274	0.6 g/m³	0.06		-0.20	
1301			-----		-----	
1429			-----		-----	
1457			-----		-----	
1654			-----		-----	
1709	D2274	0.03 mg/100ml	0.03		-0.36	
1724	D2274	2 g/m³	0.2		0.53	
1807	ISO12205	0 g/m³	0		-0.51	
1849			-----		-----	
1982	D2274	0.003 mg/100ml	0.003		-0.50	
1984	ISO12205	5.15 g/m³	0.515	R(0.05)	2.17	
6057	ISO12205	1 g/m³	0.1		0.01	
6101			-----		-----	
6114	D2274	1.4 g/m³	0.14		0.22	
6195	D2274	0.1 mg/100ml	0.1	C	0.01	first reported 0.5 mg/100ml
6201	D2274	<0.1 mg/100ml	<0.1		-----	

normality	not OK
n	27
outliers	3
mean (n)	0.099
st.dev. (n)	0.0973
R(calc.)	0.272
st.dev.(D2274:14)	0.1920
R(D2274:14)	0.537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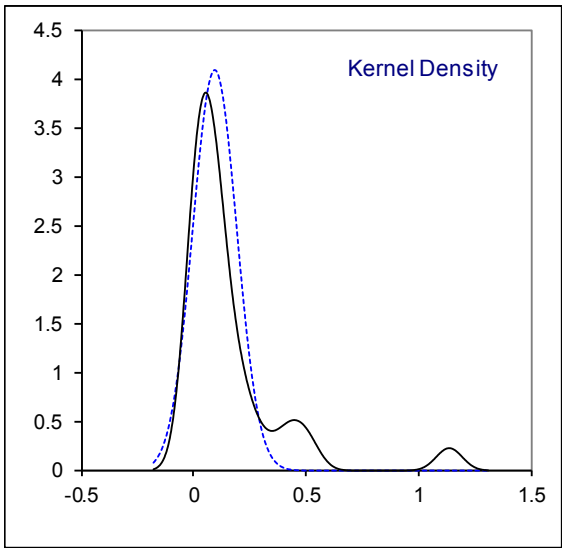
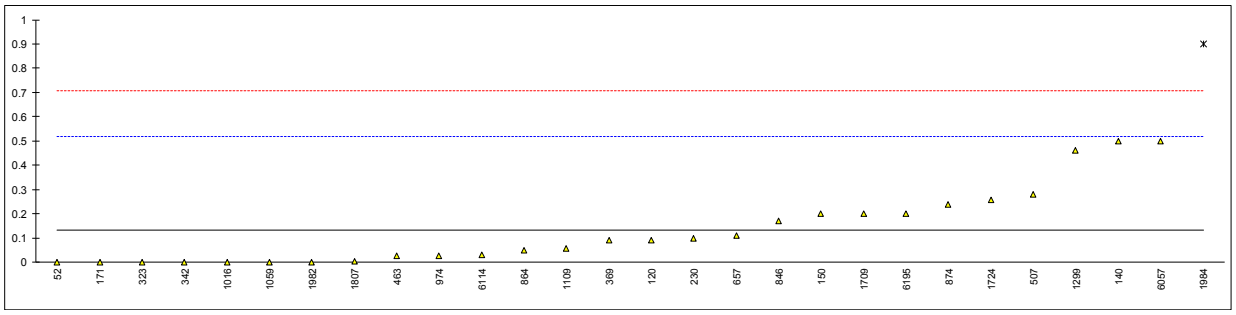
1
0.8
0.6
0.4
0.2
0
150
230
1807
1982
846
1059
1109
369
1709
463
864
862
1299
342
323
171
874
6057
6195
657
507
6114
52
1724
312
1016
140
974
1984
120

