Results of Proficiency Test
Gasoil - ASTM (winter)
September 2021

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

Author: ing. A. Ouwerkerk
Correctors: ing. G.A. Oosterlaken-Buijs & ing. R.J. Starink
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1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Gasoil twice a year. One round according to EN590 specification and one round according to ASTM D975. During the annual proficiency testing program 2021/2022 it was decided to continue the proficiency test for the analysis of Gasoil according to ASTM D975.

In this interlaboratory study registered for participation:
- 174 laboratories in 69 different countries for regular analyses in Gasoil iis21G06ASTM
- 35 laboratories in 23 different countries for Cetane Number analyses iis21G06CN
- 60 laboratories in 36 different countries for Total Contamination analyses iis21G06TC
- 49 laboratories in 28 different countries for Oxidation Stability analyses iis21G06OX

In this interlaboratory study a total of 179 participants in 70 different countries registered for participation in one or more PTs. See appendix 2 for the number of participants per country. In this report the results of this Gasoil ASTM (winter) proficiency tests are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory.
In this proficiency test the participants received, depending on the registration, from one up to four different samples of Gasoil, see table below.

Sample ID	PT ID	Quantity	Purpose
#21170	iis21G06ASTM	1x 1L + 1x 0.5L	Regular analyzes
#21171	iis21G06CN	4x 1L	Cetane Number and DCN
#21172	iis21G06TC	1x 1L	Total Contamination
#21173	iis21G06OX	1x 1L	Oxidation Stability

Table 1: Gasoil samples used in PT iis21G06

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

2.1 ACCREDITATION

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

2.2 PROTOCOL

The protocol followed in the 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

For the preparation of the sample for the regular PT Gasoil - ASTM (winter) a batch of approximately 400 liters of a winter grade Gasoil was obtained from a third party. After homogenization 205 amber glass bottles of 1L and 205 amber glass bottles of 0.5L were filled and both were labelled #21170.
The homogeneity of the subsamples was checked by the determination of Density at 15°C in accordance with ASTM D4052 on 10 stratified randomly selected subsamples (5 from the 1L and 5 from the 0.5L subsamples).

	Density at 15°C in kg/m^3
sample #21170-1	836.16
sample #21170-2	836.13
sample #21170-3	836.13
sample #21170-4	836.12
sample #21170-5	836.11
sample #21170-6	836.11
sample #21170-7	836.11
sample #21170-8	836.11
sample #21170-9	836.11
sample #21170-10	836.11

Table 2: homogeneity test results of subsamples #21170

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

	Density at 15°C in kg/m^3
r (observed)	0.05
reference test method	ASTM D4052:18a
0.3 x R (reference test method)	0.15

Table 3: evaluation of the repeatability of subsamples #21170

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

For the preparation of the sample for the PT on Cetane Number and DCN a batch of approximately 400 liters of a winter grade Gasoil was obtained from a third party. After homogenization 330 amber glass bottles of 1L were filled and labelled #21171. The homogeneity of the subsamples was checked by the determination of Density at 15°C in accordance with ASTM D4052 on 10 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
sample #21171-1	836.14
sample #21171-2	836.26
sample #21171-3	836.12
sample #21171-4	836.16
sample #21171-5	836.11
sample #21171-6	836.11
sample #21171-7	836.18
sample #21171-8	836.11
sample #21171-9	836.12
sample #21171-10	836.12

Table 4: homogeneity test results of subsamples #21171

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

	Density at 15°C in kg/m^3
r (observed)	0.13
reference test method	ASTM D4052:18a
0.3 x R (reference test method)	0.15

Table 5: evaluation of the repeatability of subsamples #21171

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

For the preparation of the samples for the PT on Total Contamination in Gasoil a batch of approximately 90 liters of Gasoil was obtained from a third party. A defined volume of fresh prepared and well shaken dust suspension of Arizona Dust material in an oil 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 82 bottles were prepared and subsequently filled up with 1L from this batch of Gasoil and homogenized. The subsamples are labelled #21172.

For the preparation of the samples for the PT on Oxidation Stability in Gasoil a batch of approximately 100 liters of Gasoil was obtained from a third party. The batch was made positive for Oxidation Stability by adding a copper rod for a while to enhance the oxidation of Gasoil. After homogenization 87 amber glass bottles of 1 liter were filled and labelled #21173. The homogeneity of the subsamples was checked by the determination of Density at 15°C in accordance with ASTM D4052 on 8 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
sample #21173-1	835.34
sample #21173-2	835.33
sample #21173-3	835.33
sample #21173-4	835.33
sample #21173-5	835.33
sample #21173-6	835.32
sample #21173-7	835.31
sample #21173-8	835.32

Table 6: homogeneity test results of subsamples #21173

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

	Density at 15°C in kg/m^3
r (observed)	0.03
reference test method	ASTM D4052:18a
0.3 x R (reference test method)	0.15

Table 7: evaluation of the repeatability of subsamples #21173

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

Depending on the registration of the participant the appropriate set of PT samples was sent on September 1, 2021. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYZES

The participants were requested to determine on sample #21170: Total Acid number, API Gravity, Aromatics by FIA, Ash content, Calculated Cetane Index, two and four variables, Cloud Point, Cold Filter Plugging Point (CFPP), Color ASTM, Conradson Carbon Residue, Ramsbottom Carbon Residue on 10% distillation residue, Copper Corrosion 3hrs at 50°C , Density at 15°C, Distillation at 760 mmHg (IBP, 10%, 50%, 90%, 95% recovered, FBP, volume at 250°C and 350°C, Distillation Residue), FAME, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR at 60°C, Nitrogen, Pour Point (manual and/or automated), Total Sulfur, Water and Water & Sediment (D2709 and D1796).
On sample #21171 it was requested to determine: Cetane Number and Derived Cetane number (D6890 and D7668).
On sample #21172 it was requested to determine: Particulate Contamination (D6217) and Total Contamination (EN12662).
On sample #21173 it was requested to determine: Oxidation Stability (Filterable Insolubles, Adherent Insolubles and Total Insolubles).
It was also requested to report some details on the calculation of Nitrogen.

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

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

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in 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 reanalyzes). 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 organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5).
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

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

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

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

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

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

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test results are plotted. The corresponding laboratory numbers are on the X-axis. The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

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

3.3 Z-SCORES

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

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

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

$z_{(target)}$ = (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:

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

4 EVALUATION

Some problems were encountered with the dispatch of the samples due to COVID-19 pandemic. Therefore, the reporting time on the data entry portal was extended with one week.
For the PT with the regular analyzes fourteen participants reported test results after the extended reporting date and nineteen other participants were not able to report any test results.
For the PT on Cetane Number two participants reported test results after the extended reporting date and three other participants were not able to report any test results.
For the PT on Total Contamination four participants reported test results after the extended reporting date and eight other participants were not able to report any test results.
For the Oxidation Stability PT three participants reported test results after the extended reporting date and fourteen other participants were not able to report any test results.
Not all participants were able to report all tests requested in the PTs.
In total 161 participants reported 2906 numerical test results. Observed were 86 outlying test results, which is 3.0%. In proficiency tests outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER SAMPLE AND PER TEST

In this section the reported test results are discussed per sample and per test. The test methods which were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original data. The abbreviations, used in these tables, are explained in appendix 3.

In the iis PT reports ASTM test methods are referred to with a number and if appropriate an indication of sub test method (e.g. D6304-A) and an added designation for the year that the test method was adopted or revised (e.g. D6304-A:20).
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 method number (sub) and year of adoption or revision (e.g. D976:06) will be used.

sample #21170

Total Acid Number: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D974:21.

API Gravity: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D1298:12b(2017).

Aromatics by 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 D1319:20a.
The unit of test methods IP391 or EN12916 is %M/M. Remarkably, the %M/M test results fits very well with the test results reported with ASTM D1319 with %V/V as unit. Therefore, it was decided to include the data in the statistical evaluation. It looks like these test results are conversed to %V/V.
When the test results from D1319 were evaluated separately the calculated reproducibility after rejection of the statistical outlier is still not in agreement with the requirements of ASTM D1319:20a.
One should be aware that this Gasoil does not meet the scope of ASTM D1319 with regards to the boiling range.

Ash content: This determination was not problematic. The reporting participants agreed on a value near or below the application range of the test method. In ASTM D482:19 the minimum value of the application rate was raised to 0.010%M/M, whereas it was 0.001%M/M in earlier versions of the method.

CCI D976: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D976:06(2016) and ASTM D976:80(1990)e1. The specification for Gasoil ASTM D975:20a table 1 refers to the version from 1980.
Differences in calculation were found for five laboratories. The calculation of iis is done according to ASTM D976:06(2016), paragraph 4.1 Formula 2 (based on Density at 15°C and Mid-boiling Temperature in °C).

CCI D4737: Regretfully, no reproducibility is mentioned in procedure A of ASTM D4737:10(2016) nor in the equivalent test methods ISO4264 and IP380. Therefore, iis has estimated a reproducibility for Calculated Cetane Index by Four Variable Equation based from previous iis PTs (see iis memo 1904, lit. 13). This reproducibility has been used for the evaluation.
This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the reproducibility of iis memo 1904.

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

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

Color ASTM: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D1500:12(17).
Please note: The test values reported as “text”, e.g. L1.5, were converted to a numerical value (L1.5 to 1.25, see also appendix 1) before calculating the z-scores.

Conradson CR: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D189:06(19).

Ramsbottom CR: This determination was problematic. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of ASTM D524:15(2019).

Copper Corrosion: This determination was not problematic. All reporting participants agreed on a test result of 1 (1A/1B).

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

Distillation at 760 mmHg: This determination was not problematic. In total nine statistical outliers were observed over eight parameters. All calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D86:20b automated mode. When evaluated against the ASTM D86:20b manual mode the calculated reproducibilities of IBP, Temperature at 95% recovered and FBP after rejection of the statistical outliers are not in agreement.

FAME: This determination was problematic depending on the test method used. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D7371:14 but not with the requirements of EN14078:14 (A or B mode).
Some participants mentioned to have used EN14078-A. When evaluated separately the calculated reproducibility is not in agreement with the requirements of test method EN14078-A.
A possible explanation for the lesser performance of EN14078 may be found in the cells used for the determination. The cell length has to be exactly determined and preferably the same cells should be used for both calibration and determination. More information can be found in clause 7.1 Selection and treatment of the cell of EN14078.

Flash Point PMcc: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D93-A:20.

Kinematic Viscosity at 40°C: This determination was problematic for a number of participants. Eight statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D445:21.

Lubricity: This determination was not problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D6079:18 and ISO12156-1:16 (method A or B).
When the test results from ASTM D6079 and ISO12156/IP450 were evaluated separately, the calculated reproducibility is also in agreement with the requirements of the respective test methods.

Nitrogen: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D4629:17.
In this PT some extra information was requested about the calculation of the Nitrogen content. The calculated reproducibility was in agreement with the reference test method. Therefore, not further analysis was performed.

Pour Point: The determination was not problematic for the manual mode. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D97:17b.
Also for the automated mode the determination was not problematic.
Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5950:14(2020).

Total Sulfur: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5453:19a.

Water: This determination was problematic for a number of participants. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D6304-A:20, and also with the requirements of the B mode. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of the C-mode.
A new version of ASTM D6304 was published in 2020 with major changes. In the 2016 version one precision statement was mentioned for test results based on mass with a broad application range and one based on volume. In the 2020 version all precision statements are based on mass with three different procedures (A - direct injection, B - oven accessory and C - evaporation accessory) each with a different application range. In ASTM D6304:20 the reproducibility for all three procedures A, B and C is much stricter compared to ASTM D6304:16e1. Although there is a new version of ASTM D6304 published in 2020, more than twenty participants

mentioned to have used the A,B or C of the 2016 version. Test method ASTM D6304-A:20 was reported by more than fourty particpants.

Water and Sediment (D2709): This determination was not problematic. All reporting participants agreed on a test result of <0.05%V/V. Therefore, no z-scores were calculated.

Water and Sediment (D1796): This determination was not problematic. All reporting participants agreed on a test result of <0.05%V/V. Therefore, no z-scores were calculated.

sample #21171

Cetane Number: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D613:18a.

Derived Cetane Number (D6890): Two participants reported a test result for DCN and one for Ignition Delay (ID). No z-scores were calculated due to the low number of test results.

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

sample #21172

Particulate Contamination: 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 D6217:21.

Total Contamination: This determination was problematic for a number of participants. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of EN12662:14.

sample #21173

Filterable Insolubles (A): This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with ASTM D2274:14(2019).

Adherent Insolubles (B): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D2274:14(2019).

Total Insolubles (A+B): This determination was problematic. Five statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with ASTM D2274:14(2019).

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameter	unit	n	average	2.8 * sd	R(lit)
Total Acid Number	mg KOH/g	79	0.04	0.03	0.04
API Gravity		78	37.63	0.17	0.3
Aromatics by FIA	%V/V	29	21.4	4.3	3.7
Ash content	%M/M	96	<0.01	n.e.	n.e.
Calc. Cetane Index ASTM D976		84	53.0	0.7	2
Calc. Cetane Index ASTM D4737		99	52.4	0.8	0.9
Cloud Point	°C	122	-4.9	2.9	4
Cold Filter Plugging Point	°C	94	-17.9	3.7	4.4
Color ASTM		109	1.1	0.6	1
Conradson Carbon Residue	%M/M	58	0.02	0.02	0.03
Ramsbottom Carbon Residue	%M/M	9	0.06	0.05	0.03
Copper Corrosion 3hrs at 50°C		115	1 (1A/1B)	n.a.	n.a.
Density at 15°C	kg/m^3	143	836.1	0.3	0.5
Initial Boiling Point	°C	126	169.9	8.6	9.4
Temp at 10% recovery	°C	131	204.5	4.0	4.5
Temp at 50% recovery	°C	130	272.2	3.0	3.0
Temp at 90% recovery	°C	130	335.1	4.3	5.0
Temp at 95% recovery	°C	129	349.1	6.9	8.6
Final Boiling Point	°C	127	358.7	5.9	7.1
Volume at 250°C	%V/V	119	36.3	2.0	2.7
Volume at 350°C	%V/V	116	95.3	1.7	2.7
FAME	%V/V	60	7.1	0.6	1.1
Flash Point PMcc	°C	145	63.6	3.3	4.5
Kinematic Viscosity at 40°C	mm^2/s	121	2.704	0.027	0.030
Lubricity by HFRR at 60°C	µm	55	189	31	80
Nitrogen	mg/kg	41	9.6	2.4	2.6
Pour Point Manual	°C	65	-24.2	4.6	9
Pour Point Automated 3°C inter.	°C	43	-23.4	4.2	6.1
Total Sulfur	mg/kg	113	9.0	1.8	3.0
Water	mg/kg	107	55.7	27.7	39.8
Water and Sediment (D2709)	%V/V	50	<0.05	n.e.	n.e.
Water and Sediment (D1796)	%V/V	24	<0.05	n.e.	n.e.

Table 8: reproducibilities of tests on sample #21170

Parameter	unit	n	average	2.8 * sd	R(lit)
Cetane Number		22	51.6	2.5	4.3
DCN (D6890)		2	n.e.	n.e.	n.e.
Iginition Delay (D6890)		1	n.e.	n.e.	n.e.
DCN (D7668)		9	52.0	1.8	1.4
Ignition Delay (D7668)		8	3.1	0.3	0.2
Combustion Delay (D7668)		8	4.6	0.2	0.1

Table 9: reproducibilities of tests on sample #21171

Parameter	unit	n	average	2.8 * sd	R(lit)
Particulate Contamination	mg/L	9	12.9	7.2	4.1
Total Contamination	mg/kg	37	16.9	6.7	6.9

Table 10: reproducibilities of tests on sample #21172

Parameter	unit	n	average	2.8 * sd	R(lit)
Oxidation Stab. Filt. Insol. A	mg/100mL	26	0.80	1.90	0.80
Oxidation Stab. Adher. Insol B	mg/100mL	28	0.41	0.82	0.80
Oxidation Stab. Tot. Insol. (A+B)	mg/100mL	28	1.28	2.43	1.13

Table 11: reproducibilities of tests on sample #21173

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

4.3 COMPARISON OF THE INTERLABORATORY STUDY OF SEPTEMBER 2021 WITH PREVIOUS PTS

	September 2021	September 2020	September 2019	September 2018	September 2017
Number of reporting laboratories	161	151	165	170	181
Number of test results	2906	2691	3201	3027	3341
Number of statistical outliers	86	67	62	84	83
Percentage of statistical outliers	3.0%	2.5%	1.9%	2.8%	2.5%

Table 12: comparison with previous proficiency tests

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

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

Parameter	September 2021	September 2020	September 2019	September 2018	September 2017
Total Acid Number	+	+	+	++	++
API Gravity	+	++	++	n.e	n.e
Aromatics by FIA	-	+/-	+/-	-	-

Parameter	September 2021	September 2020	September 2019	September 2018	September 2017
Ash content	n.e.	n.e.	++	++	(++)
Calc. Cetane Index ASTM D976	++	++	++	++	++
Calc. Cetane Index ASTM D4737	+	+/-	+	n.e	n.e
Cloud Point	+	+	+	+	++
Cold Filter Plugging Point	+	-	-	--	--
Color ASTM	+	+	+	++	++
Conradson Carbon Residue	+	+/-	+/-	+/-	+
Ramsbottom Carbon Residue	-	n.e.	+/-	--	+/-
Density at 15°C	+	++	+	+	++
Distillation at 760 mmHg	+	+	+	+	+
FAME	+	+	+	+	++
Flash Point PMcc	+	+/-	+/-	+/-	+
Kinematic Viscosity at 40°C	+/-	+/-	+/-	+/-	+/-
Lubricity by HFRR at 60°C	++	++	+	-	++
Nitrogen	+/-	--	-	--	-
Pour Point (Manual and Auto)	+	+	+	+	++
Total Sulfur	+	+/-	+	+/-	+
Water	+	++	++	++	++
Cetane Number	+	+	+	+	+/-
DCN (D6890)	n.e.	-	+	+	(--)
DCN (D7668)	-	+/-	--	+	+
Particulate Contamination	-	(--)	(--)	-	--
Total Contamination	+/-	-	-	-	-
Oxidation Stability	-	+/-	+	+	+

Table 13: comparison determinations against the reference test methods

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

APPENDIX 1

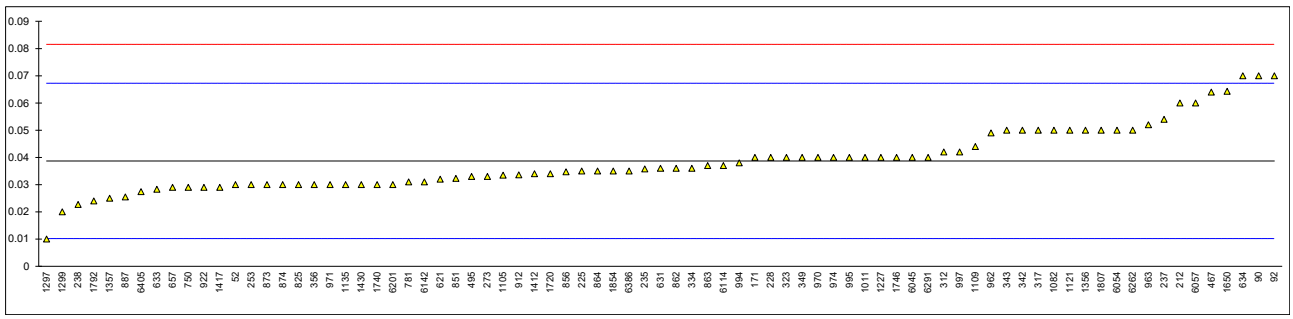
Determination of Total Acid Number on sample #21170; results in mg KOH/g

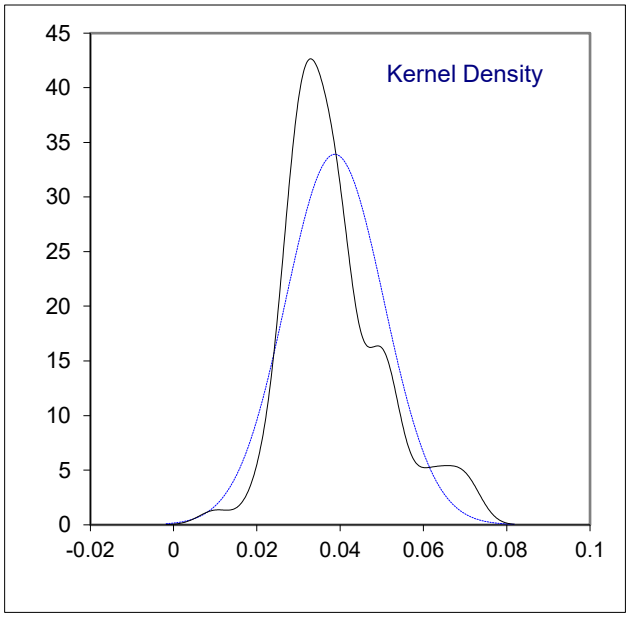
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D974	0.03		-0.61	779		-----		-----
53		-----		-----	781	D974	0.031		-0.54
62	D664-A	<0.1		-----	785		-----		-----
90	D664-A	0.07		2.19	798		-----		-----
92	D664-A	0.0700		2.19	825	D974	0.03		-0.61
120	D664-A	<0.1		-----	845	D664	<0.1		-----
140		-----		-----	851	D664-A	0.0323		-0.45
150	D664-A	<0.10		-----	854	D664	<0.1		-----
158	D664-A	<0.10		-----	856	D974	0.0347		-0.28
159		-----		-----	862	D974	0.036		-0.19
169		-----		-----	863	D974	0.037		-0.12
171	D974	0.04		0.09	864	D974	0.035		-0.26
175		-----		-----	872		-----		-----
203		-----		-----	873	D974	0.03		-0.61
212	D664-A	0.06		1.49	874	D664-A	0.03		-0.61
215		-----		-----	886		-----		-----
217		-----		-----	887	D664-A	0.0255		-0.92
221		-----		-----	904		-----		-----
224		-----		-----	912	D974	0.0336		-0.36
225	D974	0.035		-0.26	913		-----		-----
228	D974	0.04		0.09	914		-----		-----
235	D664-A	0.0358		-0.20	922	D664-A	0.029		-0.68
237	D974	0.054		1.07	962	D974	0.049		0.72
238	D974	0.0227		-1.12	963	D974	0.052		0.93
253	D974	0.03		-0.61	970	D664-A	0.04		0.09
254		-----		-----	971	D664-A	0.03		-0.61
256		-----		-----	974	D974	0.04		0.09
258		-----		-----	988		-----		-----
273	D974	0.033		-0.40	994	D974	0.038		-0.05
312	D974	0.042		0.23	995	D974	0.04		0.09
317	D974	0.05		0.79	996		-----		-----
323	IP139	0.04		0.09	997	D974	0.042		0.23
328		-----		-----	1006		-----		-----
333		-----		-----	1011	D664-A	0.04		0.09
334	D974	0.036		-0.19	1017		-----		-----
335		-----		-----	1026	D664-A	<0.03		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342	D664-A	0.05	C	0.79	1082	ISO6619	0.05		0.79
343	D974	0.05		0.79	1091		-----		-----
344		-----		-----	1105	D974	0.0335		-0.36
349	D664-A	0.04		0.09	1109	D974	0.044		0.37
355		-----		-----	1121	D664-A	0.05		0.79
356	D974	0.03		-0.61	1126		-----		-----
365		-----		-----	1134	D974	<0.05		-----
381		-----		-----	1135	D664-A	0.03		-0.61
433		-----		-----	1146		-----		-----
467	D664-A	0.064		1.77	1182		-----		-----
480		-----		-----	1186		-----		-----
495	D664-A	0.033		-0.40	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227	D664-A	0.04		0.09
551		-----		-----	1297	D664-A	0.01		-2.01
554		-----		-----	1299	D664-A	0.02		-1.31
555		-----		-----	1356	D664-A	0.05		0.79
558		-----		-----	1357	D974	0.025		-0.96
562		-----		-----	1379		-----		-----
575		-----		-----	1412	D664-A	0.034		-0.33
603		-----		-----	1417	D664-A	0.029		-0.68
604		-----		-----	1429		-----		-----
608		-----		-----	1430	D974	0.03		-0.61
614		-----		-----	1476		-----		-----
621	D664-A	0.032		-0.47	1498		-----		-----
631	D974	0.036		-0.19	1510		-----		-----
633	D664-A	0.0283		-0.73	1588		-----		-----
634	D664-A	0.07		2.19	1629		-----		-----
657	D974	0.029		-0.68	1631		-----		-----
710		-----		-----	1634		-----		-----
750	D664-A	0.029		-0.68	1650	D664-A	0.0643		1.79

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D974	0.034		-0.33	6103		-----		-----
1740	D664-A	0.03		-0.61	6114	D664-A	0.037		-0.12
1746	D974	0.04		0.09	6142	D664-A	0.031		-0.54
1792	D664-A	0.024		-1.03	6184		-----		-----
1807	D664-A	0.05		0.79	6201	D664-A	0.03		-0.61
1810		-----		-----	6262	D664-A	0.05		0.79
1811		-----		-----	6266		-----		-----
1854	D664-A	0.035		-0.26	6291	D664-A	0.04		0.09
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944		-----		-----	6386	D974	0.035		-0.26
6045	D974	0.04		0.09	6404		-----		-----
6054	D974	0.05		0.79	6405	D974	0.02740		-0.79
6057	D664-A	0.06		1.49	6406		-----		-----
6068		-----		-----	6416		-----		-----

normality	OK
n	79
outliers	0
mean (n)	0.0387
st.dev. (n)	0.01177
R(calc.)	0.0330
st.dev.(D974:21)	0.01429
R(D974:21)	0.04

Lab 342 first reported 0.08



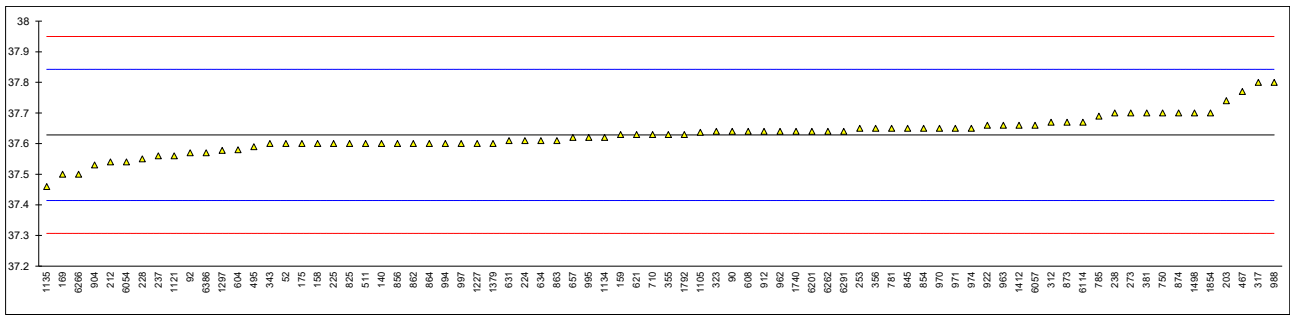


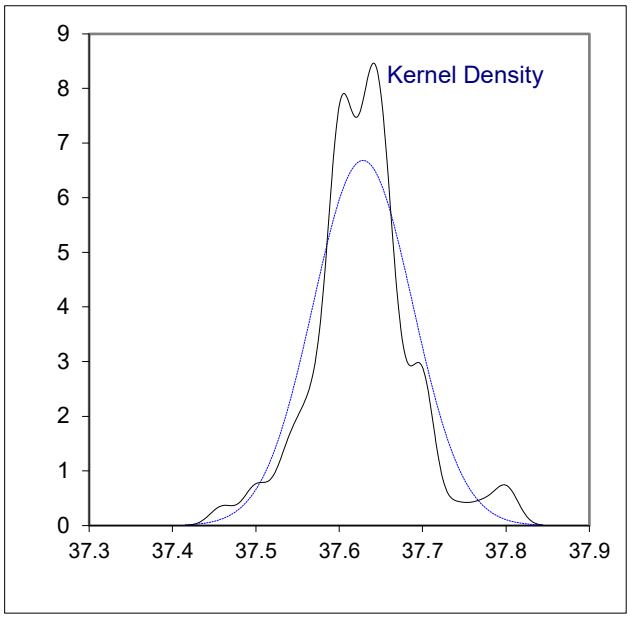
Determination of API Gravity on sample #21170;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	37.6		-0.27	779		-----		-----
53		-----		-----	781	D4052	37.65		0.20
62		-----		-----	785	D1298	37.69		0.57
90	D4052	37.64		0.11	798		-----		-----
92	D4052	37.57		-0.55	825	D1298	37.6		-0.27
120		-----		-----	845	D1298	37.65		0.20
140	D4052	37.6		-0.27	851		-----		-----
150		-----		-----	854	D1298	37.65		0.20
158	D4052	37.6		-0.27	856	D1298	37.60		-0.27
159	D4052	37.63		0.01	862	D1298	37.6		-0.27
169	D4052	37.5		-1.20	863	D1298	37.61		-0.17
171		-----		-----	864	D1298	37.6		-0.27
175	D4052	37.6		-0.27	872		-----		-----
203	D1298	37.74		1.04	873	D1298	37.67		0.39
212	ISO12185	37.54		-0.83	874	D1298	37.7		0.67
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904	D4052	37.53		-0.92
224	D1298	37.61		-0.17	912	D1298	37.64		0.11
225	D4052	37.6		-0.27	913		-----		-----
228	D4052	37.55		-0.73	914		-----		-----
235		-----		-----	922	D1298	37.66		0.29
237	D4052	37.56		-0.64	962	D4052	37.64		0.11
238	D4052	37.7		0.67	963	D1298	37.66		0.29
253	D4052	37.65		0.20	970	D1250	37.65		0.20
254		-----		-----	971	D4052	37.65		0.20
256		-----		-----	974	D4052	37.65		0.20
258		-----		-----	988	D1298	37.8		1.60
273	D4052	37.7		0.67	994	D1250	37.6		-0.27
312	D4052	37.67		0.39	995	D1298	37.62		-0.08
317	D1298	37.8		1.60	996		-----		-----
323	D1298	37.64		0.11	997	D1298	37.6		-0.27
328		-----		-----	1006		-----		-----
333		-----		-----	1011		-----		-----
334		-----		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342		-----		-----	1082		-----		-----
343	D1298	37.6		-0.27	1091		-----		-----
344		-----		-----	1105	D4052	37.6369		0.08
349		-----		-----	1109		-----		-----
355	D4052	37.63		0.01	1121	D4052	37.56		-0.64
356	D4052	37.65		0.20	1126		-----		-----
365		-----		-----	1134	D4052	37.62		-0.08
381	ISO12185	37.7		0.67	1135	D1298	37.46		-1.57
433		-----		-----	1146		-----		-----
467	D4052	37.77		1.32	1182		-----		-----
480		-----		-----	1186		-----		-----
495	D1298	37.59		-0.36	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511	D4052	37.6		-0.27	1227		37.6		-0.27
551		-----		-----	1297	D4052	37.578		-0.47
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D1298	n.a		-----
562		-----		-----	1379	D1298	37.6		-0.27
575		-----		-----	1412	D1250	37.66		0.29
603		-----		-----	1417		-----		-----
604	D4052	37.58		-0.45	1429		-----		-----
608	D4052	37.64		0.11	1430		-----		-----
614		-----		-----	1476		-----		-----
621	D4052	37.63		0.01	1498	D4052	37.7		0.67
631	D4052	37.61		-0.17	1510		-----		-----
633		-----		-----	1588		-----		-----
634	D4052	37.61		-0.17	1629		-----		-----
657	D4052	37.62		-0.08	1631		-----		-----
710	ISO12185	37.63		0.01	1634		-----		-----
750	D1298	37.7		0.67	1650		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740	D1298	37.64		0.11	6114	D4052	37.67		0.39
1746		-----		-----	6142		-----		-----
1792	ISO12185	37.63		0.01	6184		-----		-----
1807		-----		-----	6201	D4052	37.64		0.11
1810		-----		-----	6262	ISO12185	37.64		0.11
1811		-----		-----	6266	D4052	37.5		-1.20
1854	D4052	37.7		0.67	6291	D1298	37.64		0.11
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944		-----		-----	6386	D4052	37.57		-0.55
6045		-----		-----	6404		-----		-----
6054	D4052	37.54		-0.83	6405		-----		-----
6057	ISO12185	37.66		0.29	6406		-----		-----
6068		-----		-----	6416		-----		-----

normality	suspect
n	78
outliers	0
mean (n)	37.629
st.dev. (n)	0.0597
R(calc.)	0.167
st.dev.(D1298:12b)	0.1071
R(D1298:12b)	0.3





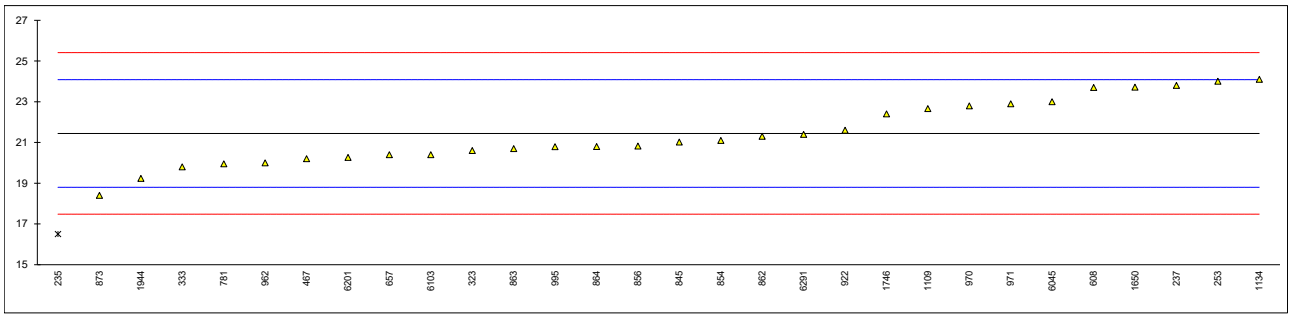
Determination of Aromatics by FIA (without oxygenates correction) on sample #21170; results in %V/V

