

Results of Proficiency Test  
Gasoil - ASTM (winter)  
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Organised by: Institute for Interlaboratory Studies  
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## 1 INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies (iis) organizes several proficiency tests (PT) for Gasoil for the ASTM specification every year. During the annual proficiency testing program of 2019/2020, it was decided to continue the proficiency test for the testing of Gasoil (winter) in accordance with the latest applicable version of ASTM D975 and Colonial Pipeline specification.

The number of participants per sub round of the Gasoil PT:

- 186 laboratories in 82 different countries for the main round iis19G05ASTM
- 38 laboratories in 24 different countries for Cetane Number iis19G05CN
- 59 laboratories in 34 different countries for Total Contamination iis19G05TC
- 57 laboratories in 30 different countries registered for Oxidation Stability iis19G05OX.

In total 194 participants in 84 different countries registered for these Gasoil proficiency tests. See appendix 3 for the number of participants per country.

In this report, the results of the 2019 Gasoil proficiency tests are presented and discussed. This report is also electronically available through the iis website [www.iisnl.com](http://www.iisnl.com).

## 2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory.

Dependent on registration it was decided to send for the Gasoil main round 1.5L Gasoil labelled #19160 and 100mL Gasoil labelled #19164 for Cloud Point only. And to send for the Cetane Number determination 4L Gasoil labelled #19161, for the Total Contamination determination 1L Gasoil labelled #19162 and for the Oxidation Stability determination 1L Gasoil labelled #19163.

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

### 2.1 ACCREDITATION

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, is accredited in agreement with ISO/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](http://www.iisnl.com), from the FAQ page.

## 2.3 CONFIDENTIALITY STATEMENT

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

## 2.4 SAMPLES

### Preparation of the samples for the main round with regular Gasoil (winter)

For the main round approximately 800 liters of Gasoil was obtained from the local market. After homogenisation 205 amber glass bottles of 1L and 205 amber glass bottles of 0.5L were filled and both type of bottles were labelled #19160. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples from the 1L and 0.5L samples.

	Density at 15°C in kg/m <sup>3</sup>		Density at 15°C in kg/m <sup>3</sup>
sample #19160-1	838.26	sample #19160-6	838.26
sample #19160-2	838.26	sample #19160-7	838.26
sample #19160-3	838.26	sample #19160-8	838.25
sample #19160-4	838.25	sample #19160-9	838.26
sample #19160-5	283.26	sample #19160-10	838.26

Table 1: homogeneity test results of subsamples #19160

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

	Density at 15°C in kg/m <sup>3</sup>
r (observed)	0.01
reference test method	ASTM D4052:18a
0.3 x R (reference test method)	0.15

Table 2: evaluation of the repeatability of subsamples #19160

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

The batch (about 40 liters) for the extra Cloud Point sample was obtained from a third-party laboratory. After homogenisation 202 amber glass bottles of 100mL were filled and labelled #19164 and 192 amber glass bottles were labelled GO-210819. It is the intention to use the extra subsamples as reference material to determine Cloud Point in Gasoil only.

The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples from 394 subsamples.

	Density at 15°C in kg/m <sup>3</sup>		Density at 15°C in kg/m <sup>3</sup>
sample #19164-1	780.30	sample #19164-6	780.30
sample #19164-2	780.29	sample #19164-7	780.30
sample #19164-3	780.30	sample #19164-8	780.30
sample #19164-4	780.26	sample #19164-9	780.30
sample #19164-5	780.30	sample #19164-10	780.31

Table 3: homogeneity test results of subsamples #19164

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

	Density at 15°C in kg/m <sup>3</sup>
r (observed)	0.04
reference test method	ASTM D4052:18a
0.3 x R (reference test method)	0.15

Table 4: evaluation of the repeatability of subsamples #19164

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

#### Preparation of the the samples for PT on Cetane Number

For the PT on Cetane Number approximately 200 liters from the same batch as used for the main round was selected. After homogenisation 168 amber glass bottles of 1L were filled and labelled #19161. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m <sup>3</sup>		Density at 15°C in kg/m <sup>3</sup>
sample #19161-1	838.25	sample #19161-5	838.27
sample #19161-2	838.26	sample #19161-6	838.28
sample #19161-3	838.26	sample #19161-7	838.26
sample #19161-4	838.25	sample #19161-8	838.27

Table 5: homogeneity test results of subsamples #19161

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

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

Table 6: evaluation of the repeatability of subsamples #19161

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

#### Preparation of the samples for PT on Total Contamination

For the PT on Total Contamination in Gasoil approximately 100 liters from the same batch as used for the main round was selected. 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 the batch of Gasoil and subsequently homogenized. The subsamples are labelled #19162. The addition of Arizona Dust material was to give a total contamination of at least 16 mg/kg.

#### Preparation of the samples for PT on Oxidation Stability in Gasoil

Approximately 90 liters of Gasoil from the same batch as used for the main round was selected. After homogenisation 88 amber glass bottles of 1 liter were filled and labelled #19163. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m <sup>3</sup>		Density at 15°C in kg/m <sup>3</sup>
sample #19163-1	838.26	sample #19163-5	838.27
sample #19163-2	838.27	sample #19163-6	838.27
sample #19163-3	838.27	sample #19163-7	838.27
sample #19163-4	838.27	sample #19163-8	838.27

Table 7: homogeneity test results of subsamples #19163

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

	Density at 15°C in kg/m <sup>3</sup>
r (observed)	0.01
reference test method	ASTM D4052:18a
0.3 x R (reference test method)	0.15

Table 8: evaluation of the repeatability of subsamples #19163

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

Depending on the registration of the participants the following samples were sent on August 21, 2019: for the Gasoil main round 1 x1L bottle and 1 x0.5L bottle both labelled #19160 and 1 x100mL bottle labelled #19164, for the Cetane Number determination 4 x1L bottles all labelled #19161, for the Total Contamination determination 1 x1L bottle labelled #19162 and for the Oxidation Stability determination 1 x1L bottle labelled #19163. 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 ANALYSES

The participants were requested to determine on the samples of #19160: Acid number (Total), API Gravity, Aromatics by FIA (and dye lotnumber), Ash Content, Calculated Cetane Index (D976 and D4737), Cloud Point, Cold Filter Plugging Point (CFPP), Color ASTM, Conradson Carbon Residue (micro method), Ramsbottom Carbon Residue, Copper Corrosion 3hrs at 50°C, Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP, volume at 250°C and 350°C), FAME content, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR, Nitrogen, Pour Point (manual and/or automated), Sulfur Total, Water and Water & Sediment (D2709 and D1796).

On the samples of #19161 was requested to determine: Cetane Number and Derived Cetane number (D6890 and D7668).

On sample #19162 was requested to determine: Particulate and Total Contamination.

On sample #19163 was requested to determine: Oxidation Stability (Filterable Insolubles, Adherent Insolubles and Total Insolubles).

On sample #19164 was requested to determine Cloud Point only.

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

To get comparable test results, a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the appropriate reference test methods that will be used during the evaluation. The detailed report form and the letter of instructions are both made available on the data entry portal [www.kpmd.co.uk/sgs-iis/](http://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](http://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/](http://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.

According to ISO5725 the original test results per determination were submitted to Dixon's, Grubbs' and/or Rosner's outlier tests. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

Finally, the reproducibilities were calculated from the standard deviations by multiplying 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 was projected over the Kernel Density Graph for reference.

### 3.3 Z-SCORES

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

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

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

The z-scores were calculated according to:

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

The  $Z_{(\text{target})}$  scores are listed in the result tables of appendix 1.

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

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

## 4 EVALUATION

In this interlaboratory study a number of laboratories encountered problems with sample dispatch due to several reasons with transportation (customs).

For the main PT: twenty-seven participants did not report any test results at all and one participant reported the test results after the final reporting date.

For the PT on Cetane Number: ten participants did not report any test results at all.

For the PT on Total Contamination: thirteen participants did not report any test results at all.

For the Oxidation Stability PT: twelve participants did not report any test results at all.

Finally, in total 165 participants reported in total 3201 numerical test results. Observed were 62 outlying test results, which is 1.9%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

### 4.1 EVALUATION PER SAMPLE AND PER TEST

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

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

#### **Sample #19160**

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

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.

Aromatics by FIA: This determination was problematic for some laboratories. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1319:19. The reported lot numbers did not mention the suspected batch of dye gel.

One should be aware that this Gasoil does not meet the scope of ASTM D1319 with regards to the boiling range.

- Ash: This determination was not problematic at a concentration near or below the application range of the test method. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D482:13.
- CCI D976: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D976:06(2016) and ASTM D976:80(1990)e1. The specification for Gasoil ASTM D975:17 table 1 refers to the version from 1980.
- CCI D4737: Regretfully, no reproducibility is mentioned in procedure A of ASTM D4737:10(2016) nor in the equivalent test methods ISO4262:2007(E) 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. 17). This reproducibility has been used for the evaluations. This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of iis memo 1904.
- Cloud Point: 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 D2500:17a.
- CFPP: 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 D6371:17a or EN116:15. Also, when the test results from ASTM D6371 and IP309/EN116 were evaluated separately, both the calculated reproducibilities are still not in agreement with the requirements of the corresponding reference test methods.
- Color ASTM: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D1500:12(2017). 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. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D189:06(2014).
- Ramsbottom CR: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D524:15.

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

Density at 15°C: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D4052:18a.

Distillation: This determination was not problematic. In total fifteen statistical outliers were observed over eight parameters and four other test result were excluded. However, all calculated reproducibilities after rejection of the suspect data are in agreement with the requirements of ASTM D86:18 automated mode. When evaluated against the ASTM D86:18 manual mode the calculated reproducibilities of IBP, 95% rec. and FBP after rejection of the suspect data are not in agreement.

FAME: This determination was problematic dependent on test method used. Three statistical outliers were observed. However, 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 (A or B mode).

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: 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 D93-A:18.

Kinematic Viscosity at 40°C: This determination was not problematic. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D445:19.

Lubricity: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM 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 problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D4629:17(2017).  
A common source for deviations is that the standard density at 15°C is used and not the actual sample temperature with volumetric sampling.

Pour Point: The determination was not problematic for the manual mode. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D97:17b.

Also for the automated mode the determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D5950:14.

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

Water: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of the ASTM D6304-A:16e1.

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

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

#### **Sample #19164**

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

#### **Sample #19161**

CN - D613: 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.

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

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

**Sample #19162**

The samples were spiked with a freshly prepared suspension of Arizona Dust. Therefore, minimum Particulate/Total Contamination to be found was known. The laboratories should be able to find at least 10 mg/kg [16 mg/kg (added amount) – 6 mg/kg (R EN12662:14)]. Test results close to this minimal threshold are excluded.

Particulate Contamination: This determination was very problematic. The test results are bimodal distributed. As the calculated reproducibility is not at all in agreement with the requirements of ASTM D6217:18, no z-scores were calculated.

Total Contamination: This determination was problematic. One statistical outlier was observed and six other test results were excluded (possibly the samples were no shaken well enough before the test). The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN12662:14.

**Sample #19163**

Filterable Insolubles (A): This determination was not problematic at this low level of 0.17 mg/100mL. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D2274:14.

Adherent Insolubles Insolubles (B): This determination was not problematic at this low level of 0.14 mg/100mL. No statistical outliers were observed. The calculated reproducibility is in agreement with ASTM D2274:14.

Total Insolubles (A+B): This determination was not problematic at this low level of 0.29 mg/100mL. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D2274:14.

**4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES**

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

Parameter	unit	n	average	2.8 * sd	R (lit)
Acid Number (Total)	mgKOH/g	76	0.04	0.03	0.04
API Gravity		78	37.19	0.11	0.3
Aromatics by FIA	%V/V	16	21.9	4.0	3.7
Ash content	%M/M	73	0.0008	0.0013	0.005
Calc. Cetane Index ASTM D976		93	53.2	0.7	2
Calc. Cetane Index ASTM D4737		104	53.5	0.8	0.9

Parameter	unit	n	average	2.8 * sd	R (lit)
Cloud Point	°C	115	-7.3	2.4	4
Cold Filter Plugging Point	°C	99	-24.6	7.0	5.1
Color ASTM scale		106	1.1	0.6	1
Conradson Carbon Residue	%M/M	69	0.02	0.03	0.03
Ramsbottom Carbon Residue	%M/M	11	0.06	0.03	0.03
Copper Corrosion 3hrs at 50°C		120	1 (1a/1b)	n.a.	n.a.
Density at 15°C	kg/m <sup>3</sup>	150	838.3	0.3	0.5
Initial Boiling Point	°C	137	177.0	7.9	9.7
Temp at 10% recovery	°C	135	218.2	4.6	4.8
Temp at 50% recovery	°C	135	277.1	2.7	3.0
Temp at 90% recovery	°C	135	335.0	3.7	5.0
Temp at 95% recovery	°C	133	348.7	5.4	8.6
Final Boiling Point	°C	133	357.6	4.9	7.1
Volume at 250°C	%V/V	119	28.4	2.4	2.7
Volume at 350°C	%V/V	120	95.4	1.5	2.7
FAME	%V/V	59	6.3	0.8	1.0
Flash Point PMcc	°C	147	68.1	4.4	4.8
Kinematic Viscosity at 40°C	mm <sup>2</sup> /s	119	2.969	0.033	0.033
Lubricity by HFRR at 60°C	µm	51	187	52	80
Nitrogen	mg/kg	40	5.9	2.3	2.0
Pour Point, Manual	°C	76	-31.5	7.0	9
Pour Point, Automated	°C	42	-30.5	6.2	6.1
Sulfur	mg/kg	112	7.0	2.1	2.5
Water	mg/kg	111	56.6	53.3	190.3
Water and Sediment (D2709)	%V/V	46	<0.05	n.a.	n.a.
Water and Sediment (D1796)	%V/V	28	<0.1	n.a.	n.a.
Cloud Point (#19164)	°C	100	-32.4	4.1	4

Table 9: reproducibilities of tests on sample #19160 and sample #19164

Parameter	unit	n	average	2.8 * sd	R (lit)
Cetane Number		18	52.5	2.6	4.4
DCN (D6890)		4	51.3	1.9	2.7
Ignition Delay (D6890)		4	4.0	0.1	0.2
DCN (D7668)		7	52.7	2.7	1.5
Ignition Delay (D7668)		5	3.1	0.2	0.2
Combustion Delay (D7668)		5	4.5	0.1	0.1