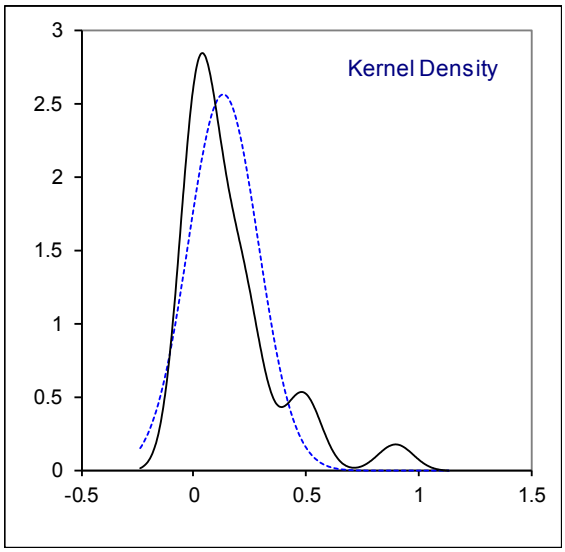

Kernel Density
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5

Determination of Oxidation Stability Adherent Insolubles (B) on sample #18173; results in mg/100ml

lab	method	org. value	conv. value	mark	z(targ)	remarks
52	D2274	0.0 mg/100ml	0.0	C	-0.69	first reported 0.3 mg/100ml
120	D2274	0.09 mg/100ml	0.09		-0.22	
132			-----		-----	
140	D2274	0.5 mg/100ml	0.5		1.91	
150	D2274	0.2 mg/100ml	0.2		0.35	
158			-----		-----	
171	D2274	0.0 mg/100ml	0.0		-0.69	
230	ISO12205	0.10 mg/100ml	0.10	C	-0.17	first reported 0.69 mg/100ml
237			-----		-----	
312	D2274	<0.1 mg/100ml	<0.1		-----	
323	D2274	0 g/m³	0		-0.69	
342	ISO12205	0 g/m³	0		-0.69	
344			-----		-----	
356			-----		-----	
369	D2274	0.09 mg/100ml	0.09		-0.22	
463	ISO12205	0.28 g/m³	0.028		-0.55	
507	D2274	0.28 mg/100ml	0.28		0.77	
575			-----		-----	
657	D2274	0.11 mg/100ml	0.11		-0.12	
846	SH/T0175	0.17 mg/100ml	0.17		0.19	
862	D2274	<0.01 mg/100ml	<0.01		-----	
864	D2274	0.048 mg/100ml	0.048		-0.44	
874	D2274	0.24 mg/100ml	0.24		0.56	
922			-----		-----	
970			-----		-----	
974	D2274	0.028 mg/100ml	0.028		-0.55	
1016	ISO12205	0.0 mg/100ml	0.0	C	-0.69	first reported 1.4 mg/100ml
1033			-----		-----	
1059	D2274	0 mg/100ml	0		-0.69	
1105			-----		-----	
1109	D2274	0.0572 mg/100ml	0.0572		-0.39	
1161			-----		-----	
1299	D2274	4.6 g/m³	0.46		1.70	
1301			-----		-----	
1429			-----		-----	
1457			-----		-----	
1654			-----		-----	
1709	D2274	0.2 mg/100ml	0.2		0.35	
1724	D2274	2.57 g/m³	0.257		0.65	
1807	ISO12205	0.0285 g/m³	0.00285		-0.68	
1849			-----		-----	
1982	D2274	0.0004 mg/100ml	0.0004		-0.69	
1984	ISO12205	9.00 g/m³	0.900	R(0.01)	4.00	
6057	ISO12205	5 g/m³	0.5		1.91	
6101			-----		-----	
6114	D2274	0.3 g/m³	0.03		-0.54	
6195	D2274	0.2 mg/100ml	0.2	C	0.35	first reported 0.7 mg/100ml
6201	D2274	<0.1 mg/100ml	<0.1		-----	

normality	suspect
n	27
outliers	1
mean (n)	0.133
st.dev. (n)	0.1558
R(calc.)	0.436
st.dev.(D2274:14)	0.1920
R(D2274:14)	0.537


1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
52
171
323
342
1016
1059
1982
1807
463
974
6114
864
1109
369
120
230
657
846
150
1709
6195
874
1724
507
1299
140
6057
1984