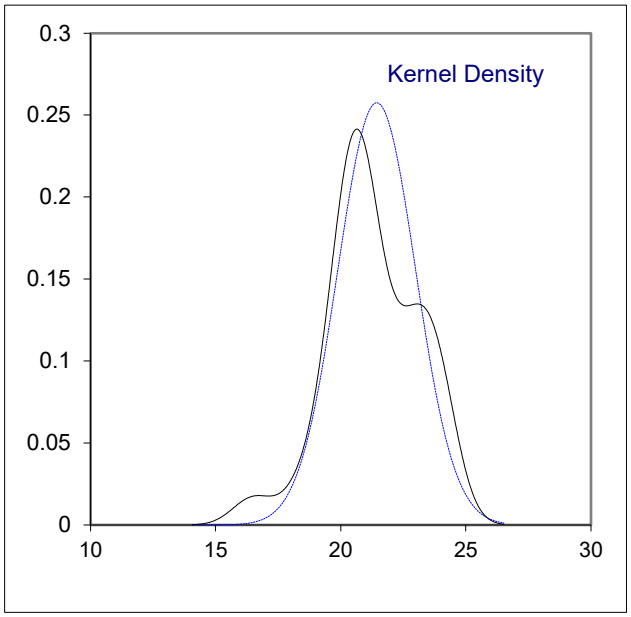
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	779		-----		-----
53		-----		-----	781	D1319	19.95	C	-1.13
62		-----		-----	785		-----		-----
90		-----		-----	798		-----		-----
92		-----		-----	825		-----		-----
120		-----		-----	845	IP391	21.02		-0.32
140		-----		-----	851		-----		-----
150		-----		-----	854	IP391	21.1		-0.26
158		-----		-----	856	IP391	20.82		-0.47
159		-----		-----	862	D1319	21.3		-0.11
169		-----		-----	863	IP391	20.7		-0.56
171		-----		-----	864	IP391	20.8		-0.49
175		-----		-----	872		-----		-----
203		-----		-----	873	D1319	18.4		-2.30
212		-----		-----	874		-----		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904		-----		-----
224		-----		-----	912		-----		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235	D1319	16.5	C,R(0.05)	-3.74	922	D1319	21.6		0.12
237	D1319	23.8		1.78	962	D1319	20.0		-1.09
238		-----		-----	963		-----		-----
253	D1319	24.0		1.93	970	D1319	22.8		1.03
254		-----		-----	971	D1319	22.9		1.10
256		-----		-----	974		-----		-----
258		-----		-----	988		-----		-----
273		-----		-----	994		-----		-----
312		-----		-----	995	D1319	20.79		-0.49
317		-----		-----	996		-----		-----
323	D1319	20.6		-0.64	997		-----		-----
328		-----		-----	1006		-----		-----
333	EN12916	19.8		-1.24	1011		-----		-----
334		-----		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342		-----		-----	1082		-----		-----
343		-----		-----	1091		-----		-----
344		-----		-----	1105		-----		-----
349		-----		-----	1109	D1319	22.66		0.92
355		-----		-----	1121		-----		-----
356		-----		-----	1126		-----		-----
365		-----		-----	1134	D1319	24.1		2.01
381		-----		-----	1135		-----		-----
433		-----		-----	1146		-----		-----
467	D1319	20.2		-0.94	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D1319	n.a		-----
562		-----		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608	D1319	23.7		1.71	1430		-----		-----
614		-----		-----	1476		-----		-----
621		-----		-----	1498		-----		-----
631		-----		-----	1510		-----		-----
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	D1319	20.4		-0.79	1631		-----		-----
710		-----		-----	1634		-----		-----
750		-----		-----	1650	D1319	23.71		1.72

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103	D1319	20.4		-0.79
1740		-----		-----	6114		-----		-----
1746	D1319	22.4		0.72	6142		-----		-----
1792		-----		-----	6184		-----		-----
1807		-----		-----	6201	D1319	20.26		-0.90
1810		-----		-----	6262		-----		-----
1811		-----		-----	6266		-----		-----
1854		-----		-----	6291	D1319	21.4		-0.03
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944	D1319	19.24		-1.67	6386		-----		-----
6045	D6591	23.0		1.18	6404		-----		-----
6054		-----		-----	6405		-----		-----
6057		-----		-----	6406		-----		-----
6068		-----		-----	6416		-----		-----

		D1319 only
normality	OK	OK
n	29	22
outliers	1	1
mean (n)	21.443	21.573
st.dev. (n)	1.5498	1.6918
R(calc.)	4.339	4.737
st.dev.(D1319:20a)	1.3214	1.3214
R(D1319:20a)	3.7	3.7

Lab 235 first reported 17.3
Lab 781 first reported 16.95





Determination of Ash content on sample #21170; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	<0.010		-----	779	ISO6245	<0,001		-----
53		-----		-----	781	D482	<0.010		-----
62	D482	<0.01		-----	785	D482	<0.01		-----
90	D482	0.0003		-----	798		-----		-----
92	D482	<0.01		-----	825	D482	L0.001		-----
120	D482	0.001		-----	845	D482	<0.010		-----
140	D482	<0.001		-----	851	ISO6245	0.00026		-----
150	D482	<0.010		-----	854	D482	<0.010		-----
158	D482	<0.001		-----	856	D482	<0.01		-----
159	D482	0.000		-----	862	D482	<0.01		-----
169	D482	<0.010		-----	863	D482	<0.01		-----
171	D482	<0.010		-----	864	D482	<0.01		-----
175		-----		-----	872		-----		-----
203		-----		-----	873	D482	<0.01		-----
212	ISO6245	0.000		-----	874	D482	<0.010		-----
215		-----		-----	886	D482	<0.001		-----
217		-----		-----	887		-----		-----
221	D482	<0.01		-----	904	D482	<0,001		-----
224	D482	0.00003		-----	912	D482	0.0007		-----
225	D482	0.0006		-----	913		-----		-----
228	D482	0.00099		-----	914		-----		-----
235	ISO6245	0.002		-----	922	D482	<0.01		-----
237	D482	<0.01		-----	962	D482	<0.01		-----
238		-----		-----	963	D482	<0.01		-----
253	D482	0.0008		-----	970	D482	0.0007		-----
254		-----		-----	971	D482	0.0008		-----
256		-----		-----	974	D482	0.0007		-----
258		-----		-----	988		-----		-----
273	D482	0.002		-----	994	D482	<0.01		-----
312		-----		-----	995	D482	0.0007		-----
317	D482	<0.010		-----	996		-----		-----
323	D482	< 0.010		-----	997	D482	0.0007	C	-----
328		-----		-----	1006		-----		-----
333		-----		-----	1011	ISO6245	<0.001		-----
334	D482	<0.010		-----	1017		-----		-----
335		-----		-----	1026	D482	0.001		-----
337		-----		-----	1059	ISO6245	<0,001		-----
339		-----		-----	1080		-----		-----
342	ISO6245	0.0001		-----	1082		-----		-----
343		-----		-----	1091		-----		-----
344	D482	<0.01		-----	1105	D482	0.0006		-----
349		-----		-----	1109	D482	0.0036		-----
355		-----		-----	1121	IP4	0.0005		-----
356	D482	Below 0.001		-----	1126		-----		-----
365	IP4	0.0003		-----	1134	IP4	<0.001		-----
381		-----		-----	1135	ISO6245	<0.001		-----
433		-----		-----	1146	D482	<0.001		-----
467	D482	0.00181		-----	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213	D482	<0.005		-----
511	D482	0		-----	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299	D482	<0.010		-----
555		-----		-----	1356	ISO6245	<0.010		-----
558		-----		-----	1357	D482	<0.01		-----
562	D482	0.001		-----	1379	ISO6245	0.001		-----
575		-----		-----	1412	D482	<0.01		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429	IP4	<0.01		-----
608	D482	0.001		-----	1430	D482	<0.01		-----
614	D482	<0.005		-----	1476	ISO6245	0.00030		-----
621	D482	<0.01		-----	1498		-----		-----
631	D482	<0.001		-----	1510	D482	<0.001		-----
633	D482	0.0002915		-----	1588		-----		-----
634	D482	0.001		-----	1629		-----		-----
657	D482	<0.010		-----	1631		-----		-----
710	D482	<0.01		-----	1634		-----		-----
750	D482	<0.010		-----	1650	D482	0.0002		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740	D482	0.001		-----	6114		-----		-----
1746	D482	0.0006		-----	6142		-----		-----
1792	D482	0.0016		-----	6184	ISO6245	0.001		-----
1807		-----		-----	6201	D482	0.0084		-----
1810		-----		-----	6262	ISO6245	<0.001		-----
1811		-----		-----	6266	D482	0.0005		-----
1854	ISO6245	0.0007		-----	6291		-----		-----
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944	D482	0.00076		-----	6386	D482	<0.001		-----
6045		-----		-----	6404		-----		-----
6054		-----		-----	6405	ISO6245	0.0020		-----
6057	D482	<0,001		-----	6406		-----		-----
6068		-----		-----	6416		-----		-----

n	96
mean (n)	<0.01

Application range: 0.010 – 0.180 %M/M

Lab 997 first reported 0.007

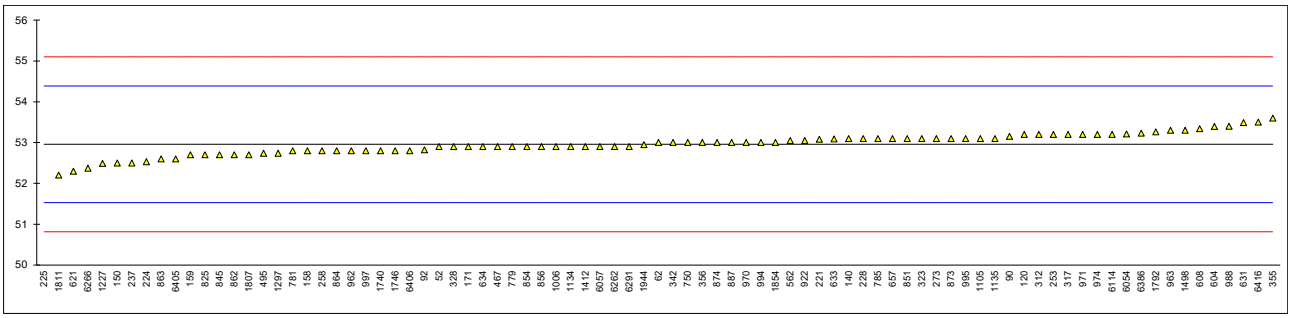
Determination of Calculated Cetane Index, two variables ASTM D976 on sample #21170

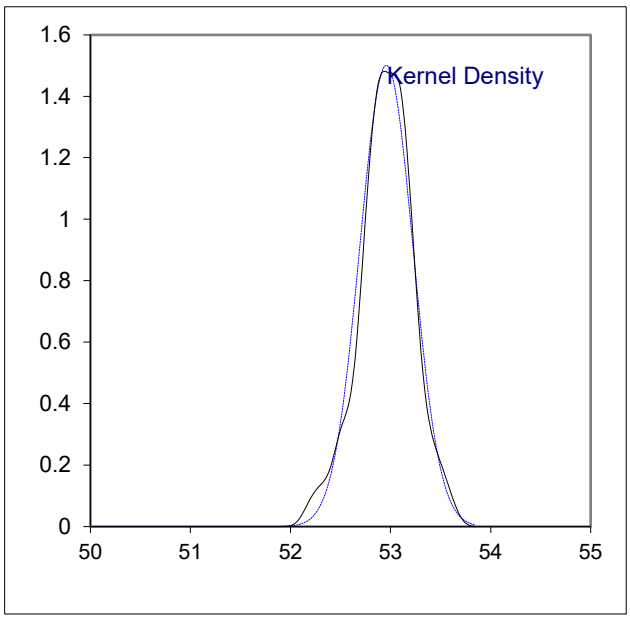
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	52.9		-0.08	779	D976	52.9		-0.08
53		-----		-----	781	D976	52.8		-0.22
62	D976	53.0		0.06	785	D976	53.1		0.20
90	D976	53.15		0.27	798		-----		-----
92	D976	52.82		-0.20	825	D976	52.7		-0.36
120	D976	53.2		0.34	845	D976	52.7		-0.36
140	D976	53.1		0.20	851	D976	53.1		0.20
150	D976	52.5		-0.64	854	D976	52.9		-0.08
158	D976	52.8		-0.22	856	D976	52.9		-0.08
159	D976	52.7		-0.36	862	D976	52.7		-0.36
169		-----		-----	863	D976	52.6		-0.50
171	D976	52.9		-0.08	864	D976	52.8		-0.22
175		-----		-----	872		-----		-----
203		-----		-----	873	D976	53.1		0.20
212		-----		-----	874	D976	53.0		0.06
215		-----		-----	886		-----		-----
217		-----		-----	887	D976	53.0		0.06
221	D976	53.08		0.17	904		-----		-----
224	D976	52.53		-0.60	912		-----		-----
225	D976	44.55	E,R(0.01)	-11.77	913		-----		-----
228	D976	53.1		0.20	914		-----		-----
235		-----		-----	922	D976	53.05		0.13
237	D976	52.5		-0.64	962	D976	52.8		-0.22
238		-----		-----	963	D976	53.3		0.48
253	D976	53.2		0.34	970	D976	53.0		0.06
254		-----		-----	971	D976	53.2		0.34
256		-----		-----	974	D976	53.2		0.34
258	D976	52.8	E	-0.22	988	D976	53.4		0.62
273	D976	53.1		0.20	994	D976	53		0.06
312	D976	53.2		0.34	995	D976	53.1		0.20
317	D976	53.2		0.34	996		-----		-----
323	D976	53.1		0.20	997	D976	52.8		-0.22
328	D976	52.9		-0.08	1006	D976	52.9		-0.08
333		-----		-----	1011		-----		-----
334		-----		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342	D976	53.0		0.06	1082		-----		-----
343		-----		-----	1091		-----		-----
344		-----		-----	1105	D976	53.1		0.20
349		-----		-----	1109		-----		-----
355	D976	53.6		0.90	1121		-----		-----
356	D976	53.0		0.06	1126		-----		-----
365		-----		-----	1134	D976	52.9		-0.08
381		-----		-----	1135	D976	53.1		0.20
433		-----		-----	1146		-----		-----
467	D976	52.9		-0.08	1182		-----		-----
480		-----		-----	1186		-----		-----
495	D976	52.74		-0.31	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227	D976	52.49	E	-0.66
551		-----		-----	1297	D976	52.74		-0.31
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D976	n.a		-----
562	D976	53.05		0.13	1379		-----		-----
575		-----		-----	1412	D976	52.9		-0.08
603		-----		-----	1417		-----		-----
604	D976	53.395		0.61	1429		-----		-----
608	D976	53.34		0.53	1430		-----		-----
614		-----		-----	1476		-----		-----
621	D976	52.3		-0.92	1498	D976	53.3		0.48
631	D976	53.49		0.74	1510		-----		-----
633	D976	53.0865		0.18	1588		-----		-----
634	D976	52.9		-0.08	1629		-----		-----
657	D976	53.1		0.20	1631		-----		-----
710		-----		-----	1634		-----		-----
750	D976	53.0		0.06	1650		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740	D976	52.8		-0.22	6114	D976	53.2		0.34
1746	D976	52.8		-0.22	6142		-----		-----
1792	D976	53.26		0.42	6184		-----		-----
1807	D976	52.7		-0.36	6201		-----		-----
1810		-----		-----	6262	D976	52.9		-0.08
1811	D976	52.2	E	-1.06	6266	D976	52.37	E	-0.83
1854		53.0		0.06	6291	D976	52.9		-0.08
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944	D976	52.95		-0.01	6386	D976	53.23		0.38
6045		-----		-----	6404		-----		-----
6054	D976	53.21		0.35	6405	D976	52.6		-0.50
6057	D976	52.9		-0.08	6406	D976	52.8		-0.22
6068		-----		-----	6416	D976	53.5		0.76

normality	OK
n	84
outliers	1
mean (n)	52.959
st.dev. (n)	0.2659
R(calc.)	0.744
st.dev.(D976:06)	0.7143
R(D976:06)	2

The CCI calculated by iis for labs marked with an E:
Lab 225 calculation difference: iis calculated 53.32
Lab 258 calculation difference: iis calculated 53.17
Lab 1227 calculation difference: iis calculated 52.72
Lab 1811 calculation difference: iis calculated 52.72
Lab 6266 calculation difference: iis calculated 52.85





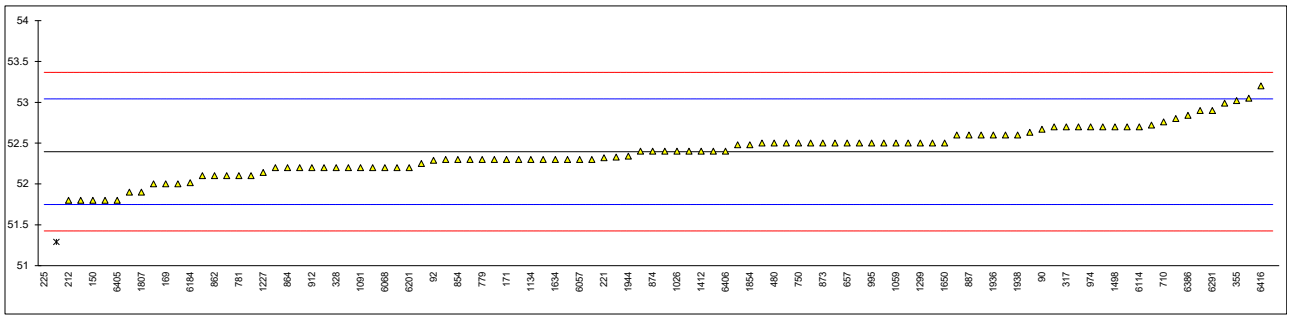
Determination of Calculated Cetane Index, four variables ASTM D4737 on sample #21170

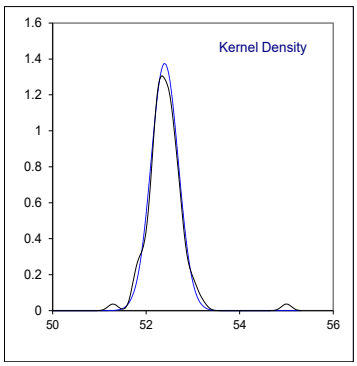
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	52.2		-0.60	779	ISO4264	52.3		-0.29
53		-----		-----	781	D4737-A	52.1		-0.91
62		-----		-----	785	D4737	52.5		0.32
90	D4737-A	52.67		0.85	798		-----		-----
92	D4737-B	52.29	E	-0.32	825	D4737-A	52.1		-0.91
120		-----		-----	845	D4737	52.3		-0.29
140	D4737-A	52.6	E	0.63	851	D4737-A	52.5		0.32
150	D4737-A	51.8		-1.84	854	D4737	52.3		-0.29
158	D4737-A	52.3		-0.29	856	D4737	52.3		-0.29
159		-----		-----	862	D4737	52.1		-0.91
169	D4737-A	52.0	E	-1.22	863	D4737	52.0		-1.22
171	D4737-A	52.3		-0.29	864	D4737	52.2		-0.60
175		-----		-----	872		-----		-----
203		-----		-----	873	D4737	52.5		0.32
212	ISO4264	51.8		-1.84	874	D4737	52.4		0.01
215		-----		-----	886		-----		-----
217		-----		-----	887	D4737-A	52.6		0.63
221	D4737-A	52.32		-0.23	904	D4737-A	52.1		-0.91
224		-----		-----	912	ISO4264	52.2		-0.60
225	D4737-A	42.49	E,R(0.01)	-30.56	913		-----		-----
228	D4737-A	52.9		1.56	914		-----		-----
235		-----		-----	922		-----		-----
237	D4737-A	52.0		-1.22	962	D4737-A	52.2		-0.60
238		-----		-----	963	D4737-A	52.8		1.25
253		-----		-----	970	D4737-A	52.5		0.32
254		-----		-----	971	D4737-A	51.9	E	-1.53
256		-----		-----	974	D4737-A	52.7		0.94
258		-----		-----	988		-----		-----
273	D4737-A	52.99		1.84	994	D4737-A	52.4		0.01
312	D4737-A	52.7		0.94	995	D4737-A	52.5		0.32
317	ISO4264	52.7		0.94	996		-----		-----
323	ISO4264	52.5		0.32	997	D4737-A	52.1		-0.91
328	D4737-A	52.2		-0.60	1006		-----		-----
333		-----		-----	1011	ISO4264	52.5		0.32
334	D4737-A	52.2		-0.60	1017		-----		-----
335	D4737-A	52.4		0.01	1026	ISO4264	52.4		0.01
337		-----		-----	1059	ISO4264	52.5		0.32
339		-----		-----	1080		-----		-----
342	ISO4264	52.5		0.32	1082		-----		-----
343	ISO4264	51.8		-1.84	1091	ISO4264	52.2		-0.60
344	D4737-A	52.33		-0.20	1105	D4737-A	52.7		0.94
349		-----		-----	1109	D4737-A	52.2		-0.60
355	D4737-A	53.02		1.93	1121		-----		-----
356	D4737-A	52.7		0.94	1126		-----		-----
365		-----		-----	1134	IP380	52.3		-0.29
381	ISO4264	52.2		-0.60	1135	ISO4264	52.5		0.32
433		-----		-----	1146	ISO4264	52.25		-0.45
467	ISO4264	52.3		-0.29	1182		-----		-----
480	D4737-A	52.5		0.32	1186		-----		-----
495	D4737-B	51.29	R(0.05)	-3.41	1199		-----		-----
498		-----		-----	1205	ISO4264	52.48		0.26
507		-----		-----	1213		-----		-----
511		-----		-----	1227	D4737-A	52.14		-0.79
551		-----		-----	1297		-----		-----
554		-----		-----	1299	D4737-A	52.5		0.32
555		-----		-----	1356	ISO4264	55	E,R(0.01)	8.04
558		-----		-----	1357	D4737-A	52.4		0.01
562		-----		-----	1379	ISO4264	52.3		-0.29
575		-----		-----	1412	D4737-A	52.4		0.01
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608		-----		-----	1430		-----		-----
614		-----		-----	1476	ISO4264	52.5		0.32
621	ISO4264	51.8		-1.84	1498	D4737-A	52.7		0.94
631	D4737-A	53.05		2.02	1510		-----		-----
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	D4737-A	52.5		0.32	1631		-----		-----
710	ISO4264	52.76		1.13	1634	ISO4264	52.3		-0.29
750	EN ISO 4264	52.5		0.32	1650	ISO4264	52.5		0.32

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D4737-A	52.6		0.63	6103	ISO4264	52.2		-0.60
1740	D4737-A	52.30		-0.29	6114	ISO4264	52.7		0.94
1746	D4737-A	52.4		0.01	6142		-----		-----
1792	ISO4264	52.72		1.00	6184	ISO4264	52.0141		-1.18
1807	D4737-A	51.9		-1.53	6201	D4737-A	52.2		-0.60
1810		-----		-----	6262	ISO4264	52.3		-0.29
1811		-----		-----	6266		-----		-----
1854	D4737-A	52.48		0.26	6291	D4737-A	52.9	E	1.56
1906		-----		-----	6317		-----		-----
1936	ISO4264	52.6		0.63	6332		-----		-----
1937	ISO4264	52.6		0.63	6346		-----		-----
1938	ISO4264	52.6		0.63	6384		-----		-----
1944	D4737-A	52.34		-0.17	6386	D4737-A	52.84		1.37
6045	D4737-A	52.7		0.94	6404		-----		-----
6054	D4737-A	52.633		0.73	6405	ISO4264	51.80		-1.84
6057	D4737-A	52.3		-0.29	6406	D4737-A	52.4		0.01
6068	ISO4264	52.2		-0.60	6416	D4737-A	53.2		2.48

normality	OK
n	99
outliers	3
mean (n)	52.395
st.dev. (n)	0.2900
R(calc.)	0.812
st.dev.(iis memo1904)	0.3241
R(iis memo1904)	0.907

The CCI calculated by iis (D4737 formula 2) for labs marked with an E:
Lab 92 calculation difference: iis calculated 52.29 for A and 51.57 for B (reported D4737-B, possibly method A used for calculation?)
Lab 140 calculation difference: iis calculated 52.41 for A (reported D4737-A)
Lab 169 calculation difference: iis calculated 52.44 for A (reported D4737-A)
Lab 225 calculation difference: iis calculated 52.61 for A (reported D4737-A)
Lab 971 calculation difference: iis calculated 52.60 for A and 51.92 for B (reported D4737-A, possibly method B used for calculation?)
Lab 1356 calculation difference: iis calculated 54.34 for A and 54.24 for B (reported ISO4264)
Lab 6291 calculation difference: iis calculated 52.39 for A (reported D4737-A)





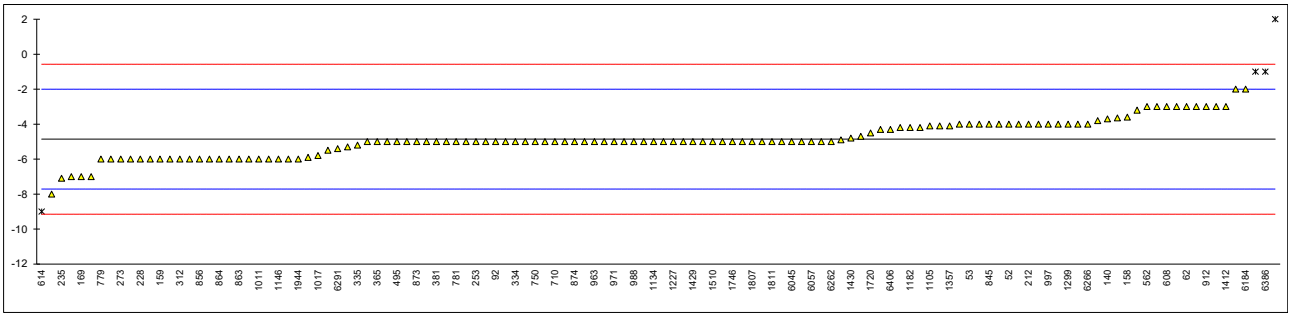
Determination of Cloud Point on sample #21170; results in °C

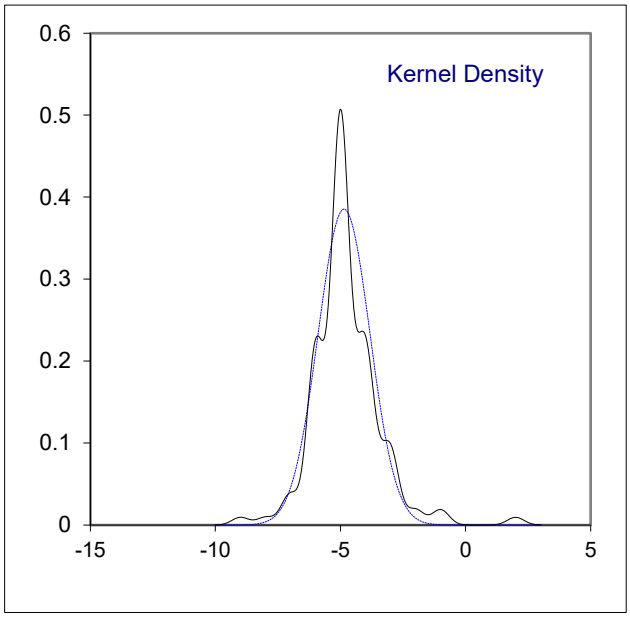
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2500	-4		0.60	779	ISO3015	-6		-0.80
53	D2500	-4		0.60	781	D2500	-5		-0.10
62	D2500	-3		1.30	785	D2500	-5		-0.10
90	D2500	-5		-0.10	798		-----		-----
92	D2500	-5		-0.10	825	D2500	-5		-0.10
120	D5773	-3.8		0.74	845	D2500	-4		0.60
140	D5773	-3.7		0.81	851	D2500	-2		2.00
150	D5771	-4		0.60	854	D2500	-5		-0.10
158	D5773	-3.6		0.88	856	D2500	-6		-0.80
159	D2500	-6.0		-0.80	862	D2500	-6		-0.80
169	D2500	-7		-1.50	863	D2500	-6		-0.80
171	D2500	-5		-0.10	864	D2500	-6		-0.80
175	D5771	-4		0.60	872		-----		-----
203	D2500	-7		-1.50	873	D2500	-5		-0.10
212	ISO3015	-4		0.60	874	D2500	-5		-0.10
215		-----		-----	886		-----		-----
217		-----		-----	887	D2500	-5		-0.10
221	D2500	-3		1.30	904	D2500	-1	R(0.05)	2.70
224	D2500	-8.0		-2.20	912	D2500	-3		1.30
225	D2500	-3		1.30	913		-----		-----
228	D2500	-6		-0.80	914		-----		-----
235	D2500	-7.1		-1.57	922	D2500	-6		-0.80
237	D2500	-4		0.60	962	D2500	-3		1.30
238	D2500	-6	C	-0.80	963	D2500	-5.0		-0.10
253	D2500	-5.0		-0.10	970	D2500	-5		-0.10
254		-----		-----	971	D2500	-5		-0.10
256		-----		-----	974	D2500	-5		-0.10
258		-----		-----	988	D2500	-5		-0.10
273	D2500	-6		-0.80	994	D2500	-5		-0.10
312	D2500	-6		-0.80	995	D2500	-4		0.60
317	D5771	-6		-0.80	996		-----		-----
323	D2500	-5		-0.10	997	D2500	-4		0.60
328	D2500	-5		-0.10	1006		-----		-----
333	D2500	-5		-0.10	1011	D2500	-6		-0.80
334	D2500	-5		-0.10	1017	D2500	-5.8		-0.66
335	D2500	-5.2		-0.24	1026	D5773	-4		0.60
337	D2500	-6		-0.80	1059	ISO3015	-6		-0.80
339		-----		-----	1080	D2500	-4.7		0.11
342	ISO3015	-3		1.30	1082	D5771	-4.2		0.46
343	ISO3015	-5		-0.10	1091		-----		-----
344	D2500	-5.3		-0.31	1105	D5773	-4.1		0.53
349		-----		-----	1109	D5773	-4.1		0.53
355		-----		-----	1121	D2500	-5.9		-0.73
356	D2500	-7		-1.50	1126		-----		-----
365	IP219	-5		-0.10	1134	D2500	-5		-0.10
381	ISO3015	-5		-0.10	1135	EN23015	-5		-0.10
433		-----		-----	1146	D2500	-6		-0.80
467	ISO3015	-5		-0.10	1182	D5773	-4.2		0.46
480		-----		-----	1186		-----		-----
495	EN23015	-5		-0.10	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511	D2500	-4		0.60	1227	D2500	-5		-0.10
551		-----		-----	1297	D5773	-4.2		0.46
554		-----		-----	1299	D2500	-4		0.60
555		-----		-----	1356	EN23015	2	R(0.01)	4.80
558		-----		-----	1357	D5772	-4.1		0.53
562	D2500	-3		1.30	1379	D2500	-4		0.60
575		-----		-----	1412	D2500	-3		1.30
603		-----		-----	1417	IP444	-5		-0.10
604	D2500	-6		-0.80	1429	D2500	-5		-0.10
608	D2500	-3		1.30	1430	D5771	-4.8		0.04
614	D2500	-9	R(0.05)	-2.90	1476	ISO3015	-5.5		-0.45
621	D2500	-6.0		-0.80	1498	D2500	-5		-0.10
631	D5773	-4.9		-0.03	1510	D2500	-5		-0.10
633		-----		-----	1588		-----		-----
634	D2500	-6		-0.80	1629		-----		-----
657	D2500	-5		-0.10	1631		-----		-----
710	EN23015	-5		-0.10	1634		-----		-----
750	D2500	-5		-0.10	1650	D5771	-6.0		-0.80

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D5773	-4.5		0.25	6103		-----		-----
1740	D2500	-5		-0.10	6114	D2500	-4.3		0.39
1746	D2500	-5		-0.10	6142	EN23015	-3.65		0.84
1792	D2500	-5		-0.10	6184	ISO3015	-2		2.00
1807	D2500	-5	C	-0.10	6201	D2500	-5		-0.10
1810	D2500	-5		-0.10	6262	EN23015	-5		-0.10
1811	D2500	-5.0		-0.10	6266	D2500	-4.0		0.60
1854	ISO3015	-5		-0.10	6291	D2500	-5.4		-0.38
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384	D2500	-3.2		1.16
1944	D2500	-6		-0.80	6386	D2500	-1	R(0.05)	2.70
6045	D2500	-5		-0.10	6404		-----		-----
6054	D2500	-5.0		-0.10	6405		-----		-----
6057	D2500	-5		-0.10	6406	D5771	-4.3		0.39
6068		-----		-----	6416		-----		-----

normality	OK
n	122
outliers	4
mean (n)	-4.86
st.dev. (n)	1.036
R(calc.)	2.90
st.dev.(D2500:17a)	1.429
R(D2500:17a)	4

Lab 238 first reported -12
Lab 1807 first reported 0





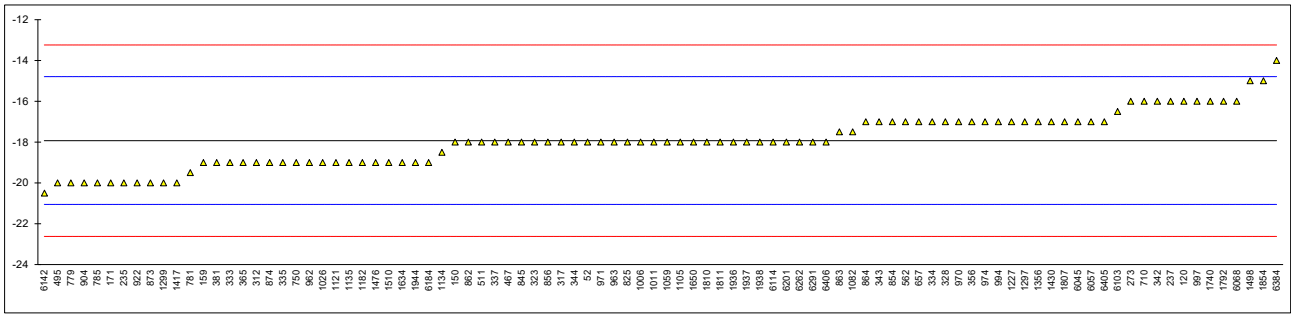
Determination of Cold Filter Plugging Point (CFPP) on sample #21170; results in °C