Table 10: reproducibilities of tests on sample #19161

Parameter	unit	n	average	2.8 * sd	R (lit)
Particulate Contamination	mg/L	10	(14.9)	(17.0)	(4.4)
Total Contamination	mg/kg	29	21.9	9.7	7.7

Table 11: reproducibilities of tests on sample #19162

Parameter	unit	n	average	2.8 * sd	R (lit)
Oxidation Stab. Filt. Insol. A	mg/100mL	40	0.17	0.46	0.55
Oxidation Stab. Adher. Insol B	mg/100mL	39	0.14	0.36	0.55
Oxidation Stab. Tot. Insol. (A+B)	mg/100mL	38	0.29	0.45	0.78

Table 12: reproducibilities of tests on sample #19163

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

#### 4.3 COMPARISON OF THE INTERLABORATORY STUDY OF SEPTEMBER 2019 WITH PREVIOUS PTS.

	Sept 2019	Sept 2018	Sept 2017	Sept 2016	Sept 2015
Number of reporting labs	165	170	181	199	165
Number of test results reported	3201	3027	3341	3721	2996
Number of statistical outliers	62	84	83	61	55
Percentage outliers	1.9%	2.8%	2.5%	1.6%	1.8%

Table 13: comparison with previous proficiency tests

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

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

Parameter	Sept 2019	Sept 2018	Sept 2017	Sept 2016	Sept 2015
Acid Number (Total)	+	++	++	++	+
API Gravity	++	n.e	n.e	n.e	n.e
Aromatics by FIA	+/-	-	-	-	--
Ash content	++	++	(++)	(++)	(++)
Calc. Cetane Index ASTM D976	++	++	++	++	++
Calc. Cetane Index ASTM D4737	+	n.e	n.e	n.e	n.e
Cloud Point	+	+	++	++	++
Cold Filter Plugging Point	-	--	--	-	-
Color ASTM scale	+	++	++	++	++
Conradson Carbon Residue	+/-	+/-	+	+	+/-
Ramsbottom Carbon Residue	+/-	--	+/-	-	--
Density at 15°C	+	+	++	+	++



Parameter	Sept 2019	Sept 2018	Sept 2017	Sept 2016	Sept 2015
Distillation	+	+	+	+	+
FAME	+	+	++	++	++
Flash Point PMcc	+/-	+/-	+	+/-	+
Kinematic Viscosity at 40°C	+/-	+/-	+/-	-	+/-
Lubricity by HFRR at 60°C	+	-	++	-	--
Nitrogen	-	--	-	-	-
Pour Point (Manual and Auto)	+	+	++	++	+
Sulfur	+	+/-	+	+	+
Water	++	++	++	++	++
Cetane Number	+	+	+/-	+	+
DCN (D6890)	+	+	(--)	+/-	+/-
Ignition Delay (D6890)	+/-	+/-	(--)	+	+/-
DCN (D7668)	--	+	+	-	+/-
Ignition Delay (D7668)	+/-	--	-	+/-	+/-
Combustion Delay (D7668)	+/-	+/-	+/-	-	-
Particulate Contamination mg/L	(--)	-	--	-	--
Total Contamination mg/kg	-	-	-	+/-	--
Oxidation Stab. Filt. Insol. A	+	++	++	+/-	+/-
Oxidation Stab. Ad. Insol. B	+	+	+	+/-	+/-
Oxidation Stab. Total Insol.	+	+	++	+	+

Table 14: comparison determinations against the reference test method

No z-scores were calculated for determinations reported between brackets

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**

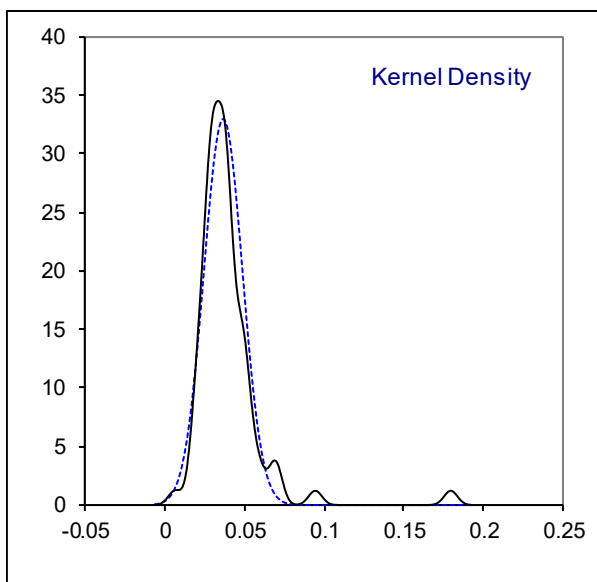
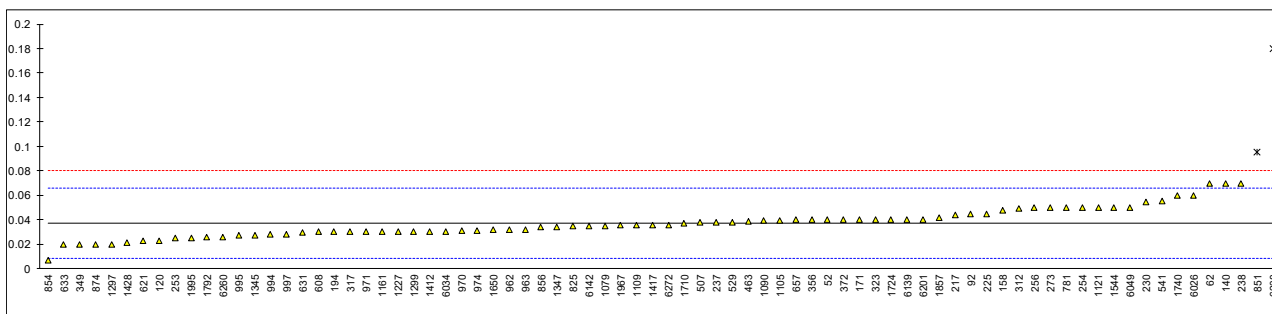
Determination of Acid Number (Total) on sample #19160; results in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D974	0.04		0.19	781	D974	0.05		0.89
53		----		----	782		----		----
62	D974	0.07		2.29	785		----		----
90		----		----	798		----		----
92	D974	0.045		0.54	825	D974	0.035		-0.16
120	D664-A	0.023		-1.00	846		----		----
140	D664-A	0.07	C	2.29	851	D664-A	0.095	R(0.01)	4.04
150	D664-A	<0.10		----	854	D664	0.007		-2.12
158	D664-A	0.048		0.75	856	D974	0.034		-0.23
159	D664-A	<0.1		----	862		----		----
169		----		----	863		----		----
171	D974	0.04		0.19	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194	D664-A	0.03		-0.51	874	D974	0.02		-1.21
203		----		----	886		----		----
217	D974	0.044		0.47	887		----		----
221		----		----	912		----		----
224		----		----	922	D664-A	<0.1		----
225	D974	0.045		0.54	962	D974	0.032		-0.37
228		----		----	963	D974	0.032		-0.37
230	D664-A	0.0542		1.19	970	D974	0.031		-0.44
237	D664-A	0.038		0.05	971	D974	0.03		-0.51
238	D974	0.07		2.29	974	D974	0.031		-0.44
240		----		----	988		----		----
253	D974	0.025		-0.86	994	D974	0.028		-0.65
254	D974	0.05		0.89	995	D974	0.027		-0.72
256	D974	0.05		0.89	996		----		----
258		----		----	997	D974	0.028		-0.65
273	D974	0.05		0.89	998		----		----
312	D974	0.049		0.82	1006		----		----
317	D974	0.03		-0.51	1012		----		----
323	D974	0.04		0.19	1026	D664-A	<0.05		----
333		----		----	1059		----		----
335		----		----	1079	D664-A	0.0351		-0.15
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090	D974	0.0397		0.17
342		----		----	1097		----		----
343	D664-A	<0.05		----	1105	D974	0.0397		0.17
344		----		----	1109	D974	0.036		-0.09
349	D664-A	0.02		-1.21	1121	D664-A	0.05		0.89
353		----		----	1126		----		----
355		----		----	1146		----		----
356	D974	0.04		0.19	1161	D664-A	0.03		-0.51
372	D974	0.04		0.19	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D974	0.039		0.12	1213		----		----
485		----		----	1227	D974	0.03		-0.51
507	D664	0.038		0.05	1277		----		----
511		----		----	1284		----		----
529	D664-A	0.0382		0.07	1297	D664-A	0.02		-1.21
541	D974	0.055		1.24	1299	D664-A	0.03		-0.51
554		----		----	1345	D974	0.027		-0.72
555		----		----	1347	D974	0.0341		-0.22
558		----		----	1348		----		----
562		----		----	1356	D664	<0.05		----
575		----		----	1385		----		----
603		----		----	1412	D664-A	0.030		-0.51
604		----		----	1417	D664-A	0.036		-0.09
608	D664-A	0.03		-0.51	1428	D664-A	0.021		-1.14
614		----		----	1430		----		----
621	D664-A	0.023		-1.00	1441		----		----
631	D974	0.0296		-0.54	1483		----		----
633	D664-A	0.02		-1.21	1498		----		----
634		----		----	1544	D974	0.050		0.89
657	D974	0.04		0.19	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650	D664-A	0.0316		-0.40
759		----		----	1710	D664-A	0.037		-0.02
778		----		----	1720		----		----
779		----		----	1724	D664-A	0.040		0.19

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D664-A	0.06		1.59	6068		----		----
1792	D664-A	0.026		-0.79	6103		----		----
1807		----		----	6139	D664	0.04		0.19
1849		----		----	6142	D644	0.035		-0.16
1857	D974	0.042		0.33	6172		----		----
1906		----		----	6201	D664-A	0.04		0.19
1944		----		----	6238	D664-A	0.18	C,R(0.01)	9.99
1967	D664	0.0354		-0.13	6253		----		----
1984		----		----	6260	GB/T 258-2016	0.026		-0.79
1995	D664	0.025		-0.86	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026	D664-A	0.06		1.59	6271		----		----
6034	D664-A	0.03		-0.51	6272	D974	0.036		-0.09
6049	D664-A	0.05		0.89	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----

normality OK  
n 76  
outliers 2  
mean (n) 0.0373  
st.dev. (n) 0.01209  
R(calc.) 0.0339  
st.dev.(D974:14e2) 0.01429  
R(D974:14e2) 0.04

Lab 140 first reported 0.00  
Lab 6238 first reported 0.10



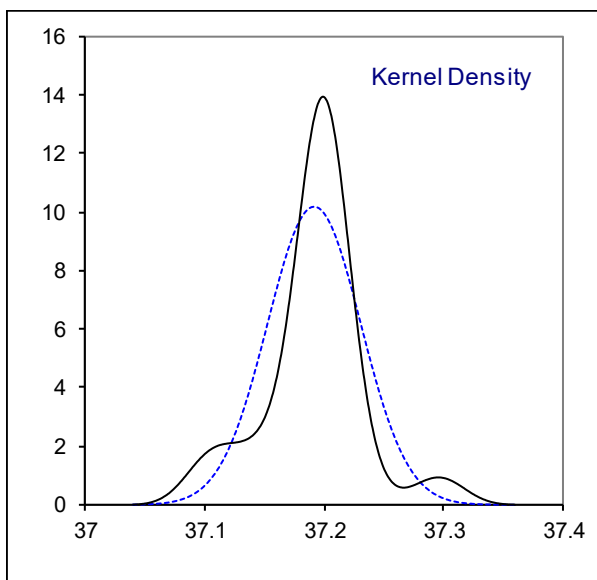
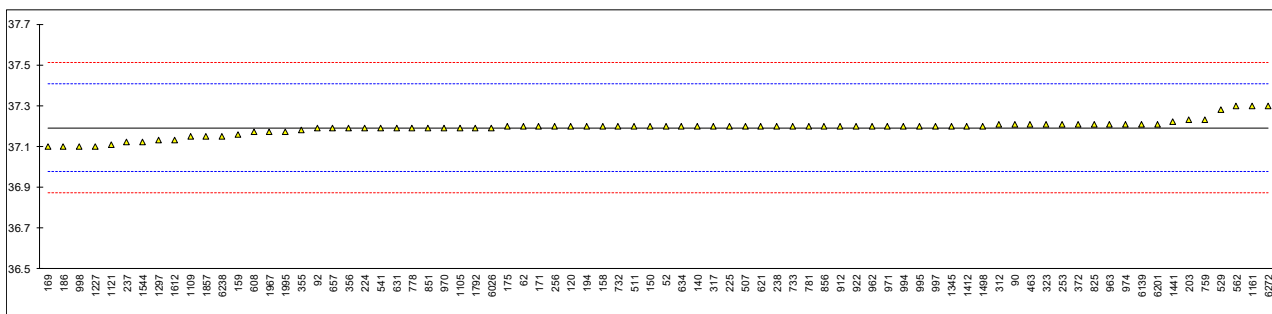
Determination of API Gravity on sample #19160;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	37.2		0.08	781	D4052	37.20		0.08
53		----		----	782		----		----
62	D4052	37.2		0.08	785		----		----
90	D4052	37.21		0.17	798		----		----
92	D4052	37.19		-0.02	825	D1298	37.21		0.17
120	D4052	37.2		0.08	846		----		----
140	D4052	37.2		0.08	851	D4052	37.19		-0.02
150	D4052	37.2		0.08	854		----		----
158	D4052	37.2		0.08	856	D4052	37.2		0.08
159	D4052	37.16		-0.30	862		----		----
169	D4052	37.1		-0.86	863		----		----
171	D1298	37.2		0.08	864		----		----
175	D4052	37.2		0.08	872		----		----
186	D4052	37.1		-0.86	873		----		----
194	D4052	37.2		0.08	874		----		----
203	D4052	37.23		0.36	886		----		----
217		----		----	887		----		----
221		----		----	912	D1298	37.2		0.08
224	D1298	37.19		-0.02	922	D4052	37.2		0.08
225	D4052	37.2		0.08	962	D4052	37.2		0.08
228		----		----	963	D4052	37.21		0.17
230		----		----	970	D4052	37.19		-0.02
237	D4052	37.12		-0.67	971	D1298	37.20		0.08
238	D4052	37.2		0.08	974	Calculation	37.21		0.17
240		----		----	988		----		----
253	D4052	37.21		0.17	994	D1250	37.2		0.08
254		----		----	995	D1298	37.2		0.08
256	D4052	37.2		0.08	996		----		----
258		----		----	997	D1298	37.2		0.08
273		----		----	998	D1298	37.1		-0.86
312	D4052	37.21		0.17	1006		----		----
317	D1298	37.2		0.08	1012		----		----
323	D1298	37.21		0.17	1026		----		----
333		----		----	1059		----		----
335		----		----	1079		----		----
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342		----		----	1097		----		----
343		----		----	1105	D4052	37.19		-0.02
344		----		----	1109	D287	37.15		-0.39
349		----		----	1121	D4052	37.11		-0.76
353		----		----	1126		----		----
355	D4052	37.18		-0.11	1146		----		----
356	D4052	37.19		-0.02	1161	D1298	37.3		1.01
372	D1298	37.21		0.17	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D1298	37.21		0.17	1213		----		----
485		----		----	1227	D1298	37.1		-0.86
507	D1298	37.2	C	0.08	1277		----		----
511	D4052	37.2		0.08	1284		----		----
529	D1298	37.28		0.82	1297	D4052	37.133		-0.55
541	D4052	37.19		-0.02	1299		----		----
554		----		----	1345	D1250	37.2		0.08
555		----		----	1347		----		----
558		----		----	1348		----		----
562	D1298	37.3		1.01	1356		----		----
575		----		----	1385		----		----
603		----		----	1412	D4052	37.20		0.08
604		----		----	1417		----		----
608	D4052	37.17		-0.20	1428		----		----
614		----		----	1430		----		----
621	D4052	37.2		0.08	1441	D1298	37.22		0.26
631	D4052	37.19		-0.02	1483		----		----
633		----		----	1498	D4052	37.2		0.08
634	D1298	37.2		0.08	1544	D4052	37.12		-0.67
657	D4052	37.19		-0.02	1588		----		----
732	ISO12185	37.2		0.08	1612	D1298	37.13305		-0.55
733	ISO12185	37.2		0.08	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650		----		----
759	D1250	37.23		0.36	1710		----		----
778	D1298	37.19		-0.02	1720		----		----
779		----		----	1724		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740		----		----	6068		----		----
1792	D4052	37.19		-0.02	6103		----		----
1807		----		----	6139	D4052	37.21		0.17
1849		----		----	6142		----		----
1857	D1250-Conversion	37.15		-0.39	6172		----		----
1906		----		----	6201	D4052	37.21		0.17
1944		----		----	6238	D1250	37.15	C	-0.39
1967	D1298	37.17		-0.20	6253		----		----
1984		----		----	6260		----		----
1995	D1298	37.17		-0.20	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026	D1298	37.19		-0.02	6271		----		----
6034		----		----	6272	D1298	37.30		1.01
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----