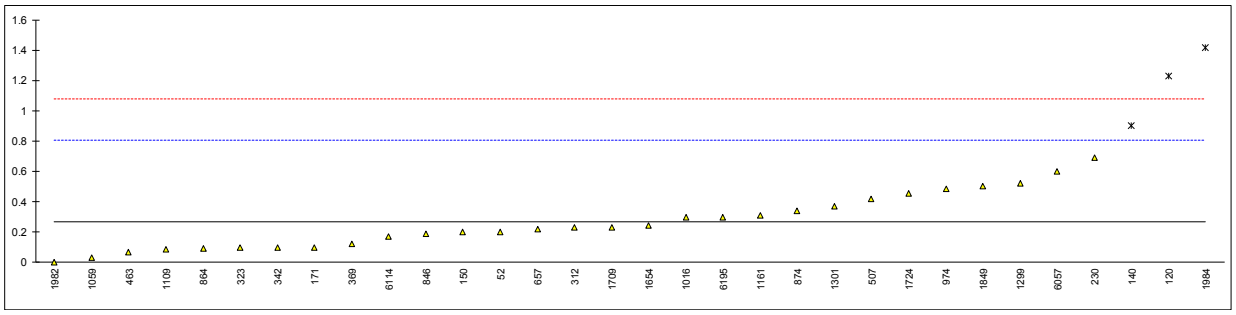

Kernel Density
3
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5

Determination of Oxidation Stability Total Insolubles (A+B) on sample #18173; results in mg/100ml

lab	method	org. value	conv. value	mark	z(targ)	remarks
52	D2274	0.2 mg/100ml	0.2	C	-0.24	first reported 3.1 mg/100ml
120	D2274	1.23 mg/100ml	1.23	R(0.01)	3.56	
132			-----		-----	
140	D2274	0.9 mg/100ml	0.9	R(0.05)	2.34	
150	D2274	0.2 mg/100ml	0.2		-0.24	
158			-----		-----	
171	D2274	0.1 mg/100ml	0.1		-0.61	
230	ISO12205	0.69 mg/100ml	0.69	E	1.57	
237			-----		-----	
312	D2274	0.23 mg/100ml	0.23		-0.13	
323	D2274	1 g/m³	0.1		-0.61	
342	ISO12205	1 g/m³	0.1		-0.61	
344			-----		-----	
356			-----		-----	
369	D2274	0.12 mg/100ml	0.12		-0.53	
463	ISO12205	0.65 g/m³	0.065		-0.73	
507	D2274	0.42 mg/100ml	0.42		0.57	
575			-----		-----	
657	D2274	0.22 mg/100ml	0.22		-0.16	
846	SH/T0175	0.19 mg/100ml	0.19		-0.27	
862	D2274	<0.1 mg/100ml	<0.1		-----	
864	D2274	0.093 mg/100ml	0.093		-0.63	
874	D2274	0.34 mg/100ml	0.34		0.28	
922			-----		-----	
970			-----		-----	
974	D2274	0.485 mg/100ml	0.485		0.81	
1016	ISO12205	0.3 mg/100ml	0.3	C	0.13	first reported 1.4 mg/100ml
1033			-----		-----	
1059	D2274	0.0286 mg/100ml	0.0286		-0.87	
1105			-----		-----	
1109	D2274	0.0858 mg/100ml	0.0858		-0.66	
1161	ISO12205	3.1 g/m³	0.31		0.17	
1299	D2274	5.2 g/m³	0.52		0.94	
1301	D2274	3.7 g/m³	0.37		0.39	
1429			-----		-----	
1457			-----		-----	
1654	ISO12205	0.240 mg/100ml	0.240		-0.09	
1709	D2274	0.23 mg/100ml	0.23		-0.13	
1724	D2274	4.57 g/m³	0.457		0.71	
1807	ISO12205	<1.0 g/m³	<0.1		-----	
1849	ISO12205	5 g/m³	0.5		0.87	
1982	D2274	0.0034 mg/100ml	0.0034		-0.96	
1984	ISO12205	14.15 g/m³	1.415	R(0.01)	4.24	
6057	ISO12205	6 g/m³	0.6		1.24	
6101			-----		-----	
6114	D2274	1.7 g/m³	0.17		-0.35	
6195	D2274	0.3 mg/100ml	0.3		0.13	
6201	D2274	<0.1 mg/100ml	<0.1		-----	

normality	OK
n	29
outliers	3
mean (n)	0.264
st.dev. (n)	0.1793
R(calc.)	0.502
st.dev.(D2274:14)	0.2715
R(D2274:14)	0.760