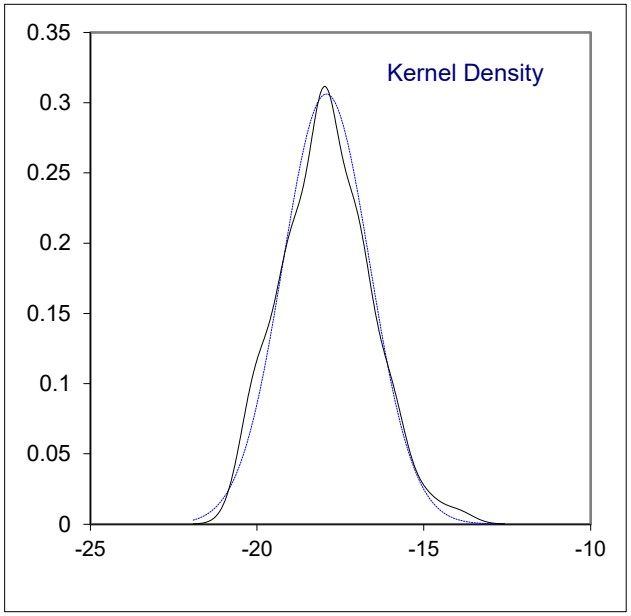
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6371	-18		-0.05	779	EN116	-20		-1.33
53		-----		-----	781	D6371	-19.5		-1.01
62		-----		-----	785	D6371	-20.0		-1.33
90		-----		-----	798		-----		-----
92		-----		-----	825	D6371	-18		-0.05
120	D6371	-16.0		1.23	845	D6371	-18		-0.05
140		-----		-----	851		-----		-----
150	D6371	-18		-0.05	854	D6371	-17		0.59
158		-----		-----	856	IP309	-18		-0.05
159	D6371	-19.0		-0.69	862	D6371	-18		-0.05
169		-----		-----	863	IP309	-17.5		0.27
171	D6371	-20		-1.33	864	IP309	-17		0.59
175		-----		-----	872		-----		-----
203		-----		-----	873	EN116	-20		-1.33
212		-----		-----	874	D6371	-19		-0.69
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904	EN116	-20		-1.33
224		-----		-----	912		-----		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235	D6371	-20		-1.33	922	D6371	-20		-1.33
237	D6371	-16		1.23	962	D6371	-19		-0.69
238		-----		-----	963	D6371	-18.0		-0.05
253		-----		-----	970	IP309	-17		0.59
254		-----		-----	971	IP309	-18		-0.05
256		-----		-----	974	IP309	-17		0.59
258		-----		-----	988		-----		-----
273	IP309	-16		1.23	994	D6371	-17		0.59
312	D6371	-19		-0.69	995		-----		-----
317	EN116	-18		-0.05	996		-----		-----
323	D6371	-18		-0.05	997	D6371	-16		1.23
328	EN116	-17		0.59	1006	D6371	-18		-0.05
333	D6371	-19		-0.69	1011	EN116	-18		-0.05
334	D6371	-17		0.59	1017		-----		-----
335	EN116	-19		-0.69	1026	EN16329	-19		-0.69
337	EN116	-18		-0.05	1059	EN116	-18		-0.05
339		-----		-----	1080		-----		-----
342	EN116	-16		1.23	1082	EN116	-17.5		0.27
343	EN116	-17		0.59	1091		-----		-----
344	EN116	-18		-0.05	1105	D6371	-18	C	-0.05
349		-----		-----	1109		-----		-----
355		-----		-----	1121	IP309	-19.0		-0.69
356	EN116	-17		0.59	1126		-----		-----
365	IP309	-19		-0.69	1134	EN116	-18.5		-0.37
381	EN116	-19		-0.69	1135	EN116	-19		-0.69
433		-----		-----	1146		-----		-----
467	EN116	-18		-0.05	1182	EN116	-19		-0.69
480		-----		-----	1186		-----		-----
495	EN116	-20		-1.33	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511	D6371	-18		-0.05	1227	EN116	-17		0.59
551		-----		-----	1297	D6371	-17		0.59
554		-----		-----	1299	EN116	-20		-1.33
555		-----		-----	1356	D6371	-17		0.59
558		-----		-----	1357	D6371	n.a		-----
562	D6371	-17		0.59	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417	IP309	-20		-1.33
604		-----		-----	1429		-----		-----
608		-----		-----	1430	EN116	-17		0.59
614		-----		-----	1476	EN116	-19		-0.69
621		-----		-----	1498	D6371	-15		1.87
631		-----		-----	1510	D6371	-19		-0.69
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	IP309	-17		0.59	1631		-----		-----
710	EN116	-16		1.23	1634	D6371	-19		-0.69
750	GOST22254	-19		-0.69	1650	EN116	-18.0		-0.05

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103	EN116	-16.5		0.91
1740	D6371	-16		1.23	6114	EN116	-18		-0.05
1746		-----		-----	6142	EN116	-20.5		-1.65
1792	EN116	-16		1.23	6184	EN116	-19		-0.69
1807	D6371	-17		0.59	6201	D6371	-18		-0.05
1810	EN116	-18		-0.05	6262	EN116	-18		-0.05
1811	D6371	-18.0		-0.05	6266		-----		-----
1854	EN116	-15		1.87	6291	EN116	-18		-0.05
1906		-----		-----	6317		-----		-----
1936	EN116	-18		-0.05	6332		-----		-----
1937	EN116	-18		-0.05	6346		-----		-----
1938	EN116	-18		-0.05	6384	EN116	-14		2.51
1944	EN116	-19		-0.69	6386		-----		-----
6045	D6371	-17		0.59	6404		-----		-----
6054		-----		-----	6405	D6371	-17.0		0.59
6057	EN116	-17		0.59	6406	EN116	-18		-0.05
6068	EN116	-16		1.23	6416		-----		-----

			D6371 only	EN116/IP309 only
	normality	OK	OK	OK
	n	94	39	54
	outliers	0	0	0
	mean (n)	-17.93	-17.88	-17.90
	st.dev. (n)	1.303	1.254	1.351
	R(calc.)	3.65	3.51	3.78
	st.dev.(D6371:17a)	1.564	1.562	-----
	R(D6371:17a)	4.38	4.37	-----
Compare				
	R(EN116:15)	4.08	-----	4.07

Lab 1105 first reported -8





Determination of Color ASTM on sample #21170;

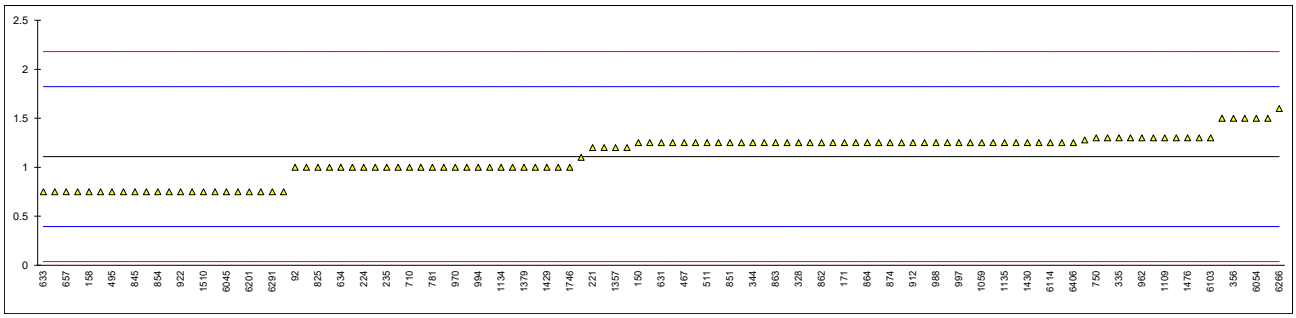
lab	method	reported test value	iis conversion*	mark	z(targ)	remarks
52	D6045	<1.5	1.25		0.40	
53		-----	-----		-----	
62		-----	-----		-----	
90		-----	-----		-----	
92	D1500	1.0	1.0		-0.30	
120	D1500	1	1		-0.30	
140		-----	-----		-----	
150	D6045	<1.5	1.25		0.40	
158	D1500	<1.0	0.75		-1.00	
159	D1500	1.0	1.0		-0.30	
169	D1500	1.1	1.1		-0.02	
171	D1500	L1.5	1.25		0.40	
175		-----	-----		-----	
203	D1500	1.2	1.2		0.26	
212	D1500	1	1		-0.30	
215		-----	-----		-----	
217		-----	-----		-----	
221	D1500	1.2	1.2		0.26	
224	D1500	1.0	1.0		-0.30	
225		-----	-----		-----	
228	D1500	1.5	1.5		1.10	
235	D1500	1.0	1.0		-0.30	
237	D1500	L1.5	1.25		0.40	
238		-----	-----		-----	
253	D1500	1.0	1.0		-0.30	
254		-----	-----		-----	
256		-----	-----		-----	
258	D1500	L1.0	0.75		-1.00	
273	D1500	L1.0	0.75		-1.00	
312	D1500	<1.5	1.25		0.40	
317	D1500	1.0	1.0		-0.30	
323	D1500	< 1.0	0.75		-1.00	
328	D1500	L1.5	1.25		0.40	
333		-----	-----		-----	
334	D1500	L1.5	1.25		0.40	
335	D1500	1.3	1.3		0.54	
337		-----	-----		-----	
339		-----	-----		-----	
342	D1500	L1.0	0.75		-1.00	
343	D1500	L1,5	1.25		0.40	
344	D1500	<1.5	1.25		0.40	
349	D6045	1.28	1.28		0.48	
355	D1500	L1.5	1.25		-----	
356	D1500	1.5	1.5		1.10	
365	D6045	1.3	1.3		0.54	
381		-----	-----		-----	
433		-----	-----		-----	
467	D1500	L1,5	1.25		-----	
480	D1500	1	1		-0.30	
495	D1500	L1,0	0.75		-----	
498		-----	-----		-----	
507		-----	-----		-----	
511	D1500	L1.5	1.25		0.40	
551		-----	-----		-----	
554		-----	-----		-----	
555		-----	-----		-----	
558		-----	-----		-----	
562		-----	-----		-----	
575		-----	-----		-----	
603		-----	-----		-----	
604	D1500	L1.5	1.25		0.40	
608	D1500	1.0	1.0		-0.30	
614	D1500	L1.5	1.25		0.40	
621	D1500	L 1.0	0.75		-1.00	
631	D6045	<1.5	1.25		0.40	
633	D1500	L1.0	0.75		-1.00	
634	D1500	1.0	1.0		-0.30	
657	D1500	L1.0	0.75		-1.00	
710	D1500	1	1		-0.30	
750	D6045	1.3	1.3		0.54	
779	D1500	<1,5	1.25		0.40	
781	D1500	1.0	1.0		-0.30	
785	D6045	1.3	1.3		0.54	
798		-----	-----		-----	
825	D1500	1.0	1.0		-0.30	

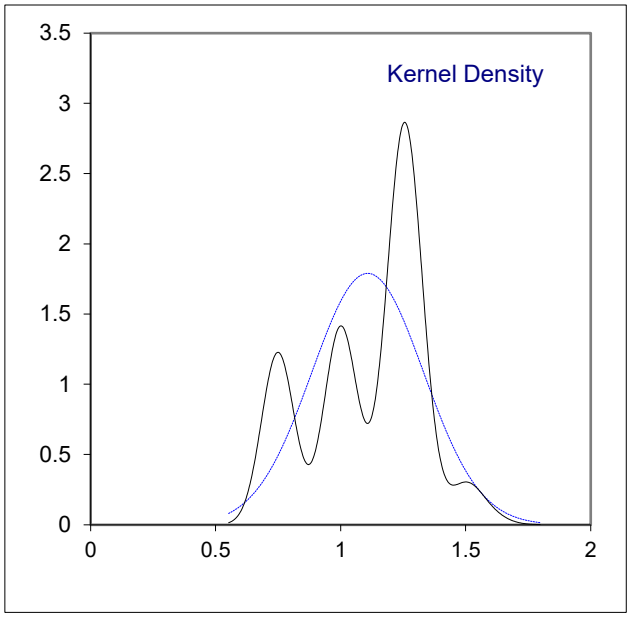
lab	method	reported test value	iis conversion*	mark	z(targ)	remarks
845	D1500	L1.0	0.75		-1.00	
851	D1500	L1.5	1.25		0.40	
854	D1500	L1.0	0.75		-1.00	
856	D1500	L1.5	1.25		0.40	
862	D1500	L1.5	1.25		0.40	
863	D1500	L1.5	1.25		0.40	
864	D1500	L1.5	1.25		0.40	
872		-----	-----		-----	
873	D1500	<1.5	1.25		0.40	
874	D1500	<1.5	1.25		0.40	
886		-----	-----		-----	
887	D1500	L1.5	1.25		0.40	
904	D1500	L1,0	0.75		-1.00	
912	D1500	<1.5	1.25		0.40	
913		-----	-----		-----	
914		-----	-----		-----	
922	D1500	L1.0	0.75		-1.00	
962	D1500	1.3	1.3		0.54	
963	D1500	L1.5	1.25		0.40	
970	D1500	1.0	1.0		-0.30	
971	D1500	L1.0	0.75		-1.00	
974	D1500	1.0	1.0		-0.30	
988	D1500	L1.5	1.25		0.40	
994	D1500	1.0	1.0		-0.30	
995	D1500	less 1.5	1.25		0.40	
996		-----	-----		-----	
997	D1500	< 1.5	1.25		0.40	
1006		-----	-----		-----	
1011		-----	-----		-----	
1017		-----	-----		-----	
1026	D1500	L1.5	1.25		0.40	
1059	D1500	L1,5	1.25		0.40	
1080		-----	-----		-----	
1082	D6045	L 1,5	1.25		0.40	
1091		-----	-----		-----	
1105	D6045	1.3	1.3		0.54	
1109	D6045	1.3	1.3		0.54	
1121	D1500	1.0	1.0		-0.30	
1126		-----	-----		-----	
1134	D1500	1.0	1.0		-0.30	
1135	ISO2049	L1.5	1.25		0.40	
1146		-----	-----		-----	
1182		-----	-----		-----	
1186		-----	-----		-----	
1199		-----	-----		-----	
1205		-----	-----		-----	
1213		-----	-----		-----	
1227	D1500	1	1		-0.30	
1297	D1500	1.5	1.5		1.10	
1299	D6045	L1.5	1.25		0.40	
1356		-----	-----		-----	
1357	D6045	1.2	1.2		0.26	
1379	D1500	1.0	1.0		-0.30	
1412	D1500	1	1		-0.30	
1417	D6045	1.3	1.3		0.54	
1429	D1500	1.0	1.0		-0.30	
1430	D1500	L1.5	1.25		0.40	
1476	D6045	1.3	1.3		0.54	
1498		-----	-----		-----	
1510	D1500	L1.0	0.75		-1.00	
1588		-----	-----		-----	
1629		-----	-----		-----	
1631		-----	-----		-----	
1634		-----	-----		-----	
1650		-----	-----		-----	
1720		-----	-----		-----	
1740	D1500	1	1		-0.30	
1746	D1500	1.0	1.0		-0.30	
1792	D1500	L1.5	1.25		0.40	
1807	D1500	<1,0	0.75		-1.00	
1810		-----	-----		-----	
1811		-----	-----		-----	
1854	D1500	1.2	1.2		0.26	
1906		-----	-----		-----	
1936		-----	-----		-----	
1937		-----	-----		-----	
1938		-----	-----		-----	
1944	D6045	1.3	1.3		0.54	

lab	method	reported test value	iis conversion*	mark	z(targ)	remarks
6045	D1500	L1.0	0.75		-1.00	
6054	D6045	1.5	1.5		1.10	
6057	D1500	L1,0	0.75		-1.00	
6068		-----	-----		-----	
6103	D6045	1.3	1.3		0.54	
6114	D1500	L1.5	1.25		0.40	
6142		-----	-----		-----	
6184		-----	-----		-----	
6201	D1500	L1,0	0.75		-1.00	
6262	D1500	<1.0	0.75		-1.00	
6266	D6045	1.6	1.6		1.38	
6291	D1500	<1.0	0.75		-1.00	
6317		-----	-----		-----	
6332		-----	-----		-----	
6346		-----	-----		-----	
6384	D1500	1.5	1.5		1.10	
6386	D1500	<1	0.75		-1.00	
6404		-----	-----		-----	
6405	D1500	<1.5	1.25		0.40	
6406	D1500	L1.5	1.25		0.40	
6416		-----	-----		-----	

normality	OK
n	109
outliers	0
mean (n)	1.11
st.dev. (n)	0.223
R(calc.)	0.63
st.dev.(D1500:12)	0.357
R(D1500:12)	1

*In the calculation of the mean, standard deviation and the reproducibility a reported value of 'Ly' or '<y' is changed into y-0.25 (for example, L1.5 is changed into 1.25)





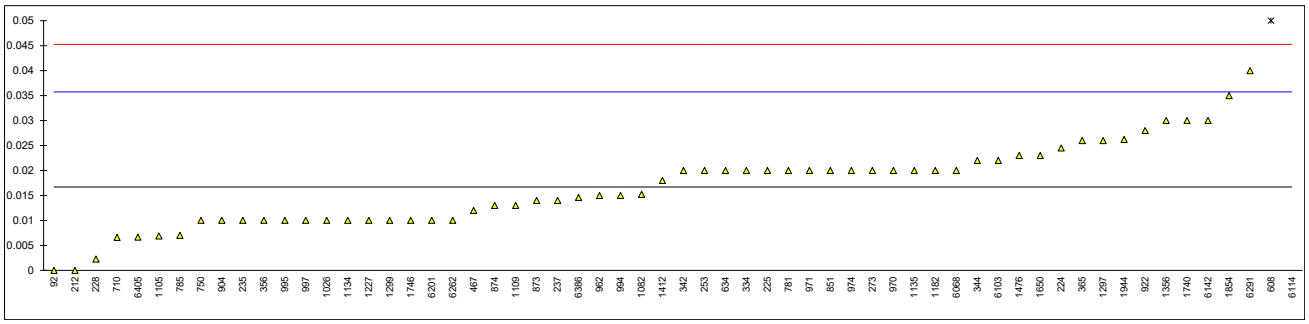
Determination of Conradson Carbon Residue on sample #21170;
results in %M/M

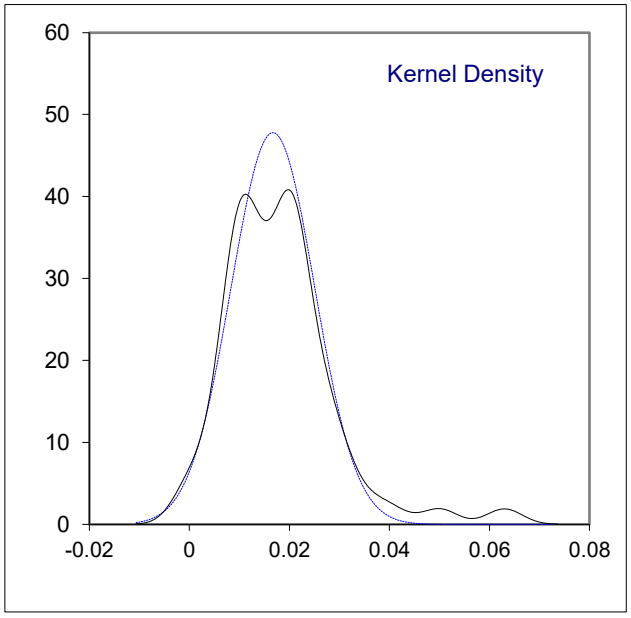
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	<0.1		-----	779		-----		-----
53		-----		-----	781	D189	0.02		0.35
62		-----		-----	785	D4530	0.007		-1.02
90		-----		-----	798		-----		-----
92	D4530	0		-1.76	825		-----		-----
120		-----		-----	845	D4530	<0.1		-----
140	D4530	<0.1		-----	851	ISO10370	0.02	C	0.35
150		-----		-----	854	D4530	<0.1		-----
158	D4530	<0.10		-----	856	D4530	<0.10		-----
159		-----		-----	862	D189	<0.1		-----
169		-----		-----	863	D4530	<0.10		-----
171	D189	<0.01		-----	864	D4530	<0.10		-----
175		-----		-----	872		-----		-----
203		-----		-----	873	D4530	0.014		-0.28
212	ISO10370	0.00	C	-1.76	874	D4530	0.013		-0.39
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221	D4530	<0.01		-----	904	D4530	0.01		-0.70
224	D189	0.0245		0.82	912		-----		-----
225	D4530	0.02		0.35	913		-----		-----
228	D189	0.00226		-1.52	914		-----		-----
235	D4530	0.01		-0.70	922	D189	0.028		1.19
237	D189	0.014		-0.28	962	D4530	0.015		-0.18
238		-----		-----	963	D189	<0.01		-----
253	D189	0.02		0.35	970	D4530	0.02		0.35
254		-----		-----	971	D4530	0.02		0.35
256		-----		-----	974	D189	0.02		0.35
258		-----		-----	988		-----		-----
273	D4530	0.02		0.35	994	D189	0.015		-0.18
312		-----		-----	995	D189	0.01		-0.70
317	D189	<0.10		-----	996		-----		-----
323	D189	< 0.10		-----	997	D189	0.01		-0.70
328		-----		-----	1006		-----		-----
333		-----		-----	1011	ISO10370	<0.10		-----
334	ISO10370	0.02		0.35	1017		-----		-----
335		-----		-----	1026	ISO10370	0.01		-0.70
337		-----		-----	1059	ISO10370	<0,01		-----
339		-----		-----	1080		-----		-----
342	ISO10370	0.02		0.35	1082	ISO10370	0.0152		-0.16
343	D4530	<0,1		-----	1091		-----		-----
344	D4530	0.022		0.56	1105	D4530	0.0069		-1.03
349		-----		-----	1109	D4530	0.013		-0.39
355		-----		-----	1121	ISO10370	<0.01		-----
356	ISO10370	0.01		-0.70	1126		-----		-----
365	IP13	0.0260		0.98	1134	D189	0.01		-0.70
381		-----		-----	1135	ISO10370	0.02		0.35
433		-----		-----	1146		-----		-----
467	ISO10370	0.012		-0.49	1182	ISO10370	0.020		0.35
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227	D4530	0.01		-0.70
551		-----		-----	1297	D4530	0.026		0.98
554		-----		-----	1299	D4530	0.01		-0.70
555		-----		-----	1356	ISO10370	0.03		1.40
558		-----		-----	1357	D4530	<0.10		-----
562		-----		-----	1379		-----		-----
575		-----		-----	1412	D189	0.018		0.14
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608	D4530	0.05	R(0.05)	3.50	1430		-----		-----
614		-----		-----	1476	ISO10370	0.023	C	0.66
621	D189	<0.1		-----	1498		-----		-----
631	D4530	<0.01		-----	1510		-----		-----
633		-----		-----	1588		-----		-----
634	D189	0.02		0.35	1629		-----		-----
657	D4530	<0.10		-----	1631		-----		-----
710	ISO10370	0.0066		-1.06	1634		-----		-----
750	GOST19932	0.01		-0.70	1650	D189	0.023		0.66

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103	ISO10370	0.022		0.56
1740	D4530	0.03		1.40	6114	D4530	0.063	R(0.01)	4.87
1746	D189	0.01		-0.70	6142	ISO10370	0.03		1.40
1792		-----		-----	6184		-----		-----
1807		-----		-----	6201	D4530	0.01		-0.70
1810		-----		-----	6262	D4530	0.01		-0.70
1811		-----		-----	6266		-----		-----
1854	ISO10370	0.035		1.92	6291	D189	0.040		2.45
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944	ISO10370	0.0262		1.00	6386	D4530	0.0146		-0.22
6045		-----		-----	6404		-----		-----
6054		-----		-----	6405	ISO10370	0.00665		-1.06
6057	ISO10370	<0,30		-----	6406		-----		-----
6068	ISO10370	0.02		0.35	6416		-----		-----

normality	OK
n	58
outliers	2
mean (n)	0.0167
st.dev. (n)	0.00834
R(calc.)	0.0234
st.dev.(D189:06)	0.00951
R(D189:06)	0.0266

Lab 212 first reported 0.06
Lab 851 first reported 0.26
Lab 1476 first reported 0.066



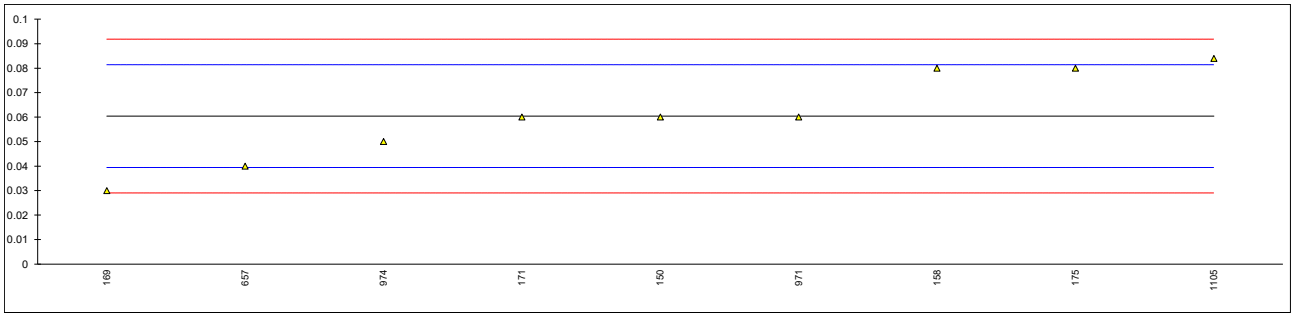


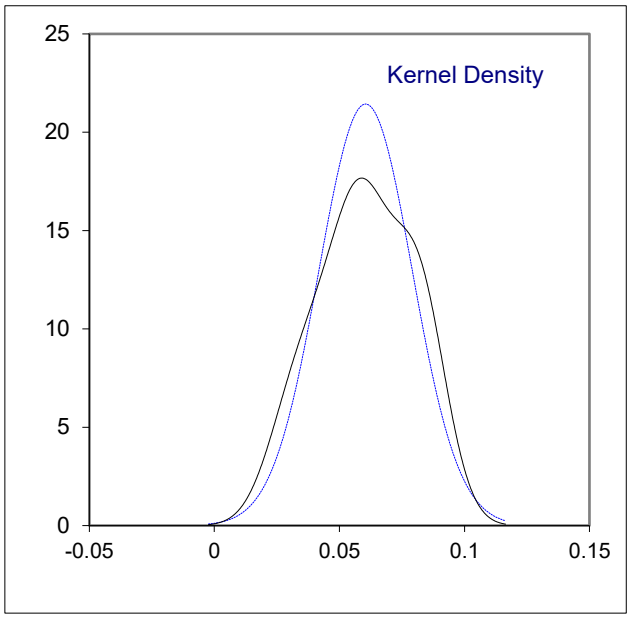
Determination of Ramsbottom Carbon Residue on 10% distillation residue on sample #21170; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	779		-----		-----
53		-----		-----	781		-----		-----
62		-----		-----	785		-----		-----
90		-----		-----	798		-----		-----
92		-----		-----	825		-----		-----
120		-----		-----	845		-----		-----
140		-----		-----	851		-----		-----
150	D524	0.06		-0.04	854		-----		-----
158	D524	0.08		1.87	856		-----		-----
159		-----		-----	862		-----		-----
169	D524	0.03		-2.91	863		-----		-----
171	D524	0.06		-0.04	864		-----		-----
175	D524	0.08		1.87	872		-----		-----
203		-----		-----	873		-----		-----
212		-----		-----	874		-----		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904		-----		-----
224		-----		-----	912		-----		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922		-----		-----
237		-----		-----	962		-----		-----
238		-----		-----	963		-----		-----
253		-----		-----	970		-----		-----
254		-----		-----	971	D524	0.06		-0.04
256		-----		-----	974	D524	0.05		-1.00
258		-----		-----	988		-----		-----
273		-----		-----	994		-----		-----
312		-----		-----	995		-----		-----
317		-----		-----	996		-----		-----
323		-----		-----	997		-----		-----
328		-----		-----	1006		-----		-----
333		-----		-----	1011		-----		-----
334		-----		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342		-----		-----	1082		-----		-----
343		-----		-----	1091		-----		-----
344		-----		-----	1105	D524	0.084		2.25
349		-----		-----	1109		-----		-----
355		-----		-----	1121		-----		-----
356		-----		-----	1126		-----		-----
365		-----		-----	1134		-----		-----
381		-----		-----	1135		-----		-----
433		-----		-----	1146		-----		-----
467		-----		-----	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D524	n.a		-----
562		-----		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608		-----		-----	1430		-----		-----
614		-----		-----	1476		-----		-----
621		-----		-----	1498		-----		-----
631		-----		-----	1510		-----		-----
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	D524	0.04		-1.95	1631		-----		-----
710		-----		-----	1634		-----		-----
750		-----		-----	1650		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740		-----		-----	6114		-----		-----
1746		-----		-----	6142		-----		-----
1792		-----		-----	6184		-----		-----
1807		-----		-----	6201		-----		-----
1810		-----		-----	6262		-----		-----
1811		-----		-----	6266		-----		-----
1854		-----		-----	6291		-----		-----
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944		-----		-----	6386		-----		-----
6045		-----		-----	6404		-----		-----
6054		-----		-----	6405		-----		-----
6057		-----		-----	6406		-----		-----
6068		-----		-----	6416		-----		-----

normality	OK
n	9
outliers	0
mean (n)	0.0604
st.dev. (n)	0.01862
R(calc.)	0.0521
st.dev.(D524:15)	0.01048
R(D524:15)	0.0293





Determination of Copper Corrosion 3 hrs at 50°C on sample #21170;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1a		-----	779	ISO2160	1a		-----
53		-----		-----	781	D130	1a		-----
62	D130	1a		-----	785	D130	1a		-----
90	D130	1a		-----	798		-----		-----
92	D130	1a		-----	825	D130	1a		-----
120	D130	1A		-----	845	D130	1A		-----
140	D130	1a		-----	851	D130	1a		-----
150	D130	1a		-----	854	D130	1A		-----
158	D130	1a		-----	856	D130	1a		-----
159	D130	1A		-----	862	D130	1a		-----
169	D130	1a		-----	863	D130	1a		-----
171	D130	1a		-----	864	D130	1a		-----
175		-----		-----	872		-----		-----
203		-----		-----	873	D130	1a		-----
212	D130	1a		-----	874	D130	1a		-----
215		-----		-----	886	D130	1a		-----
217		-----		-----	887		-----		-----
221	D130	1A		-----	904	D130	1a		-----
224	D130	1a		-----	912		-----		-----
225	D130	1a		-----	913		-----		-----
228	D130	1a		-----	914		-----		-----
235	D130	1a		-----	922	D130	1a		-----
237	D130	1A		-----	962	D130	1A		-----
238	D130	1a		-----	963	D130	1a		-----
253	D130	1 A		-----	970	D130	1a		-----
254		-----		-----	971	D130	1a		-----
256		-----		-----	974	D130	1a		-----
258	D130	1a		-----	988		-----		-----
273	D130	1a		-----	994	D130	1a		-----
312	D130	1a		-----	995	D130	1a		-----
317	D130	1a		-----	996		-----		-----
323	D130	1A		-----	997		-----		-----
328	D130	1		-----	1006	D130	1A		-----
333		-----		-----	1011	ISO2160	1a		-----
334	D130	1a		-----	1017	ISO2160	1a		-----
335	D130	1a		-----	1026	ISO2160	1A		-----
337		-----		-----	1059	ISO2160	1a		-----
339		-----		-----	1080		-----		-----
342	ISO2160	1a		-----	1082	ISO2160	1a		-----
343	ISO2160	1a		-----	1091	D130	1B		-----
344	D130	1a		-----	1105	D130	1 a		-----
349		-----		-----	1109	D130	1a		-----
355		-----		-----	1121	IP154	1a		-----
356	D130	1B		-----	1126		-----		-----
365		-----		-----	1134	D130	1a		-----
381		-----		-----	1135	D130	1A		-----
433		-----		-----	1146		-----		-----
467	ISO2160	1a		-----	1182		-----		-----
480	ISO2160	1A		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213	D130	1a		-----
511	D130	1a		-----	1227	D130	1A		-----
551		-----		-----	1297	D130	1A		-----
554		-----		-----	1299	D130	1a		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D130	1a		-----
562		-----		-----	1379	D130	1a		-----
575		-----		-----	1412	D130	1a		-----
603		-----		-----	1417	D130	1B		-----
604		-----		-----	1429	D130	1a		-----
608	D130	1a		-----	1430	D130	1a		-----
614	D130	1a		-----	1476	ISO2160	1a		-----
621	D130	1A		-----	1498		-----		-----
631	D130	1A		-----	1510		1A		-----
633	D130	1a		-----	1588		-----		-----
634	D130	1a		-----	1629		-----		-----
657	D130	1a		-----	1631		-----		-----
710		-----		-----	1634	ISO2160	1a		-----
750	D130	1A		-----	1650	D130	1a		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D130	1a		-----	6103	D130	1a		-----
1740	D130	1A		-----	6114	D130	1a		-----
1746	D130	1a		-----	6142		-----		-----
1792		-----		-----	6184	ISO2160	1 a		-----
1807	D130	1a		-----	6201	D130	1A		-----
1810		-----		-----	6262	D130	1A		-----
1811		-----		-----	6266	D130	1a strip		-----
1854	ISO2160	1A		-----	6291	D130	1a		-----
1906		-----		-----	6317	D130	1a		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384	D130	1a		-----
1944	D130	1a		-----	6386	D130	1a		-----
6045	D130	1a		-----	6404		-----		-----
6054	D130	1a		-----	6405	D130	1a		-----
6057	D130	1A		-----	6406	D130	1A		-----
6068	ISO2160	1a		-----	6416	D130	1		-----

n	115
mean (n)	1 (1A/1B)