normality not OK  
n 78  
outliers 0  
mean (n) 37.192  
st.dev. (n) 0.0391  
R(calc.) 0.110  
st.dev.(D1298:12b) 0.1071  
R(D1298:12b) 0.3

Lab 507 first reported 838.30  
Lab 6238 first reported 837.1



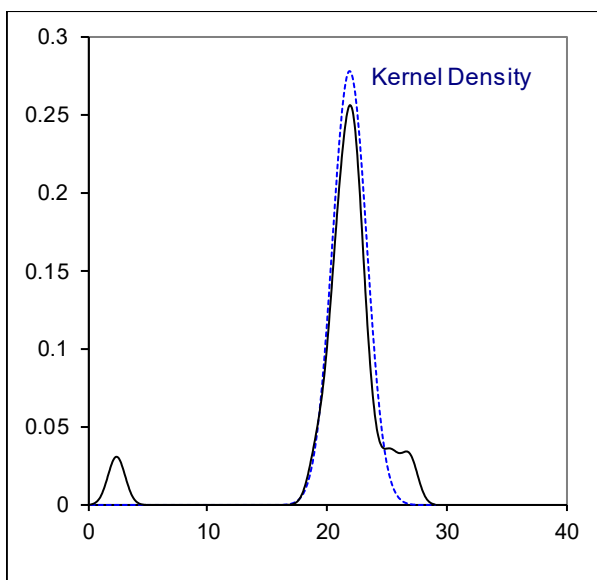
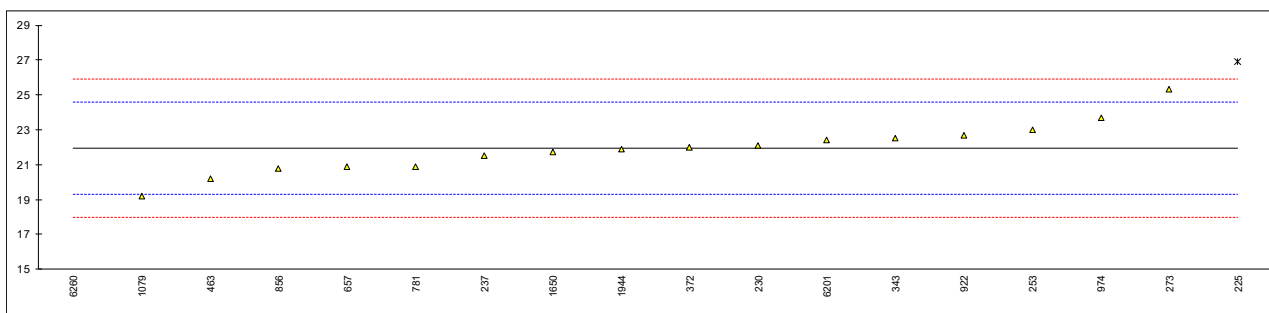
Determination of Aromatics by FIA on sample #19160; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	781	EN15553	20.9		-0.78
53		----		----	782		----		----
62		----		----	785		----		----
90		----		----	798		----		----
92		----		----	825		----		----
120		----		----	846		----		----
140		----		----	851		----		----
150		----		----	854		----		----
158		----		----	856	EN12916	20.8		-0.85
159		----		----	862		----		----
169		----		----	863		----		----
171		----		----	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874		----		----
203		----		----	886		----		----
217		----		----	887		----		----
221		----		----	912		----		----
224		----		----	922	D1319	22.7		0.59
225	D1319	26.9	DG(0.05)	3.77	962		----		----
228		----		----	963		----		----
230	D1319	22.1		0.13	970		----		----
237	D1319	21.5		-0.32	971		----		----
238		----		----	974	D1319	23.7		1.34
240		----		----	988		----		----
253	D1319	23.00		0.81	994		----		----
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273	D1319	25.3		2.55	998		----		----
312		----		----	1006		----		----
317		----		----	1012		----		----
323		----		----	1026		----		----
333		----		----	1059		----		----
335		----		----	1079	D1319	19.2		-2.06
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342		----		----	1097		----		----
343	D1319	22.50		0.44	1105		----		----
344		----		----	1109		----		----
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146		----		----
356		----		----	1161		----		----
372	D1319	22.0		0.06	1182		----		----
381		----		----	1194		----	W	----
433		----		----	1199		----		----
463	D1319	20.2	C	-1.30	1213		----		----
485		----		----	1227		----		----
507		----		----	1277		----		----
511		----		----	1284		----		----
529		----		----	1297		----		----
541		----		----	1299		----		----
554		----		----	1345		----		----
555		----		----	1347		----		----
558		----		----	1348		----		----
562		----		----	1356		----		----
575		----		----	1385		----		----
603		----		----	1412		----		----
604		----		----	1417		----		----
608		----		----	1428		----		----
614		----		----	1430		----		----
621		----		----	1441		----		----
631		----		----	1483		----		----
633		----		----	1498		----		----
634		----		----	1544		----		----
657	D1319	20.9		-0.78	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650	D1319	21.73		-0.15
759		----		----	1710		----		----
778		----		----	1720		----		----
779		----		----	1724		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740		----		----	6068		----		----
1792		----		----	6103		----		----
1807		----		----	6139		----		----
1849		----		----	6142		----		----
1857		----		----	6172		----		----
1906		----		----	6201	D1319	22.4		0.36
1944	D1319	21.86		-0.05	6238		----		----
1967		----		----	6253		----		----
1984		----		----	6260	SH/T 0806-2008	2.4601	G(0.01)	-14.73
1995		----		----	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----

normality suspect  
n 16  
outliers 2  
mean (n) 21.924  
st.dev. (n) 1.4348  
R(calc.) 4.018  
st.dev.(D1319:19) 1.3214  
R(D1319:19) 3.7

Lab 463 first reported 17.7  
Lab 1194 test result withdrawn, first reported 0.33



## Determination of Ash on sample #19160; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D482	<0.001		----	781	D482	0.0003		-0.27
53		----		----	782		----		----
62	D482	<0.001		----	785	D482	0.0017		0.51
90	D482	0.0012		0.23	798		----		----
92	D482	0.0002		-0.33	825	D482	L0.001		----
120		----		----	846		----		----
140	D482	0.000		-0.44	851	ISO6245	0.0014		0.34
150	D482	<0.001		----	854	D482	0.0009		0.06
158	D482	0		-0.44	856	D482	<0.001		----
159	D482	<0.001		----	862		----		----
169	D482	0.0		-0.44	863		----		----
171	D482	<0.001		----	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874	D482	0.0013		0.29
203	D482	0.0007		-0.05	886		----		----
217	D482	0.00069		-0.06	887		----		----
221		----		----	912	D482	0.0006		-0.11
224	D482	0.00072		-0.04	922	D482	<0.001		----
225	D482	0.0007		-0.05	962	D482	0.001		0.12
228		----		----	963	D482	0.001		0.12
230	ISO6245	0.0007		-0.05	970	D482	0.0006		-0.11
237	D482	0.00197		0.66	971	D482	0.001		0.12
238	D482	0.0007		-0.05	974	D482	0.0008		0.01
240		----		----	988		----		----
253	D482	0.0009		0.06	994	D482	0.0007		-0.05
254	D482	0.0007		-0.05	995	D482	0.0007		-0.05
256	D482	0.0007		-0.05	996		----		----
258		----		----	997	D482	0.0008		0.01
273	D482	<0.001		----	998	D482	0.0008		0.01
312		----		----	1006	D482	0.001		0.12
317	D482	<0.001		----	1012		----		----
323		----		----	1026	D482	0.001		0.12
333		----		----	1059	ISO6245	<0.001		----
335		----		----	1079	D482	0.001		0.12
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090	ISO6245	0		-0.44
342	ISO6245	0.001		0.12	1097		----		----
343	D482	<0.001		----	1105	D482	<0.01		----
344	D482	0.00079		0.00	1109	D482	0.000		-0.44
349		----		----	1121	D482	0.006	C,R(0.01)	2.92
353	IP4	0.00081		0.01	1126		----		----
355		----		----	1146	D482	<0.001		----
356	D482	<0.001		----	1161	ISO6245	0.00008		-0.40
372	D482	0.0004		-0.22	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D482	0.0005		-0.16	1213	D482	<0.005		----
485		----		----	1227		----		----
507	D482	0.00049		-0.17	1277		----		----
511		----		----	1284	D482	0.00073		-0.03
529	D482	0.00027		-0.29	1297		----		----
541	D482	<0.001		----	1299	D482	0.003	R(0.01)	1.24
554		----		----	1345	D482	0.0009		0.06
555		----		----	1347	D482	0.0002		-0.33
558		----		----	1348	D482	0.0004		-0.22
562	D482	0.001		0.12	1356	ISO6245	<0.010		----
575		----		----	1385	D482	0.0003		-0.27
603	D482	<0.001		----	1412	D482	0.0008		0.01
604		----		----	1417		----		----
608	D482	0.002		0.68	1428	D482	0.0009		0.06
614	D482	0.00199		0.67	1430	D482	<0.001		----
621	D482	<0.001		----	1441		----		----
631	D482	0.0007		-0.05	1483		----		----
633	D482	0.0012		0.23	1498		----		----
634	D482	0.0003		-0.27	1544	D482	0.0004		-0.22
657	D482	<0.001		----	1588		----		----
732	D482	0.0008		0.01	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636	D482	0.00025		-0.30
752		----		----	1650	D482	0.0002		-0.33
759	D482	<0.001		----	1710	ISO6245	0.001		0.12
778		----		----	1720		----		----
779	ISO6245	0.0002		-0.33	1724	ISO6245	0.001		0.12

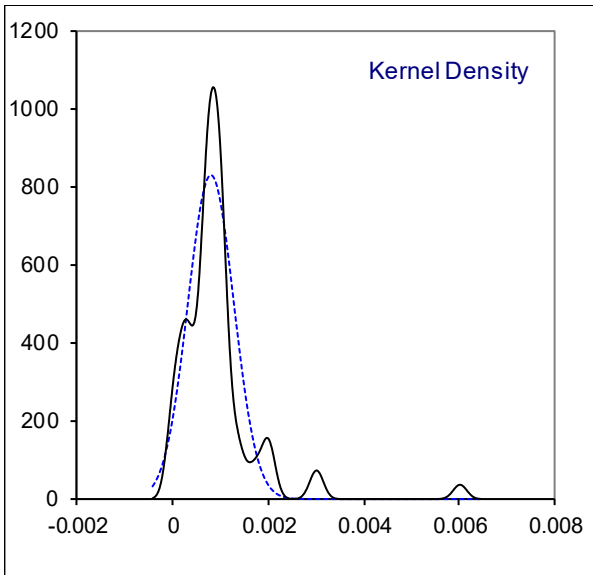
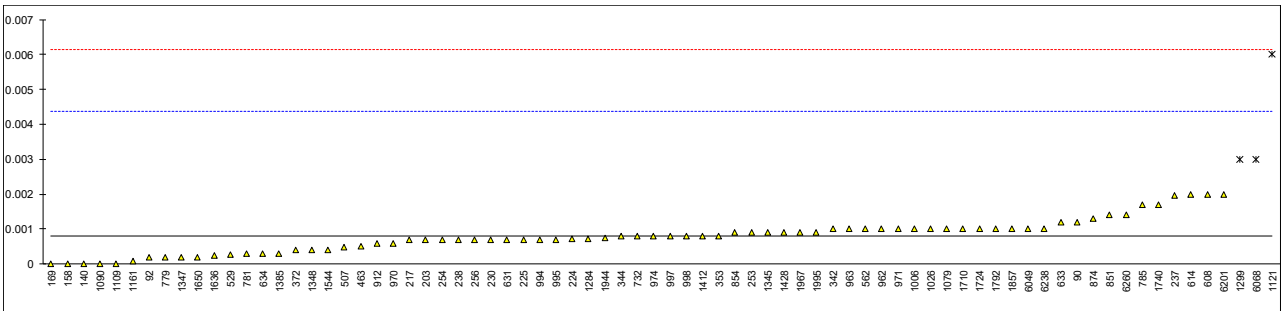


lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D482	0.0017		0.51	6068	ISO6245	0.003	R(0.01)	1.24
1792	D482	0.001		0.12	6103				
1807					6139				
1849	ISO6245	<0,001			6142				
1857	D482	0.0010		0.12	6172				
1906					6201	D482	0.002		0.68
1944	D482	0.00074		-0.03	6238	ISO6245	0.001		0.12
1967	D482	0.0009		0.06	6253				
1984					6260	GB/T 508-1985	0.0014		0.34
1995	D482	0.0009		0.06	6262				
6005					6266				
6018					6269				
6026					6271				
6034					6272				
6049	ISO6245	0.001		0.12	6277				
6054					6291				
6057	D482	<0,001			9128				

normality OK  
n 73  
outliers 3  
mean (n) 0.0008  
st.dev. (n) 0.00048  
R(calc.) 0.0013  
st.dev.(D482:13) 0.00179  
R(D482:13) 0.005