The Total Insolubles (A+B) calculated by iis for labs marked with an E:
Lab 230: 0.10, Adherent Insolubles (B) was corrected without correction of Total Total Insolubles (A+B)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0.4
0.2
0
1982
1059
463
1109
864
323
342
171
369
6114
846
150
52
657
312
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120
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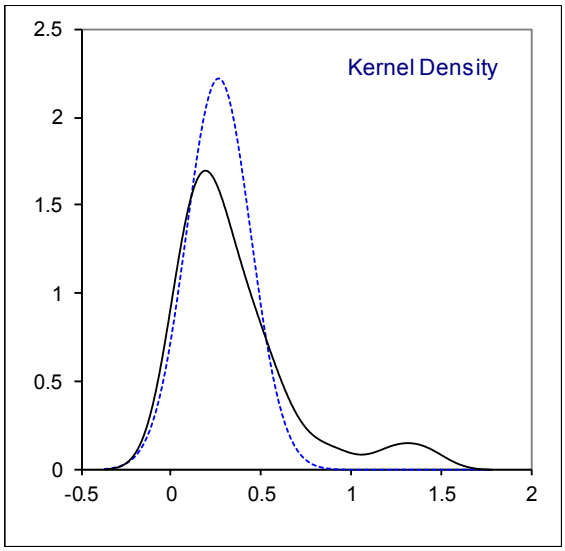
Kernel Density
2.5
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1.5
1
0.5
0
-0.5
0
0.5
1
1.5
2