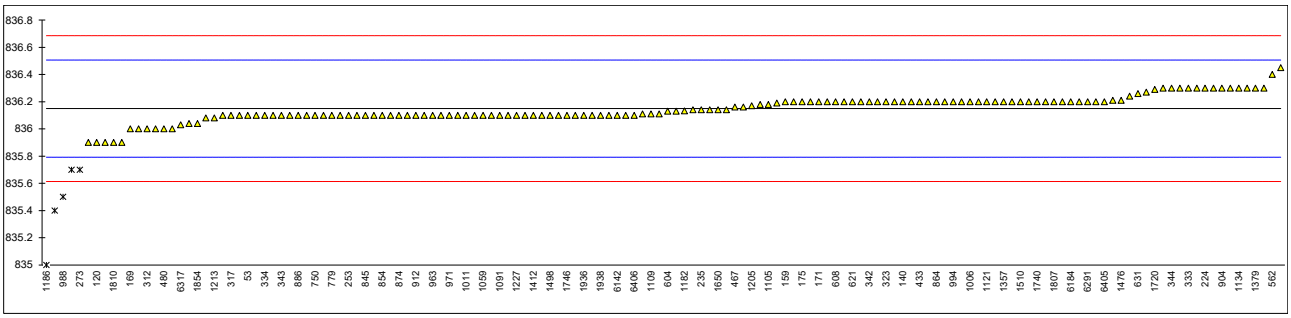
Determination of Density at 15°C on sample #21170; results in kg/m^3

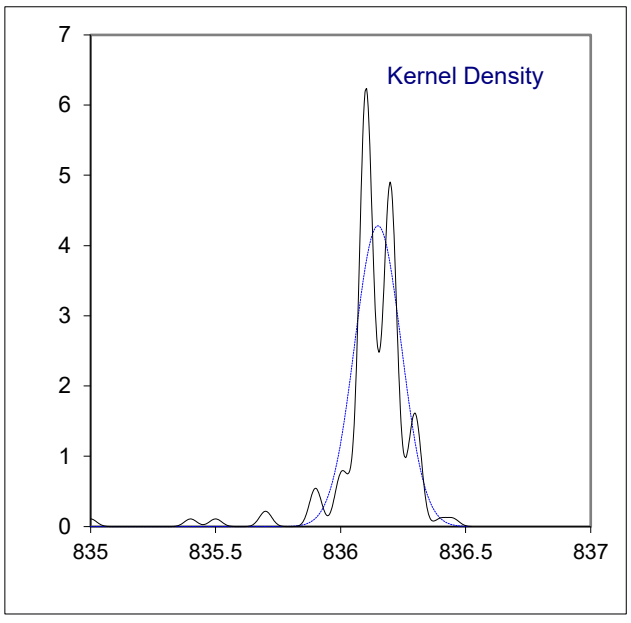
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	836.1		-0.28	779	ISO12185	836.1		-0.28
53	D4052	836.1		-0.28	781	D4052	836.1		-0.28
62	D4052	836.2		0.28	785	D4052	835.9		-1.40
90	D4052	836.1		-0.28	798		-----		-----
92	D4052	836.1		-0.28	825	D4052	836.1		-0.28
120	D4052	835.9		-1.40	845	D4052	836.1		-0.28
140	D4052	836.2		0.28	851	D4052	836.3		0.84
150	D4052	836.2		0.28	854	D4052	836.1		-0.28
158	D4052	836.2		0.28	856	D4052	836.18		0.17
159	D4052	836.2		0.28	862	D4052	836.2		0.28
169	D4052	836.0	C	-0.84	863	D4052	836.27		0.67
171	D4052	836.2		0.28	864	D4052	836.2		0.28
175	D4052	836.2		0.28	872		-----		-----
203	D4052	835.7	R(0.01)	-2.52	873	D4052	836.0		-0.84
212	ISO12185	836.3		0.84	874	D4052	836.1		-0.28
215		-----		-----	886	D4052	836.1	C	-0.28
217		-----		-----	887	D4052	836.1		-0.28
221	D4052	836.2		0.28	904	D4052	836.3		0.84
224	D1298	836.3		0.84	912	D4052	836.1		-0.28
225	D4052	836.2		0.28	913		-----		-----
228	D4052	836.2		0.28	914		-----		-----
235	D4052	836.14		-0.05	922	D4052	836.1		-0.28
237	D4052	836.1		-0.28	962	D4052	836.2		0.28
238	D4052	836.13		-0.11	963	D4052	836.1		-0.28
253	D4052	836.1		-0.28	970	D4052	836.1		-0.28
254		-----		-----	971	D4052	836.1		-0.28
256		-----		-----	974	D4052	836.1		-0.28
258	D4052	836.1		-0.28	988	D1298	835.5	R(0.01)	-3.64
273	D4052	835.7	R(0.01)	-2.52	994	D4052	836.2		0.28
312	D4052	836.0		-0.84	995	D4052	836.3		0.84
317	D4052	836.1		-0.28	996		-----		-----
323	D4052	836.2	C	0.28	997	D4052	836.2		0.28
328	D4052	835.9		-1.40	1006	D4052	836.2		0.28
333	D4052	836.3		0.84	1011	ISO12185	836.1		-0.28
334	D4052	836.1		-0.28	1017	ISO12185	836.2		0.28
335	D4052	836.1		-0.28	1026	D4052	836.1		-0.28
337	D4052	836.0		-0.84	1059	ISO12185	836.1		-0.28
339		-----		-----	1080		-----		-----
342	D4052	836.2		0.28	1082	ISO12185	836.1		-0.28
343	D4052	836.1		-0.28	1091	D4052	836.1		-0.28
344	D4052	836.3	C	0.84	1105	D4052	836.18		0.17
349	D4052	836.04		-0.61	1109	D4052	836.11		-0.22
355	D4052	836.2		0.28	1121	D4052	836.2		0.28
356	D4052	836.1		-0.28	1126	D4052	836.08		-0.39
365	D4052	836.1		-0.28	1134	D4052	836.3		0.84
381	ISO12185	836.11		-0.22	1135	D4052	836.1		-0.28
433	ISO12185	836.2		0.28	1146	D4052	836.2		0.28
467	D4052	836.16		0.06	1182	ISO12185	836.132		-0.10
480	D4052	836.0		-0.84	1186	D1298	835.0	C,R(0.01)	-6.44
495	ISO12185	836.1		-0.28	1199		-----		-----
498		-----		-----	1205	ISO12185	836.17		0.11
507		-----		-----	1213	D4052	836.08		-0.39
511	D4052	836.14		-0.05	1227	D4052	836.1		-0.28
551		-----		-----	1297	D4052	836.14		-0.05
554		-----		-----	1299	D4052	836.1		-0.28
555		-----		-----	1356	ISO12185	836.3		0.84
558		-----		-----	1357	D4052	836.2		0.28
562	D4052	836.4		1.40	1379	D4052	836.3		0.84
575		-----		-----	1412	D4052	836.1		-0.28
603		-----		-----	1417	IP365	836.3		0.84
604	D4052	836.13		-0.11	1429	D4052	836.1	C	-0.28
608	D4052	836.2		0.28	1430	D4052	836.2		0.28
614	D4052	836.2		0.28	1476	ISO12185	836.21		0.34
621	D4052	836.2		0.28	1498	D4052	836.1		-0.28
631	D4052	836.26		0.62	1510	D4052	836.2		0.28
633	D4052	836.19		0.23	1588	ISO12185	836.45		1.68
634	D4052	836.3		0.84	1629		-----		-----
657	D4052	836.3		0.84	1631	D4052	836.2		0.28
710	ISO12185	836.21		0.34	1634	ISO12185	836.1		-0.28
750	D1298	836.1		-0.28	1650	D4052	836.14		-0.05

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D4052	836.290		0.79	6103	ISO12185	835.9		-1.40
1740	D4052	836.2		0.28	6114	D4052	836.0		-0.84
1746	D4052	836.1		-0.28	6142	ISO12185	836.1		-0.28
1792	D4052	836.2		0.28	6184	ISO3675	836.2		0.28
1807	D4052	836.2		0.28	6201	D4052	836.14		-0.05
1810	D4052	835.9		-1.40	6262	ISO12185	836.2		0.28
1811	D4052	836.1		-0.28	6266	D4052	836.16		0.06
1854	ISO12185	836.04		-0.61	6291	D4052	836.2		0.28
1906		-----		-----	6317	D4052	836.03		-0.67
1936	ISO12185	836.1		-0.28	6332		-----		-----
1937	ISO12185	836.1		-0.28	6346		-----		-----
1938	ISO12185	836.1		-0.28	6384	D4052	836.1		-0.28
1944	D4052	836.11		-0.22	6386	D4052	836.2		0.28
6045	D4052	836.1		-0.28	6404		-----		-----
6054	D4052	836.24		0.51	6405	ISO12185	836.2		0.28
6057		-----		-----	6406	ISO12185	836.1		-0.28
6068	ISO12185	836.2		0.28	6416	D1298	835.4	R(0.01)	-4.20

normality	suspect
n	143
outliers	5
mean (n)	836.150
st.dev. (n)	0.0933
R(calc.)	0.261
st.dev.(D4052:18a)	0.1786
R(D4052:18a)	0.5

Lab 169 first reported 837.1
Lab 323 reported 0.8362 kg/m3
Lab 344 reported 0.8363 kg/m3
Lab 886 reported 0.8631 kg/L
Lab 1186 first reported 837
Lab 1429 reported 0.8361 kg/m3





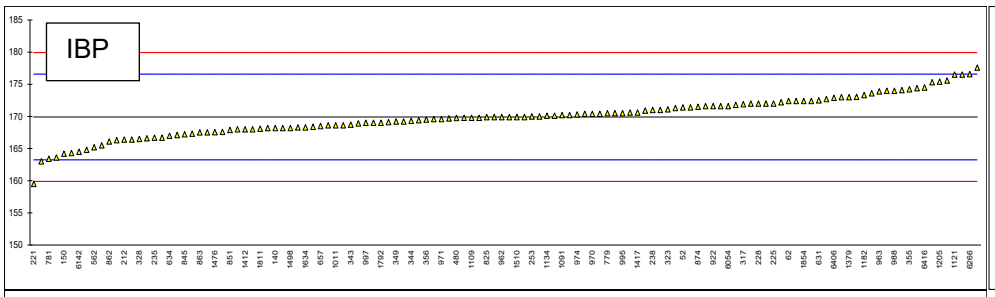
Determination of Distillation at 760 mmHg on sample #21170; results in °C

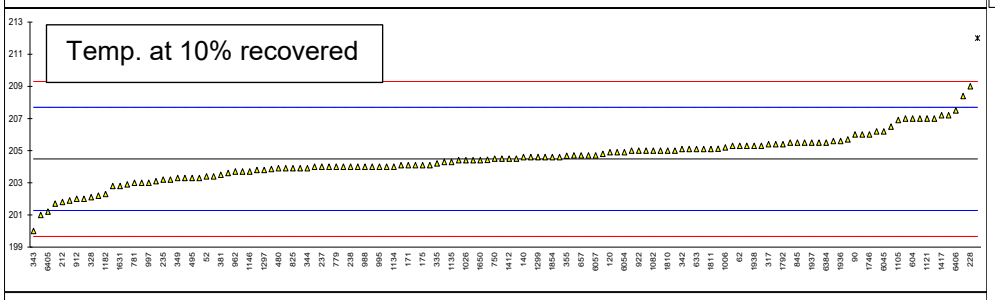
lab	method	IBP	10% rec	50% rec		90% rec		95% rec	FBP
52	D86-automated	171.4	203.4	271.6		335.2		349.9	359.4
53		-----	-----	-----		-----		-----	-----
62	D86-automated	172.4	205.3	272.5		334.6		348.1	359.4
90	D86-manual	173.0	206.0	273.0		336.0		351.0	358.0
92	D86-automated	175.6	204.7	271.4		333.7		347.0	359.8
120	D86-automated	169.1	204.9	272.8		335.9		-----	359.4
140	D86-automated	168.2	204.6	272.3		335.6		349.2	360.3
150	D86-automated	164.2	201.9	269.9		331.9		344.1	354.5
158		-----	-----	-----		-----		-----	-----
159	D86-automated	169.9	202.8	271.5		333.7		348.5	359.3
169	D86-automated	166.3	205.6	271.6		333.8		347.4	357.1
171	D86-automated	169.6	204.1	271.8		333.3		346.7	358.5
175	D86-automated	172.7	204.1	272.8		337.6		354.0	358.8
203		-----	-----	-----		-----		-----	-----
212	ISO3405-automated	166.4	201.8	270.5		336.8		351.8	356.4
215		-----	-----	-----		-----		-----	-----
217		-----	-----	-----		-----		-----	-----
221	D86-automated	159.5	202.2	272.8		336.8		352.9	357.2
224	D86-manual	173.05	203.30	270.31		335.80		348.06	357.57
225	D86-manual	172.0	203.0	274.0		341.0	R5	354.0	364.0
228	D86-manual	172.0	209.0	273.0		331.0		342.0	360.0
235	D86-automated	166.7	203.2	270.5		333.2		345.5	356.7
237	D86-manual	172.0	204.0	270.0		331.0		344.0	355.0
238	D86-manual	171.0	204.0	273.0		337.0		348.0	361.0
253	D86-manual	170.0	204.0	273.0		336.5		350.0	359.0
254		-----	-----	-----		-----		-----	-----
256		-----	-----	-----		-----		-----	-----
258	D86-automated	174.4	205.5	273.1		335.5		348.3	359.3
273	D86-automated	177.6	208.4	272.9		336.5		352.5	361.5
312	D86-automated	170.4	205.1	273.1		334.8		349.1	358.4
317	D86-automated	171.9	205.4	273.1		336.1		350.3	358.7
323	D86-automated	171.1	205.0	272.7		335.2		350.4	358.9
328	D86-automated	166.5	202.1	271.4		333.8		347.3	356.8
333		-----	-----	-----		-----		-----	-----
334	D86-automated	168.3	203.1	271.5		333.8		348.0	356.5
335	D86-automated	171.8	204.2	272.2		335.4		348.8	361.0
337		-----	-----	-----		-----		-----	-----
339		-----	-----	-----		-----		-----	-----
342	D86	173.6	205.1	272.6		335.2		350.1	357.5
343	ISO3405-automated	168.7	200.0	270.5		334.0		347.5	359.0
344	D86-automated	169.3	203.9	272.4		335.2		350.5	358.7
349	D86-automated	169.2	203.3	271.3		334.0		348.4	356.0
355	D86-manual	174.21	204.68	275.64		340.35		355.59	365.08
356	D86-automated	169.5	207.0	272.4		335.7		349.8	358.4
365		-----	-----	-----		-----		-----	-----
381	ISO3405-automated	163.6	203.5	271.6		334.1		345.9	357.1
433		-----	-----	-----		-----		-----	-----
467	D86-automated	171.6	203.9	271.8		334.6		349.8	356.4
480	D86-automated	169.75	203.90	272.90		335.35		348.75	356.30
495	D86-automated	164.8	203.3	271.0		332.5		344.3	356.5
498		-----	-----	-----		-----		-----	-----
507		-----	-----	-----		-----		-----	-----
511		-----	-----	-----		-----		-----	-----
551		-----	-----	-----		-----		-----	-----
554		-----	-----	-----		-----		-----	-----
555		-----	-----	-----		-----		-----	-----
558		-----	-----	-----		-----		-----	-----
562	D86-automated	165.2	203.8	272.2		334.95		-----	-----
575		-----	-----	-----		-----		-----	-----
603		-----	-----	-----		-----		-----	-----
604	D86-automated	168.9	207.0	274.2		337.8		352.3	361.0
608	D86-automated	170.9	205.5	274.1		337.0		351.8	361.7
614		-----	-----	-----		-----		-----	-----
621	D86-manual	174.0	206.0	269	C	334.0		349.0	356.0
631	D86-manual	172.5	207.0	275.0		338.0		350.0	357.5
633	D86-automated	175.30	205.10	273.50		337.10		351.00	363.20
634	D86-manual	167.0	201.0	272.0		336.0		348.5	355.0
657	D86-automated	168.5	204.7	272.8		334.7		348.3	357.9
710	D86-manual	172.0	205.0	274.0		339.0		353.0	361.5
750	D86-manual	168.0	204.5	272.5		335.0		349.5	359.0
779	ISO3405-manual	170.5	204.0	272.0		334.0		347.5	357.5
781	D86-automated	163.4	203.0	271.1		333.3		346.7	357.2
785	D86-automated	167.6	204.0	272.3		334.9		349.3	357.9
798		-----	-----	-----		-----		-----	-----
825	D86-automated	169.9	203.9	271.0		332.7		345.2	359.1

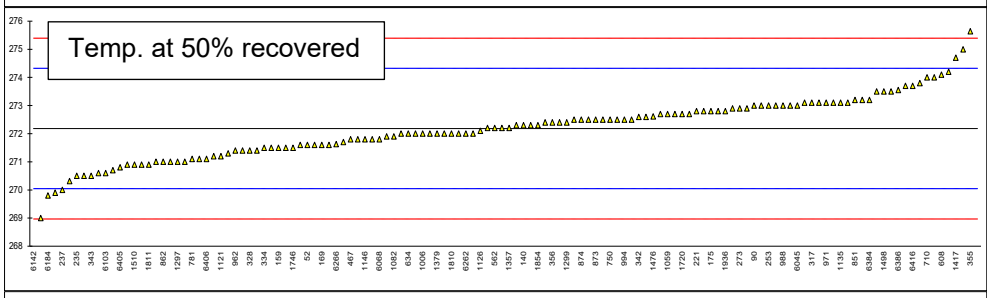
lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP
845	D86-automated	167.2	205.5	271.2	334.8	348.3	358.9
851	D86-automated	167.9	204.4	273.2	336.9	352.1	359.9
854	D86-automated	166.6	204.1	271.9	334.8	349.7	357.3
856	D86-automated	167.5	204.1	271.7	334.1	347.9	355.9
862	D86-automated	166.1	203.9	271	333.5	346.7	356.3
863	D86-automated	167.5	205.3	270.6	332.2	344.6	354.4
864	D86	168.2	203.4	271.6	333.7	348.2	358.6
872		-----	-----	-----	-----	-----	-----
873	D86-manual	171.0	204.0	272.5	335.0	349.5	359.5
874	D86-manual	171.5	204.0	272.5	336.0	350.5	363.0
886		-----	-----	-----	-----	-----	-----
887	D86-automated	163.0	205.4	272.5	336.7	350.9	359.2
904	D86-automated	168.6	203.7	271.5	333.0	345.8	359.3
912	D86-manual	170	202	272	336	350	362
913		-----	-----	-----	-----	-----	-----
914		-----	-----	-----	-----	-----	-----
922	D86-automated	171.6	205.0	272.5	335.9	351.4	360.2
962	D86-automated	169.9	203.7	271.4	334.2	348.2	355.8
963	D86-automated	173.9	206.5	273.8	335.5	349.6	362.0
970	D86-automated	170.4	204.9	272.5	335.5	350.3	359.2
971	D86-automated	169.6	204.6	273.1	336.1	352.0	360.1
974	D86-automated	170.3	205.3	273.2	336.0	351.0	359.3
988	D86	174.0	204.0	273.0	337.0	349.0	360.0
994	D86-manual	170.5	204.0	272.5	337.0	351.5	364.0
995	D86-manual	170.5	204.0	273.0	336.5	354.5	360.5
996		-----	-----	-----	-----	-----	-----
997	D86-manual	169.0	203.0	271.5	335.0	351.0	360.5
1006	D86-automated	170.6	205.2	272.0	335.3	349.6	358.7
1011	ISO3405-manual	168.6	204.8	272.4	334.2	348.3	359.0
1017		-----	-----	-----	-----	-----	-----
1026	ISO3405-automated	169.8	204.4	272.2	334.9	350.0	358.6
1059	D86-automated	171.4	204.5	272.7	335.4	350.0	359.7
1080		-----	-----	-----	-----	-----	-----
1082	ISO3405-automated	172.4	205.0	271.9	335.2	349.2	359.4
1091		170.2	202.0 C	272.3	334.1	348.1	356.8
1105	D86-automated	168.2	206.9	273.1	335.8	350.8	358.5
1109	D86-automated	169.8	204.0	271.1	333.6	346.9	357.4
1121	D86-automated	176.5	207.0	271.2	334.9	348.3	358.0
1126		169.9	204.3	272.1	333.8	347.7	362.0
1134	D86-automated	170.1	204.0	272.0	335.5	350.7	359.6
1135	D86-automated	168.4	204.3	273.1	336.8	352.6	357.6
1146	D86-automated	169.4	203.7	271.8	335.2	348.8	359.7
1182		173.3	202.3	272.9	336.9	353.5	359.3
1186		-----	-----	-----	-----	-----	-----
1199		-----	-----	-----	-----	-----	-----
1205	D86-automated	175.4	204.7	272.6	335.0	349.0	359.6
1213		-----	-----	-----	-----	-----	-----
1227	D86-automated	170.4	204.4	270.9	334.1	347.3	358.8
1297	D86-automated	167.1	203.8	271.0	334.0	347.8	353.7
1299	D86-automated	169.8	204.6	272.4	335.4	349.8	360.2
1356		-----	212 R1	280 R1	348 R1	-----	-----
1357	D86-automated	n.a	205.7	272.2	335.3	349.2	356.7
1379	D86-automated	173.0	205.0	272.0	334.0	348.0	356.0
1412	D86-manual	168.0	204.5	272.0	336.0	351.5	361.0
1417	IP123-automated	170.6	207.2	274.7	337.2	354.7	358.5
1429		-----	-----	-----	-----	-----	-----
1430		-----	-----	-----	-----	-----	-----
1476	ISO3405-automated	167.54	204.43	272.61	335.02	349.48	357.39
1498	D86-automated	168.2	204.5	273.5	337.2	353.7	360.5
1510	D86-automated	169.9	204.6	270.9	334.3	347.4	357.2
1588		-----	-----	-----	-----	-----	-----
1629		-----	-----	-----	-----	-----	-----
1631	D86-automated	165.5	202.8	271.0	333.7	346.7	358.5
1634	ISO3405-automated	168.3	202.9	271.8	333.9	347.8	358.5
1650	D86-automated	166.7	204.4	272.7	335.5	350.0	360.1
1720	D86-automated	169.7	206.2	272.7	333.8	346.6	360.4
1740	D86-automated	169.0	205.1	271.4	334.2	348.0	356.2
1746	D86-automated	176.5	206.0	271.5	335.5	348.5	362.5
1792	D86-automated	169.0	205.4	273.7	335.8	349.3	359.3
1807	D86-automated	171.6 C	201.7	270.9	333.3	345.9	358.4
1810	D86-automated	168.0	205.0	272.0	335.1	348.3	356.0
1811	D86-automated	168.1	205.1	270.9	333.1	345.2	356.7
1854	ISO3405-automated	172.4	204.6	272.3	335.7	350.0	357.3
1906		-----	-----	-----	-----	-----	-----
1936		-----	205.6	272.8	335.5	347.7	-----
1937		-----	205.5	272.5	335.4	347.6	-----
1938		-----	205.3	272.7	335.3	347.5	-----
1944	D86-automated	168.6	203.2	272.0	335.4	348.1	358.6

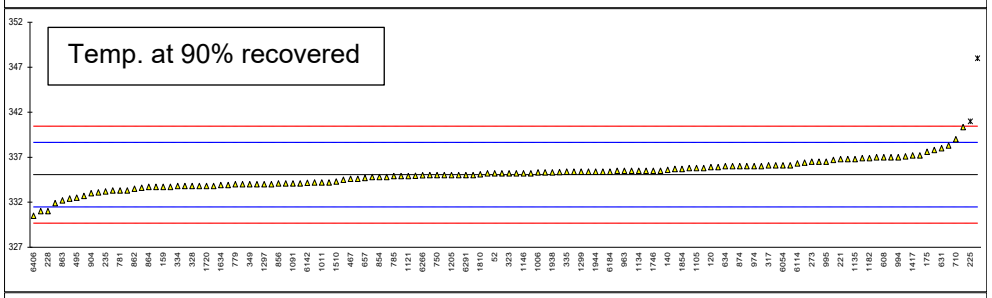
lab	method	IBP	10% rec	50% rec		90% rec	95% rec	FBP	
6045		-----	206.2	273.0		335.4	349.4	360.1	
6054	D86-automated	171.6	204.9	273.5		336.1	351.2	360.9	
6057	D86-automated	170.1	204.7	271.6		334.5	347.8	357.0	
6068	ISO3405-automated	169.2	203.6	271.8		335.2	350.6	357.2	
6103	ISO3405-automated	172.2	204.1	270.6		333.8	347.0	356.5	
6114	D86-automated	170.2	205.5	273.1		336.3	351.1	358.9	
6142	ISO3405-automated	164.5	203.85	203.85	R1	334.15	347.65	357.5	
6184	ISO3405-automated	174.1	205.3	269.8		335.4	347.7	356.8	
6201	D86-automated	167.3	204.6	270.7		333.9	346.3	354.9	
6262	D86-automated	166.4	203.3	272.0		335.0	348.5	357.3	
6266	D86-automated	176.58	205.12	271.63		334.99	348.78	360.81	
6291	D86-automated	171.3	205.0	272.0		335.0	349.4	359.8	
6317		-----	-----	-----		-----	-----	-----	
6332		-----	-----	-----		-----	-----	-----	
6346		-----	-----	-----		-----	-----	-----	
6384	D86-automated	169.9	205.5	273.2		336.1	350.3	361.3	
6386	D86-automated	172.4	207.2	273.55		336.4	351.6	359.75	
6404		-----	-----	-----		-----	-----	-----	
6405	D86-manual	164.3	201.2	270.8		332.4	345.3	356.1	
6406	D86-automated	172.9	207.5	271.1		330.5	342.1	357.3	C
6416	D86-automated	174.5	207.0	273.7		338.3	354.5	362.7	
	normality	OK	suspect	OK		suspect	OK	OK	
	n	126	131	130		130	129	127	
	outliers	0	1	2		2	0	0	
	mean (n)	169.91	204.49	272.18		335.07	349.08	358.70	
	st.dev. (n)	3.059	1.432	1.078		1.527	2.469	2.116	
	R(calc.)	8.56	4.01	3.02		4.28	6.91	5.92	
	st.dev.(D86-A:20b)	3.338	1.607	1.071		1.795	3.065	2.536	
	R(D86-A:20b)	9.35	4.50	3.0		5.03	8.58	7.1	
Compare									
	R(D86-M:20b)	6.02	4.52	3.97		4.07	4.94	3.91	

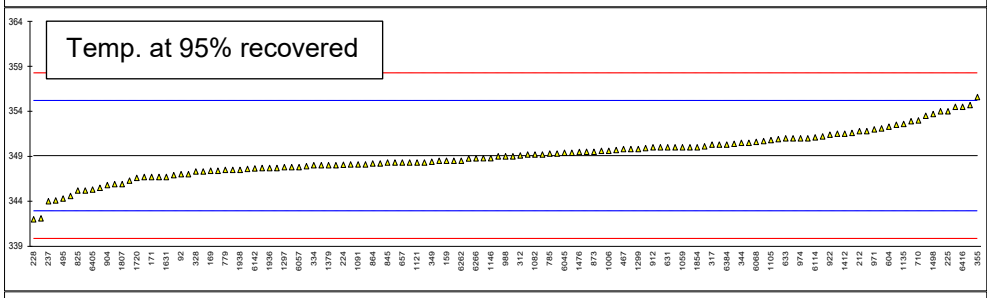
Lab 621 first reported for temp at 50% rec. 268.0
Lab 1091 first reported for temp. at 10% rec. 190.8
Lab 1807 first reported for Initial Boiling Point 35.6
Lab 6406 first reported for Final Boiling Point 351.3

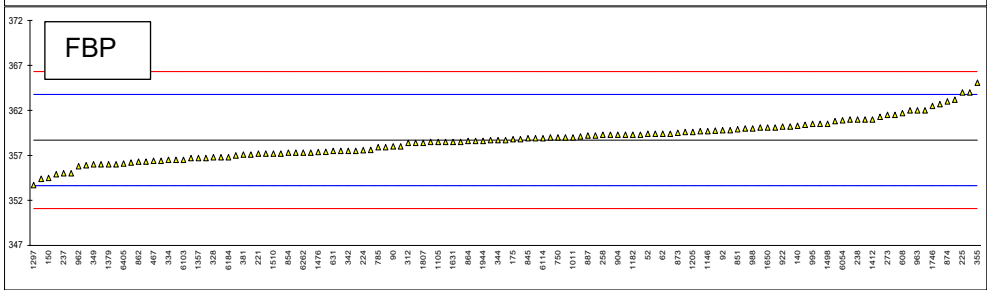

IBP
Kernel Density


Temp. at 10% recovered
Kernel Density


Temp. at 50% recovered
Kernel Density


Temp. at 90% recovered
Kernel Density


Temp. at 95% recovered
Kernel Density


FBP
Kernel Density

z-scores Distillation at 760 mmHg on sample #21170

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
52	0.45	-0.68	-0.54	0.07	0.27	0.28
53	-----	-----	-----	-----	-----	-----
62	0.74	0.51	0.30	-0.26	-0.32	0.28
90	0.92	0.94	0.77	0.52	0.63	-0.28
92	1.70	0.13	-0.73	-0.76	-0.68	0.43
120	-0.24	0.26	0.58	0.46	-----	0.28
140	-0.51	0.07	0.11	0.30	0.04	0.63
150	-1.71	-1.61	-2.13	-1.77	-1.62	-1.66
158	-----	-----	-----	-----	-----	-----
159	0.00	-1.05	-0.63	-0.76	-0.19	0.24
169	-1.08	0.69	-0.54	-0.71	-0.55	-0.63
171	-0.09	-0.24	-0.35	-0.99	-0.78	-0.08
175	0.83	-0.24	0.58	1.41	1.61	0.04
203	-----	-----	-----	-----	-----	-----
212	-1.05	-1.67	-1.57	0.96	0.89	-0.91
215	-----	-----	-----	-----	-----	-----
217	-----	-----	-----	-----	-----	-----
221	-3.12	-1.42	0.58	0.96	1.25	-0.59
224	0.94	-0.74	-1.75	0.41	-0.33	-0.45
225	0.62	-0.93	1.70	3.30	1.61	2.09
228	0.62	2.81	0.77	-2.27	-2.31	0.51
235	-0.96	-0.80	-1.57	-1.04	-1.17	-0.79
237	0.62	-0.30	-2.03	-2.27	-1.66	-1.46
238	0.33	-0.30	0.77	1.08	-0.35	0.91
253	0.03	-0.30	0.77	0.80	0.30	0.12
254	-----	-----	-----	-----	-----	-----
256	-----	-----	-----	-----	-----	-----
258	1.34	0.63	0.86	0.24	-0.25	0.24
273	2.30	2.44	0.67	0.80	1.12	1.10
312	0.15	0.38	0.86	-0.15	0.01	-0.12
317	0.59	0.57	0.86	0.57	0.40	0.00
323	0.36	0.32	0.49	0.07	0.43	0.08
328	-1.02	-1.49	-0.73	-0.71	-0.58	-0.75
333	-----	-----	-----	-----	-----	-----
334	-0.48	-0.86	-0.63	-0.71	-0.35	-0.87
335	0.56	-0.18	0.02	0.18	-0.09	0.91
337	-----	-----	-----	-----	-----	-----
339	-----	-----	-----	-----	-----	-----
342	1.10	0.38	0.39	0.07	0.33	-0.47
343	-0.36	-2.79	-1.57	-0.60	-0.51	0.12
344	-0.18	-0.37	0.21	0.07	0.46	0.00
349	-0.21	-0.74	-0.82	-0.60	-0.22	-1.07
355	1.29	0.12	3.23	2.94	2.12	2.52
356	-0.12	1.56	0.21	0.35	0.24	-0.12
365	-----	-----	-----	-----	-----	-----
381	-1.89	-0.61	-0.54	-0.54	-1.04	-0.63
433	-----	-----	-----	-----	-----	-----
467	0.50	-0.37	-0.35	-0.26	0.24	-0.91
480	-0.05	-0.37	0.67	0.16	-0.11	-0.95
495	-1.53	-0.74	-1.10	-1.43	-1.56	-0.87
498	-----	-----	-----	-----	-----	-----
507	-----	-----	-----	-----	-----	-----
511	-----	-----	-----	-----	-----	-----
551	-----	-----	-----	-----	-----	-----
554	-----	-----	-----	-----	-----	-----
555	-----	-----	-----	-----	-----	-----
558	-----	-----	-----	-----	-----	-----
562	-1.41	-0.43	0.02	-0.07	-----	-----
575	-----	-----	-----	-----	-----	-----
603	-----	-----	-----	-----	-----	-----
604	-0.30	1.56	1.89	1.52	1.05	0.91
608	0.30	0.63	1.79	1.08	0.89	1.18
614	-----	-----	-----	-----	-----	-----
621	1.22	0.94	-2.97	-0.60	-0.03	-1.07
631	0.77	1.56	2.63	1.63	0.30	-0.47
633	1.61	0.38	1.23	1.13	0.63	1.77
634	-0.87	-2.17	-0.17	0.52	-0.19	-1.46
657	-0.42	0.13	0.58	-0.21	-0.25	-0.32
710	0.62	0.32	1.70	2.19	1.28	1.10
750	-0.57	0.01	0.30	-0.04	0.14	0.12
779	0.18	-0.30	-0.17	-0.60	-0.51	-0.47
781	-1.95	-0.93	-1.01	-0.99	-0.78	-0.59
785	-0.69	-0.30	0.11	-0.09	0.07	-0.32
798	-----	-----	-----	-----	-----	-----
825	0.00	-0.37	-1.10	-1.32	-1.27	0.16