Application range: 0.001 – 0.180 %M/M

Lab 1121 first reported 0.018



## Determination of Calculated Cetane Index, two variables ASTM D976 on sample #19160

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D976	53.1		-0.15	781	D976	53.3		0.13
53		----		----	782	D976	53.2		-0.01
62	D976	53.2		-0.01	785	D976	53.3		0.13
90	D976	53.19		-0.02	798		----		----
92	D976	53.33		0.17	825	D976	52.8		-0.57
120	D976	53.56		0.50	846		----		----
140	D976	53.1		-0.15	851	D976	53.4		0.27
150	D976	53.3		0.13	854	D976	53.1		-0.15
158	D976	53.1		-0.15	856	D976	53.2		-0.01
159	D976	52.8		-0.57	862		----		----
169		----		----	863		----		----
171	D976	53.1		-0.15	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194	D976	53.4		0.27	874	D976	53.5		0.41
203		----		----	886	D976	53.2		-0.01
217	D976	53.10		-0.15	887	D976	53.1		-0.15
221		----		----	912	D976	53.0		-0.29
224	D976	53.03		-0.25	922	D976	53.1		-0.15
225	D976	53.0		-0.29	962	D976	53.4		0.27
228		----		----	963	D976	53.3		0.13
230	D976	53.4		0.27	970	D976	53.2		-0.01
237	D976	53.0		-0.29	971	D976	53.2		-0.01
238	D976	53.4		0.27	974	D976	53.3		0.13
240		----		----	988		----		----
253	D976	53.2		-0.01	994	D976	53.5		0.41
254	D976	53.0		-0.29	995	D976	53.4		0.27
256	D976	53.0		-0.29	996		----		----
258	D976	53.7		0.69	997		----		----
273		----		----	998		----		----
312	D976	53.5		0.41	1006	D976	53.1		-0.15
317	D976	53.2	C	-0.01	1012		----		----
323	D976	53.3		0.13	1026		----		----
333		----		----	1059		----		----
335		----		----	1079	D976	53.4		0.27
336	D976	53.0		-0.29	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342		----		----	1097		----		----
343		----		----	1105	D976	53.2		-0.01
344		----		----	1109		----		----
349		----		----	1121	D976	53.35		0.20
353		----		----	1126		----		----
355	D976	53.15		-0.08	1146	D976	53.2		-0.01
356	D976	53.3		0.13	1161		----		----
372	D976	53.3		0.13	1182	D976	53.3		0.13
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D976	53.4		0.27	1213	D976	53.6		0.55
485		----		----	1227		----		----
507	D976	52.22		-1.38	1277		----		----
511		----		----	1284		----		----
529	D976	53.26		0.08	1297	D976	53.0954		-0.15
541	D976	53.1		-0.15	1299		----		----
554		----		----	1345	D976	53.0		-0.29
555		----		----	1347		----		----
558		----		----	1348		----		----
562	D976	53.5		0.41	1356		----		----
575		----		----	1385		----		----
603		----		----	1412	D976	53.2		-0.01
604	D976	53.768		0.79	1417		----		----
608	D976	53.22		0.02	1428		----		----
614	D976	52.6		-0.85	1430		----		----
621	D976	53.3	E	0.13	1441		----		----
631	D976	53.256		0.07	1483		----		----
633	D976	53.55		0.48	1498	D976	53.3		0.13
634	D976	53.2		-0.01	1544	D976	53.4		0.27
657	D976	53.4		0.27	1588		----		----
732	D976	53.4		0.27	1612	D976	52.9970		-0.29
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650		----		----
759	D976	53.4		0.27	1710	D976	53.3		0.13
778		----		----	1720		----		----
779	D976	53.0		-0.29	1724	D976	53.00		-0.29

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D976	53.2		-0.01	6068		----		----
1792	D976	53.31		0.15	6103		----		----
1807	D976	53.0		-0.29	6139	D976	53.0	E	-0.29
1849		----		----	6142		----		----
1857	D976	53.3		0.13	6172		----		----
1906		----		----	6201	D976	52.9		-0.43
1944	D976	53.254		0.07	6238	D976	53.1		-0.15
1967	D976	53.1		-0.15	6253		----		----
1984		----		----	6260	GB 11139-1989	54	E	1.11
1995	D976	53.19	E	-0.02	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026	D976	53.2		-0.01	6271		----		----
6034		----		----	6272	D976	52	C,E	-1.69
6049	D976	53.04		-0.23	6277		----		----
6054		----		----	6291		----		----
6057	D976	53.2		-0.01	9128		----		----

normality not OK  
n 93  
outliers 0  
mean (n) 53.205  
st.dev. (n) 0.2657  
R(calc.) 0.744  
st.dev.(D976:06) 0.7143  
R(D976:06) 2

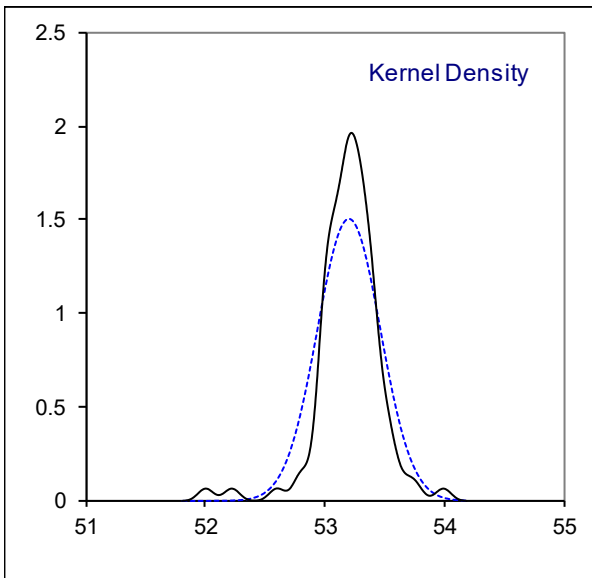
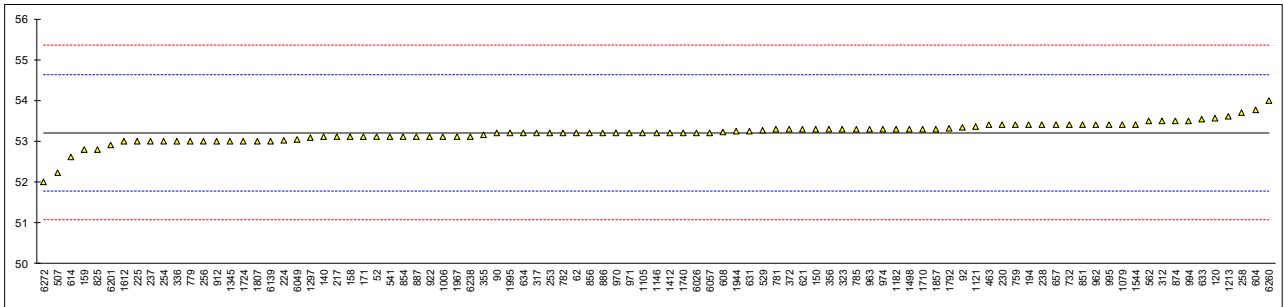
Compare R(D976:80) = 2

Lab 317 first reported 37.8  
Lab 6272 first reported 51.25

The CCI calculated by iis for labs marked with an E:

Lab 621: 53.10  
Lab 1995: 26.29  
Lab 6139: 53.39  
Lab 6260: 53.55  
Lab 6272: 52.43

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



## Determination of Calculated Cetane Index, four variables ASTM D4737 on sample #19160

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4737-A	53.6		0.22	781	D4737-A	53.7		0.53
53		----		----	782	D4737	53.5		-0.09
62	D4737-A	53.5		-0.09	785	D4737	53.6		0.22
90	D4737-A	53.48		-0.15	798		----		----
92	D4737-A	53.66		0.41	825	D4737-A	52.9		-1.94
120	D4737-A	54.02		1.52	846		----		----
140	D4737-A	53.4		-0.39	851	D4737-A	53.5		-0.09
150	D4737-A	53.8		0.84	854	D4737-A	53.4		-0.39
158		----		----	856	D4737	53.5		-0.09
159	D4737-A	53.3		-0.70	862		----		----
169	D4737-A	53.49	E	-0.12	863		----		----
171	D4737-A	53.4		-0.39	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194	D4737-A	53.9		1.15	874	D4737	53.9		1.15
203		----		----	886	D4737-A	53.5		-0.09
217	D4737-A	53.47		-0.18	887	D4737-A	53.3		-0.70
221		----		----	912	D4737-A	53.21		-0.98
224		----		----	922		----		----
225	D4737-A	53.5		-0.09	962	D4737-A	53.9		1.15
228		----		----	963	D4737-A	53.7		0.53
230	ISO4264	53.7		0.53	970	D4737-A	53.4		-0.39
237	D4737-A	53.1		-1.32	971	D4737-A	53.6		0.22
238		----		----	974	D4737-A	53.7		0.53
240		----		----	988		----		----
253	D4737	53.7		0.53	994	D4737-A	53.7		0.53
254		----		----	995	D4737-A	53.7		0.53
256		----		----	996		----		----
258		----		----	997		----		----
273	D4737-A	53.90		1.15	998	D4737-A	53.76		0.72
312	D4737-A	53.9		1.15	1006	D4737-A	53.3		-0.70
317	ISO4264	53.5	C	-0.09	1012		----		----
323	D4737-A	53.5		-0.09	1026	ISO4264	53.0		-1.63
333		----		----	1059	ISO4264	53.7		0.53
335		----		----	1079	ISO4264	53.8		0.84
336	D4737A	53.2		-1.01	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342	ISO4264	53.5		-0.09	1097	ISO4264	53.5		-0.09
343		----		----	1105	D4737-A	53.1	E	-1.32
344	D4737-A	53.14		-1.20	1109	D4737-A	53.3		-0.70
349		----		----	1121	D4737-A	53.5		-0.09
353	IP380	51.94	R(0.01)	-4.90	1126		----		----
355	D4737-A	53.81	E	0.87	1146		----		----
356	D4737-A	53.7		0.53	1161	ISO4264	53.67		0.44
372	D4737-A	53.7		0.53	1182	D4737-A	53.7		0.53
381		----		----	1194	D4737-A	54.3		2.38
433		----		----	1199		----		----
463	D4737-A	53.7		0.53	1213	D4737	53.5	E	-0.09
485	D4737-A	54.0		1.46	1227		----		----
507	D4737-A	52.28	E,R(0.01)	-3.85	1277		----		----
511		----		----	1284		----		----
529	D4737-A	53.629		0.31	1297		----		----
541	D4737-A	53.4		-0.39	1299	D4737-B	53.8	E	0.84
554		----		----	1345		----		----
555		----		----	1347	D4737-A	53.353		-0.54
558		----		----	1348	D4737-A	52.61		-2.83
562		----		----	1356	ISO4264	54		1.46
575		----		----	1385	D4737-A	53.52	C	-0.02
603		----		----	1412	D4737-A	53.5		-0.09
604		----		----	1417		----		----
608		----		----	1428	ISO4264	53.8		0.84
614	D4737-A	52.6		-2.86	1430		52.9		-1.94
621	ISO4264	53.4		-0.39	1441		----		----
631		----		----	1483		----		----
633		----		----	1498	D4737-A	53.6		0.22
634	D4737	53.6		0.22	1544	D4737-A	53.8		0.84
657	D4737-A	53.8		0.84	1588		----		----
732	D4737-A	53.8		0.84	1612	D4737	53.3289		-0.61
733		----		----	1629		----		----
750		----		----	1634	ISO4264	53.8		0.84
751		----		----	1636	D4737-A	53.476		-0.16
752		----		----	1650	ISO4264	53.5		-0.09
759	D4737-B	53.1		-1.32	1710	ISO4264	53.7		0.53
778		----		----	1720		----		----
779	ISO4264	53.3		-0.70	1724	D4737-A	53.38		-0.46

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D4737-A	53.3		-0.70	6068	ISO4264	53.5		-0.09
1792	ISO4264	53.62		0.28	6103		---		---
1807	D4737-A	53.2		-1.01	6139	D4737	53.8		0.84
1849	ISO4264	53.5		-0.09	6142		---		---
1857	D4737-A	53.6		0.22	6172		---		---
1906		---		---	6201	D4737-A	53.3		-0.70
1944	D4737-A	53.622		0.29	6238	ISO4264	52.7	E	-2.55
1967	D4737-A	53.4		-0.39	6253		---		---
1984	ISO4264	53.75		0.69	6260	SH/T 0694-2000	53.8		0.84
1995	D4737	53.30	E	-0.70	6262		---		---
6005	ISO4264	53.9		1.15	6266		---		---
6018	ISO4264	53.8		0.84	6269	D4737-A	53.5		-0.09
6026		---		---	6271		---		---
6034	D4737-A	53.4		-0.39	6272		---		---
6049	ISO4264	53.2		-1.01	6277		---		---
6054		---		---	6291		---		---
6057	D4737-A	53.6		0.22	9128		---		---

normality suspect  
n 104  
outliers 2  
mean (n) 53.528  
st.dev. (n) 0.2930  
R(calc.) 0.820  
st.dev.(iis memo 1904) 0.3241  
R(iis memo 1904) 0.907