APPENDIX 2: z-scores of the Determination of Distillation

lab	IBP	10%re	50%re	90%re	95%re	FBP	lab	IBP	10%rec	50%re	90%rec	95%re	FBP
52	-1.71	0.24	-0.94	-0.56	-0.08	-0.24	851	0.51	1.22	0.83	1.18	1.53	-0.32
53	-----	-----	-----	-----	-----	-----	854	-0.86	0.24	-0.19	-0.39	-0.02	-0.51
62	0.02	-1.54	-0.57	-0.50	-0.25	-0.24	856	-0.40	-0.18	0.18	0.06	0.25	-0.67
90	-----	-----	-----	-----	-----	-----	862	-0.92	-0.37	-0.75	-0.72	-0.35	-0.67
92	0.23	-1.54	-0.47	-1.12	0.15	0.63	863	-0.92	0.61	0.18	-0.33	-0.22	-0.91
120	-17.74	-1.60	-0.66	-0.33	-0.15	-0.36	864	-0.80	-0.37	-0.47	-0.72	-0.18	-0.67
131	-0.37	-1.90	-0.29	0.68	0.68	-2.41	872	0.33	-0.49	0.93	0.85	0.61	0.31
132	-----	-----	-----	-----	-----	-----	873	0.02	-0.80	0.46	0.57	0.61	0.51
140	0.14	-0.19	0.18	-0.28	-0.05	-0.08	874	0.33	0.12	0.46	0.57	0.77	0.12
150	-4.84	-0.62	-1.13	-1.29	-0.94	-2.53	886	-----	-----	-----	-----	-----	-----
158	0.05	-1.72	0.09	0.62	0.48	-0.91	887	-0.28	1.35	-1.41	0.01	-0.71	0.12
159	-1.26	-0.68	-0.85	-0.39	-0.08	-0.12	912	2.00	1.96	1.86	-0.84	-1.21	-1.07
169	-0.13	0.00	-1.22	1.63	2.16	0.95	922	0.20	1.35	-0.01	-0.33	-0.05	0.16
171	-5.39	-4.29	-1.87	-0.16	0.15	-1.22	951	-0.26	-0.83	-0.73	0.30	0.44	1.28
175	0.63	-0.62	0.83	0.96	0.97	0.04	962	-0.43	-0.12	0.18	0.06	-0.08	0.04
186	-----	-----	-----	-----	-----	-----	963	-0.22	0.06	0.93	-0.50	-0.71	-0.20
194	-----	-----	-----	-----	-----	-----	970	-1.10	-1.16	-0.47	0.06	0.28	-0.32
203	-----	-----	-----	-----	-----	-----	971	-1.62	-0.74	-0.75	-0.44	-0.32	-0.20
217	0.39	0.30	-0.10	-1.12	-0.98	-0.32	974	-----	-----	-----	-----	-----	-----
221	-----	-----	-----	-----	-----	-----	988	0.63	-0.18	-0.47	-0.28	0.11	-0.28
224	-----	-----	-----	-----	-----	-----	994	0.48	0.73	-0.01	0.85	0.44	0.12
225	0.48	-0.49	-1.41	-0.84	-1.70	-0.67	995	0.17	-0.49	-0.94	1.41	-0.22	0.51
228	1.09	0.12	-0.01	-1.40	-1.87	0.51	996	0.48	-1.10	-0.94	0.29	0.11	0.12
230	0.17	-0.80	-0.47	-0.84	-0.71	1.10	997	0.48	-0.49	-0.94	0.29	-0.22	0.51
237	1.39	0.12	-0.94	-1.96	-2.20	-0.67	998	1.39	0.73	-0.01	0.29	-2.20	-1.07
238	0.78	0.12	0.93	-0.28	-0.22	0.91	1006	-0.56	0.86	0.83	0.29	0.25	-0.16
240	-----	-----	-----	-----	-----	-----	1016	-----	-----	-----	-----	-----	-----
253	-0.28	0.73	0.93	0.85	0.94	0.12	1033	-0.77	0.00	-0.19	-0.44	-0.22	-0.24
254	0.48	-0.49	-0.94	-0.28	-0.55	-0.28	1059	0.69	0.43	-0.47	-0.61	-0.18	-0.16
256	0.17	-0.49	-0.94	0.29	0.11	-1.07	1080	-----	-----	-----	-----	-----	-----
258	1.09	1.96	1.39	-0.72	-1.04	-1.85	1081	-0.40	1.10	0.18	-0.39	-0.48	0.12
273	1.45	0.98	-0.85	-1.29	-1.27	-2.33	1090	-----	-----	-----	-----	-----	-----
312	1.24	2.08	1.21	-0.28	-0.08	-0.16	1105	-1.29	0.18	-0.10	-0.33	-0.28	-0.12
317	-1.01	-0.62	0.55	0.45	0.54	0.24	1109	-0.37	-1.10	-0.94	-1.17	-1.08	-0.32
323	1.02	1.28	0.93	0.96	1.70	-0.12	1121	0.33	-0.80	-0.01	-0.28	-0.55	1.30
335	-----	-----	-----	-----	-----	-----	1126	-0.28	2.45	-0.19	0.51	-0.12	-1.14
336	-0.04	-0.43	0.37	-0.16	-0.25	0.16	1146	1.33	0.86	1.11	0.29	-0.22	1.38
337	-----	-----	-----	-----	-----	-----	1161	-0.07	-0.18	0.74	0.34	-0.05	1.22
339	-----	-----	-----	-----	-----	-----	1182	0.05	-0.31	0.93	1.18	1.30	0.43
342	0.66	-0.25	0.09	0.12	0.31	0.16	1186	-8.34	-20.09	-14.01	-7.01	-4.18	-2.25
344	0.08	0.91	0.83	0.23	0.38	0.47	1194	-----	-----	-----	-----	-----	-----
349	-----	-----	-----	-----	-----	-----	1199	-----	-----	-----	-----	-----	-----
353	-0.43	-1.47	-1.50	-----	0.34	0.20	1227	-0.77	-0.74	0.55	0.17	0.25	-0.63
355	-1.36	-1.13	-0.99	-0.73	0.59	0.00	1275	-1.35	-1.04	-1.22	-0.61	-0.18	-0.75
356	-0.53	0.12	0.27	0.01	-0.28	0.59	1284	-0.53	0.43	0.27	0.23	-0.05	-0.32
381	1.36	0.79	-0.19	-1.79	-1.51	-1.38	1297	-0.04	-0.06	0.74	0.40	0.41	0.39
433	-----	-----	-----	-----	-----	-----	1299	1.88	0.37	-2.71	-2.35	-1.08	-1.70
463	0.75	0.42	0.74	0.40	0.28	1.02	1347	0.17	-0.49	-1.87	-0.84	-0.22	-0.28
485	0.19	1.71	1.35	0.29	0.21	-0.14	1348	-1.74	1.65	-0.01	-0.56	-0.48	0.47
507	1.69	0.12	0.93	0.29	0.11	1.30	1356	-----	10.53	14.93	10.95	-----	-----
511	-0.43	-3.56	-2.34	-1.40	-1.04	-0.67	1385	0.21	-1.63	-1.72	-0.18	-0.49	-0.21
529	-0.59	-0.49	0.93	0.79	0.74	0.39	1412	0.33	0.12	-0.01	0.57	0.61	0.31
541	-0.02	-0.16	0.32	-0.22	-0.07	0.10	1417	0.08	2.02	1.77	1.24	1.57	0.16
555	0.48	-0.49	-0.01	0.85	0.44	1.30	1430	-----	-----	-----	-----	-----	-----
557	0.57	0.30	0.55	0.40	0.18	0.43	1431	-3.51	-2.76	-1.41	-0.22	0.31	-1.82
558	0.48	0.73	0.93	0.29	-1.21	-0.28	1457	-0.40	-0.25	-0.19	-0.22	0.01	0.27
562	-----	-----	-----	-----	-----	-----	1498	-0.68	0.12	1.21	1.75	1.93	0.35
575	-----	-----	-----	-----	-----	-----	1588	-----	-----	-----	-----	-----	-----
603	-----	-----	-----	-----	-----	-----	1629	-----	-----	-----	-----	-----	-----
604	-0.31	0.98	2.14	-0.44	2.56	0.12	1634	-0.47	0.18	0.09	-0.50	-0.45	0.35
605	-----	-----	-----	-----	-----	-----	1643	-----	-----	-----	-----	-----	-----
614	0.17	-1.72	-1.87	-1.40	-3.85	-8.16	1654	-----	-----	-----	-----	0.01	-----
631	0.48	0.12	1.86	1.41	0.61	0.91	1709	-0.74	-0.31	-0.10	-0.11	-0.32	0.75
634	-0.28	-1.41	-0.94	-0.28	-1.04	-1.66	1720	-2.32	3.18	0.55	0.40	0.25	0.75
657	1.33	1.22	0.27	-0.67	-0.88	0.59	1724	-0.31	1.47	-0.01	-0.11	0.15	0.59
671	0.17	-0.68	-0.19	0.40	0.41	-2.64	1740	-0.25	-0.92	-0.57	2.76	-0.42	0.55
732	0.48	1.34	-0.01	1.41	0.61	1.50	1783	0.08	-1.16	0.18	-0.61	-0.55	0.08
733	-----	-----	-----	-----	-----	-----	1796	0.42	0.24	0.93	2.14	1.60	1.73
750	0.17	-0.49	0.46	0.57	1.10	1.10	1807	-0.04	-1.90	-1.41	-1.01	-0.68	0.08
751	-----	-----	-----	-----	-----	-----	1849	0.14	0.98	0.83	0.17	0.01	0.87
781	0.26	0.67	0.74	0.51	0.58	0.35	1881	-----	-----	-----	-----	-----	-----
785	-0.19	-0.07	0.74	0.29	0.34	0.35	1906	-----	-----	-----	-----	-----	-----
798	-0.22	0.49	0.93	0.68	0.61	0.75	1936	-----	-----	-----	-----	-1.11	-----
824	-0.53	0.06	-0.10	-0.28	-0.32	-0.04	1937	-----	-----	-----	-----	-0.88	-----
825	-0.28	1.16	0.18	-0.56	-0.58	-0.71	1938	-----	-----	-----	-----	-0.99	-----
846	0.02	0.42	0.93	0.85	0.94	1.89	1944	-0.92	0.06	0.46	0.01	0.31	0.35