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
845	-0.81	0.63	-0.91	-0.15	-0.25	0.08
851	-0.60	-0.05	0.95	1.02	0.99	0.47
854	-0.99	-0.24	-0.26	-0.15	0.20	-0.55
856	-0.72	-0.24	-0.45	-0.54	-0.38	-1.10
862	-1.14	-0.37	-1.10	-0.87	-0.78	-0.95
863	-0.72	0.51	-1.47	-1.60	-1.46	-1.70
864	-0.51	-0.68	-0.54	-0.76	-0.29	-0.04
872	-----	-----	-----	-----	-----	-----
873	0.33	-0.30	0.30	-0.04	0.14	0.31
874	0.48	-0.30	0.30	0.52	0.46	1.70
886	-----	-----	-----	-----	-----	-----
887	-2.07	0.57	0.30	0.91	0.59	0.20
904	-0.39	-0.49	-0.63	-1.15	-1.07	0.24
912	0.03	-1.55	-0.17	0.52	0.30	1.30
913	-----	-----	-----	-----	-----	-----
914	-----	-----	-----	-----	-----	-----
922	0.50	0.32	0.30	0.46	0.76	0.59
962	0.00	-0.49	-0.73	-0.48	-0.29	-1.14
963	1.19	1.25	1.51	0.24	0.17	1.30
970	0.15	0.26	0.30	0.24	0.40	0.20
971	-0.09	0.07	0.86	0.57	0.95	0.55
974	0.12	0.51	0.95	0.52	0.63	0.24
988	1.22	-0.30	0.77	1.08	-0.03	0.51
994	0.18	-0.30	0.30	1.08	0.79	2.09
995	0.18	-0.30	0.77	0.80	1.77	0.71
996	-----	-----	-----	-----	-----	-----
997	-0.27	-0.93	-0.63	-0.04	0.63	0.71
1006	0.21	0.44	-0.17	0.13	0.17	0.00
1011	-0.39	0.19	0.21	-0.48	-0.25	0.12
1017	-----	-----	-----	-----	-----	-----
1026	-0.03	-0.05	0.02	-0.09	0.30	-0.04
1059	0.45	0.01	0.49	0.18	0.30	0.39
1080	-----	-----	-----	-----	-----	-----
1082	0.74	0.32	-0.26	0.07	0.04	0.28
1091	0.09	-1.55	0.11	-0.54	-0.32	-0.75
1105	-0.51	1.50	0.86	0.41	0.56	-0.08
1109	-0.03	-0.30	-1.01	-0.82	-0.71	-0.51
1121	1.97	1.56	-0.91	-0.09	-0.25	-0.28
1126	0.00	-0.12	-0.07	-0.71	-0.45	1.30
1134	0.06	-0.30	-0.17	0.24	0.53	0.35
1135	-0.45	-0.12	0.86	0.96	1.15	-0.43
1146	-0.15	-0.49	-0.35	0.07	-0.09	0.39
1182	1.01	-1.36	0.67	1.02	1.44	0.24
1186	-----	-----	-----	-----	-----	-----
1199	-----	-----	-----	-----	-----	-----
1205	1.64	0.13	0.39	-0.04	-0.03	0.35
1213	-----	-----	-----	-----	-----	-----
1227	0.15	-0.05	-1.19	-0.54	-0.58	0.04
1297	-0.84	-0.43	-1.10	-0.60	-0.42	-1.97
1299	-0.03	0.07	0.21	0.18	0.24	0.59
1356	-----	4.68	7.30	7.20	-----	-----
1357	-----	0.76	0.02	0.13	0.04	-0.79
1379	0.92	0.32	-0.17	-0.60	-0.35	-1.07
1412	-0.57	0.01	-0.17	0.52	0.79	0.91
1417	0.21	1.69	2.35	1.19	1.83	-0.08
1429	-----	-----	-----	-----	-----	-----
1430	-----	-----	-----	-----	-----	-----
1476	-0.71	-0.04	0.40	-0.03	0.13	-0.52
1498	-0.51	0.01	1.23	1.19	1.51	0.71
1510	0.00	0.07	-1.19	-0.43	-0.55	-0.59
1588	-----	-----	-----	-----	-----	-----
1629	-----	-----	-----	-----	-----	-----
1631	-1.32	-1.05	-1.10	-0.76	-0.78	-0.08
1634	-0.48	-0.99	-0.35	-0.65	-0.42	-0.08
1650	-0.96	-0.05	0.49	0.24	0.30	0.55
1720	-0.06	1.07	0.49	-0.71	-0.81	0.67
1740	-0.27	0.38	-0.73	-0.48	-0.35	-0.99
1746	1.97	0.94	-0.63	0.24	-0.19	1.50
1792	-0.27	0.57	1.42	0.41	0.07	0.24
1807	0.50	-1.73	-1.19	-0.99	-1.04	-0.12
1810	-0.57	0.32	-0.17	0.02	-0.25	-1.07
1811	-0.54	0.38	-1.19	-1.10	-1.27	-0.79
1854	0.74	0.07	0.11	0.35	0.30	-0.55
1906	-----	-----	-----	-----	-----	-----
1936	-----	0.69	0.58	0.24	-0.45	-----
1937	-----	0.63	0.30	0.18	-0.48	-----
1938	-----	0.51	0.49	0.13	-0.51	-----
1944	-0.39	-0.80	-0.17	0.18	-0.32	-0.04

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
6045	-----	1.07	0.77	0.18	0.10	0.55
6054	0.50	0.26	1.23	0.57	0.69	0.87
6057	0.06	0.13	-0.54	-0.32	-0.42	-0.67
6068	-0.21	-0.55	-0.35	0.07	0.50	-0.59
6103	0.68	-0.24	-1.47	-0.71	-0.68	-0.87
6114	0.09	0.63	0.86	0.69	0.66	0.08
6142	-1.62	-0.40	-63.77	-0.51	-0.47	-0.47
6184	1.25	0.51	-2.22	0.18	-0.45	-0.75
6201	-0.78	0.07	-1.38	-0.65	-0.91	-1.50
6262	-1.05	-0.74	-0.17	-0.04	-0.19	-0.55
6266	2.00	0.39	-0.51	-0.04	-0.10	0.83
6291	0.42	0.32	-0.17	-0.04	0.10	0.43
6317	-----	-----	-----	-----	-----	-----
6332	-----	-----	-----	-----	-----	-----
6346	-----	-----	-----	-----	-----	-----
6384	0.00	0.63	0.95	0.57	0.40	1.02
6386	0.74	1.69	1.28	0.74	0.82	0.41
6404	-----	-----	-----	-----	-----	-----
6405	-1.68	-2.05	-1.29	-1.49	-1.23	-1.03
6406	0.89	1.88	-1.01	-2.55	-2.28	-0.55
6416	1.37	1.56	1.42	1.80	1.77	1.58

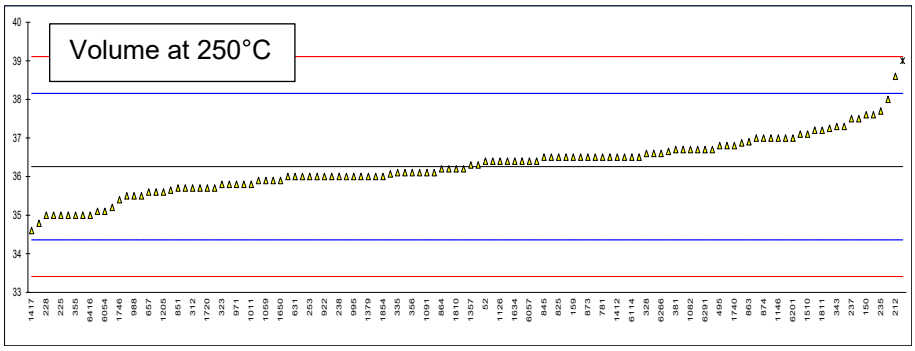
Determination of Distillation at 760 mmHg on sample #21170; results in %V/V

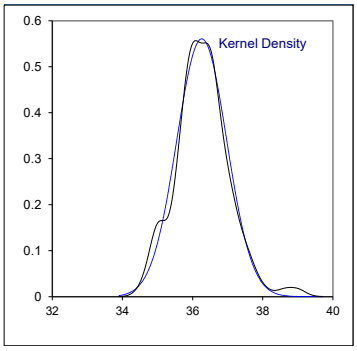
lab	method	Vol.250°C	mark	z(targ)	Vol.350°C	mark	z(targ)	%residue
52	D86-automated	36.4		0.15	95.0		-0.30	1.0
53		-----		-----	-----		-----	-----
62	D86-automated	36.0		-0.27	95.5		0.23	1.2
90	D86-manual	36.0		-0.27	94.5		-0.82	1.0
92	D86-automated	36.7		0.46	95.9		0.65	1.4
120		-----		-----	-----		-----	-----
140		-----		-----	-----		-----	1.4
150	D86-automated	37.6		1.41	96.7		1.49	1.0
158		-----		-----	-----		-----	-----
159	D86-automated	36.5		0.25	95.3		0.02	1.4
169		-----		-----	-----		-----	1.4
171		-----		-----	-----		-----	1.4
175		-----		-----	-----		-----	1.3
203		-----		-----	-----		-----	-----
212	ISO3405-automated	38.6		2.46	95.9		0.65	1.6
215		-----		-----	-----		-----	-----
217		-----		-----	-----		-----	-----
221	D86-automated	37.6		1.41	94.8		-0.51	1.4
224	D86-manual	37.25		1.04	95.40		0.12	1.8
225	D86-manual	35.0		-1.33	93.0	R(0.05)	-2.40	1.8
228	D86-manual	35.0		-1.33	96.0		0.76	1.5
235	D86-automated	37.7		1.52	96.2		0.97	1.1
237	D86-manual	37.5		1.30	96.5		1.28	1.0
238	D86-manual	36.0		-0.27	90.0	C,R(0.01)	-5.56	1.5
253	D86-manual	36.0		-0.27	95.0		-0.30	1.2
254		-----		-----	-----		-----	-----
256		-----		-----	-----		-----	-----
258	D86-automated	35.9		-0.38	95.5		0.23	0.8
273		-----		-----	-----		-----	-----
312	D86-automated	35.7		-0.59	95.2		-0.09	2.2
317	D86-automated	35.5		-0.80	95.0		-0.30	1.5
323	D86-automated	35.8		-0.48	94.9		-0.40	1.8
328	D86-automated	36.6		0.36	95.6		0.33	1.4
333		-----		-----	-----		-----	-----
334	D86-automated	36.5		0.25	95.4		0.12	1.5
335	D86-automated	36.1		-0.17	95.3		0.02	1.3
337		-----		-----	-----		-----	-----
339		-----		-----	-----		-----	-----
342	D86	36.0		-0.27	95.0		-0.30	1.4
343	ISO3405-automated	37.3		1.09	95.6		0.33	1.5
344	D86-automated	35.8		-0.48	94.9		-0.40	1.1
349		-----		-----	-----		-----	1.4
355	D86-manual	35		-1.33	93.5		-1.88	1.75
356	D86-automated	36.1		-0.17	95.1		-0.19	1.3
365		-----		-----	-----		-----	-----
381	ISO3405-automated	36.7		0.46	96.3		1.07	1.2
433		-----		-----	-----		-----	-----
467	D86-automated	35.7		-0.59	95.0		-0.30	1.5
480	D86-automated	35.65		-0.64	95.30		0.02	1.3
495	D86-automated	36.8		0.57	96.4		1.18	1.1
498		-----		-----	-----		-----	-----
507		-----		-----	-----		-----	-----
511		-----		-----	-----		-----	-----
551		-----		-----	-----		-----	-----
554		-----		-----	-----		-----	-----
555		-----		-----	-----		-----	-----
558		-----		-----	-----		-----	-----
562		-----		-----	-----		-----	-----
575		-----		-----	-----		-----	-----
603		-----		-----	-----		-----	-----
604	D86-automated	35.0		-1.33	94.4		-0.93	1.4
608		-----		-----	-----		-----	-----
614		-----		-----	-----		-----	-----
621	D86-manual	39.0	R(0.05)	2.88	95.0		-0.30	1.0
631	D86-manual	36		-0.27	95		-0.30	0.8
633		-----		-----	-----		-----	1.50
634	D86-manual	38.0		1.83	93.0	R(0.05)	-2.40	1.5
657	D86-automated	35.6		-0.70	95.4		0.12	1.4
710	D86-manual	35.0		-1.33	94.5		-0.82	1.5
750	D86-manual	36.0		-0.27	95.5		0.23	1.5
779	ISO3405-manual	36.5		0.25	95.5		0.23	1.5
781	D86-automated	36.5		0.25	95.8		0.55	1.4
785	D86-automated	36.1		-0.17	95.2		-0.09	1.4
798		-----		-----	-----		-----	-----
825	D86-automated	36.5		0.25	96.2		0.97	0.6

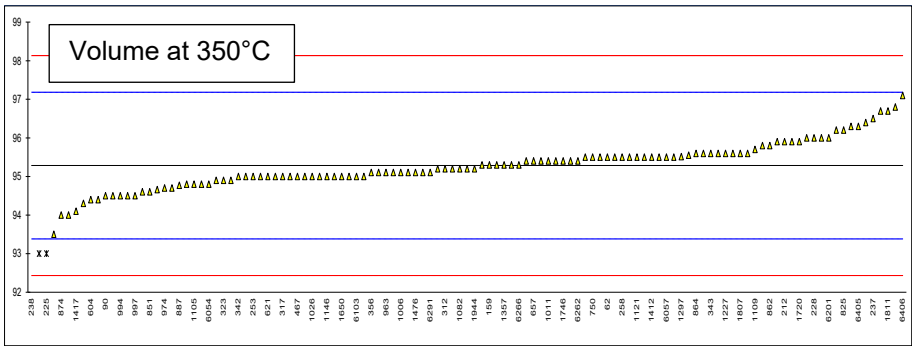
lab	method	Vol.250°C	mark	z(targ)	Vol.350°C	mark	z(targ)	%residue
845	D86-automated	36.5		0.25	95.2		-0.09	1.1
851	D86-automated	35.7		-0.59	94.6		-0.72	1.2
854	D86-automated	36.2		-0.06	95.1		-0.19	1.3
856	D86-automated	36.5		0.25	95.6		0.33	1.4
862	D86-automated	37.1		0.88	95.8		0.55	1.4
863	D86-automated	36.9		0.67	96.8		1.60	1.2
864	D86	36.2		-0.06	95.6		0.33	1.3
872		-----		-----	-----		-----	-----
873	D86-manual	36.5		0.25	95.5		0.23	1.4
874	D86-manual	37.0		0.78	94.0		-1.35	1.3
886		-----		-----	-----		-----	-----
887	D86-automated	36.07		-0.20	94.77		-0.54	1.8
904	D86-automated	36.4		0.15	96.0		0.76	1.4
912	D86-manual	37		0.78	95		-0.30	1.5
913		-----		-----	-----		-----	-----
914		-----		-----	-----		-----	-----
922	D86-automated	36.0		-0.27	95.0		-0.30	1.4
962	D86-automated	37.0		0.78	95.5		0.23	1.4
963	D86-automated	35.2		-1.12	95.1		-0.19	1.3
970	D86-automated	36.5		0.25	95.1		-0.19	1.2
971	D86-automated	35.8		-0.48	94.6		-0.72	0.7
974	D86-automated	35.8		-0.48	94.7		-0.61	1.2
988	D86	35.5		-0.80	95.0		-0.30	1.4
994	D86-manual	36.0		-0.27	94.5		-0.82	1.2
995	D86-manual	36.0		-0.27	94.5		-0.82	1.1
996		-----		-----	-----		-----	-----
997	D86-manual	36.0		-0.27	94.5		-0.82	1.2
1006	D86-automated	35.6		-0.70	95.1		-0.19	0.5
1011	ISO3405-manual	35.8		-0.48	95.4		0.12	-----
1017		-----		-----	-----		-----	-----
1026	ISO3405-automated	36.1		-0.17	95.0		-0.30	1.8
1059	D86-automated	35.9		-0.38	95.0		-0.30	1.4
1080		-----		-----	-----		-----	-----
1082	ISO3405-automated	36.7		0.46	95.2		-0.09	-----
1091		36.1		-0.17	95.5		0.23	1.4
1105	D86-automated	35.5		-0.80	94.8		-0.51	1.6
1109	D86-automated	36.7		0.46	95.7		0.44	-----
1121	D86-automated	36.5		0.25	95.5		0.23	0.8
1126		36.4		0.15	95.5		0.23	1.0
1134	D86-automated	36.1		-0.17	94.8		-0.51	1.4
1135	D86-automated	35.7		-0.59	94.4		-0.93	1.8
1146	D86-automated	37		0.78	95		-0.30	1.5
1182		35.9		-0.38	94.3		-1.03	1.6
1186		-----		-----	-----		-----	-----
1199		-----		-----	-----		-----	-----
1205	D86-automated	35.6		-0.70	95.2		-0.09	1.4
1213		-----		-----	-----		-----	-----
1227	D86-automated	36.8		0.57	95.6		0.33	0.8
1297	D86-automated	36.875		0.65	95.512		0.24	1.4
1299	D86-automated	36.4		0.15	95.1		-0.19	1.4
1356		-----		-----	-----		-----	-----
1357	D86-automated	36.3		0.04	95.3		0.02	1.2
1379	D86-automated	36.0		-0.27	96.0		0.76	2.0
1412	D86-manual	36.5		0.25	95.5		0.23	1.4
1417	IP123-automated	34.6		-1.75	94.1		-1.24	1.3
1429		-----		-----	-----		-----	-----
1430		-----		-----	-----		-----	-----
1476	ISO3405-automated	36.0		-0.27	95.1		-0.19	1.4
1498	D86-automated	37		0.78	95		-0.30	1.4
1510	D86-automated	37.1		0.88	95.6		0.33	1.1
1588		-----		-----	-----		-----	-----
1629		-----		-----	-----		-----	-----
1631	D86-automated	36.6		0.36	95.9		0.65	1.4
1634	ISO3405-automated	36.4		0.15	-----		-----	0.9
1650	D86-automated	35.9		-0.38	95.0		-0.30	1.1
1720	D86-automated	35.7		-0.59	95.9		0.65	-----
1740	D86-automated	36.8		0.57	95.4		0.12	1.7
1746	D86-automated	35.4		-0.91	95.4		0.12	-----
1792	D86-automated	35.1		-1.22	95.1		-0.19	1.4
1807	D86-automated	37.2		0.99	95.6		0.33	1.5
1810	D86-automated	36.2		-0.06	95.4		0.12	1.1
1811	D86-automated	37.2		0.99	96.7		1.49	1.1
1854	ISO3405-automated	36.0		-0.27	95		-0.30	-----
1906		-----		-----	-----		-----	-----
1936	ISO3405-automated	36.5		0.25	95.6		0.33	-----
1937	ISO3405-automated	36.4		0.15	95.5		0.23	-----
1938	ISO3405-automated	36.3		0.04	95.3		0.02	-----
1944	D86-automated	36.2		-0.06	95.2		-0.09	1.8

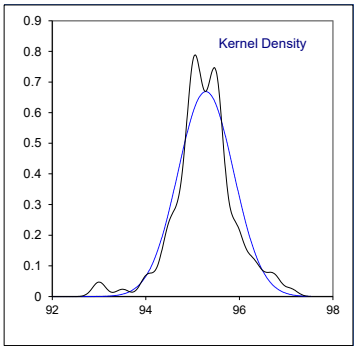
lab	method	Vol.250°C	mark	z(targ)	Vol.350°C	mark	z(targ)	%residue
6045		-----		-----	-----		-----	-----
6054	D86-automated	35.1		-1.22	94.8		-0.51	1.9
6057	D86-automated	36.4		0.15	95.5		0.23	1.5
6068	ISO3405-automated	36.4		0.15	94.9		-0.40	1.4
6103	ISO3405-automated	37.5		1.30	95		-0.30	1.4
6114	D86-automated	36.5		0.25	94.7		-0.61	1.4
6142	ISO3405-automated	36.65		0.41	95.55		0.28	0.3
6184	ISO3405-automated	35.0		-1.33	95.5		0.23	1.8
6201	D86-automated	37.0		0.78	96.0		0.76	1.6
6262	D86-automated	36.5		0.25	95.4		0.12	1.4
6266	D86-automated	36.6		0.36	95.3		0.02	1.3
6291	D86-automated	36.7		0.46	95.1		-0.19	1.4
6317		-----		-----	-----		-----	-----
6332		-----		-----	-----		-----	-----
6346		-----		-----	-----		-----	-----
6384	D86-automated	35.7		-0.59	95.0		-0.30	1.4
6386	D86-automated	34.79		-1.55	94.66		-0.65	1.1
6404		-----		-----	-----		-----	-----
6405	D86-manual	37.3		1.09	96.3		1.07	1.3
6406	D86-automated	36.7		0.46	97.1		1.91	1.6
6416	D86-automated	35	C	-1.33	94		-1.35	1.3
	normality	OK			OK			
	n	119			116			
	outliers	1			3			
	mean (n)	36.26			95.28			
	st.dev. (n)	0.712			0.597			
	R(calc.)	1.99			1.67			
	st.dev.(D86-A:20b)	0.950			0.950			
	R(D86-A:20b)	2.66			2.66			
Compare								
	R(D86-M:20b)	2.55			2.42			

Lab 238 first reported for Volume at 350°C 90.5
Lab 6416 first reported for Volume at 250°C 97.9









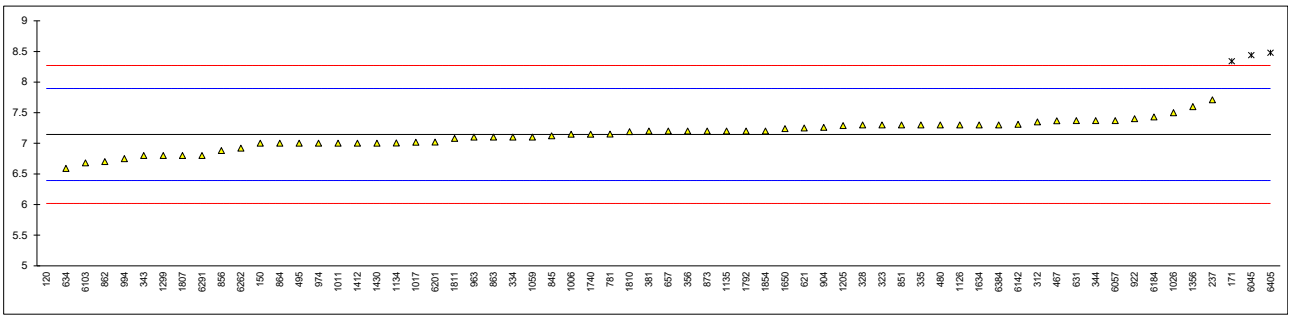
Determination of FAME on sample #21170; results in %V/V

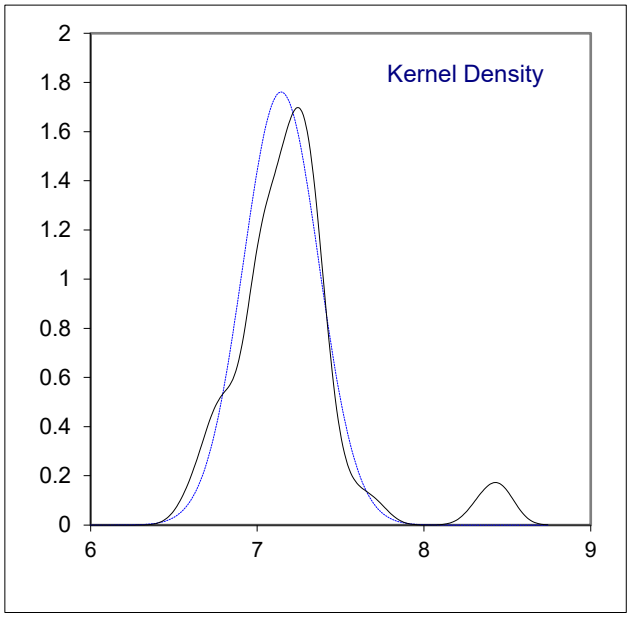
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	779		-----		-----
53		-----		-----	781	EN14078-B	7.152		0.02
62		-----		-----	785		-----		-----
90		-----		-----	798		-----		-----
92		-----		-----	825		-----		-----
120	D7371	4.26	R(0.01)	-7.68	845	D7371	7.12		-0.06
140		-----		-----	851	EN14078-B	7.3		0.42
150	D7371	7.0		-0.38	854		-----		-----
158		-----		-----	856	EN14078	6.88		-0.70
159		-----		-----	862	EN14078	6.7		-1.18
169		-----		-----	863	EN14078	7.1		-0.12
171	D7371	8.34	R(0.01)	3.18	864	EN14078	7.0		-0.38
175		-----		-----	872		-----		-----
203		-----		-----	873	D7371	7.2		0.15
212		-----		-----	874		-----		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904	EN14078-A	7.26		0.31
224		-----		-----	912		-----		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922	EN14078-B	7.4		0.68
237	D7371	7.71		1.51	962		-----		-----
238		-----		-----	963	D7371	7.1		-0.12
253		-----		-----	970		-----		-----
254		-----		-----	971		-----		-----
256		-----		-----	974	EN14078-B	7.0		-0.38
258		-----		-----	988		-----		-----
273		-----		-----	994	EN14078-A	6.75		-1.05
312	EN14078-A	7.35		0.55	995		-----		-----
317		-----		-----	996		-----		-----
323	D7371	7.3		0.42	997		-----		-----
328	EN14078-B	7.3		0.42	1006	D7371	7.15		0.02
333		-----		-----	1011	EN14078-B	7.0		-0.38
334	EN14078-B	7.1		-0.12	1017	EN14078-A	7.0175		-0.34
335	EN14078-B	7.3		0.42	1026	EN14078-A	7.5		0.95
337		-----		-----	1059	EN14078-B	7.1		-0.12
339		-----		-----	1080		-----		-----
342		-----		-----	1082		-----		-----
343	EN14078-A	6.8		-0.92	1091		-----		-----
344	EN14078-A	7.37		0.60	1105		-----		-----
349		-----		-----	1109		-----		-----
355		-----		-----	1121		-----		-----
356	EN14078-A	7.2		0.15	1126	EN14078-A	7.3		0.42
365		-----		-----	1134	EN14078-A	7.005		-0.37
381	EN14078-A	7.2		0.15	1135	EN14078-A	7.2		0.15
433		-----		-----	1146		-----		-----
467	EN14078-A	7.368		0.60	1182		-----		-----
480	EN14078-A	7.30		0.42	1186		-----		-----
495	EN14078-A	7.00		-0.38	1199		-----		-----
498		-----		-----	1205	D7371	7.29		0.39
507		-----		-----	1213		-----		-----
511		-----		-----	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299	EN14078-B	6.8		-0.92
555		-----		-----	1356	EN14078-A	7.6		1.21
558		-----		-----	1357	D7371	n.a		-----
562		-----		-----	1379		-----		-----
575		-----		-----	1412	EN14078-A	7.0		-0.38
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608		-----		-----	1430	EN14078-A	7.0		-0.38
614		-----		-----	1476		-----		-----
621	EN14078-A	7.25		0.28	1498		-----		-----
631	EN14078-A	7.37	C	0.60	1510		-----		-----
633		-----		-----	1588		-----		-----
634	EN14078-A	6.59		-1.47	1629		-----		-----
657	EN14078-A	7.2		0.15	1631		-----		-----
710		-----		-----	1634	EN14078-A	7.3		0.42
750		-----		-----	1650	EN14078-B	7.24		0.26

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103	EN14078-A	6.68		-1.23
1740	EN14078-B	7.15		0.02	6114		-----		-----
1746		-----		-----	6142	EN14078-A	7.3115		0.45
1792	EN14078-B	7.20		0.15	6184	EN14078-A	7.43		0.76
1807	EN14078-A	6.8		-0.92	6201	EN14078-B	7.02		-0.33
1810	EN14078-A	7.19		0.12	6262	EN14078-B	6.92		-0.60
1811	D7371	7.08		-0.17	6266		-----		-----
1854	EN14078-A	7.20		0.15	6291	EN14078-A	6.8		-0.92
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384	EN14078-A	7.3		0.42
1944		-----		-----	6386		-----		-----
6045	D7371	8.44	R(0.01)	3.45	6404		-----		-----
6054		-----		-----	6405	D7371	8.48	R(0.01)	3.56
6057	EN14078-A	7.37		0.60	6406		-----		-----
6068		-----		-----	6416		-----		-----

				EN14078-A only
	normality	OK		OK
	n	60		32
	outliers	4		0
	mean (n)	7.144		7.157
	st.dev. (n)	0.2265		0.2511
	R(calc.)	0.634		0.703
	st.dev.(D7371:14)	0.3756		-----
	R(D7371:14)	1.052	Range: 1-20%V/V	-----
Compare				
	R(EN14078-A:14)	0.380	Range: 0.05-3%V/V	0.380
	R(EN14078-B:14)	0.525	Range: 3-20%V/V	

Lab 631 first reported 5.41





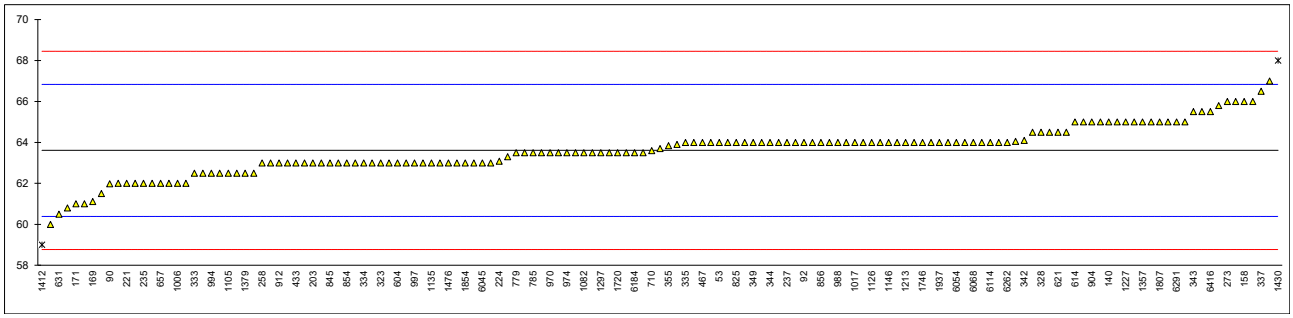
Determination of Flash Point PMcc on sample #21170; results in °C

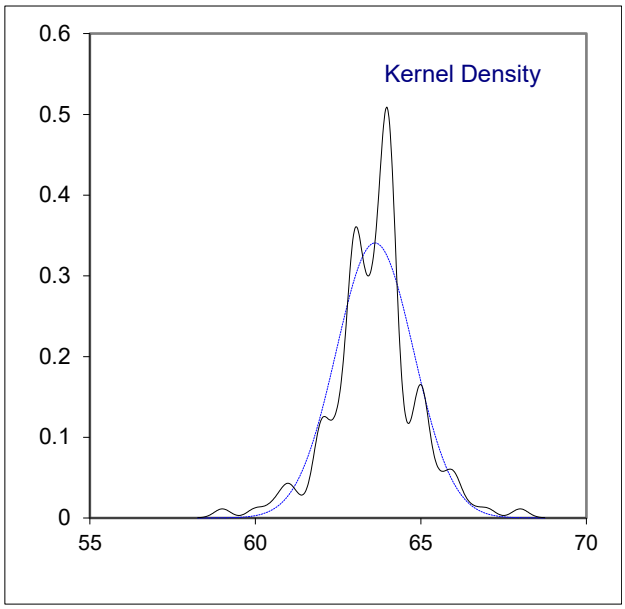
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	62		-1.00	779	ISO2719-A	63.5		-0.07
53	D93-A	64.0		0.24	781	D93-A	63.0		-0.38
62	D93-A	60.0		-2.24	785	D93-A	63.5		-0.07
90	D93-A	61.98		-1.01	798		-----		-----
92	D93-A	64.0		0.24	825	D93-A	64		0.24
120	D93-A	63.3	C	-0.19	845	D93-A	63.0		-0.38
140	D93-A	65.0		0.86	851	D93-A	64		0.24
150	D93-A	62.0		-1.00	854	D93-A	63.0		-0.38
158	D93-A	66		1.48	856	D93-A	64.0		0.24
159	D93-A	64.0		0.24	862	D93-A	63.5		-0.07
169	D93-A	61.11		-1.55	863	D93-A	64.5		0.55
171	D93-A	61.0		-1.62	864	D93-A	64.0		0.24
175	D93-A	63		-0.38	872		-----		-----
203	D93-A	63		-0.38	873	D93-A	64.0		0.24
212	D93-A	64.5	C	0.55	874	D93-A	63.0		-0.38
215		-----		-----	886	D93-A	63.0		-0.38
217		-----		-----	887	D93-A	62.5		-0.69
221	D93-A	62.0		-1.00	904	D93-A	65.0		0.86
224	D93-A	63.08		-0.33	912	D93-B	63.0		-0.38
225	D93-A	61.0		-1.62	913		-----		-----
228	D93-A	65.0		0.86	914		-----		-----
235	D93-A	62.0		-1.00	922	D93-A	64.0		0.24
237	D93-A	64.0		0.24	962	D93-A	65.0		0.86
238	D93-A	62.0		-1.00	963	D93-A	63.0		-0.38
253	D93-A	63.5		-0.07	970	D93-A	63.5		-0.07
254		-----		-----	971	D93-A	63.5		-0.07
256		-----		-----	974	D93-A	63.5		-0.07
258	D93-A	63.0		-0.38	988	D93	64.0		0.24
273	D93-A	66.0		1.48	994	D93-A	62.5		-0.69
312	D93-A	63.0		-0.38	995	D93-A	62.5		-0.69
317	D93-A	64.0		0.24	996		-----		-----
323	D93-A	63.0		-0.38	997	D93-A	63.0		-0.38
328	D93-A	64.5		0.55	1006	D93-A	62.0		-1.00
333	D93-A	62.5		-0.69	1011	ISO2719-A	64.0		0.24
334	D93-A	63.0		-0.38	1017	D93-A	64.0		0.24
335	ISO2719-A	64.0		0.24	1026	D93-A	63.0		-0.38
337	D93-A	66.5		1.79	1059	ISO2719-A	63.5		-0.07
339	D93-A	65		0.86	1080		-----		-----
342	ISO2719-A	64.1		0.30	1082	ISO2719-A	63.5		-0.07
343	ISO2719-A	65.5		1.17	1091	D93-A	64.0		0.24
344	D93-A	64		0.24	1105	D93-A	62.5		-0.69
349	D93-A	64		0.24	1109	D93-A	63.5		-0.07
355	D93-A	63.8475		0.15	1121	D93-A	63.9		0.18
356	D93-A	64.0		0.24	1126	D93-A	64		0.24
365		-----		-----	1134	D93-A	64.0		0.24
381	ISO2719-A	62.0		-1.00	1135	ISO2719-A	63.0		-0.38
433	ISO2719-A	63.0		-0.38	1146	D93-A	64.0		0.24
467	D93-A	64.0		0.24	1182	D93-A	64		0.24
480	D93-A	63.0		-0.38	1186		-----		-----
495	D93-A	66.0		1.48	1199		-----		-----
498	ISO2719-B	60.8		-1.74	1205	D7215	62.5		-0.69
507		-----		-----	1213	D93-A	64.0		0.24
511	D93-A	63		-0.38	1227	D93-A	65		0.86
551		-----		-----	1297	D93-A	63.5		-0.07
554		-----		-----	1299	D93-A	61.5		-1.31
555		-----		-----	1356	ISO2719-A	65.0		0.86
558		-----		-----	1357	D93-A	65		0.86
562		-----		-----	1379	D93-A	62.5		-0.69
575		-----		-----	1412	D93-A	59.0	R(0.05)	-2.86
603		-----		-----	1417	D93-A	63.0		-0.38
604	D93-A	63.0		-0.38	1429	D93-A	67.0		2.10
608	D93-A	64.0		0.24	1430	D93-A	68	R(0.05)	2.72
614	D93-A	65.0		0.86	1476	ISO2719-A	63.0		-0.38
621	D93-A	64.5		0.55	1498	D93-A	64.5		0.55
631	D93-A	60.5		-1.93	1510		65.0		0.86
633	D93-A	64.05		0.27	1588		-----		-----
634	D93-A	63.0		-0.38	1629	D93-A	63.7		0.05
657	D93-A	62.0		-1.00	1631		-----		-----
710	D93-A	63.6		-0.01	1634	ISO2719-A	64.0		0.24
750	D93-A	64.0		0.24	1650	D93-A	63.5		-0.07