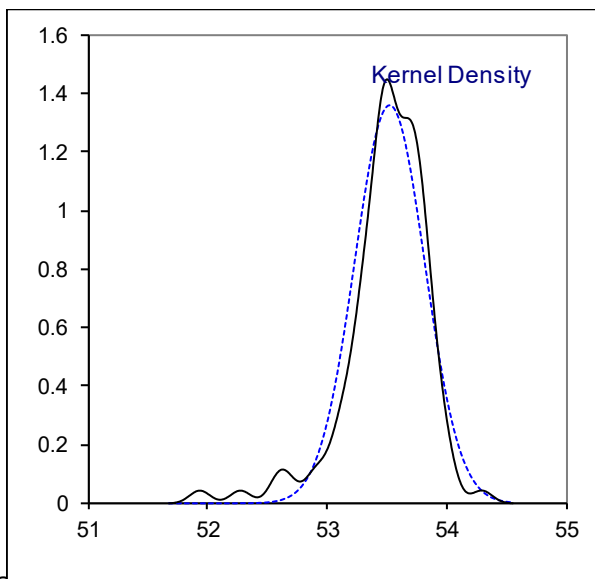
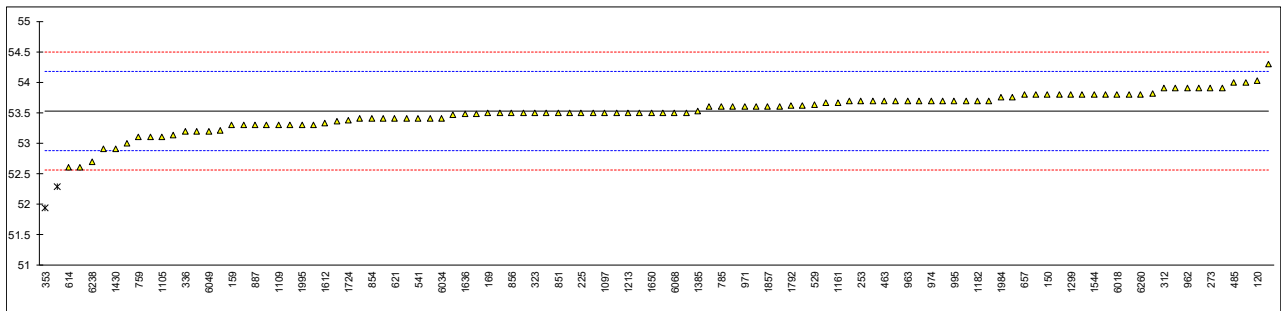
Compare R(iis18G05ASTM) = 0.872

Lab 317 first reported 35.5  
Lab 1385 first reported 52.42

The CCI calculated with method A (if method not mentioned) by iis for labs marked with an E:

- Lab 169 iis calculated 53.70
- Lab 335 iis calculated 53.13
- Lab 507 iis calculated 52.61
- Lab 1105 iis calculated 53.63
- Lab 1213 iis calculated 53.45
- Lab 1299 iis calculated 53.22, calculated with method B
- Lab 1995 iis calculated 23.03
- Lab 6238 iis calculated 53.35

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

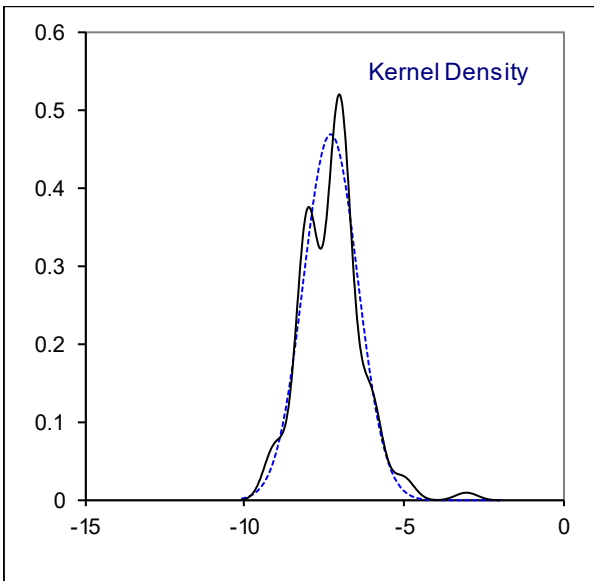
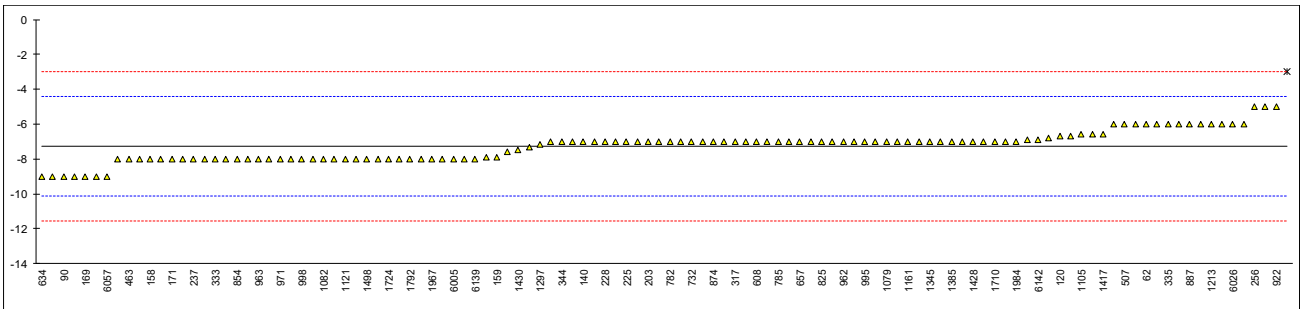


## Determination of Cloud Point on sample #19160; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5773	-6.8		0.32	781	D2500	-7		0.18
53	D2500	-7		0.18	782	D2500	-7		0.18
62	D2500	-6		0.88	785	D2500	-7		0.18
90	D2500	-9		-1.22	798		----		----
92	D2500	-7		0.18	825	D2500	-7		0.18
120	D5773	-6.7		0.39	846		----		----
140	D2500	-7.0		0.18	851	D2500	-6	C	0.88
150	D5771	-9		-1.22	854	D2500	-8.0		-0.52
158	D2500	-8		-0.52	856	D2500	-8		-0.52
159		-7.9		-0.45	862		----		----
169	D2500	-9		-1.22	863		----		----
171	D2500	-8		-0.52	864		----		----
175	D5771	-8		-0.52	872		----		----
186		----		----	873		----		----
194		----		----	874	D2500	-7		0.18
203	D2500	-7		0.18	886		----		----
217	D2500	-6		0.88	887	D2500	-6		0.88
221		----		----	912	D2500	-7		0.18
224	D2500	-9.0		-1.22	922	D2500	-5		1.58
225	D2500	-7		0.18	962	D2500	-7		0.18
228	D2500	-7		0.18	963	D2500	-8		-0.52
230	D2500	-7		0.18	970	D2500	-8		-0.52
237	D2500	-8	C	-0.52	971	D2500	-8		-0.52
238	D2500	<-30	f-?	<-15.92	974	D2500	-8		-0.52
240		----		----	988		----		----
253	D2500	-7		0.18	994	D2500	-7		0.18
254	D2500	-5		1.58	995	D2500	-7		0.18
256	D2500	-5		1.58	996		----		----
258		----		----	997	D2500	-6		0.88
273		----		----	998	D2500	-8		-0.52
312	D5771	-8		-0.52	1006		----		----
317	D5771	-7		0.18	1012		----		----
323		----		----	1026	D5773	-7		0.18
333	D2500	-8		-0.52	1059	ISO3015	-8		-0.52
335	D2500	-6		0.88	1079	D2500	-7		0.18
336	D2500	-6		0.88	1080	D2500	-6.9		0.25
337	EN23015	-7		0.18	1082	D5771	-8		-0.52
339		----		----	1090		----		----
342	ISO3015	-6		0.88	1097	EN23015	-8		-0.52
343	D5771	-8.0		-0.52	1105	D5773	-6.6		0.46
344	D2500	-7		0.18	1109	D5773	-6.7		0.39
349		----		----	1121	D2500	-8		-0.52
353		----		----	1126		----		----
355		----		----	1146	D2500	-7		0.18
356	D2500	-7		0.18	1161	D2500	-7		0.18
372	D2500	-7		0.18	1182	D5773	-6.6		0.46
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D2500	-8.0		-0.52	1213	D2500	-6		0.88
485		----		----	1227	D2500	-8		-0.52
507	D2500	-6.0		0.88	1277		----		----
511	D2500	-8		-0.52	1284	D5771	-7.3		-0.03
529	D2500	-7		0.18	1297	D5773	-7.15		0.08
541	D5771	-7.9		-0.45	1299	D2500	-7		0.18
554		----		----	1345	D2500	-7		0.18
555		----		----	1347	D2500	-7		0.18
558		----		----	1348	D2500	-6		0.88
562		----		----	1356	ISO3015	-3	R(0.01)	2.98
575		----		----	1385	D2500	-7		0.18
603		----		----	1412	D2500	-7		0.18
604	D2500	-8		-0.52	1417	IP444	-6.6	C	0.46
608	D2500	-7		0.18	1428	D2500	-7		0.18
614		----		----	1430		-7.5		-0.17
621	D2500	-8.0		-0.52	1441		----		----
631	D5773	-7.6		-0.24	1483		----		----
633		----		----	1498	D2500	-8		-0.52
634	D2500	-9		-1.22	1544	D2500	-8		-0.52
657	D2500	-7		0.18	1588		----		----
732	EN23015	-7		0.18	1612		----		----
733	EN23015	-7		0.18	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650	D5771	-7		0.18
759	D2500	-7		0.18	1710	EN23015	-7		0.18
778	D2500	-7		0.18	1720		----		----
779	EN23015	-7		0.18	1724	D2500	-8		-0.52

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)	
1740	D2500	-8		-0.52	6068		----		----	
1792	D2500	-8		-0.52	6103		----		----	
1807	D2500	-9		-1.22	6139	D2500	-8		-0.52	
1849		----		----	6142	ISO23015	-6.9		0.25	
1857	D2500	-7		0.18	6172		----		----	
1906		----		----	6201	D5771	-6		0.88	
1944	D2500	-8		-0.52	6238	D2500	----	W	----	
1967	D2500	-8		-0.52	6253		----		----	
1984	EN23015	-7		0.18	6260		----		----	
1995	D5771	-8		-0.52	6262		----		----	
6005	ISO3015	-8		-0.52	6266		----		----	
6018		----		----	6269		----		----	
6026	D2500	-6		0.88	6271		----		----	
6034		----		----	6272		----		----	
6049	EN23015	-8		-0.52	6277		----		----	
6054		----		----	6291		----		----	
6057	EN23015	-9		-1.22	9128		----		----	
normality		OK								
n		115								
outliers		1								
mean (n)		-7.26								
st.dev. (n)		0.849								
R(calc.)		2.38								
st.dev.(D2500:17a)		1.43								
R(D2500:17a)		4								

Lab 237 first reported -2  
 Lab 851 first reported -3  
 Lab 1417 first reported -30.3  
 Lab 6238 test result withdrawn, first reported 2



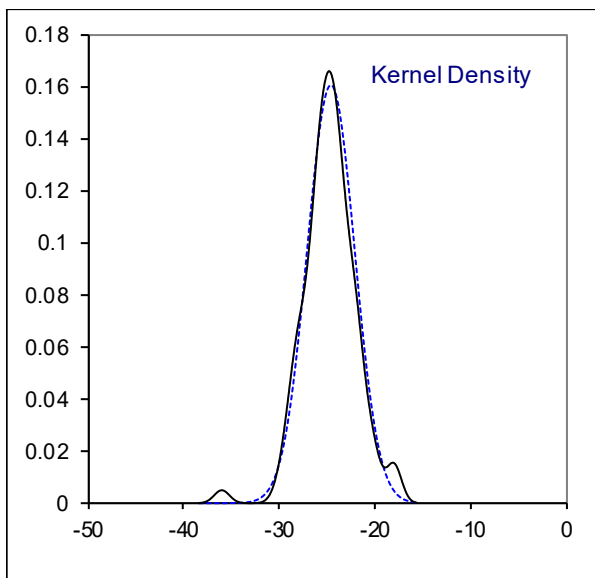
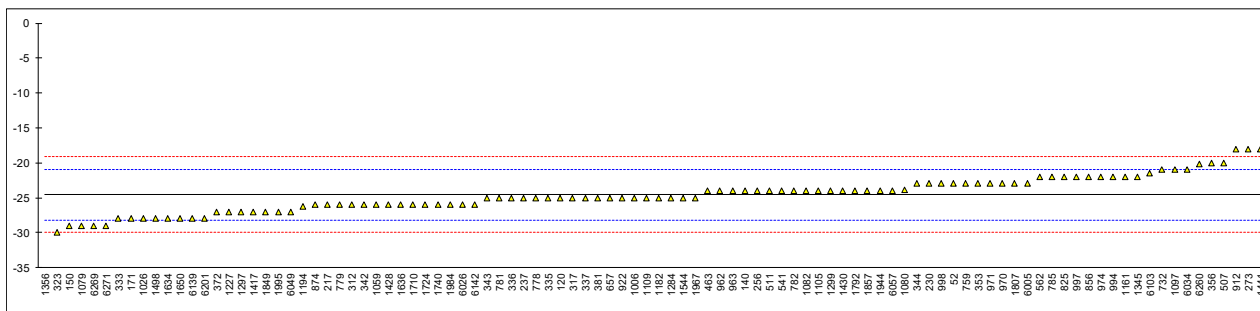
## Determination of Cold Filter Plugging Point (CFPP) on sample #19160; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6371	-23		0.88	781	D6371	-25		-0.23
53		----		----	782	D6371	-24		0.32
62		----		----	785	D6371	-22		1.43
90		----		----	798		----		----
92		----		----	825	D6371	-22		1.43
120	D6371	-25.0		-0.23	846		----		----
140	D6371	-24		0.32	851		----		----
150	D6371	-29		-2.44	854		----		----
158		----		----	856	D6371	-22		1.43
159		----		----	862		----		----
169		----		----	863		----		----
171	D6371	-28		-1.89	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874	D6371	-26		-0.78
203		----		----	886		----		----
217	D6371	-26		-0.78	887		----		----
221		----		----	912	D6371	-18		3.65
224		----		----	922	D6371	-25		-0.23
225		----		----	962	D6371	-24		0.32
228		----		----	963	D6371	-24		0.32
230	IP309	-23		0.88	970	D6371	-23		0.88
237	D6371	-25		-0.23	971	IP309	-23		0.88
238		----		----	974	IP309	-22		1.43
240		----		----	988		----		----
253		----		----	994	D6371	-22		1.43
254		----		----	995		----		----
256	IP309	-24		0.32	996		----		----
258		----		----	997	D6371	-22		1.43
273	IP309	-18		3.65	998	D6371	-23		0.88
312	D6371	-26		-0.78	1006	D6371	-25		-0.23
317	D6371	-25		-0.23	1012		----		----
323	EN116	-30		-3.00	1026	EN16329	-28		-1.89
333	D6371	-28		-1.89	1059	EN116	-26		-0.78
335	EN116	-25		-0.23	1079	EN116	-29		-2.44
336	D6371	-25		-0.23	1080	D6371	-23.9		0.38
337	EN116	-25		-0.23	1082	EN116	-24		0.32
339		----		----	1090		----		----
342	D6371	-26		-0.78	1097	EN116	-21		1.98
343	EN116	-25.0		-0.23	1105	D6371	-24		0.32
344	EN116	-23		0.88	1109	IP309	-25		-0.23
349		----		----	1121		----		----
353	IP309	-23		0.88	1126		----		----
355		----		----	1146		----		----
356	EN116	-20		2.54	1161	EN116	-22		1.43
372	D6371	-27		-1.34	1182	EN116	-25		-0.23
381	EN116	-25		-0.23	1194	EN116	-26.3		-0.95
433		----		----	1199		----		----
463	EN116	-24		0.32	1213		----		----
485		----		----	1227	IP309	-27		-1.34
507	D6371	-20.0		2.54	1277		----		----
511	D6371	-24		0.32	1284	D6371	-25		-0.23
529		----		----	1297	D6371	-27.0		-1.34
541	D6371	-24		0.32	1299	EN116	-24		0.32
554		----		----	1345	IP309	-22		1.43
555		----		----	1347		----		----
558		----		----	1348		----		----
562	D6371	-22		1.43	1356	D6371	-36	R(0.01)	-6.32
575		----		----	1385		----		----
603		----		----	1412		----		----
604		----		----	1417	IP309	-27		-1.34
608		----		----	1428	EN116	-26		-0.78
614		----		----	1430		-24		0.32
621		----		----	1441	D6371	-18		3.65
631		----		----	1483		----		----
633		----		----	1498	D6371	-28		-1.89
634		----		----	1544	D6371	-25		-0.23
657	IP309	-25		-0.23	1588		----		----
732	EN116	-21		1.98	1612		----		----
733		----		----	1629		----		----
750		----		----	1634	EN116	-28		-1.89
751		----		----	1636	EN116	-26		-0.78
752		----		----	1650	EN116	-28		-1.89
759	D6371	-23		0.88	1710	EN116	-26		-0.78
778	GOST22254	-25		-0.23	1720		----		----
779	EN116	-26		-0.78	1724	IP309	-26		-0.78



lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D6371	-26		-0.78	6068		----		----
1792	EN116	-24		0.32	6103	EN116	-21.5		1.71
1807	EN116	-23		0.88	6139	D6371	-28		-1.89
1849	EN116	-27		-1.34	6142	EN116	-26		-0.78
1857	D6371	-24		0.32	6172		----		----
1906		----		----	6201	EN116	-28		-1.89
1944	EN116	-24		0.32	6238		----		----
1967	IP309	-25		-0.23	6253		----		----
1984	EN116	-26		-0.78	6260	SH/T 0248	-20.2		2.43
1995	D6371	-27		-1.34	6262		----		----
6005	EN116	-23.0		0.88	6266		----		----
6018		----		----	6269	D6371	-29.0		-2.44
6026	D6371	-26		-0.78	6271	D6371	-29.0		-2.44
6034	D6371	-21		1.98	6272		----		----
6049	EN116	-27		-1.34	6277		----		----
6054		----		----	6291		----		----
6057	EN116	-24		0.32	9128		----		----

		Only D6371	Only IP309/EN116
normality	OK	OK	OK
n	99	48	47
outliers	1	1	0
mean (n)	-24.58	-24.54	-24.66
st.dev. (n)	2.487	2.568	2.397
R(calc.)	6.96	7.19	6.71
st.dev.(D6371:17a)	1.806	1.806	---
R(D6371:17a)	5.06	5.05	---
compare			
R(EN116:15)	4.48	---	4.48



Determination of Color ASTM scale on sample #19160;

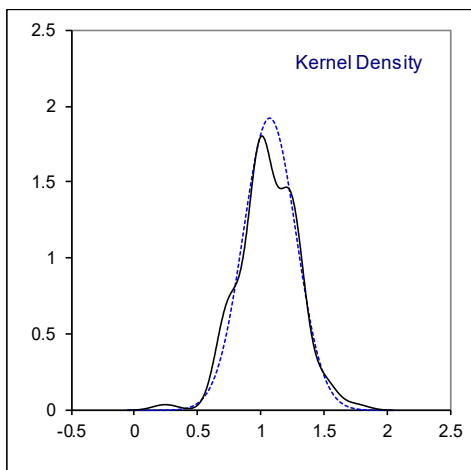
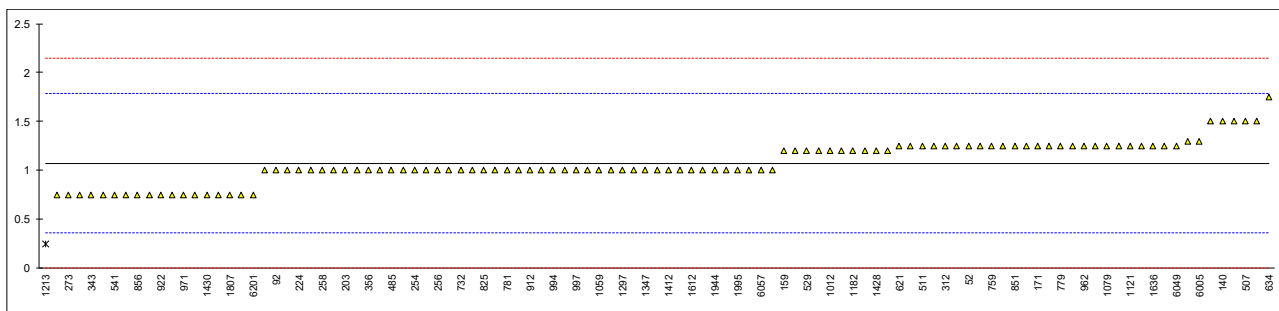
lab	method	reported test value	value	iis conversion *	mark	z(targ)	remarks
52	D6045	<1.5		1.25		0.50	
53		----		----		----	
62	D1500	1.0		1.0		-0.20	
90		----		----		----	
92	D1500	1		1		-0.20	
120		----		----		----	
140	D1500	1.5		1.5		1.20	
150	D1500	1		1		-0.20	
158		----		----		----	
159	D6045	1.2		1.2		0.36	
169		----		----		----	
171	D1500	L1.5		1.25		0.50	
175		----		----		----	
186		----		----		----	
194	D1500	1.0		1.0		-0.20	
203	D1500	1		1		-0.20	
217	D1500	<1,0		0.75		-0.90	
221		----		----		----	
224	D1500	1.0		1.0		-0.20	
225	D1500	1.2		1.2		0.36	
228	D1500	L 1.5		1.25		0.50	
230	D1500	1.0		1.0		-0.20	
237	D1500	L1.5		1.25		0.50	
238	D1500	1.0		1.0		-0.20	
240		----		----		----	
253	D1500	1.0		1.0		-0.20	
254	D1500	1.0		1.0		-0.20	
256	D1500	1.0		1.0		-0.20	
258	D1500	1.0		1.0		-0.20	
273	D1500	L1.0		0.75		-0.90	
312	D1500	<1.5		1.25		0.50	
317	D1500	1.0		1.0		-0.20	
323	D1500	L1.5		1.25		0.50	
333		----		----		----	
335	D1500	1.0		1.0		-0.20	
336		----		----		----	
337		----		----		----	
339		----		----		----	
342		----		----		----	
343	D1500	<1.0		0.75		-0.90	
344	D1500	<1.5		1.25		0.50	
349	D1500	<1,5		1.25		0.50	
353	D6045	1.5		1.5		1.20	
355		----		----		----	
356	D1500	1.0		1.0		-0.20	
372	D1500	<1.5		1.25		0.50	
381		----		----		----	
433		----		----		----	
463	D1500	1.5		1.5		1.20	
485	D1500	1.0		1.0		-0.20	
507	D1500	1.5		1.5		1.20	
511	D6045	L1.5		1.25		0.50	
529	D1500	1.2		1.2		0.36	
541	D1500	L1.0		0.75		-0.90	
554		----		----		----	
555		----		----		----	
558		----		----		----	
562	D1500	1.0		1.0		-0.20	
575		----		----		----	
603	D1500	1.0		1.0		-0.20	
604	D1500	L 1.5		1.25		0.50	
608		----		----		----	
614	D1500	1.0		1.0		-0.20	
621	D1500	L 1.5		1.25		0.50	
631	D6045	<1.5		1.25		0.50	
633	D1500	L1.0		0.75		-0.90	
634	D1500	L2.0		1.75		1.90	
657	D1500	L1.0		0.75		-0.90	
732	D1500	1.0		1.0		-0.20	
733		----		----		----	
750		----		----		----	
751		----		----		----	
752		----		----		----	
759	D6045	L1.5		1.25		0.50	
778		----		----		----	
779	D1500	L1.5		1.25		0.50	

lab	method	reported test value	value	iis conversion *	mark	z(targ)	remarks
781	D1500	1.0		1.0		-0.20	
782		----		----		----	
785	D1500	1.2		1.2		0.36	
798		----		----		----	
825	D1500	1.0		1.0		-0.20	
846		----		----		----	
851	D1500	L1.5		1.25		0.50	
854	D1500	L1.0		0.75		-0.90	
856	D1500	L1.0		0.75		-0.90	
862		----		----		----	
863		----		----		----	
864		----		----		----	
872		----		----		----	
873		----		----		----	
874	D1500	1.0		1.0		-0.20	
886		----		----		----	
887	D1500	L1.0		0.75		-0.90	
912	D1500	1.0		1.0		-0.20	
922	D1500	L1.0		0.75		-0.90	
962	D1500	L1.5		1.25		0.50	
963	D1500	1.0		1.0		-0.20	
970	D1500	L1.0		0.75		-0.90	
971	D1500	L1.0		0.75		-0.90	
974	D1500	L1.0		0.75		-0.90	
988		----		----		----	
994	D1500	1.0		1.0		-0.20	
995	D1500	1.0		1.0		-0.20	
996		----		----		----	
997	D1500	1.0		1.0		-0.20	
998	D1500	1		1		-0.20	
1006		----		----		----	
1012	D1500	1.2		1.2		0.36	
1026	D1500	L1.5		1.25		0.50	
1059	D1500	1.0		1.0		-0.20	
1079	D1500	L1.5		1.25		0.50	
1080		----		----		----	
1082		----		----		----	
1090		----		----		----	
1097		----		----		----	
1105	D6045	L1.5		1.25		0.50	
1109	D6045	1.2		1.2		0.36	
1121		<1.5		1.25		0.50	
1126		----		----		----	
1146		----		----		----	
1161		----		----		----	
1182	D1500	1.2		1.2		0.36	
1194		----		----		----	
1199		----		----		----	
1213	D1500	L0.5		0.25	R(0.05)	-2.30	
1227	D1500	1		1		-0.20	
1277		----		----		----	
1284	D6045	1.2		1.2		0.36	
1297	D1500	1.0		1.0		-0.20	
1299		----		----		----	
1345	D1500	1		1		-0.20	
1347	D1500	1.0		1.0		-0.20	
1348		----		----		----	
1356		----		----		----	
1385	D1500	1.0		1.0		-0.20	
1412	D1500	1		1		-0.20	
1417	D6045	1.3		1.3		0.64	
1428	D6045	1.2		1.2		0.36	
1430		L1.0		0.75		-0.90	
1441	D1500	<1.5		1.25		0.50	
1483		----		----		----	
1498		----		----		----	
1544	D1500	1		1		-0.20	
1588		----		----		----	
1612	D1500	1.0		1.0		-0.20	
1629		----		----		----	
1634		----		----		----	
1636	D1500	L1.5		1.25		0.50	
1650		----		----		----	
1710	ISO2049	1.5		1.5		1.20	
1720		----		----		----	
1724		----		----		----	
1740	D1500	L1.5		1.25		0.50	
1792	D1500	L1.0		0.75		-0.90	
1807	D1500	<1		0.75		-0.90	

lab	method	reported test value	value	iis conversion *	mark	z(targ)	remarks
1849		----	----	----		----	
1857	D1500	1.0	1.0	1.0		-0.20	
1906		----	----	----		----	
1944	D1500	1.0	1.0	1.0		-0.20	
1967	D1500	1.0	1.0	1.0		-0.20	
1984		----	----	----		----	
1995	D134	1	1	1		-0.20	
6005	D1500	1.3	1.3	1.3		0.64	
6018		----	----	----		----	
6026	D1500	1	1	1		-0.20	
6034		----	----	----		----	
6049	D6045	L1.5	1.25	1.25		0.50	
6054		----	----	----		----	
6057	D1500	1.0	1.0	1.0		-0.20	
6068		----	----	----		----	
6103	D6045	1.2	1.2	1.2		0.36	
6139	D1500	L1.0	0.75	0.75		-0.90	
6142		----	----	----		----	
6172		----	----	----		----	
6201	D1500	<1.0	0.75	0.75		-0.90	
6238	ISO2049	1.0	1.0	1.0		-0.20	
6253		----	----	----		----	
6260		----	----	----		----	
6262		----	----	----		----	
6266		----	----	----		----	
6269		----	----	----		----	
6271		----	----	----		----	
6272		----	----	----		----	
6277		----	----	----		----	
6291		----	----	----		----	
9128		----	----	----		----	

normality OK  
n 106  
outliers 1  
mean (n) 1.07  
st.dev. (n) 0.208  
R(calc.) 0.58  
st.dev.(D1500:12) 0.357  
R(D1500:12) 1