lab	IBP	10%re	50%re	90%re	95%re	FBP	lab	IBP	10%rec	50%re	90%rec	95%re	FBP
1967	-0.74	-0.49	-0.01	0.29	0.28	0.51	6057	-0.07	0.67	1.21	1.80	2.20	1.06
1968	2.91	1.34	4.66	-1.40	-1.54	-0.28	6101	1.16	0.36	-1.63	-1.90	-----	0.43
1984	-0.10	-0.19	0.55	0.29	0.28	0.63	6103	1.24	1.25	1.39	0.45	0.51	0.51
1995	-0.59	-1.11	-0.01	0.01	-0.22	-0.47	6114	0.20	0.18	1.02	0.68	0.71	0.75
6005	-0.25	-0.31	0.65	0.29	0.44	0.04	6142	-----	-----	-----	-----	-----	-----
6018	0.90	0.98	1.67	1.02	1.04	0.75	6170	-1.95	-1.41	-1.87	-1.12	-0.55	-0.08
6026	-0.89	-2.03	-0.47	-0.28	0.11	-0.28	6184	-0.19	0.91	0.55	0.79	0.21	-0.40
6045	0.57	2.02	-0.19	0.40	0.11	-0.36	6201	-0.07	0.12	-0.01	-0.11	-0.02	0.51