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D93-A	63.5		-0.07	6103	ISO2719-A	64.0		0.24
1740	D93-A	63.5		-0.07	6114	D93-A	64.0		0.24
1746	D93-A	64.0		0.24	6142	ISO2719-A	64		0.24
1792	D93-A	64.0		0.24	6184	ISO2719-A	63.5		-0.07
1807	D93-A	65		0.86	6201	D93-A	65.0		0.86
1810	D93-A	62.5		-0.69	6262	D93-A	64.0		0.24
1811	D93-A	63.0		-0.38	6266	D93-A	65.5		1.17
1854	ISO2719-A	63.0		-0.38	6291	D93-A	65		0.86
1906		-----		-----	6317	D93-A	65		0.86
1936	ISO2719-A	63.0		-0.38	6332		-----		-----
1937	ISO2719-A	64		0.24	6346		-----		-----
1938	ISO2719-A	64		0.24	6384	D93-A	63.5		-0.07
1944	D93-A	62.0		-1.00	6386	D93-A	63.0		-0.38
6045	D93-A	63.0		-0.38	6404		-----		-----
6054	D93-A	64.0		0.24	6405	D93-A	65.8		1.36
6057	D93-A	64.0		0.24	6406	ISO2719-A	66.0		1.48
6068	ISO2719-A	64.0		0.24	6416	D93-A	65.5		1.17

normality	OK
n	145
outliers	2
mean (n)	63.612
st.dev. (n)	1.1711
R(calc.)	3.279
st.dev.(D93-A:20)	1.6130
R(D93-A:20)	4.516

Lab 120 reported 146 this is possibly in Fahrenheit?
Lab 212 first reported 69.5





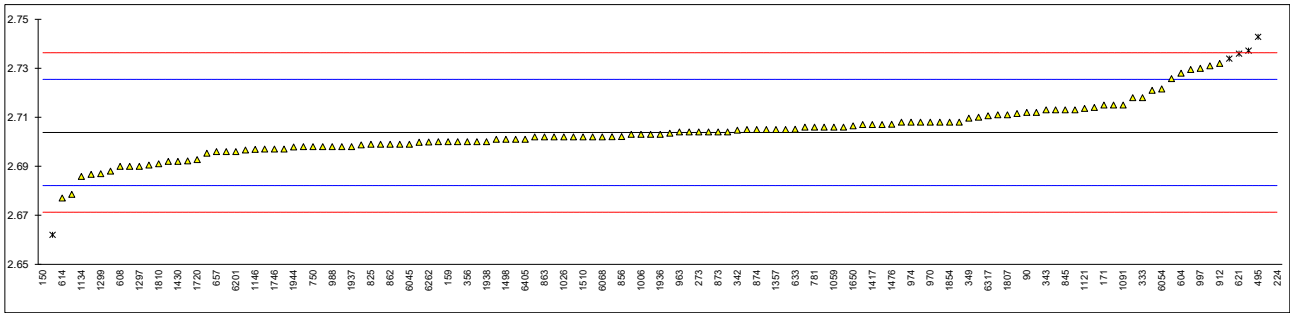
Determination of Kinematic Viscosity at 40°C, on sample #21170; results in mm^2/s

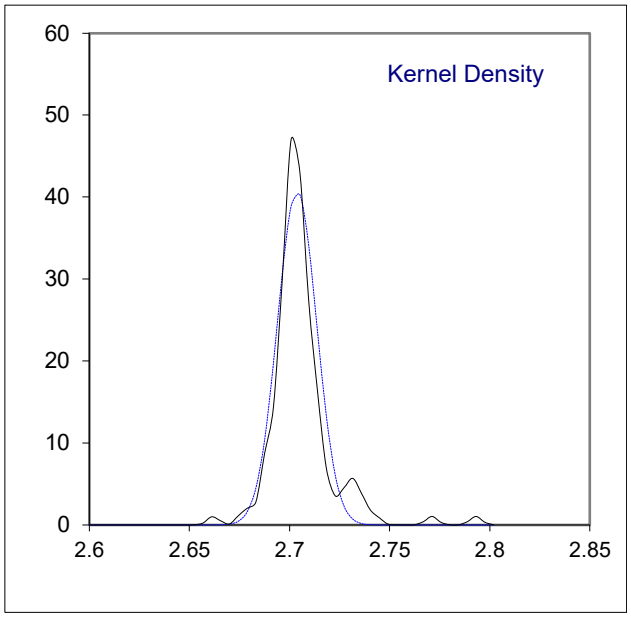
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.708		0.39	779	ISO3104	2.706		0.21
53		-----		-----	781	D445	2.706		0.21
62	D445	2.718		1.31	785	D445	2.697		-0.62
90	D445	2.712		0.76	798		-----		-----
92	D445	2.705		0.11	825	D445	2.699	C	-0.44
120	D445	2.704		0.02	845	D445	2.713		0.85
140		-----		-----	851	D445	2.700	C	-0.35
150	D445	1.689	R(0.01)	-93.56	854	D445	2.711		0.67
158		-----		-----	856	D445	2.7021		-0.15
159	D445	2.700		-0.35	862	D445	2.699		-0.44
169		-----		-----	863	ISO3104	2.702		-0.16
171	D445	2.715		1.04	864	ISO3104	2.704		0.02
175	D445	2.698		-0.53	872		-----		-----
203		-----		-----	873	D445	2.704		0.02
212	ISO3104	2.771	R(0.01)	6.20	874	D445	2.705		0.11
215		-----		-----	886		-----		-----
217		-----		-----	887	D445	2.708		0.39
221	D445	2.707		0.30	904	D445	2.702		-0.16
224	D445	2.793	R(0.01)	8.23	912	D445	2.732		2.60
225	D445	2.688		-1.45	913		-----		-----
228	D445	2.721		1.59	914		-----		-----
235	D445	2.706		0.21	922	D445	2.699		-0.44
237		-----		-----	962	D445	2.6905		-1.22
238		-----		-----	963	D445	2.704		0.02
253	D445	2.71		0.57	970	D445	2.708		0.39
254		-----		-----	971	D445	2.705		0.11
256		-----		-----	974	D445	2.708		0.39
258		-----		-----	988	D445	2.698		-0.53
273	D445	2.704		0.02	994	D445	2.715		1.04
312	D445	2.692		-1.09	995	D445	2.731		2.51
317	D445	2.700		-0.35	996		-----		-----
323	D445	2.701		-0.26	997	D445	2.730		2.42
328		-----		-----	1006	D445	2.703		-0.07
333	D445	2.718		1.31	1011	ISO3104	2.699		-0.44
334	D445	2.703		-0.07	1017		-----		-----
335	D445	2.702		-0.16	1026	D445	2.702		-0.16
337	D445	2.698		-0.53	1059	ISO3104	2.706		0.21
339		-----		-----	1080		-----		-----
342	ISO3104	2.7047		0.09	1082	ISO3104	2.6966		-0.66
343	ISO3104	2.7130		0.85	1091	D445	2.715		1.04
344		-----		-----	1105	D445	2.7115		0.71
349	D445	2.7096		0.54	1109	D445	2.6987		-0.47
355	D445	2.70205		-0.16	1121	D445	2.7136		0.91
356	D445	2.700		-0.35	1126		-----		-----
365		-----		-----	1134	IP71	2.6858		-1.66
381	D445	2.713		0.85	1135	D445	2.690		-1.27
433		-----		-----	1146	D445	2.6969		-0.63
467	D445	2.7035		-0.03	1182	D7042	2.6922		-1.07
480		-----		-----	1186		-----		-----
495	ISO3104	2.7428	R(0.01)	3.60	1199		-----		-----
498		-----		-----	1205	D7042	2.6953		-0.78
507		-----		-----	1213	D445	2.714		0.94
511	D445	2.734	R(0.01)	2.79	1227	D445	2.713		0.85
551		-----		-----	1297	D7042	2.6900		-1.27
554		-----		-----	1299	D445	2.687		-1.55
555		-----		-----	1356	ISO3104	2.708		0.39
558		-----		-----	1357	D445	2.705		0.11
562		-----		-----	1379	D445	2.662	C,R(0.01)	-3.85
575		-----		-----	1412	D445	2.698		-0.53
603		-----		-----	1417	D445	2.707		0.30
604	D445	2.7280		2.23	1429	D445	2.702		-0.16
608	D445	2.690		-1.27	1430	D445	2.692		-1.09
614	D445	2.677		-2.47	1476	ISO3104	2.7071		0.31
621	D445	2.736	R(0.01)	2.97	1498	D445	2.701		-0.26
631	D445	2.7258		2.03	1510	D445	2.7020		-0.16
633	D445	2.7051		0.12	1588		-----		-----
634	D445	2.696		-0.72	1629		-----		-----
657	D445	2.696		-0.72	1631		-----		-----
710	D445	2.7372	R(0.01)	3.08	1634	ISO3104	2.703		-0.07
750	D445	2.698		-0.53	1650	D445	2.7065		0.25

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D7042	2.6927		-1.02	6103	ISO3104	2.701		-0.26
1740	D445	2.702		-0.16	6114	D445	2.7295		2.37
1746	D445	2.697		-0.62	6142	ISO3104	2.707		0.30
1792	D445	2.704		0.02	6184	ISO3104	2.68668		-1.58
1807	D445	2.711		0.67	6201	D445	2.696		-0.72
1810	D445	2.691		-1.18	6262	D445	2.6999		-0.36
1811	D445	2.700		-0.35	6266	D7042	2.706		0.21
1854	ISO3104	2.708		0.39	6291	D445	2.6998		-0.37
1906		-----		-----	6317	D7042	2.7106		0.63
1936	ISO3104	2.703		-0.07	6332		-----		-----
1937	ISO3104	2.698		-0.53	6346		-----		-----
1938	ISO3104	2.700		-0.35	6384	D445	2.697		-0.62
1944	D445	2.6979		-0.54	6386	D445	2.712		0.76
6045	D445	2.699		-0.44	6404	ISO3104	2.705		0.11
6054	D445	2.721563		1.64	6405	D445	2.701		-0.26
6057	ISO3104	2.708		0.39	6406	ISO3104	2.6785		-2.33
6068	ISO3104	2.702		-0.16	6416		-----		-----

normality	suspect
n	121
outliers	8
mean (n)	2.7038
st.dev. (n)	0.00980
R(calc.)	0.0274
st.dev.(D445:21)	0.01085
R(D445:21)	0.0304

Lab 825 first reported 2.663
Lab 851 first reported 2.746
Lab 1379 first reported 2.627





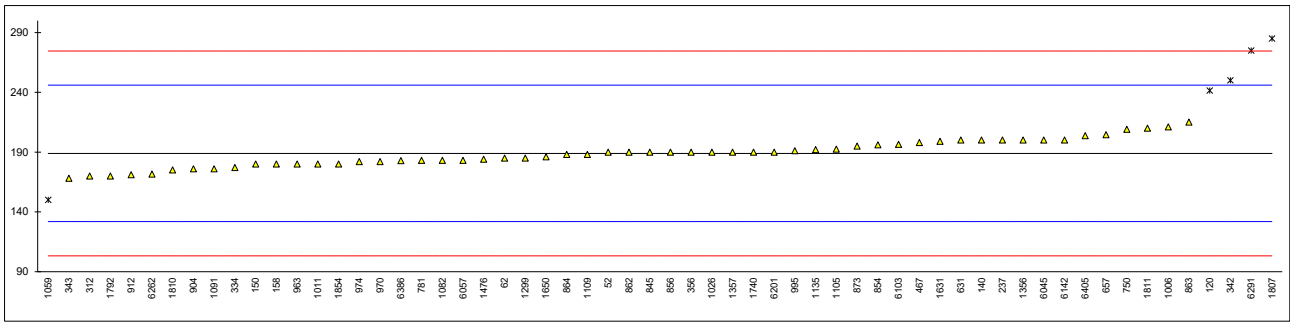
Determination of Lubricity by HFRR at 60°C, rel. humidity 30-85% on sample #21170; results in µm

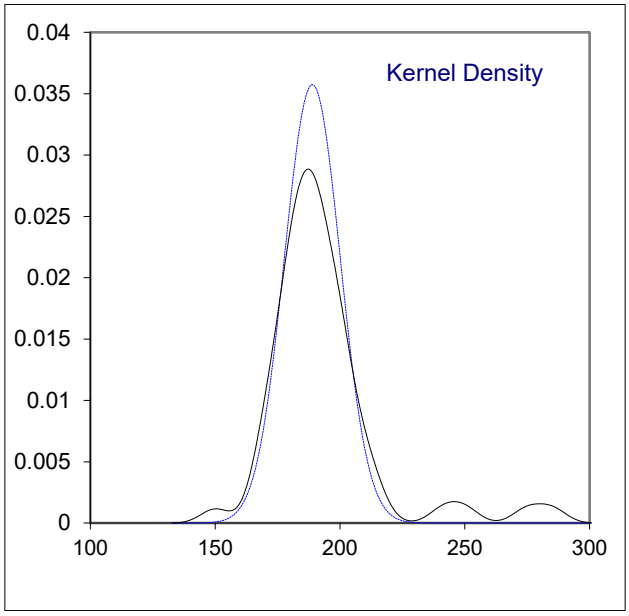
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6079	190	C	0.04	779		-----		-----
53		-----		-----	781	D6079	183		-0.21
62	D6079	185	C	-0.14	785		-----		-----
90		-----		-----	798		-----		-----
92		-----		-----	825		-----		-----
120	D6079	241.5	R(0.01)	1.84	845	D6079	190		0.04
140	D6079	200		0.39	851		-----		-----
150	D6079	180		-0.31	854	D6079	196		0.25
158	D6079	180		-0.31	856	D6079	190		0.04
159		-----		-----	862	D6079	190		0.04
169		-----		-----	863	ISO12156	215		0.91
171		-----		-----	864	ISO12156	188		-0.03
175		-----		-----	872		-----		-----
203		-----		-----	873	D6079	195		0.21
212		-----		-----	874		-----		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904	D6079	176	C	-0.45
224		-----		-----	912	D6079	171		-0.63
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922		-----		-----
237	D6079	200		0.39	962		-----		-----
238		-----		-----	963	D6079	180		-0.31
253		-----		-----	970	D6079	182		-0.24
254		-----		-----	971		-----		-----
256		-----		-----	974	D6079	182		-0.24
258		-----		-----	988		-----		-----
273		-----		-----	994		-----		-----
312	ISO12156-1-A	170		-0.66	995	D6079	191		0.07
317		-----		-----	996		-----		-----
323	D6079	< 200		-----	997		-----		-----
328		-----		-----	1006	D6079	211		0.77
333		-----		-----	1011	ISO12156-1-A	180		-0.31
334	ISO12156-1-A	177		-0.42	1017		-----		-----
335		-----		-----	1026	ISO12156-1-A	190		0.04
337		-----		-----	1059	ISO12156-1-A	150	R(0.05)	-1.36
339		-----		-----	1080		-----		-----
342	ISO12156-1-B (2018)	250	R(0.01)	2.14	1082	ISO12156-1 (2006)	183		-0.21
343	ISO12156-1 (2006)	168		-0.73	1091	ISO12156-2	176		-0.45
344		-----		-----	1105	D6079	192.5		0.13
349		-----		-----	1109	IP450	188		-0.03
355		-----		-----	1121		-----		-----
356	ISO12156-1 (2006)	190		0.04	1126		-----		-----
365		-----		-----	1134		-----		-----
381		-----		-----	1135	ISO12156-1-A	192		0.11
433		-----		-----	1146		-----		-----
467	D6079	198		0.32	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299	ISO12156-1 (2006)	185		-0.14
555		-----		-----	1356	ISO12156-1-B (2018)	200		0.39
558		-----		-----	1357	D6079	190		0.04
562		-----		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608		-----		-----	1430		-----		-----
614		-----		-----	1476	ISO12156-1-A	184		-0.17
621		-----		-----	1498		-----		-----
631	D7688	200		0.39	1510		-----		-----
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	D6079	204.5		0.55	1631	ISO12156-1-A	199		0.35
710		-----		-----	1634		-----		-----
750	GOST ISO 12156-1	209		0.70	1650	ISO12156-1-B (2006)	186		-0.10

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103	ISO12156-1-A	196.5		0.27
1740	ISO12156-2	190		0.04	6114		-----		-----
1746		-----		-----	6142	ISO12156-1-A	200		0.39
1792	ISO12156-1-B	170		-0.66	6184		-----		-----
1807	ISO12156-1 (2019)	285	C,R(0.01)	3.36	6201	D6079	190		0.04
1810	ISO12156-1-A	175		-0.49	6262	ISO12156-2	171.5		-0.61
1811	D6079	210		0.74	6266		-----		-----
1854	ISO12156-1-A	180		-0.31	6291	D6079	275	C,R(0.01)	3.01
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944		-----		-----	6386	D6079	182.8		-0.21
6045	D6079	200		0.39	6404		-----		-----
6054		-----		-----	6405	ISO12156	203.67		0.52
6057	ISO12156-1-A	183		-0.21	6406		-----		-----
6068		-----		-----	6416		-----		-----

				D6079 only	ISO12156/IP450 only
	normality	OK		OK	not OK
	n	55		26	29
	outliers	5		2	2
	mean	188.9		190.4	186.4
	st.dev. (n)	11.16		10.18	14.05
	R(calc.)	31.3		28.5	39.3
	st.dev.(D6079:18)	28.57		28.57	-----
	R(D6079:18)	80		80	-----
Compare					
	R(ISO12156-1A:18)	80	(digital camera)		80
	R(ISO12156-1B:18)	90	(visual)		90

Lab 52 first reported 330
Lab 62 first reported 340
Lab 904 first reported 540
Lab 1807 first reported 420
Lab 6291 first reported 340





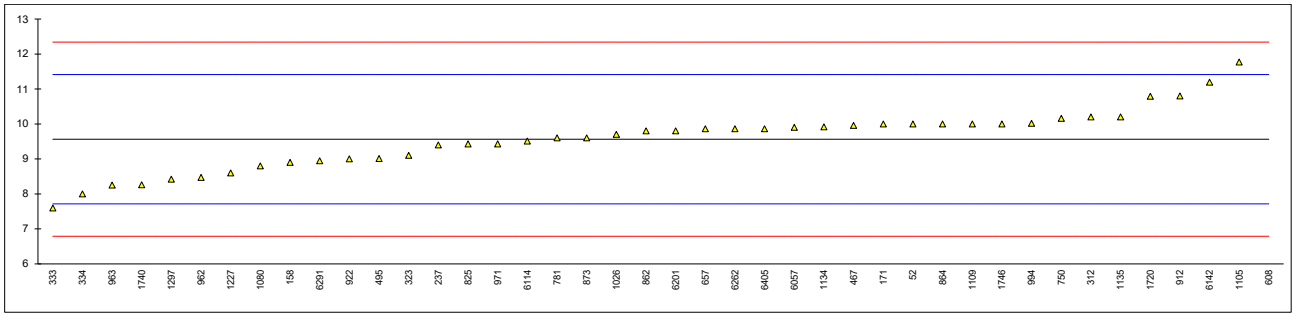
Determination of Nitrogen on sample #21170; results in mg/kg

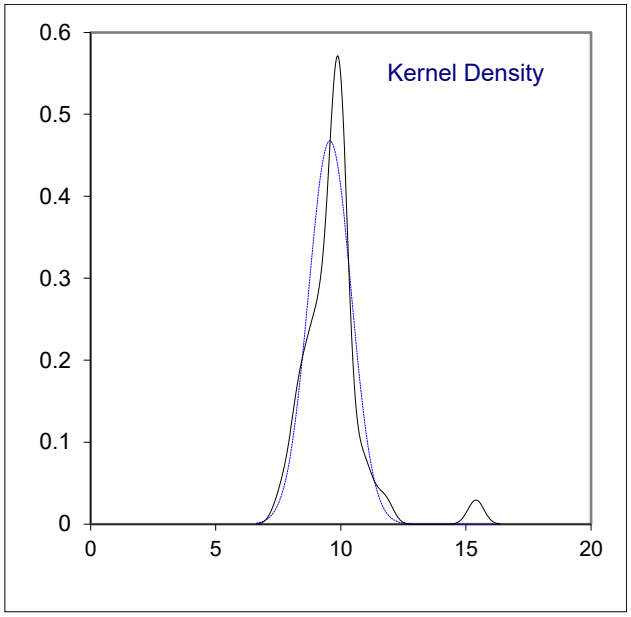
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	10		0.47	779		-----		-----
53		-----		-----	781	D4629	9.6		0.04
62		-----		-----	785		-----		-----
90		-----		-----	798		-----		-----
92		-----		-----	825	D4629	9.43		-0.14
120		-----		-----	845		-----		-----
140		-----		-----	851		-----		-----
150		-----		-----	854		-----		-----
158	D4629	8.9		-0.72	856		-----		-----
159		-----		-----	862	D4629	9.8		0.26
169		-----		-----	863		-----		-----
171	D4629	10		0.47	864	D4629	10		0.47
175		-----		-----	872		-----		-----
203		-----		-----	873	D4629	9.6		0.04
212		-----		-----	874		-----		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904		-----		-----
224		-----		-----	912	D4629	10.8		1.34
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922	D4629	9.0		-0.61
237	D4629	9.4		-0.18	962	D4629	8.47		-1.18
238		-----		-----	963	D4629	8.255		-1.42
253		-----		-----	970		-----		-----
254		-----		-----	971	D4629	9.43		-0.14
256		-----		-----	974		-----		-----
258		-----		-----	988		-----		-----
273		-----		-----	994	D4629	10.02		0.49
312	D4629	10.2	C	0.69	995		-----		-----
317		-----		-----	996		-----		-----
323	D4629	9.1		-0.50	997		-----		-----
328		-----		-----	1006		-----		-----
333	D4629	7.6		-2.12	1011		-----		-----
334	D4629	8.0		-1.69	1017		-----		-----
335		-----		-----	1026	D4629	9.7		0.15
337		-----		-----	1059		-----		-----
339		-----		-----	1080	D4629	8.8		-0.83
342		-----		-----	1082		-----		-----
343		-----		-----	1091		-----		-----
344		-----		-----	1105	D4629	11.77		2.39
349		-----		-----	1109	D4629	10		0.47
355		-----		-----	1121		-----		-----
356		-----		-----	1126		-----		-----
365		-----		-----	1134	D5762	9.920		0.39
381		-----		-----	1135	D4629	10.2		0.69
433		-----		-----	1146		-----		-----
467	D4629	9.96		0.43	1182		-----		-----
480		-----		-----	1186		-----		-----
495	D4629	9.01		-0.60	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227	D4629	8.6		-1.04
551		-----		-----	1297	D4629	8.42		-1.24
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D4629	n.a		-----
562		-----		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608	D5762	15.40	C,R(0.01)	6.31	1430		-----		-----
614		-----		-----	1476		-----		-----
621		-----		-----	1498		-----		-----
631		-----		-----	1510		-----		-----
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	D4629	9.86		0.32	1631		-----		-----
710		-----		-----	1634		-----		-----
750	D4629	10.16		0.64	1650		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D4629	10.79		1.33	6103		-----		-----
1740	D4629	8.26		-1.41	6114	D5762	9.51		-0.06
1746	D4629	10.0		0.47	6142	ISO20846	11.19		1.76
1792		-----		-----	6184		-----		-----
1807		-----		-----	6201	D4629	9.80		0.26
1810		-----		-----	6262	D4629	9.86		0.32
1811		-----		-----	6266		-----		-----
1854		-----		-----	6291	D4629	8.95		-0.66
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944		-----		-----	6386		-----		-----
6045		-----		-----	6404		-----		-----
6054		-----		-----	6405	D4629	9.86		0.32
6057	D4629	9.9		0.36	6406		-----		-----
6068		-----		-----	6416		-----		-----

normality	OK
n	41
outliers	1
mean (n)	9.56
st.dev. (n)	0.853
R(calc.)	2.39
st.dev.(D4629:17)	0.925
R(D4629:17)	2.59

Lab 312 first reported 12.8
Lab 608 first reported 14.67



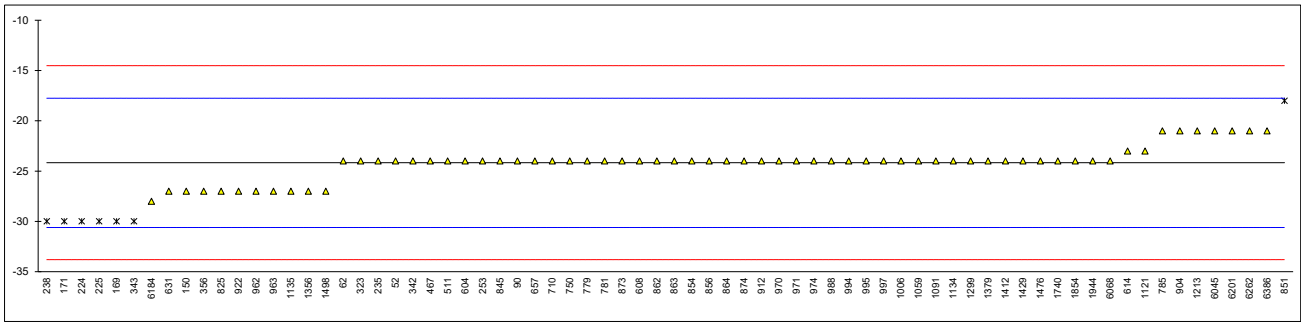


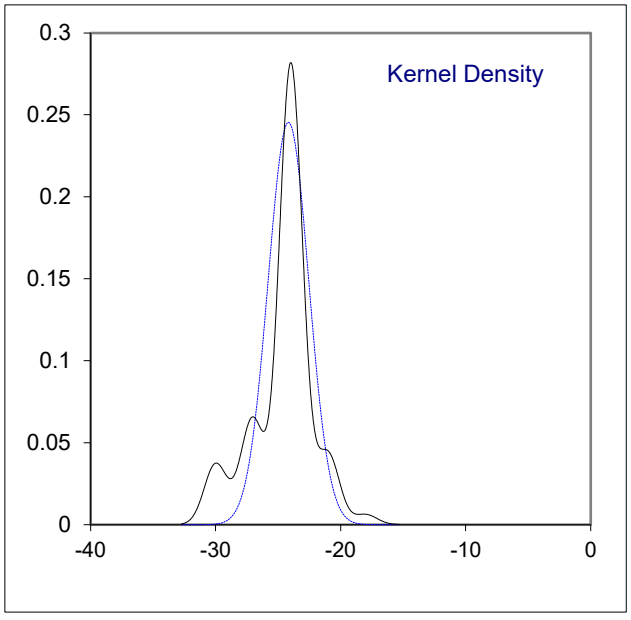
Determination of Pour Point Manual on sample #21170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	-24		0.05	779	D97	-24		0.05
53		-----		-----	781	D97	-24		0.05
62	D97	-24		0.05	785	D97	-21		0.99
90	D97	-24		0.05	798		-----		-----
92	D97	<-24		-----	825	D97	-27		-0.88
120		-----		-----	845	D97	-24		0.05
140		-----		-----	851	D97	-18	R(0.05)	1.92
150	D97	-27		-0.88	854	D97	-24		0.05
158		-----		-----	856	D97	-24		0.05
159		-----		-----	862	D97	-24		0.05
169	D97	-30	R(0.05)	-1.81	863	D97	-24		0.05
171	D97	-30	R(0.05)	-1.81	864	D97	-24		0.05
175		-----		-----	872		-----		-----
203		-----		-----	873	D97	-24		0.05
212		-----		-----	874	D97	-24		0.05
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221	D97	<-21		-----	904	D97	-21		0.99
224	D97	-30.0	R(0.05)	-1.81	912	D97	-24		0.05
225	D97	-30	R(0.05)	-1.81	913		-----		-----
228	D97	<-24		-----	914		-----		-----
235	D97	-24		0.05	922	D97	-27		-0.88
237	D97	<21		-----	962	D97	-27		-0.88
238	D97	-30.0	R(0.05)	-1.81	963	D97	-27.0		-0.88
253	D97	-24.0		0.05	970	D97	-24		0.05
254		-----		-----	971	D97	-24		0.05
256		-----		-----	974	D97	-24		0.05
258		-----		-----	988	D97	-24		0.05
273	D97	<-21		-----	994	D97	-24		0.05
312		-----		-----	995	D97	-24		0.05
317		-----		-----	996		-----		-----
323	D97	-24		0.05	997	D97	-24		0.05
328		-----		-----	1006	D97	-24		0.05
333		-----		-----	1011	D97	<-21		-----
334		-----		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059	ISO3016	-24		0.05
339		-----		-----	1080		-----		-----
342	ISO3016	-24		0.05	1082		-----		-----
343	D97	-30	R(0.05)	-1.81	1091	D97	-24		0.05
344		-----		-----	1105		-----		-----
349		-----		-----	1109		-----		-----
355		-----		-----	1121	D97	-23		0.36
356	D97	-27		-0.88	1126		-----		-----
365		-----		-----	1134	D97	-24		0.05
381		-----		-----	1135	ISO3016	-27		-0.88
433		-----		-----	1146		-----		-----
467	D97	-24		0.05	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213	D97	-21		0.99
511	D97	-24		0.05	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299	D97	-24		0.05
555		-----		-----	1356	ISO3016	-27		-0.88
558		-----		-----	1357	D97	n.a		-----
562		-----		-----	1379	D97	-24		0.05
575		-----		-----	1412	D97	-24		0.05
603		-----		-----	1417		-----		-----
604	D97	-24		0.05	1429	D97	-24		0.05
608	D97	-24		0.05	1430		-----		-----
614	D97	-23		0.36	1476	ISO3016	-24		0.05
621	D97	< -21.0		-----	1498	D97	-27		-0.88
631	D97	-27		-0.88	1510		-----		-----
633		-----		-----	1588		-----		-----
634	D97	< -24		-----	1629		-----		-----
657	D97	-24		0.05	1631		-----		-----
710	D97	-24		0.05	1634		-----		-----
750	D97	-24		0.05	1650		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740	D97	-24		0.05	6114		-----		-----
1746		-----		-----	6142		-----		-----
1792	D97	<-21		-----	6184	ISO3016	-28		-1.19
1807		-----		-----	6201	D97	-21		0.99
1810		-----		-----	6262	ISO3016	-21		0.99
1811		-----		-----	6266		-----		-----
1854	ISO3016	-24		0.05	6291		-----		-----
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944	D97	-24		0.05	6386	D97	-21		0.99
6045	D97	-21		0.99	6404		-----		-----
6054		-----		-----	6405		-----		-----
6057		-----		-----	6406		-----		-----
6068	ISO3016	-24		0.05	6416		-----		-----

normality	OK
n	65
outliers	7
mean (n)	-24.17
st.dev. (n)	1.626
R(calc.)	4.55
st.dev.(D97:17b)	3.214
R(D97:17b)	9