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



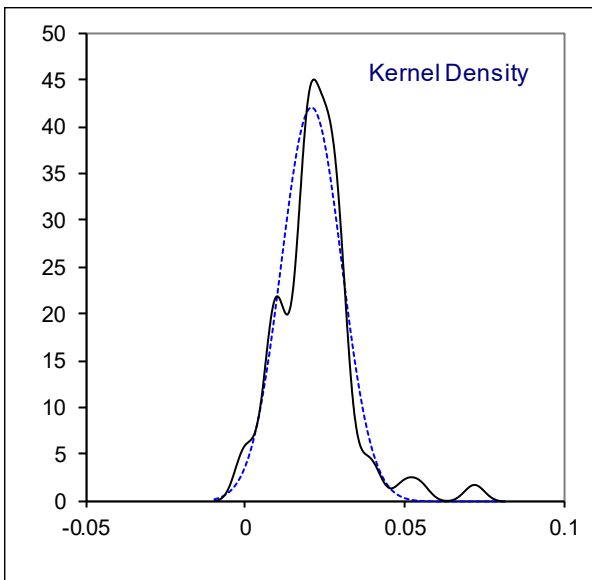
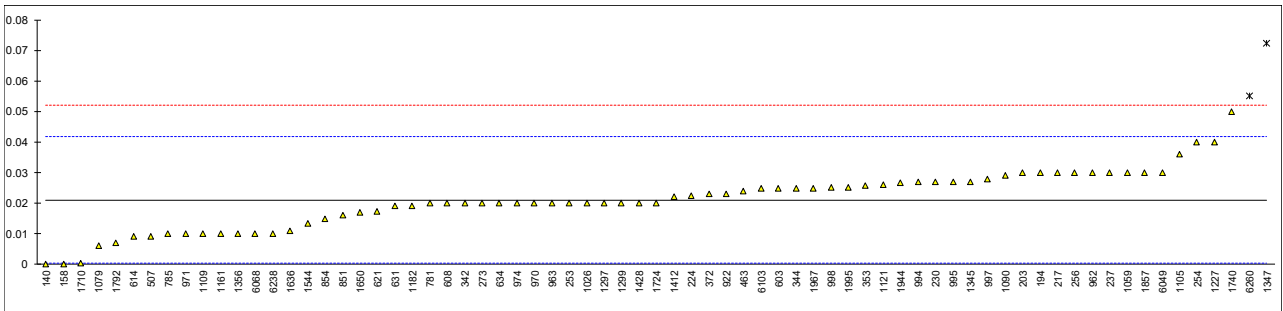
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## Determination of Conradson Carbon Residue (Micro method) on 10% residue on sample #19160; results in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4530	<0.1		----	781	D189	0.02		-0.10
53				----	782				----
62	D4530	<0.1		----	785	D189	0.01		-1.07
90				----	798				----
92				----	825				----
120				----	846				----
140	D4530	0.0		-2.04	851	ISO10370	0.016		-0.49
150				----	854	D4530	0.015		-0.59
158	D4530	0		-2.04	856	D4530	<0.10		----
159				----	862				----
169				----	863				----
171				----	864				----
175				----	872				----
186				----	873				----
194	D4530	0.03		0.87	874	D4530	<0.1		----
203	D189	0.0299		0.86	886				----
217	D189	0.03		0.87	887				----
221				----	912				----
224	D189	0.0224		0.13	922	D189	0.023		0.19
225				----	962	D189	0.03		0.87
228				----	963	D189	0.02		-0.10
230	ISO10370	0.027		0.58	970	D4530	0.02		-0.10
237	D189	0.03		0.87	971	D189	0.01		-1.07
238				----	974	D4530	0.02		-0.10
240				----	988				----
253	D189	0.02		-0.10	994	D189	0.027		0.58
254	D189	0.04		1.84	995	D189	0.027		0.58
256	D189	0.03		0.87	996				----
258				----	997	D189	0.028		0.67
273	D4530	0.02		-0.10	998	D189	0.025		0.38
312				----	1006				----
317	D4530	<0.10		----	1012				----
323	D4530	<0.10		----	1026	ISO10370	0.02		-0.10
333				----	1059	ISO10370	0.03		0.87
335				----	1079	D4530	0.006		-1.46
336				----	1080				----
337				----	1082				----
339				----	1090	ISO10370	0.0291		0.78
342	ISO10370	0.02		-0.10	1097				----
343	D4530	<0.1		----	1105	D189	0.036		1.45
344	D4530	0.0249		0.37	1109	D4530	0.010		-1.07
349				----	1121	D189	0.0262		0.50
353	IP13	0.0257		0.45	1126				----
355				----	1146				----
356	ISO10370	<0.01		----	1161	ISO10370	0.01		-1.07
372	D189	0.023		0.19	1182	ISO10370	0.019		-0.20
381				----	1194				----
433				----	1199				----
463	D4530	0.024		0.29	1213				----
485				----	1227	D4530	0.04		1.84
507	D4530	0.009		-1.17	1277				----
511				----	1284				----
529				----	1297	D4530	0.020		-0.10
541	D189	<0.01		----	1299	D4530	0.02		-0.10
554				----	1345	D189	0.027		0.58
555				----	1347	D189	0.0723	R(0.01)	4.96
558				----	1348				----
562				----	1356	ISO10370	0.01		-1.07
575				----	1385				----
603	D4530	0.0248		0.36	1412	D189	0.022		0.09
604				----	1417				----
608	D4530	0.02		-0.10	1428	D4530	0.020		-0.10
614	D189	0.00899		-1.17	1430				----
621	D189	0.0174		-0.35	1441				----
631	D4530	0.019		-0.20	1483				----
633				----	1498				----
634	D189	0.02		-0.10	1544	D4530	0.0133		-0.75
657	D4530	<0.10		----	1588				----
732				----	1612				----
733				----	1629				----
750				----	1634				----
751				----	1636	ISO10370	0.01094		-0.98
752				----	1650	D189	0.017		-0.39
759				----	1710	ISO10370	0.0003		-2.01
778				----	1720				----
779				----	1724	D4530	0.02		-0.10

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D4530	0.05		2.80	6068	ISO10370	0.01		-1.07
1792	ISO10370	0.007		-1.36	6103	ISO10370	0.0247		0.35
1807		----		----	6139		----		----
1849		----		----	6142		----		----
1857	D4530	0.030		0.87	6172		----		----
1906		----		----	6201	D4530	<0.1		----
1944	D189	0.0268		0.56	6238	D4530	0.01		-1.07
1967	D189	0.02495		0.38	6253		----		----
1984		----		----	6260	GB/T 17144	0.055	R(0.05)	3.29
1995	D4530	0.025		0.38	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049	ISO10370	0.03		0.87	6277		----		----
6054		----		----	6291		----		----
6057	D4530	<0,01		----	9128		----		----

normality OK  
n 69  
outliers 2  
mean (n) 0.0210  
st.dev. (n) 0.00948  
R(calc.) 0.0265  
st.dev.(D189:06) 0.01032  
R(D189:06) 0.0289



Determination of Ramsbottom Carbon Residue on 10% residue on sample #19160; results in %M/M

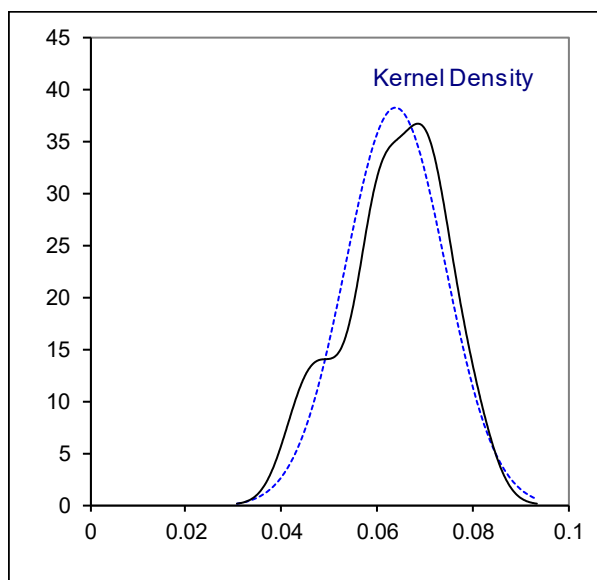
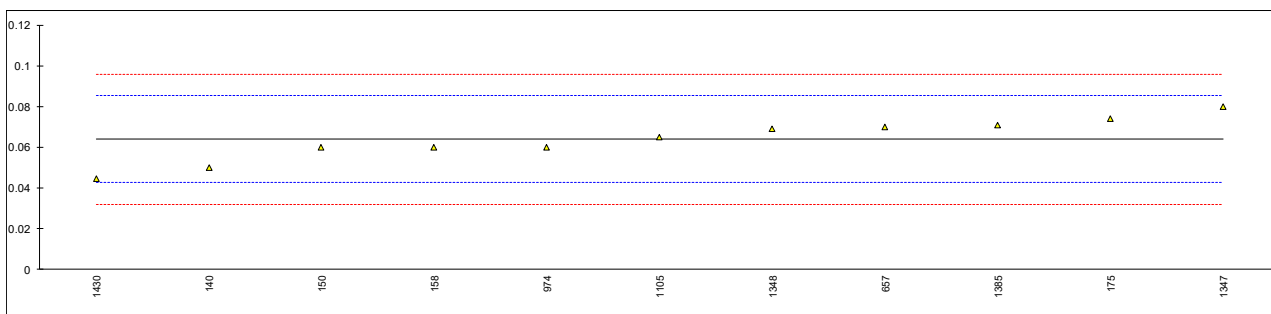
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	781		----		----
53		----		----	782		----		----
62		----		----	785		----		----
90		----		----	798		----		----
92	D4530	<0.1	C	----	825		----		----
120		----		----	846		----		----
140	D524	0.05		-1.31	851		----		----
150	D524	0.06		-0.37	854		----		----
158	D524	0.06		-0.37	856		----		----
159		----		----	862		----		----
169	D524	<0.10	C	----	863		----		----
171		----		----	864		----		----
175	D524	0.074		0.94	872		----		----
186		----		----	873		----		----
194		----		----	874		----		----
203		----		----	886		----		----
217		----		----	887		----		----
221		----		----	912		----		----
224		----		----	922		----		----
225		----		----	962		----		----
228		----		----	963		----		----
230		----		----	970		----		----
237		----		----	971		----		----
238		----		----	974	D524	0.06		-0.37
240		----		----	988		----		----
253		----		----	994		----		----
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312		----		----	1006		----		----
317		----		----	1012		----		----
323		----		----	1026		----		----
333		----		----	1059		----		----
335		----		----	1079		----		----
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342		----		----	1097		----		----
343		----		----	1105	D524	0.065		0.10
344		----		----	1109		----		----
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146		----		----
356		----		----	1161		----		----
372		----		----	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463		----		----	1213	D4530	<0.1		----
485		----		----	1227		----		----
507		----		----	1277		----		----
511		----		----	1284		----		----
529		----		----	1297		----		----
541		----		----	1299		----		----
554		----		----	1345		----		----
555		----		----	1347	D524	0.0798		1.49
558		----		----	1348	D524	0.069		0.47
562		----		----	1356		----		----
575		----		----	1385	D524	0.071		0.66
603		----		----	1412		----		----
604		----		----	1417		----		----
608		----		----	1428		----		----
614		----		----	1430		0.0445		-1.82
621		----		----	1441		----		----
631		----		----	1483		----		----
633		----		----	1498		----		----
634		----		----	1544		----		----
657	D524	0.07		0.57	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650		----		----
759		----		----	1710		----		----
778		----		----	1720		----		----
779		----		----	1724		----		----



lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740		----		----	6068		----		----
1792		----		----	6103		----		----
1807		----		----	6139		----		----
1849		----		----	6142		----		----
1857		----		----	6172		----		----
1906		----		----	6201		----		----
1944		----		----	6238		----		----
1967		----		----	6253		----		----
1984		----		----	6260		----		----
1995		----		----	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----

normality OK  
 n 11  
 outliers 0  
 mean (n) 0.0639  
 st.dev. (n) 0.01042  
 R(calc.) 0.0292  
 st.dev.(D524:15) 0.01067  
 R(D524:15) 0.0299

Lab 92 first reported 0  
 Lab 169 first reported 0.0



Determination of Copper Corrosion, 3 hrs at 50°C on sample #19160;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D130	1a		----	781	D130	1a		----
53		----		----	782		----		----
62	D130	1a		----	785	D130	1a		----
90	D130	1a		----	798		----		----
92	D130	1a		----	825	D130	1a		----
120	D130	1A		----	846		----		----
140	D130	1a		----	851		----		----
150	D130	1a		----	854	D130	1a		----
158	D130	1A		----	856	D130	1a		----
159	D130	1a		----	862		----		----
169	D130	1a		----	863		----		----
171	D130	1a		----	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194	D130	1A		----	874	D130	1a		----
203	D130	1A		----	886		----		----
217	D130	1A		----	887	D130	1a		----
221		----		----	912	D130	1a		----
224	D130	1a		----	922	D130	1a		----
225	D130	1a		----	962	D130	1A		----
228	D130	1A		----	963	D130	1a		----
230	D130	1a		----	970	D130	1a		----
237	D130	1A		----	971	D130	1a		----
238	D130	1A		----	974	D130	1a		----
240		----		----	988		----		----
253	D130	1a		----	994	D130	1a		----
254	D130	1a		----	995	D130	1a		----
256	D130	1A		----	996		----		----
258	D130	1A		----	997		----		----
273	D130	1a		----	998	D130	1A		----
312	D130	1a		----	1006	D130	1a		----
317	D130	1a		----	1012	D130	1a		----
323	D130	1B		----	1026	ISO2160	1A		----
333		----		----	1059	ISO2160	1a		----
335	D130	1A		----	1079	D130	1A		----
336		1		----	1080	D130	1a		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342	D130	1A		----	1097	ISO2160	1a		----
343	D130	1a		----	1105	D130	1		----
344	D130	1a		----	1109	D130	1a		----
349		----		----	1121	D130	1a		----
353	IP154	1A		----	1126		----		----
355		----		----	1146		----		----
356	D130	1A		----	1161	ISO2160	1a		----
372	D130	1A		----	1182	D130	1		----
381	ISO2160	1		----	1194		----		----
433		----		----	1199		----		----
463	ISO2160	1A		----	1213	D130	1A		----
485	ISO2160	1		----	1227	D130	1A		----
507	D130	1A		----	1277		----		----
511	D130	1a		----	1284		----		----
529	D130	1a		----	1297	D130	1A		----
541	D130	1A		----	1299	D130	1a		----
554		----		----	1345	D130	1a		----
555		----		----	1347	D130	1A		----
558		----		----	1348	D130	1A		----
562		----		----	1356		----		----
575		----		----	1385	D130	1A		----
603	D130	1a		----	1412	D130	1a		----
604		----		----	1417	IP154	1B		----
608	D130	1a		----	1428	D130	1A		----
614	D130	1A		----	1430		1a		----
621	D130	1A		----	1441	D130	1A		----
631	D130	1a		----	1483		----		----
633	D130	1a		----	1498		----		----
634	D130	1a		----	1544	D130	1A		----
657	D130	1a		----	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634	D130	1A		----
751		----		----	1636	D130	1a		----
752		----		----	1650	D130	1a		----
759		----		----	1710	ISO2160	1A		----
778		----		----	1720		----		----
779	ISO2160	1a		----	1724	D130	No.1a		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D130	1A		----	6068	ISO2160	1a		----
1792	D130	1A		----	6103		----		----
1807	ISO2160	1a		----	6139	D130	1A		----
1849	ISO2160	1A		----	6142		----		----
1857	D130	1a		----	6172		----		----
1906		----		----	6201	D130	1A		----
1944	D130	1a		----	6238	D130	1a		----
1967	D130	1A		----	6253		----		----
1984		----		----	6260	GB/T 5096	1a		----
1995	D130	1A		----	6262		----		----
6005	ISO2160	1a		----	6266		----		----
6018	ISO2160	1a		----	6269		----		----
6026	D130	1a		----	6271		----		----
6034	D130	1a		----	6272	D130	1b		----
6049	ISO2160	1A		----	6277		----		----
6054		----		----	6291		----		----
6057	D130	1A		----	9128		----		----
n		120							
mean (n)		1/1a/1b							