APPENDIX 3

Participants per country of main round

2 labs in AFGHANISTAN
1 lab in ALBANIA
1 lab in ARGENTINA
3 labs in AUSTRALIA
1 lab in AUSTRIA
2 labs in AZERBAIJAN
1 lab in BELGIUM
1 lab in BOSNIA and HERZEGOVINA
3 labs in BRAZIL
5 labs in CANADA
2 labs in CHILE
7 labs in CHINA, People's Republic
1 lab in COLOMBIA
1 lab in COTE D'IVOIRE
1 lab in CROATIA
1 lab in CYPRUS
1 lab in DAGESTAN, Republic of
1 lab in DENMARK
1 lab in DJIBOUTI
2 labs in EGYPT
1 lab in EQUATORIAL GUINEA
5 labs in FRANCE
2 labs in GEORGIA
1 lab in GERMANY
6 labs in GREECE
1 lab in GUAM
1 lab in GUINEA REPUBLIC
3 labs in HONG KONG
1 lab in HUNGARY
1 lab in INDIA
2 labs in IRELAND
1 lab in ISRAEL
2 labs in KAZAKHSTAN
1 lab in KENYA
3 labs in LEBANON
1 lab in LITHUANIA
3 labs in MALAYSIA
1 lab in MALTA
1 lab in MAURITIUS
1 lab in MEXICO
1 lab in MONTENEGRO
1 lab in MOROCCO
1 lab in MOZAMBIQUE
1 lab in MYANMAR
8 labs in NETHERLANDS
2 labs in NIGERIA
2 labs in NORWAY
1 lab in OMAN
1 lab in PAKISTAN
1 lab in PANAMA
1 lab in PERU
2 labs in PHILIPPINES
1 lab in POLAND
3 labs in PORTUGAL
1 lab in QATAR
1 lab in ROMANIA
11 labs in RUSSIAN FEDERATION
2 labs in SAUDI ARABIA
1 lab in SENEGAL
1 lab in SERBIA
1 lab in SINGAPORE
1 lab in SLOVENIA
1 lab in SOUTH AFRICA
2 labs in SOUTH KOREA
6 labs in SPAIN
1 lab in ST. LUCIA - WEST INDIES
1 lab in SUDAN
2 labs in SWEDEN
4 labs in TAIWAN
1 lab in TANZANIA
1 lab in TOGO
1 lab in TUNISIA
7 labs in TURKEY
1 lab in TURKMENISTAN
3 labs in UNITED ARAB EMIRATES
5 labs in UNITED KINGDOM
11 labs in UNITED STATES OF AMERICA

APPENDIX 4

Abbreviations:

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

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