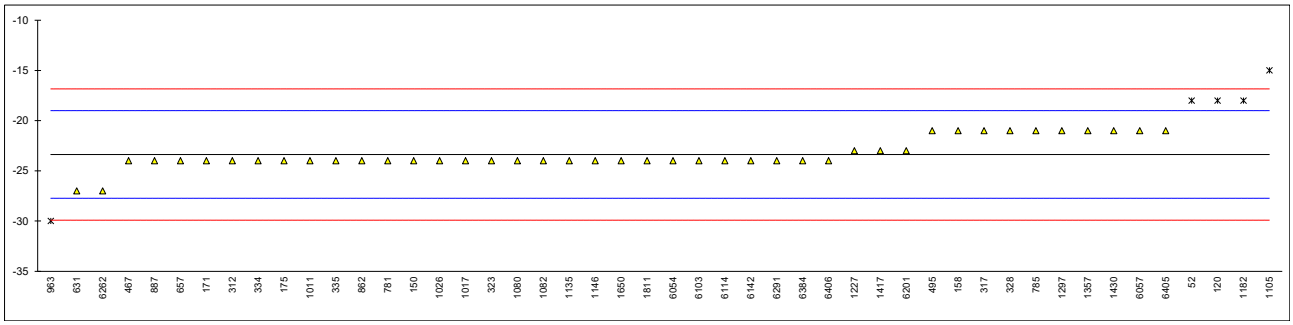


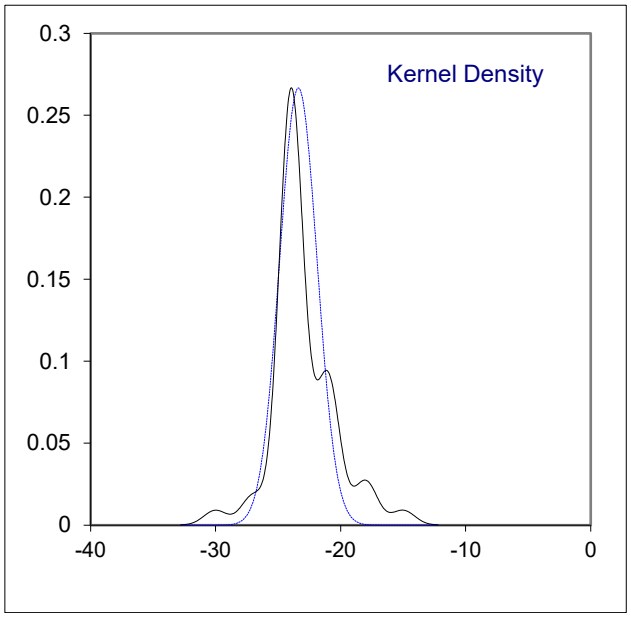
Determination of Pour Point Automated 3°C interval on sample #21170; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5949	-18	R(0.05)	2.47	779		-----		-----
53		-----		-----	781	D5950	-24		-0.29
62		-----		-----	785	D6749	-21		1.09
90		-----		-----	798		-----		-----
92		-----		-----	825		-----		-----
120	D5949	-18.0	R(0.05)	2.47	845		-----		-----
140		-----		-----	851		-----		-----
150	D5950	-24		-0.29	854		-----		-----
158	D5949	-21		1.09	856		-----		-----
159		-----		-----	862	D5950	-24		-0.29
169		-----		-----	863		-----		-----
171	D5950	-24		-0.29	864		-----		-----
175	D5950	-24		-0.29	872		-----		-----
203		-----		-----	873		-----		-----
212		-----		-----	874		-----		-----
215		-----		-----	886		-----		-----
217		-----		-----	887	D6749	-24		-0.29
221		-----		-----	904		-----		-----
224		-----		-----	912		-----		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922		-----		-----
237		-----		-----	962		-----		-----
238		-----		-----	963	D5950	-30.0	R(0.05)	-3.04
253		-----		-----	970		-----		-----
254		-----		-----	971		-----		-----
256		-----		-----	974		-----		-----
258		-----		-----	988		-----		-----
273		-----		-----	994		-----		-----
312	D5950	-24		-0.29	995		-----		-----
317	D6749	-21		1.09	996		-----		-----
323	D5950	-24		-0.29	997		-----		-----
328	D5950	-21		1.09	1006		-----		-----
333		-----		-----	1011	D6892	-24		-0.29
334	D5950	-24		-0.29	1017	D5950	-24		-0.29
335	D97	-24		-0.29	1026	D5950	-24		-0.29
337		-----		-----	1059		-----		-----
339		-----		-----	1080	D6749	-24.0		-0.29
342		-----		-----	1082	D5950	-24		-0.29
343		-----		-----	1091		-----		-----
344		-----		-----	1105	D5949	-15.0	R(0.05)	3.84
349		-----		-----	1109		-----		-----
355		-----		-----	1121		-----		-----
356		-----		-----	1126		-----		-----
365		-----		-----	1134		-----		-----
381		-----		-----	1135	D5950	-24		-0.29
433		-----		-----	1146	D5950	-24		-0.29
467	D6892	-24		-0.29	1182		-18	R(0.05)	2.47
480		-----		-----	1186		-----		-----
495	D6892	-21		1.09	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511		-----		-----	1227	D5950	-23		0.17
551		-----		-----	1297	D5949	-21		1.09
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D5950	-21		1.09
562		-----		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417	D5950	-23		0.17
604		-----		-----	1429		-----		-----
608		-----		-----	1430	D5950	-21		1.09
614		-----		-----	1476		-----		-----
621		-----		-----	1498		-----		-----
631	D5949	-27		-1.67	1510		-----		-----
633		-----		-----	1588		-----		-----
634		-----		-----	1629		-----		-----
657	D5950	-24		-0.29	1631		-----		-----
710		-----		-----	1634		-----		-----
750		-----		-----	1650	D5950	-24		-0.29

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103	D5950	-24.0		-0.29
1740		-----		-----	6114	D5950	-24		-0.29
1746		-----		-----	6142	D5950	-24		-0.29
1792		-----		-----	6184		-----		-----
1807		-----		-----	6201	D5950	-23		0.17
1810		-----		-----	6262	D5950	-27		-1.67
1811	D5950	-24		-0.29	6266		-----		-----
1854		-----		-----	6291	D5950	-24		-0.29
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384	D5950	-24		-0.29
1944		-----		-----	6386		-----		-----
6045		-----		-----	6404		-----		-----
6054	D5950	-24.0		-0.29	6405	D5950	-21.0		1.09
6057	D5950	-21		1.09	6406	D6749	-24		-0.29
6068		-----		-----	6416		-----		-----

normality	OK
n	43
outliers	5
mean (n)	-23.37
st.dev. (n)	1.496
R(calc.)	4.19
st.dev.(D5950:14)	2.179
R(D5950:14)	6.1





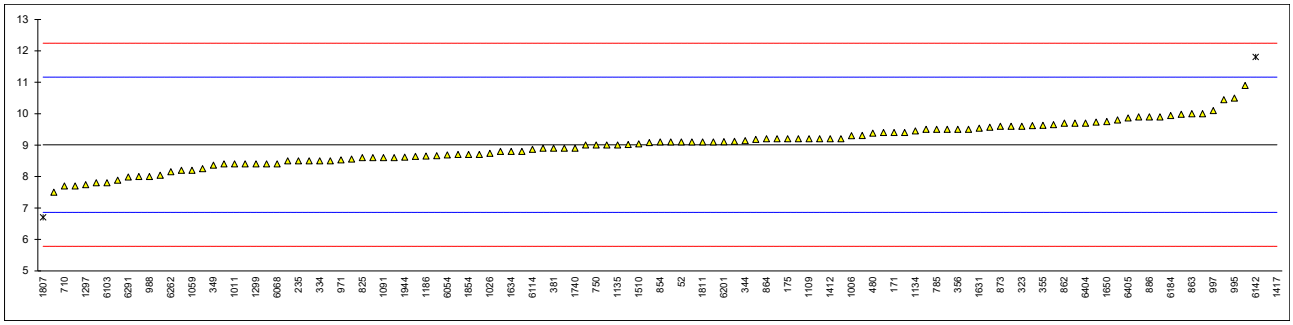
Determination of Total Sulfur on sample #21170; results in mg/kg

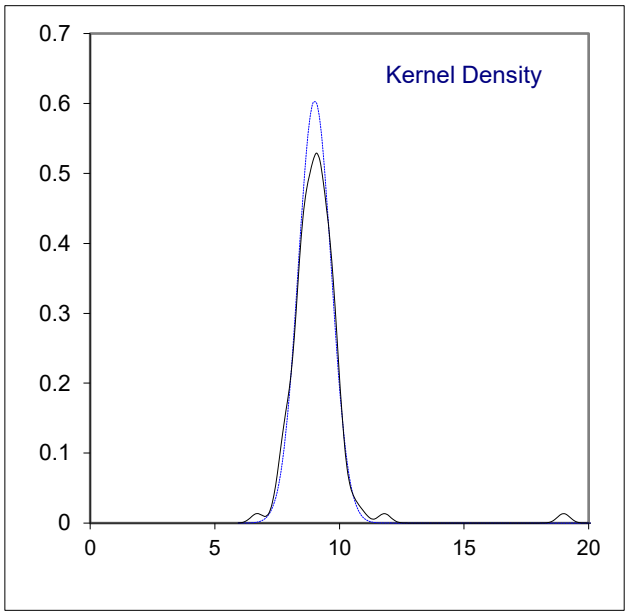
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	9.1		0.08	779	ISO20884	9.1		0.08
53	D5453	9.8		0.73	781	D5453	8.8		-0.20
62	D5453	9.9		0.82	785	D2622	9.5		0.45
90		-----		-----	798		-----		-----
92	D5453	10.45		1.34	825	D5453	8.6		-0.38
120	D5453	8.556		-0.42	845	D5453	9.57		0.52
140	D2622	9.4		0.36	851	D2622	7.5		-1.40
150	D2622	7.7		-1.22	854	D5453	9.1		0.08
158	D5453	9.1		0.08	856	D5453	9.5		0.45
159		-----		-----	862	D5453	9.7		0.64
169	D5453	9.73		0.67	863	D5453	10.0		0.92
171	D5453	9.4		0.36	864	D5453	9.2		0.17
175	D5453	9.2		0.17	872		-----		-----
203		-----		-----	873	ISO20846	9.6		0.55
212		-----		-----	874	ISO20846	9.2		0.17
215		-----		-----	886	D5453	9.9		0.82
217		-----		-----	887		-----		-----
221		-----		-----	904	D5453	9.6		0.55
224	D4294	19.0	R(0.01)	9.28	912	D5453	7.8		-1.13
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235	D4294	8.5	C	-0.48	922	D5453	9.0		-0.01
237	D5453	8.0		-0.94	962	D5453	8.04		-0.90
238		-----		-----	963	D5453	7.885		-1.05
253		-----		-----	970	D5453	8.5		-0.48
254		-----		-----	971	D5453	8.53		-0.45
256		-----		-----	974	D5453	8.6		-0.38
258	D5453	8.5		-0.48	988	ISO8754	8		-0.94
273	D5453	8.9		-0.10	994	D5453	9.98		0.90
312	D5453	8.4		-0.57	995	D5453	10.5		1.38
317	D5453	10		0.92	996		-----		-----
323	D5453	9.6		0.55	997	D5453	10.1		1.01
328	D5453	9.7		0.64	1006	D5453	9.3		0.27
333	D5453	9.5		0.45	1011	ISO20846	8.4		-0.57
334	ISO20846	8.5		-0.48	1017		-----		-----
335	ISO20846	9.02		0.01	1026	ISO20846	8.74		-0.25
337		-----		-----	1059	ISO20846	8.2		-0.75
339		-----		-----	1080	D5453	9.0		-0.01
342		-----		-----	1082		-----		-----
343	ISO20846	9.2		0.17	1091	D5453	8.6		-0.38
344	D5453	9.14		0.12	1105	D7039	9.18		0.16
349	D2622	8.36		-0.61	1109	D7039	9.20		0.17
355	D2622	9.63		0.57	1121	ISO20846	8.66	C	-0.33
356	ISO20846	9.5		0.45	1126	ISO20846	8.9		-0.10
365		-----		-----	1134	D5453	9.45		0.41
381	ISO20846	8.9		-0.10	1135	D5453	9.0		-0.01
433		-----		-----	1146	D4294	<100		-----
467	D5453	8.64		-0.35	1182	ISO20846	10.9		1.75
480	D5453	9.38		0.34	1186	D5453	8.65		-0.34
495	ISO20846	8.25		-0.71	1199		-----		-----
498		-----		-----	1205	ISO20846	9.20		0.17
507		-----		-----	1213		-----		-----
511	D5453	8.20		-0.75	1227	D5453	8.4		-0.57
551		-----		-----	1297	D5453	7.74		-1.18
554		-----		-----	1299	ISO20884	8.4		-0.57
555		-----		-----	1356	ISO8754	<300		-----
558		-----		-----	1357	D5453	8.5		-0.48
562		-----		-----	1379	D5453	9.5		0.45
575		-----		-----	1412	D5453	9.2		0.17
603		-----		-----	1417	In house	40	R(0.01)	28.78
604		-----		-----	1429		-----		-----
608		-----		-----	1430		8.4	C	-0.57
614		-----		-----	1476	ISO20884	9.65		0.59
621		-----		-----	1498	D5453	9.9		0.82
631	D7039	9.62		0.56	1510	D5453	9.04		0.03
633	D4294	<20.0		-----	1588		-----		-----
634	D4294	<20		-----	1629		-----		-----
657	D5453	9.306		0.27	1631	ISO13032	9.54		0.49
710	ISO20884	7.7		-1.22	1634	ISO20846	8.8		-0.20
750	ISO20884	9.0		-0.01	1650	D5453	9.75		0.69

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720	D5453	9.08		0.06	6103	D4294	7.8		-1.13
1740	D5453	8.9		-0.10	6114	D5453	8.87		-0.13
1746	D4294	9.4		0.36	6142	ISO20846	11.805	R(0.01)	2.59
1792		-----		-----	6184	ISO20846	9.940		0.86
1807	D5453	6.7	C,R(0.01)	-2.15	6201	D5453	9.11		0.09
1810	D5453	8.7		-0.29	6262	ISO20846	8.154		-0.80
1811	D5453	9.1		0.08	6266		-----		-----
1854	ISO20846	8.7		-0.29	6291	D5453	7.986		-0.95
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937	ISO20846	8.7		-0.29	6346		-----		-----
1938	ISO20846	8.8		-0.20	6384	D5453	9.12		0.10
1944	D5453	8.62		-0.36	6386	D4294	<17	C	-----
6045	D5453	8.6		-0.38	6404	ISO8754	9.7		0.64
6054	D4294	8.69		-0.30	6405	D5453	9.865		0.79
6057	ISO20846	9.2		0.17	6406	ISO20846	9.10		0.08
6068	ISO20884	8.4		-0.57	6416		-----		-----

normality	OK
n	113
outliers	4
mean (n)	9.012
st.dev. (n)	0.6605
R(calc.)	1.849
st.dev.(D5453:19a)	1.0768
R(D5453:19a)	3.015

Lab 235 first reported 1
Lab 1121 first reported 18.597
Lab 1430 first reported 5.4
Lab 1807 first reported 5.4
Lab 6386 first reported 15.53



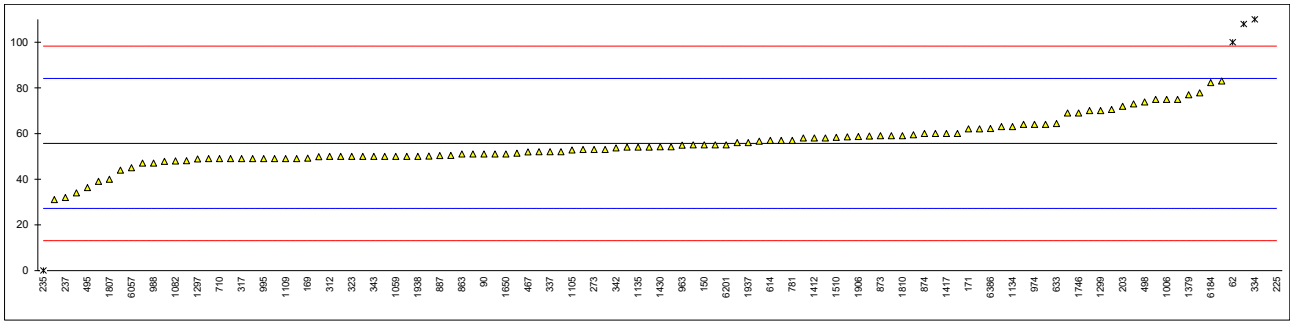


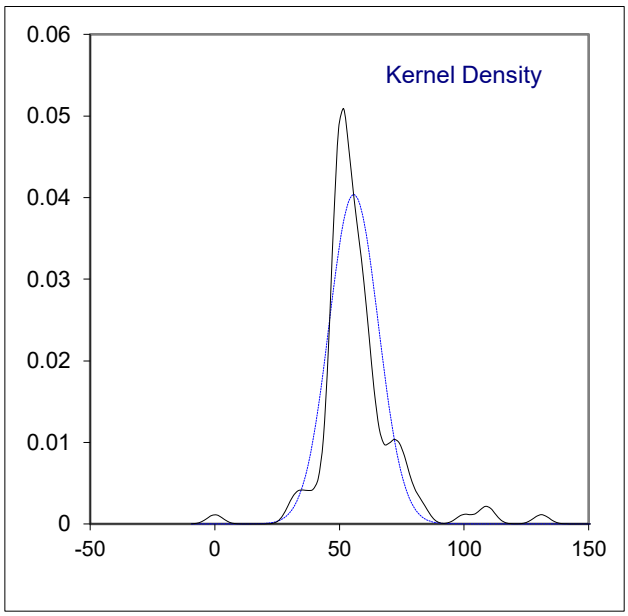
Determination of Water on sample #21170; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304-A:20	49		-0.47	779	ISO12937	55		-0.05
53		-----		-----	781	D6304-A:20	57		0.09
62	D6304-A:16e1	100	R(0.01)	3.11	785	D6304-A:20	59.48		0.27
90	D6304-A:20	51		-0.33	798		-----		-----
92	E203	131	R(0.01)	5.29	825	D6304-A:16e1	52		-0.26
120		-----		-----	845		-----		-----
140		-----		-----	851	D6304-A:16e1	47.8		-0.56
150	D6304-A:20	55		-0.05	854	D6304	57		0.09
158		-----		-----	856		-----		-----
159		-----		-----	862	D6304-A:20	54		-0.12
169	D6304-A:20	49.16		-0.46	863	D6304	51		-0.33
171	D6304-A:20	62		0.44	864	D6304	55		-0.05
175		-----		-----	872		-----		-----
203	D6304-A:20	71.94995		1.14	873	D6304-A:20	59		0.23
212		-----		-----	874	D6304-A:20	60		0.30
215		-----		-----	886		-----		-----
217		-----		-----	887	D6304-A:16e1	50.34		-0.38
221		-----		-----	904	D6304-A:20	50.14		-0.39
224	ISO12937	44.0		-0.82	912		-----		-----
225	D4928	500	R(0.01)	31.24	913		-----		-----
228		-----		-----	914		-----		-----
235	ISO3733	0.00	R(0.01)	-3.92	922	D6304-A:20	51		-0.33
237	D6304-C:20	32		-1.67	962	D6304-A:20	52		-0.26
238		-----		-----	963	D6304-A:20	54.88		-0.06
253	D6304-A:16e1	62		0.44	970	D6304-A:16e1	64		0.58
254		-----		-----	971	D6304-A:16e1	60		0.30
256		-----		-----	974	D6304-A:20	64		0.58
258	D6304-A:20	58.93		0.23	988	D6304	47		-0.61
273	D6304-A:16e1	53		-0.19	994	D6304-A:20	49		-0.47
312	ISO12937	50		-0.40	995	D6304-A:20	49		-0.47
317	D6304-A:20	49		-0.47	996		-----		-----
323	ISO12937	50		-0.40	997	D6304-A:20	49		-0.47
328	ISO12937	50		-0.40	1006	D6304-A:20	75		1.36
333	D6304-A:20	47		-0.61	1011	ISO12937	59		0.23
334	D6304-A:20	110	R(0.01)	3.82	1017		-----		-----
335	ISO12937	70		1.01	1026	D6304-B:16e1	64		0.58
337	ISO12937	52		-0.26	1059	ISO12937	50		-0.40
339		-----		-----	1080	ISO12937	51		-0.33
342	ISO12937	53.7		-0.14	1082	ISO12937	48		-0.54
343	ISO12937	50		-0.40	1091		-----		-----
344	ISO12937	51.4		-0.30	1105	D6304-A:20	52.8		-0.20
349	D6304-A:20	50		-0.40	1109	D6304-B:20	49		-0.47
355		-----		-----	1121	IP438	63		0.51
356	D6304-A:20	50		-0.40	1126		-----		-----
365		-----		-----	1134	IP438	63		0.51
381	ISO12937	69		0.94	1135	ISO12937	54		-0.12
433		-----		-----	1146	D6304-C:20	31		-1.74
467	D6304-A:16e1	51.9		-0.27	1182		-----		-----
480	D6304-A:16e1	39.0		-1.17	1186		-----		-----
495	ISO12937	36.3		-1.36	1199		-----		-----
498	ISO12937	73.8		1.27	1205		-----		-----
507		-----		-----	1213		-----		-----
511	D6304-A:20	49		-0.47	1227	D6304-A:16e1	50.4		-0.37
551		-----		-----	1297	D6304-A:16e1	48.9		-0.48
554		-----		-----	1299	ISO12937	70		1.01
555		-----		-----	1356	ISO3733	<200		-----
558		-----		-----	1357	D6304-A:16e1	75		1.36
562		-----		-----	1379	D6304-C:20	77		1.50
575		-----		-----	1412	D6304-A:20	58		0.16
603		-----		-----	1417	D6304-A:20	60		0.30
604		-----		-----	1429		-----		-----
608	D6304-A:20	34		-1.53	1430	D6304-A:20	54.2		-0.11
614	D6304-B:20	57		0.09	1476	ISO12937	70.5		1.04
621	D6304-A:20	77.8		1.55	1498		-----		-----
631	D6304-B:16e1	56.6		0.06	1510	D6304	58.3		0.18
633	D6304-A:16e1	64.34		0.61	1588		-----		-----
634	D6304-A:20	58		0.16	1629		-----		-----
657	D6304-A:16e1	49.8		-0.41	1631		-----		-----
710	ISO12937	49		-0.47	1634	ISO12937	73		1.22
750	EN ISO12937	58.5		0.20	1650	ISO12937	51		-0.33

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740	D6304-A:20	54		-0.12	6114		-----		-----
1746	D6304-A:16e1	69.0		0.94	6142	ISO12937	74.95		1.35
1792	ISO12937	54.2		-0.11	6184	ISO12937	82.28		1.87
1807	D6304-A:20	40		-1.10	6201	D6304-A:20	55		-0.05
1810	ISO12937	59		0.23	6262	ISO12937	49		-0.47
1811	D6304-A:16e1	56.0		0.02	6266		-----		-----
1854	D6304-C:16e1	50		-0.40	6291	D6304-A:20	60		0.30
1906	D6304-C:20	58.64		0.21	6317		-----		-----
1936	ISO12937	53		-0.19	6332		-----		-----
1937	ISO12937	56		0.02	6346		-----		-----
1938	ISO12937	50		-0.40	6384	D6304-A:20	108	R(0.01)	3.68
1944	D6304-A:20	48.1		-0.53	6386	D6304-A:20	62.21		0.46
6045	D6304-A	58		0.16	6404		-----		-----
6054		-----		-----	6405	D6304-A:20	52.995		-0.19
6057	ISO12937	45		-0.75	6406	ISO12937	83		1.92
6068		-----		-----	6416		-----		-----

	normality	OK	
	n	107	
	outliers	6	
	mean (n)	55.69	
	st.dev. (n)	9.875	
	R(calc.)	27.65	
	st.dev.(D6304-A:20)	14.224	
	R(D6304-A:20)	39.83	Range 20 – 25000 mg/kg
Compare			
	R(D6304-B:20)	121.16	Range 30 – 2100 mg/kg
	R(D6304-C:20)	27.87	Range 20 – 360 mg/kg





Determination of Water and Sediment (D2709) on sample #21170; results in %V/V

lab	method	Value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	<0.01		-----	779		-----		-----
53		-----		-----	781	D2709	<0.01		-----
62	D2709	<0.01		-----	785		-----		-----
90		-----		-----	798		-----		-----
92	D2709	0		-----	825	D2709	L0.01		-----
120	D2709	<0.005		-----	845		-----		-----
140	D2709	<0.01		-----	851	D2709	<0.01		-----
150	D2709	0		-----	854	D2709	<0.01		-----
158	D2709	<0.01		-----	856		-----		-----
159		-----		-----	862	D2709	<0.01		-----
169		-----		-----	863	D2709	<0.01		-----
171	D2709	<0.01		-----	864	D2709	<0.01		-----
175		-----		-----	872		-----		-----
203		-----		-----	873		-----		-----
212		-----		-----	874	D2709	<0.01		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904		-----		-----
224		-----		-----	912	D2709	<0.05		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922		-----		-----
237	D2709	<0.01		-----	962	D2709	<0.01		-----
238		-----		-----	963	D2709	<0.01		-----
253		-----		-----	970	D2709	0.00		-----
254		-----		-----	971	D2709	<0.01		-----
256		-----		-----	974	D2709	0.00		-----
258		-----		-----	988		-----		-----
273		-----		-----	994	D2709	0.00		-----
312		-----		-----	995		-----		-----
317		-----		-----	996		-----		-----
323	D2709	< 0.01		-----	997	D2709	<0,01		-----
328		-----		-----	1006		-----		-----
333		-----		-----	1011		-----		-----
334		-----		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342	D2709	0.00		-----	1082		-----		-----
343	D2709	<0,01		-----	1091		-----		-----
344	D2709	<0.05		-----	1105	D2709	< 0.01		-----
349		-----		-----	1109	D2709	0.000		-----
355		-----		-----	1121		-----		-----
356		-----		-----	1126		-----		-----
365		-----		-----	1134		-----		-----
381		-----		-----	1135		-----		-----
433		-----		-----	1146		-----		-----
467		-----		-----	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511	D2709	<0.01		-----	1227		-----		-----
551		-----		-----	1297	D2709	0.00		-----
554		-----		-----	1299	D2709	<0.01		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D2709	<0.05		-----
562	D2709	0.00		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608		-----		-----	1430		-----		-----
614		-----		-----	1476		-----		-----
621	D2709	<0.005		-----	1498	D2709	0.005		-----
631	D2709	<0.01		-----	1510		-----		-----
633	D2709	0.0250		-----	1588		-----		-----
634	D2709	0		-----	1629		-----		-----
657	D2709	<0.01		-----	1631		-----		-----
710		-----		-----	1634		-----		-----
750	D2709	<0.01		-----	1650	D2709	0		-----

lab	method	Value	mark	z(targ)	lab	method	Value	mark	z(targ)
1720		-----		-----	6103		-----		-----
1740	D2709	<0.01		-----	6114		-----		-----
1746		-----		-----	6142		-----		-----
1792	D2709	<0.01		-----	6184		-----		-----
1807		-----		-----	6201		-----		-----
1810		-----		-----	6262		-----		-----
1811		-----		-----	6266		-----		-----
1854		-----		-----	6291		-----		-----
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944	D2709	<0.05		-----	6386	D2709	<0.01		-----
6045		-----		-----	6404		-----		-----
6054	D2709	< 0.01		-----	6405	D2709	<0.01		-----
6057		-----		-----	6406		-----		-----
6068		-----		-----	6416		-----		-----

n	50
mean (n)	<0.05

Determination of Water and Sediment (D1796) on sample #21170; results in %V/V

lab	method	Value	mark	z(targ)	lab	method	value	mark	z(targ)
52		-----		-----	779		-----		-----
53		-----		-----	781	D1796	0.00		-----
62		-----		-----	785		-----		-----
90		-----		-----	798		-----		-----
92		-----		-----	825	D1796	L0.01		-----
120	D1796	<0.005		-----	845		-----		-----
140		-----		-----	851		-----		-----
150	D1796	0		-----	854		-----		-----
158		-----		-----	856		-----		-----
159		-----		-----	862		-----		-----
169	D1796	0		-----	863		-----		-----
171		-----		-----	864		-----		-----
175		-----		-----	872		-----		-----
203		-----		-----	873		-----		-----
212		-----		-----	874	D1796	0.00		-----
215		-----		-----	886		-----		-----
217		-----		-----	887		-----		-----
221		-----		-----	904		-----		-----
224		-----		-----	912	D1796	<0.05		-----
225		-----		-----	913		-----		-----
228		-----		-----	914		-----		-----
235		-----		-----	922	D1796	<0.05		-----
237		-----		-----	962	D1796	0		-----
238		-----		-----	963	D1796	0		-----
253		-----		-----	970	D1796	0.00		-----
254		-----		-----	971	D1796	0.0		-----
256		-----		-----	974	D1796	0.00		-----
258		-----		-----	988		-----		-----
273		-----		-----	994	D1796	0.00		-----
312		-----		-----	995		-----		-----
317		-----		-----	996		-----		-----
323	D1796	0.00		-----	997		-----		-----
328		-----		-----	1006		-----		-----
333		-----		-----	1011		-----		-----
334	D1796	<0.05		-----	1017		-----		-----
335		-----		-----	1026		-----		-----
337		-----		-----	1059		-----		-----
339		-----		-----	1080		-----		-----
342		-----		-----	1082		-----		-----
343		-----		-----	1091		-----		-----
344		-----		-----	1105		-----		-----
349		-----		-----	1109	D1796	0.00		-----
355		-----		-----	1121		-----		-----
356		-----		-----	1126		-----		-----
365		-----		-----	1134		-----		-----
381		-----		-----	1135		-----		-----
433		-----		-----	1146		-----		-----
467		-----		-----	1182		-----		-----
480		-----		-----	1186		-----		-----
495		-----		-----	1199		-----		-----
498		-----		-----	1205		-----		-----
507		-----		-----	1213		-----		-----
511	D1796	0		-----	1227		-----		-----
551		-----		-----	1297		-----		-----
554		-----		-----	1299		-----		-----
555		-----		-----	1356		-----		-----
558		-----		-----	1357	D1796	n.a		-----
562		-----		-----	1379		-----		-----
575		-----		-----	1412		-----		-----
603		-----		-----	1417		-----		-----
604		-----		-----	1429		-----		-----
608		-----		-----	1430		-----		-----
614	D1796	<0.025		-----	1476		-----		-----
621		-----		-----	1498		-----		-----
631	D1796	<0.01		-----	1510		-----		-----
633		-----		-----	1588		-----		-----
634	D1796	0		-----	1629		-----		-----
657		-----		-----	1631		-----		-----
710		-----		-----	1634		-----		-----
750	D1796	<0.025		-----	1650		-----		-----

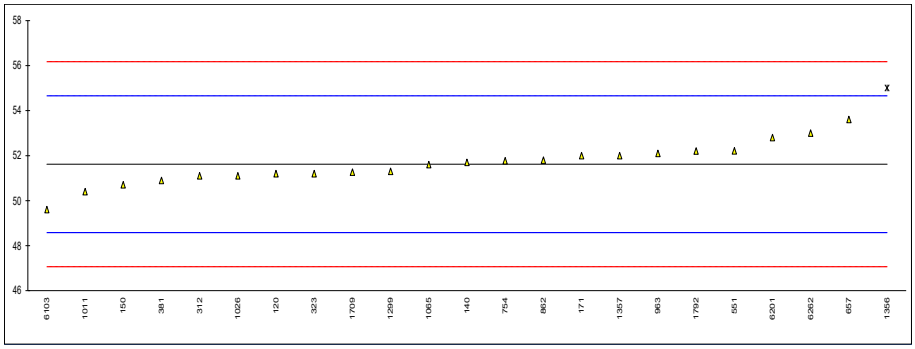
lab	method	Value	mark	z(targ)	lab	method	Value	mark	z(targ)
1720		-----		-----	6103	D1796	<0.05		-----
1740	D1796	0.00		-----	6114		-----		-----
1746		-----		-----	6142		-----		-----
1792		-----		-----	6184		-----		-----
1807		-----		-----	6201		-----		-----
1810		-----		-----	6262		-----		-----
1811		-----		-----	6266		-----		-----
1854		-----		-----	6291		-----		-----
1906		-----		-----	6317		-----		-----
1936		-----		-----	6332		-----		-----
1937		-----		-----	6346		-----		-----
1938		-----		-----	6384		-----		-----
1944		-----		-----	6386		-----		-----
6045		-----		-----	6404		-----		-----
6054		-----		-----	6405		-----		-----
6057		-----		-----	6406		-----		-----
6068		-----		-----	6416		-----		-----

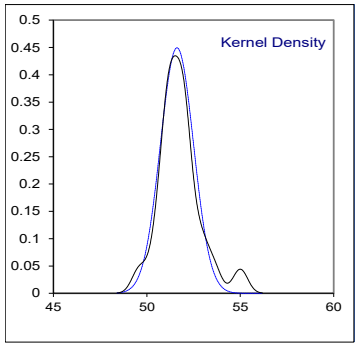
n	24
mean (n)	<0.05

Determination of Cetane Number (ASTM D613) of sample #21171

lab	method	value	mark	z(targ)	remarks
120	D613	51.2		-0.27	
140	D613	51.7		0.06	
150	D613	50.7		-0.60	
171	D613	52.0		0.25	
312	D613	51.1		-0.34	
323	D613	51.2		-0.27	
328		-----		-----	
343		-----		-----	
356		-----		-----	
381	EN17155	50.9		-0.47	
551	D613	52.21		0.39	
657	D613	53.6		1.31	
754	D613	51.77		0.10	
862	D613	51.8		0.12	
904		-----		-----	
963	D613	52.1		0.32	
1011	ISO5165	50.4		-0.80	
1026	ISO5165	51.1		-0.34	
1059		-----		-----	
1065	D613	51.6		-0.01	
1134		-----		-----	
1299	D613	51.3		-0.21	
1356	ISO4264	55	R(0.05)	2.23	
1357	D613	52.0		0.25	
1631		-----		-----	
1650		-----		-----	
1709	D613	51.27		-0.23	
1792	D613	52.2		0.38	
1807		-----		-----	
6057		-----		-----	
6103	D613	49.6		-1.33	
6142		-----		-----	
6201	EN17155	52.8		0.78	
6262	D613	53.0		0.91	
6291		-----		-----	

normality	OK
n	22
outliers	1
mean (n)	51.62
st.dev. (n)	0.887
R(calc.)	2.48
st.dev.(D613:18a)	1.519
R(D613:18a)	4.25





Determination of Derived Cetane Number (D6890) of sample #21171

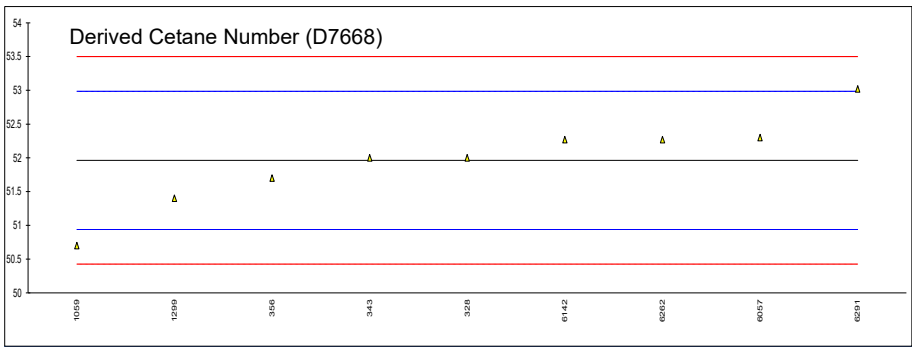
lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	Air Temp. (°C)
120		-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----
171		-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----
328		-----		-----	-----		-----	-----
343		-----		-----	-----		-----	-----
356		-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----
551		-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----
754		-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----
904	D6890	50.7		-----	4.03		-----	562.9
963		-----		-----	-----		-----	-----
1011		-----		-----	-----		-----	-----
1026		-----		-----	-----		-----	-----
1059		-----		-----	-----		-----	-----
1065		-----		-----	-----		-----	-----
1134		-----		-----	-----		-----	-----
1299		-----		-----	-----		-----	-----
1356		-----		-----	-----		-----	-----
1357	D6890	n.a		-----	n.a		-----	n.a
1631		-----		-----	-----		-----	-----
1650		-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----
1792		-----		-----	-----		-----	-----
1807	EN17155	51.03		-----	-----		-----	-----
6057		-----		-----	-----		-----	-----
6103		-----		-----	-----		-----	-----
6142		-----		-----	-----		-----	-----
6201		-----		-----	-----		-----	-----
6262		-----		-----	-----		-----	-----
6291		-----		-----	-----		-----	-----

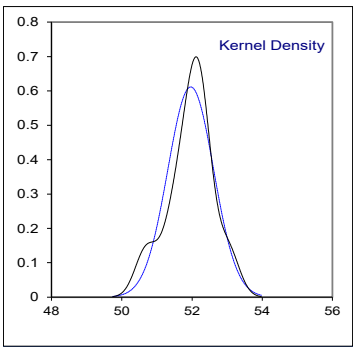
Determination of Derived Cetane Number (D7668) of sample #21171

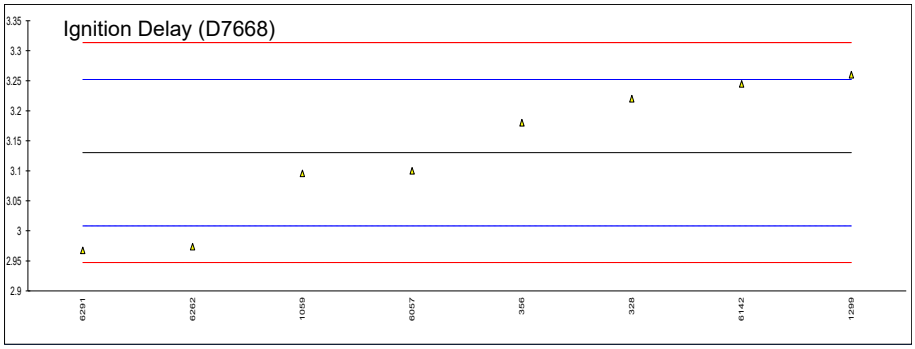
lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	CD (ms)	mark	z(targ)	W. T. (°C)
120		-----		-----	-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----		-----	-----
150		-----		-----	-----		-----	-----		-----	-----
171		-----		-----	-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----		-----	-----
328	D7668	52.0		0.07	3.22		1.47	4.58		-0.06	590.5
343	D7668	52.0		0.07	-----		-----	-----		-----	-----
356	D7668	51.7		-0.51	3.18		0.82	4.61		0.56	610
381		-----		-----	-----		-----	-----		-----	-----
551		-----		-----	-----		-----	-----		-----	-----
657		-----		-----	-----		-----	-----		-----	-----
754		-----		-----	-----		-----	-----		-----	-----
862		-----		-----	-----		-----	-----		-----	-----
904		-----		-----	-----		-----	-----		-----	-----
963		-----		-----	-----		-----	-----		-----	-----
1011		-----		-----	-----		-----	-----		-----	-----
1026		-----		-----	-----		-----	-----		-----	-----
1059	D7668	50.7		-2.47	3.0956		-0.57	4.6964		2.35	601
1065		-----		-----	-----		-----	-----		-----	-----
1134		-----		-----	-----		-----	-----		-----	-----
1299	D7668	51.4		-1.10	3.26		2.13	4.64		1.18	587
1356		-----		-----	-----		-----	-----		-----	-----
1357	D7668	n.a		-----	n.a		-----	n.a		-----	n.a
1631		-----		-----	-----		-----	-----		-----	-----
1650		-----		-----	-----		-----	-----		-----	-----
1709		-----		-----	-----		-----	-----		-----	-----
1792		-----		-----	-----		-----	-----		-----	-----
1807		-----		-----	-----		-----	-----		-----	-----
6057	D7668	52.3	C	0.66	3.10	C	-0.49	4.55	C	-0.68	588.4
6103		-----		-----	-----		-----	-----		-----	-----
6142	D7668	52.27		0.60	3.24455		1.87	4.559		-0.50	597.475
6201		-----		-----	-----		-----	-----		-----	-----
6262	D7668	52.27		0.60	2.9737		-2.56	4.5459		-0.77	603.99
6291	D7668	53.02		2.07	2.9674		-2.67	4.4822		-2.09	602.81
	normality	suspect			unknown			unknown			
	n	9			8			8			
	outliers	0			0			0			
	mean (n)	51.96			3.13			4.58			
	st.dev. (n)	0.652			0.116			0.066			
	R(calc.)	1.83			0.32			0.18			
	st.dev.(D7668:17)	0.512			0.061			0.048			
	R(D7668:17)	1.43			0.17			0.14			

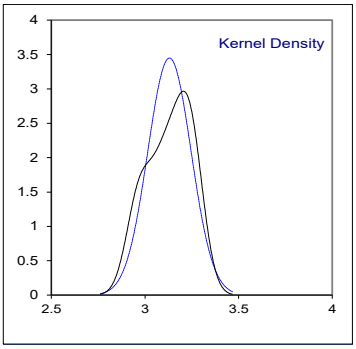
W.T. = Chamber Wall Temperature

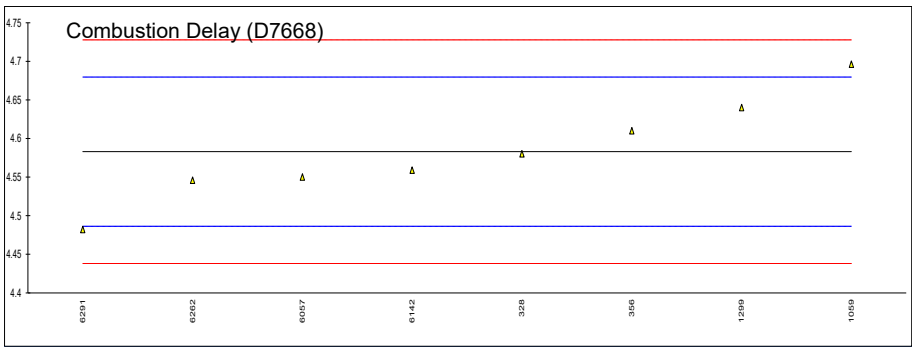
Lab 6057 first reported 47.7 for DCN, 3.65 for ID and 5.05 for CD

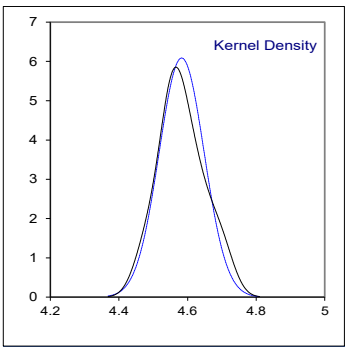

Derived Cetane Number (D7668)
54
53.5
53
52.5
52
51.5
51
50.5
50
1059
1299
356
343
328
6142
6262
6057
6291


Kernel Density
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
48
50
52
54
56


Ignition Delay (D7668)
3.35
3.3
3.25
3.2
3.15
3.1
3.05
3
2.95
2.9
6291
6262
1059
6057
356
328
6142
1299


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

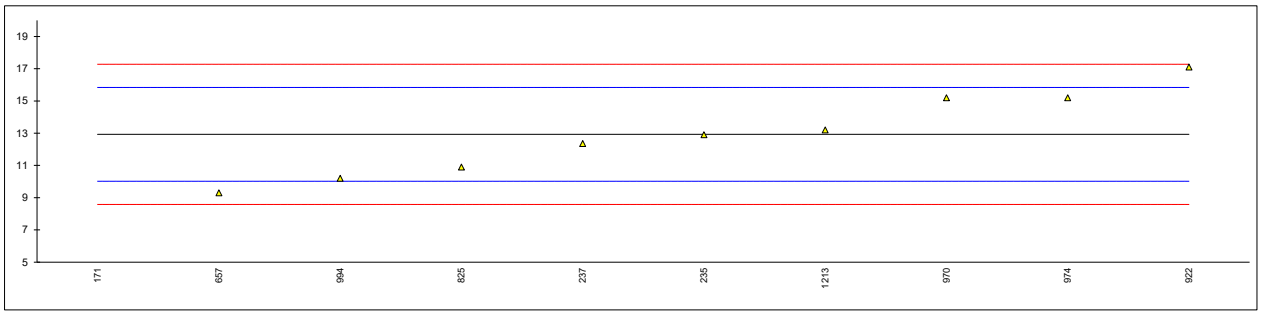

Combustion Delay (D7668)
4.75
4.7
4.65
4.6
4.55
4.5
4.45
4.4
6291
6262
6057
6142
328
356
1299
1059

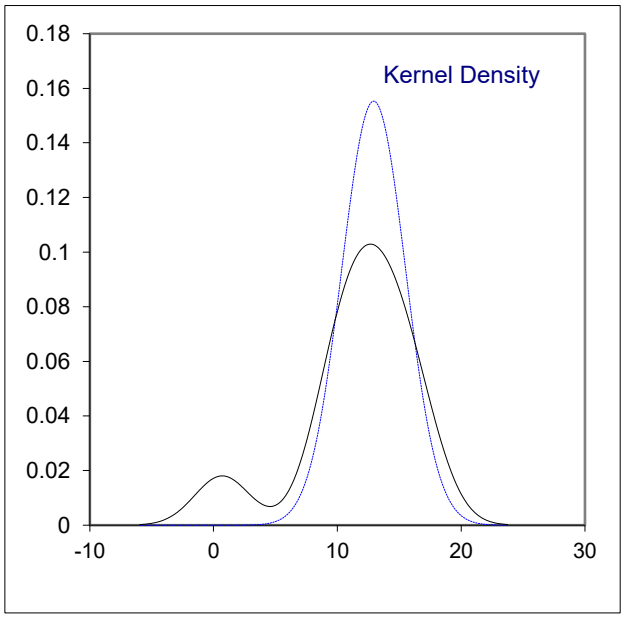

Kernel Density
7
6
5
4
3
2
1
0
4.2
4.4
4.6
4.8
5

Determination of Particulate Contamination on sample #21172; results in mg/L

lab	method	Part.Cont.	mark	z(targ)	Vol. filtered	No. of filtrations	remarks
120		-----		-----	-----	-----	
140		-----		-----	-----	-----	
150		-----		-----	-----	-----	
171	D6217	0.7	G(0.05)	-8.43	1000	1	
235	D6217	12.9		-0.02	975	1	
237	D6217	12.36		-0.39	500	1	
273		-----		-----	-----	-----	
317		-----		-----	-----	-----	
323		-----		-----	-----	-----	
328		-----		-----	-----	-----	
333		-----		-----	-----	-----	
334		-----		-----	-----	-----	
335		-----		-----	-----	-----	
342		-----		-----	-----	-----	
343		-----		-----	-----	-----	
349		-----		-----	-----	-----	
356		-----		-----	-----	-----	
365		-----		-----	-----	-----	
467		-----		-----	-----	-----	
507		-----		-----	-----	-----	
551		-----		-----	-----	-----	
603		-----		-----	-----	-----	
621		-----		-----	-----	-----	
657	D6217	9.3		-2.50	880	3	
750		-----		-----	-----	-----	
798		-----		-----	-----	-----	
825	D6217	10.9		-1.40	700	1	
862		-----		-----	-----	-----	
874		-----		-----	-----	-----	
912		-----		-----	-----	-----	
922	D6217	17.1		2.87	960	2	
963		-----		-----	-----	-----	
970	D6217	15.2		1.57	690	1	
974	D6217	15.2		1.57	690	1	
994	D6217	10.2		-1.88	600	1	
1006		-----		-----	-----	-----	
1011		-----		-----	-----	-----	
1026		-----		-----	-----	-----	
1059		-----		-----	-----	-----	
1082		-----		-----	-----	-----	
1105		-----		-----	-----	-----	
1134		-----		-----	-----	-----	
1135		-----		-----	-----	-----	
1213	D6217	13.20		0.19	1000	2	
1299		-----		-----	-----	-----	
1357	D6217	n.a		-----	n.a	n.a	
1510		-----		-----	-----	-----	
1634		-----		-----	-----	-----	
1650		-----		-----	-----	-----	
1792		-----		-----	-----	-----	
1807		-----		-----	-----	-----	
1854		-----		-----	300	-----	
1936		-----		-----	-----	-----	
1937		-----		-----	-----	-----	
1938		-----		-----	-----	-----	
6057		-----		-----	-----	-----	
6103		-----		-----	-----	-----	
6201		-----		-----	-----	-----	
6262		-----		-----	-----	-----	
6291		-----		-----	-----	-----	

normality	OK
n	9
outliers	1
mean (n)	12.93
st.dev. (n)	2.570
R(calc.)	7.20
st.dev.(D6217:21)	1.451
R(D6217:21)	4.06

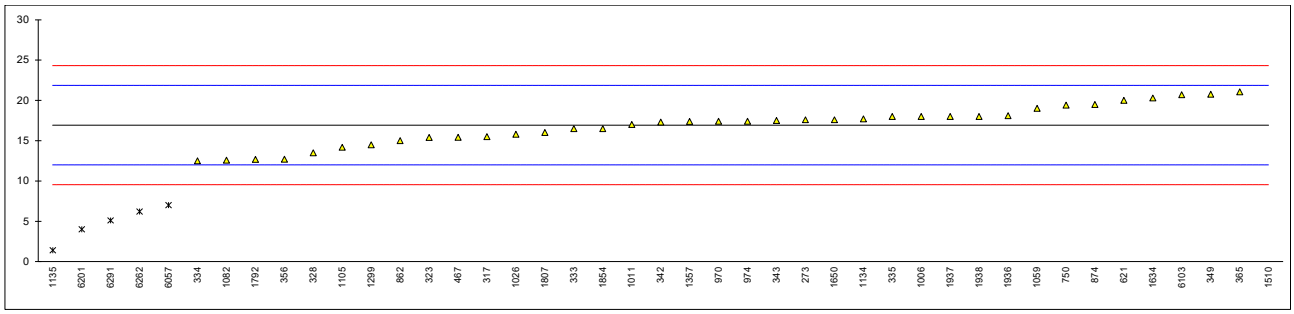

19
17
15
13
11
9
7
5
171
657
994
825
237
235
1213
970
974
922

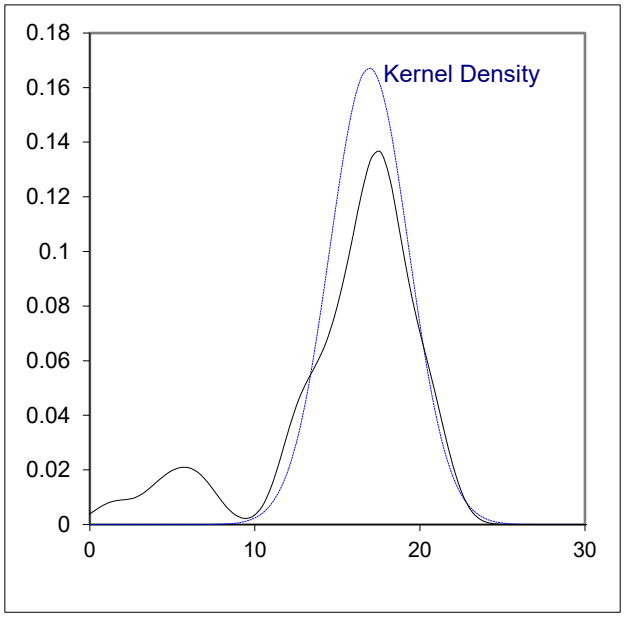

Kernel Density
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
-10
0
10
20
30

Determination of Total Contamination on sample #21172; results in mg/kg

lab	method	Total C.	mark	z(targ)	incomplete	vol. filtered (mL)	stopped (min)	remarks
120		-----		-----	-----	-----	-----	
140		-----		-----	-----	-----	-----	
150	EN12662:2014	<12.0		-----	Yes	300	-----	
171		-----		-----	-----	-----	-----	
235		-----		-----	-----	-----	-----	
237		-----		-----	-----	-----	-----	
273	IP440	17.6	C	0.27	Yes	300	-----	First reported 7.6
317	EN12662:2014	15.5		-0.58	Yes	300	-----	
323	EN12662:2014	15.4		-0.62	Yes	300	-----	
328	EN12662:2014	13.5		-1.39	-----	300	-----	
333	EN12662:2014	16.5		-0.18	-----	-----	-----	
334	EN12662:2014	12.5		-1.80	Yes	300	-----	
335	EN12662:2014	18		0.43	Yes	-----	-----	
342	EN12662:2014	17.3		0.15	Yes	300	6	
343	EN12662:2014	17.5		0.23	-----	-----	-----	
349	EN12662:2014	20.77	C	1.56	Yes	288	-----	First reported 28.58
356	EN12662:2014	12.7	C	-1.72	Yes	300	-----	First reported 25.8
365	IP440	21.054		1.67	-----	-----	-----	
467	EN12662:2014	15.42		-0.61	Yes	300	1	
507		-----		-----	-----	-----	-----	
551		-----		-----	-----	-----	-----	
603		-----		-----	-----	-----	-----	
621	EN12662:2014	20		1.25	Yes	300	15	
657		-----		-----	-----	-----	-----	
750	EN12662:2014	19.409		1.01	Yes	296.63	16	
798		-----		-----	-----	-----	-----	
825		-----		-----	-----	-----	-----	
862	EN12662	15.0		-0.78	-----	NA	NA	
874	EN12662	19.5		1.04	Yes	-----	-----	
912		-----		-----	-----	-----	-----	
922		-----		-----	-----	-----	-----	
963		-----		-----	-----	-----	-----	
970	IP440	17.4		0.19	Yes	350	3	
974	IP440	17.4		0.19	Yes	300	3	
994		-----		-----	-----	-----	-----	
1006	EN12662:2014	18		0.43	Yes	300	-----	
1011	EN12662:2014	17.0		0.03	Yes	-----	-----	
1026	EN12662:2014	15.8		-0.46	Yes	318	15	
1059	EN12662:2014	19	C	0.84	Yes	-----	-----	First reported 28
1082	EN12662:2014	12.57106		-1.77	Yes	300	-----	
1105	IP440	14.178		-1.12	Yes	800	-----	
1134	EN12662:2014	17.7		0.31	Yes	-----	-----	
1135	EN12662:2014	1.4	R(0.01)	-6.31	Yes	350	1	
1213		-----		-----	-----	-----	-----	
1299	EN12662:2014	14.5		-0.99	Yes	300	-----	
1357	IP440	17.38		0.18	Yes	1000	n.a	
1510	EN12662	134.6	R(0.01)	47.79	-----	-----	-----	
1634	EN12662:2014	20.3		1.37	Yes	300	-----	
1650	EN12662:2014	17.60		0.27	Yes	-----	-----	
1792	EN12662:2014	12.68		-1.73	Yes	-----	-----	
1807	EN12662:2014	16		-0.38	Yes	-----	-----	
1854	EN12662:2014	16.5		-0.18	Yes	300	-----	
1936	EN12662:2014	18.1		0.47	Yes	300	6.10	
1937	EN12662:2014	18.0		0.43	Yes	300	6	
1938	EN12662:2014	18.0		0.43	Yes	300	6	
6057	EN12662:2014	7	C,R(0.01)	-4.03	Yes	-----	-----	First reported 37
6103	EN12662:2014	20.7		1.53	Yes	300	5	
6201	EN12662:2014	4	R(0.01)	-5.25	-----	300	-----	
6262	EN12662:2014	6.20	R(0.01)	-4.36	Yes	350	-----	
6291	EN12662:2008	5.1	R(0.01)	-4.80	Yes	-----	-----	

normality	OK
n	37
outliers	6
mean (n)	16.93
st.dev. (n)	2.387
R(calc.)	6.68
st.dev.(EN12662:14)	2.462
R(EN12662:14)	6.89

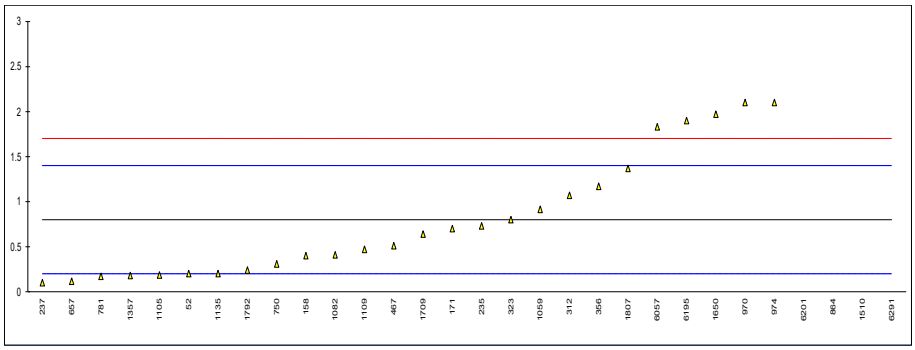

30
25
20
15
10
5
0
1135 6201 6291 6262 6057 334 1082 1792 356 328 1105 1299 862 323 467 317 1026 1807 333 1854 1011 342 1357 970 974 343 273 1650 1134 335 1006 1937 1938 1936 1059 750 874 621 1634 6103 349 365 1510

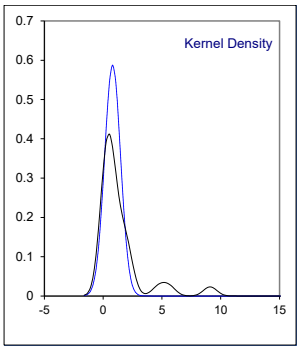

Kernel Density
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
10
20
30

Determination of Oxidation Stability Filterable Insolubles (A) on sample #21173; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D2274	0.2		-2.10	
120		-----		-----	
140		-----		-----	
150		-----		-----	
158	D2274	0.4		-1.40	
171	D2274	0.7		-0.35	
235	ISO12205	0.73		-0.24	
237	D2274	0.1		-2.46	
312	D2274	1.07		0.95	
323	D2274	0.8		0.00	
334		-----		-----	
343		-----		-----	
344		-----		-----	
356	ISO12205	1.17		1.30	
369		-----		-----	
467	D2274	0.51		-1.02	
507		-----		-----	
551		-----		-----	
657	D2274	0.1142		-2.41	
750	ISO12205	0.309		-1.72	
781	D2274	0.171		-2.21	
862		-----		-----	
864	D2274	5.6	R(0.01)	16.85	
874		-----		-----	
963		-----		-----	
970	D2274	2.1		4.57	
974	D2274	2.1		4.57	
1006		-----		-----	
1011		-----		-----	
1026		-----		-----	
1059	D2274	0.9143		0.40	
1082	ISO12205	0.40857		-1.37	
1105	D2274	0.185		-2.16	
1109	D2274	0.47		-1.16	
1134		-----		-----	
1135	ISO12205	0.2		-2.10	
1299		-----		-----	
1357	D2274	0.18		-2.17	
1510	D2274	9.1	R(0.01)	29.14	
1631		-----		-----	
1650	D2274	1.9715		4.11	
1709	D2274	0.64	C	-0.56	First reported 30.9713
1792	D2274	0.24		-1.96	
1807	ISO12205	1.37		2.00	
6057	ISO12205	1.83		3.62	
6195	D2274	1.90		3.86	
6201	D2274	4.714	R(0.01)	13.74	
6262		-----		-----	
6291	D2274	65.2	R(0.01)	226.08	

normality	OK
n	26
outliers	4
mean (n)	0.799
st.dev. (n)	0.6786
R(calc.)	1.900
st.dev.(D2274:14)	0.2849
R(D2274:14)	0.798

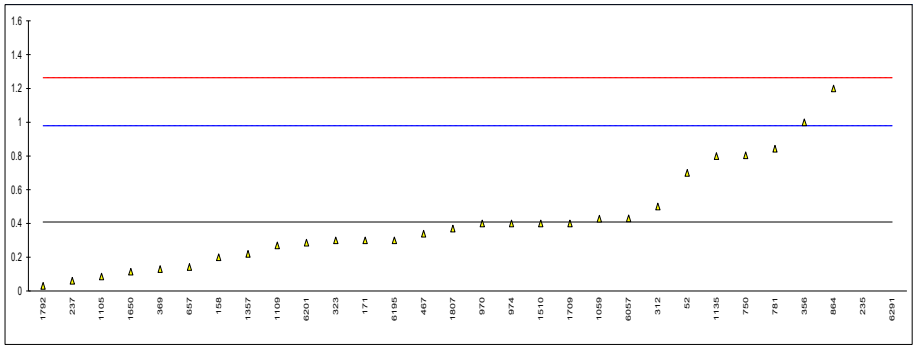


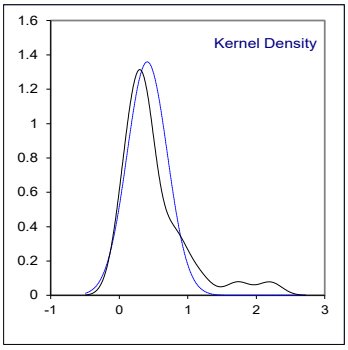


Determination of Oxidation Stability Adherent Insolubles (B) on sample #21173; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D2274	0.7		1.02	
120		-----		-----	
140		-----		-----	
150		-----		-----	
158	D2274	0.2		-0.73	
171	D2274	0.3		-0.38	
235	ISO12205	1.73	R(0.01)	4.64	
237	D2274	0.06		-1.23	
312	D2274	0.5	C	0.32	First reported 1.8
323	D2274	0.3		-0.38	
334		-----		-----	
343		-----		-----	
344		-----		-----	
356	ISO12205	1.0		2.07	
369	D2274	0.13		-0.98	
467	D2274	0.34		-0.24	
507		-----		-----	
551		-----		-----	
657	D2274	0.1428		-0.93	
750	ISO12205	0.804		1.39	
781	D2274	0.843		1.52	
862		-----		-----	
864	D2274	1.2		2.78	
874		-----		-----	
963		-----		-----	
970	D2274	0.4		-0.03	
974	D2274	0.4		-0.03	
1006		-----		-----	
1011		-----		-----	
1026		-----		-----	
1059	D2274	0.4286		0.07	
1082		-----		-----	
1105	D2274	0.086		-1.13	
1109	D2274	0.27		-0.49	
1134		-----		-----	
1135	ISO12205	0.8		1.37	
1299		-----		-----	
1357	D2274	0.22		-0.66	
1510	D2274	0.4		-0.03	
1631		-----		-----	
1650	D2274	0.1143		-1.03	
1709	D2274	0.40	C	-0.03	First reported 0.5428
1792	D2274	0.03		-1.33	
1807	ISO12205	0.37		-0.14	
6057	ISO12205	0.43		0.07	
6195	D2274	0.30		-0.38	
6201	D2274	0.286		-0.43	
6262		-----		-----	
6291	D2274	2.2	R(0.01)	6.29	

normality	suspect
n	28
outliers	2
mean (n)	0.409
st.dev. (n)	0.2936
R(calc.)	0.822
st.dev.(D2274:14)	0.2849
R(D2274:14)	0.798

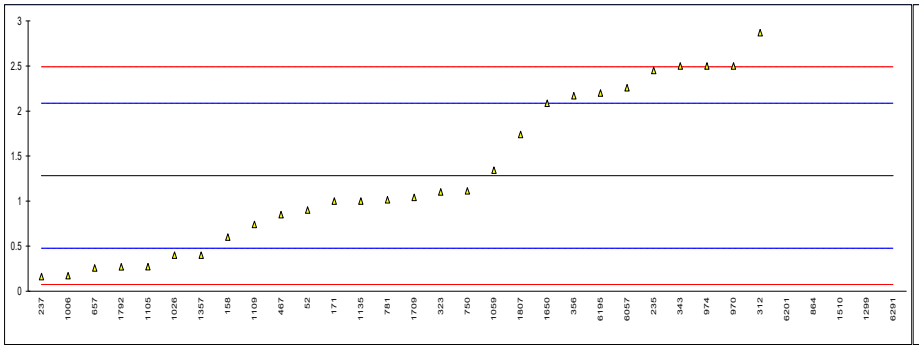


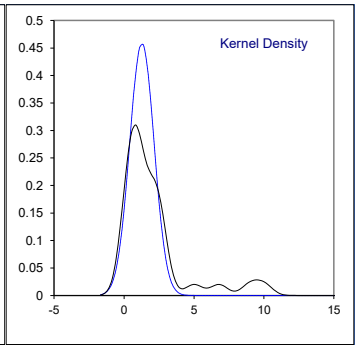


Determination of Oxidation Stability Total Insolubles (A+B) on sample #21173; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D2274	0.9		-0.95	
120		-----		-----	
140		-----		-----	
150		-----		-----	
158	D2274	0.6		-1.69	
171	D2274	1.0		-0.70	
235	ISO12205	2.45		2.90	
237	D2274	0.16		-2.79	
312	D2274	2.87	E	3.94	Calculation difference: iis calculated 1.6
323	D2274	1.1		-0.45	
334		-----		-----	
343	ISO12205	2.5		3.02	
344		-----		-----	
356	ISO12205	2.17		2.20	
369		-----		-----	
467	D2274	0.85		-1.07	
507		-----		-----	
551		-----		-----	
657	D2274	0.2570		-2.55	
750	ISO12205	1.113		-0.42	
781	D2274	1.014		-0.67	
862		-----		-----	
864	D2274	6.8	R(0.01)	13.70	
874		-----		-----	
963		-----		-----	
970	D2274	2.5		3.02	
974	D2274	2.5		3.02	
1006	D2274	0.17		-2.76	
1011		-----		-----	
1026	ISO12205	0.4		-2.19	
1059	D2274	1.3429		0.15	
1082		-----		-----	
1105	D2274	0.271		-2.51	
1109	D2274	0.74		-1.35	
1134		-----		-----	
1135	ISO12205	1.0		-0.70	
1299	D2274	10	R(0.01)	21.64	
1357	D2274	0.4		-2.19	
1510	D2274	9	R(0.01),E	19.16	Calculation difference: iis calculated 9.5
1631		-----		-----	
1650	D2274	2.0858		1.99	
1709	D2274	1.04	C	-0.60	First reported 31.5146
1792	D2274	0.27		-2.51	
1807	ISO12205	1.74		1.14	
6057	ISO12205	2.26		2.43	
6195	D2274	2.20		2.28	
6201	D2274	5.00	R(0.05)	9.23	
6262		-----		-----	
6291	D2274	67.4	R(0.01)	164.13	

normality	not OK
n	28
outliers	5
mean (n)	1.282
st.dev. (n)	0.8687
R(calc.)	2.432
st.dev.(D2274:14)	0.4028
R(D2274:14)	1.128





APPENDIX 2

Number of participants per country

1 lab in	ALBANIA	1 lab in	MONTENEGRO
2 labs in	AUSTRALIA	2 labs in	MOROCCO
2 labs in	AUSTRIA	1 lab in	MOZAMBIQUE
2 labs in	AZERBAIJAN	8 labs in	NETHERLANDS
6 labs in	BELGIUM	1 lab in	NIGER
4 labs in	BRAZIL	2 labs in	NIGERIA
5 labs in	CANADA	1 lab in	NORWAY
3 labs in	CHILE	2 labs in	OMAN
8 labs in	CHINA, People's Republic	1 lab in	PAKISTAN
1 lab in	COLOMBIA	1 lab in	PANAMA
2 labs in	COTE D'IVOIRE	1 lab in	PERU
2 labs in	CZECH REPUBLIC	4 labs in	PHILIPPINES
1 lab in	DENMARK	3 labs in	POLAND
1 lab in	DJIBOUTI	2 labs in	PORTUGAL
1 lab in	EGYPT	1 lab in	ROMANIA
1 lab in	FINLAND	10 labs in	RUSSIAN FEDERATION
6 labs in	FRANCE	2 labs in	SAUDI ARABIA
3 labs in	GEORGIA	1 lab in	SENEGAL
3 labs in	GERMANY	1 lab in	SERBIA
6 labs in	GREECE	1 lab in	SINGAPORE
1 lab in	GUINEA REPUBLIC	1 lab in	SLOVENIA
3 labs in	HONG KONG	1 lab in	SOUTH AFRICA
1 lab in	HUNGARY	9 labs in	SPAIN
3 labs in	INDIA	1 lab in	SUDAN
1 lab in	INDONESIA	1 lab in	SWEDEN
2 labs in	IRELAND	4 labs in	TAIWAN
2 labs in	ISRAEL	4 labs in	TANZANIA
1 lab in	KAZAKHSTAN	1 lab in	TOGO
2 labs in	KENYA	2 labs in	TUNISIA
1 lab in	KOREA, Republic of	5 labs in	TURKEY
1 lab in	LATVIA	1 lab in	TURKMENISTAN
1 lab in	MACEDONIA	4 labs in	UNITED ARAB EMIRATES
3 labs in	MALAYSIA	6 labs in	UNITED KINGDOM
1 lab in	MALTA	8 labs in	UNITED STATES OF AMERICA
1 lab in	MAURITIUS	1 lab in	VIETNAM

APPENDIX 3

Abbreviations

C	= final test result after checking of first reported suspect test result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
R(0.01)/ R1	= outlier in Rosner's outlier test
R(0.05)/ R5	= straggler in Rosner's outlier test
E	= calculation difference between reported test result and result calculated by iis
W	= test result withdrawn on request of participant
ex	= test result excluded from statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported
f+?	= possibly a false positive test result?
f-?	= possibly a false negative test result?
SDS	= Safety Data Sheet

Literature

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