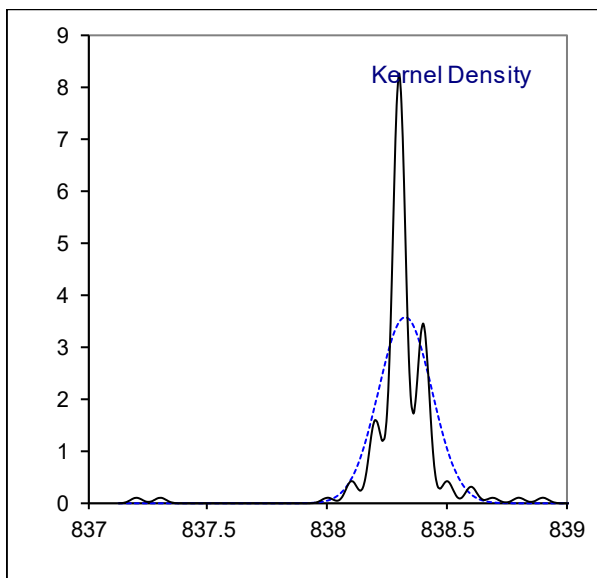
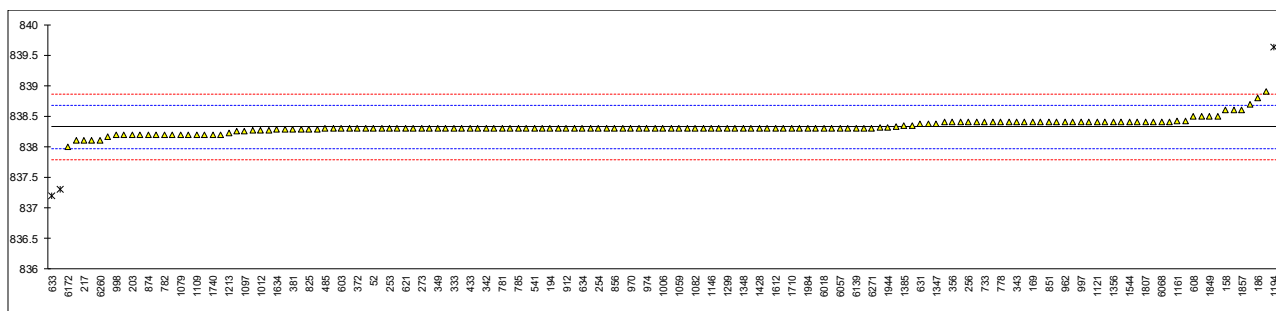
Determination of Density at 15°C on sample #19160; results in kg/m<sup>3</sup>

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4052	838.3		-0.14	781	D4052	838.3		-0.14
53	D4052	838.3		-0.14	782	D4052	838.2		-0.70
62	D4052	838.3		-0.14	785	D4052	838.3		-0.14
90	D4052	838.3		-0.14	798		----		----
92	D4052	838.4		0.42	825	D4052	838.29		-0.19
120	D4052	838.3		-0.14	846		----		----
140	D4052	838.4		0.42	851	D4052	838.4		0.42
150	D4052	838.3		-0.14	854	D4052	838.32		-0.02
158	D4052	838.6		1.54	856	D4052	838.3		-0.14
159	D4052	838.5		0.98	862		----		----
169	D1298	838.4	C	0.42	863		----		----
171	D4052	838.3		-0.14	864		----		----
175	D4052	838.3		-0.14	872		----		----
186	D4052	838.8		2.66	873		----		----
194	D4052	838.3		-0.14	874	D4052	838.2	C	-0.70
203	D4052	838.2		-0.70	886	D4052	838.3		-0.14
217	D1298	838.1		-1.26	887	D4052	838.3		-0.14
221		----		----	912	D4052	838.3		-0.14
224	D1298	838.40		0.42	922	D4052	838.3		-0.14
225	D4052	838.3		-0.14	962	D4052	838.4		0.42
228	D4052	838.4		0.42	963	D4052	838.3		-0.14
230	ISO12185	838.2		-0.70	970	D4052	838.3		-0.14
237	D4052	838.4		0.42	971	D4052	838.3		-0.14
238	D4052	838.17		-0.86	974	D1298	838.3		-0.14
240		----		----	988		----		----
253	D4052	838.3		-0.14	994	D4052	838.3		-0.14
254	D4052	838.3		-0.14	995	D4052	838.4		0.42
256	D4052	838.4		0.42	996		----		----
258	D4052	838.3		-0.14	997	D4052	838.4		0.42
273	D4052	838.3		-0.14	998	D4052	838.19		-0.75
312	D4052	838.3		-0.14	1006	D4052	838.3		-0.14
317	D4052	838.3		-0.14	1012	D4052	838.27		-0.30
323	D4052	838.3		-0.14	1026	D4052	838.3		-0.14
333	D4052	838.3		-0.14	1059	ISO12185	838.3		-0.14
335	D4052	838.3		-0.14	1079	D4052	838.2		-0.70
336	D4052	838.1		-1.26	1080	D4052	838.3		-0.14
337	D4052	838.6		1.54	1082	ISO12185	838.3		-0.14
339		----		----	1090	ISO12185	838.20		-0.70
342	D4052	838.3		-0.14	1097	ISO12185	838.26		-0.36
343	D4052	838.4		0.42	1105	D4052	838.4		0.42
344	D4052	838.3		-0.14	1109	D4052	838.20		-0.70
349	D4052	838.3		-0.14	1121	D4052	838.4		0.42
353	IP365	838.2		-0.70	1126	D4052	838.3		-0.14
355	D4052	838.4		0.42	1146	D4052	838.3		-0.14
356	D4052	838.4		0.42	1161	D4052	838.42		0.54
372	D4052	838.3		-0.14	1182	ISO12185	838.196		-0.72
381	D4052	838.28		-0.25	1194	ISO12185	839.63	R(0.01)	7.31
433	ISO12185	838.3		-0.14	1199		----		----
463	D4052	838.28		-0.25	1213	D4052	838.23		-0.53
485	D4052	838.3		-0.14	1227	D4052	838.4		0.42
507	D4052	838.35		0.14	1277		----		----
511	D4052	838.33		0.03	1284	D4052	838.38		0.31
529	D4052	838.27		-0.30	1297	D4052	838.30		-0.14
541	D4052	838.30		-0.14	1299	D4052	838.3		-0.14
554		----		----	1345	D4052	838.3		-0.14
555		----		----	1347	D4052	838.38		0.31
558		----		----	1348	D4052	838.3		-0.14
562		----		----	1356	ISO12185	838.4		0.42
575		----		----	1385	D4052	838.34		0.09
603	D4052	838.3		-0.14	1412	D4052	838.3		-0.14
604	D4052	838.28		-0.25	1417	IP365	838.2		-0.70
608	D4052	838.5		0.98	1428	D4052	838.3		-0.14
614	D4052	838.9		3.22	1430		838.4	C	0.42
621	D4052	838.3		-0.14	1441	D4052	838.27		-0.30
631	D4052	838.37		0.26	1483		----		----
633	D1298	837.2	R(0.01)	-6.30	1498	D4052	838.3		-0.14
634	D4052	838.3		-0.14	1544	D4052	838.4		0.42
657	D4052	838.4		0.42	1588	ISO12185	838.69		2.05
732	ISO12185	838.4		0.42	1612	D1298	838.3		-0.14
733	ISO12185	838.4		0.42	1629		----		----
750		----		----	1634	D4052	838.278		-0.26
751		----		----	1636	D4052	838.3		-0.14
752		----		----	1650	D4052	838.29		-0.19
759	D4052	838.2		-0.70	1710	ISO12185	838.3		-0.14
778	D4052	838.4		0.42	1720		----		----
779	ISO12185	838.3		-0.14	1724	D4052	838.3		-0.14

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	ISO3675	838.2		-0.70	6068	ISO12185	838.4		0.42
1792	D4052	838.4		0.42	6103	ISO12185	838.3		-0.14
1807	D4052	838.4		0.42	6139	D4052	838.3		-0.14
1849	ISO12185	838.5		0.98	6142	ISO12185	838.25		-0.42
1857	D4052	838.6		1.54	6172	D4052	838		-1.82
1906		----		----	6201	D4052	838.3		-0.14
1944	D4052	838.32		-0.02	6238	D4052	838.2		-0.70
1967	D1298	838.5		0.98	6253		----		----
1984	ISO12185	838.3		-0.14	6260	SH/T 0604	838.1		-1.26
1995	D4052	938.3	R(0.01)	559.86	6262		----		----
6005	ISO12185	838.3		-0.14	6266		----		----
6018	ISO12185	838.3		-0.14	6269	D4052	838.42		0.54
6026	D4052	838.4	C	0.42	6271	D4052	838.3		-0.14
6034	D4052	838.1		-1.26	6272	D4052	837.3	R(0.01)	-5.74
6049	ISO12185	838.3		-0.14	6277		----		----
6054		----		----	6291		----		----
6057	ISO12185	838.3		-0.14	9128	D4052	838.4		0.42

normality not OK  
n 150  
outliers 4  
mean (n) 838.32  
st.dev. (n) 0.112  
R(calc.) 0.31  
st.dev.(D4052:18a) 0.179  
R(D4052:18a) 0.5

Lab 169 first reported 0.8389 kg/m<sup>3</sup>  
Lab 874 first reported 0.8382 kg/m<sup>3</sup>  
Lab 1430 first reported 0.8384 no unit  
Lab 6026 first reported 0.8384 no unit



Determination of Distillation on sample #19160; results in °C

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP
52	D86-A	171.2	220.7	276.4	334.2	348.6	357.3
53		----	----	----	----	----	----
62	D86-A	180.2	218.2	277.1	335.3	349.3	357.3
90	D86-M	177.0	218.0	277.0	335.0	347.0	357.0
92	D86-A	179.8	218.7	277.9	335.4	348.5	356.8
120	D86-A	179.5	220.1	278.9	338.0	352.9	361.4
140	D86-A	177.7	217.9	276.8	334.8	349.0	357.4
150	D86-A	176.3	220.8	277.3	335.7	350.4	357.3
158	D86-A	175.6	217.1	277.0	336.4	351.5	353.1
159	D86-A	178.5	219.9	275.4	332.6	345.4	356.7
169	D86-A	179.1	219.7	277.6	335.6	350.4	357.9
171	D86-A	176.3	219.2	276.3	333.1	345.8	355.4
175	D86-A	175.4	217.4	277.4	336.6	351.6	357.5
186		----	----	----	----	----	----
194	D86-A	179.5	220.2	278.2	336.0	----	358.9
203		----	----	----	----	----	----
217	D86-A	179.9	218.7	276.2	332.6	345.6	354.4
221		----	----	----	----	----	----
224	D86-M	177.24	217.06	276.34	333.01	349.01	356.02
225	D86-M	181.0	220.0	276.0	335.0	349.0	354.0
228	D86-M	179.0	218.0	277.0	335.0	349.0	356.0
230	D86-A	174.7	218.9	277.7	335.2	349.1	359.6
237	D86-M	180.0	217.0	276.0	331.0	341.0	357.0
238	D86-M	179.0	219.0	278.0	335.0	348.0	357
240		----	----	----	----	----	----
253	D86-M	175	220	277	335	350	357
254	D86-M	178.0	216.0	276.0	334.0	346.0	360.0
256	D86-M	176.0	215.0	276.0	335.0	350	357.0
258	D86-A	183.1	221.5	279.5	335.6	348.0	354.4
273	D86-A	184.8	221.7	277.0	336.0	350.1	358.6
312	D86-A	176.1	219.5	278.2	335.4	349.5	357.5
317	D86-A	176.1	218.4	276.8	334.9	349.0	358.8
323	D86-A	177.7	217.4	277.4	336.8	354.7	357.7
333		----	----	----	----	----	----
335	D86	175.7	214.8	276.3	336.1	350.3	357.6
336	D86-A	175.8	216.6	275.5	332.2	346.8	355.8
337		----	----	----	----	----	----
339		----	----	----	----	----	----
342	D86	177.8	218.8	276.7	334.8	347.7	352.6
343	D86-A	172.3	----	275.7	334.0	348.1	357.2
344	D86-A	175.0	217.5	275.7	329.2	345.5	----
349	D86-A	179	219.4	276.7	334.1	347.9	357.6
353	IP123-A	174.2	213.5	270.1	334.4	349.5	357.6
355	D86-M	169.528	215.15	276.778	334.03	348.66	356.533
356	D86-A	173.9	219.1	277.7	334.8	348.6	357.8
372	D86	175.2	219.5	277.3	335.7	349.0	356.1
381	D86-A	170.4	215.8	276.8	334.1	347.1	356.8
433		----	----	----	----	----	----
463	D86-A	180.1	218.8	278.1	335.9	350.7	360.2
485	D86-A	180.75	221.15	278.25	335.85	349.90	358.7
507	D86-M	175.0	216.0	273.0	336.0	350.0	360.0
511		----	----	----	----	----	----
529	D86-A	173.8	219.0	277.3	335.7	350.2	358.1
541	D86-A	174.45	217.25	276.65	334.35	348.25	356.10
554		----	----	----	----	----	----
555		----	----	----	----	----	----
558		----	----	----	----	----	----
562	D86	177.0	218.4	277.7	335.0	----	----
575		----	----	----	----	----	----
603		----	----	----	----	----	----
604	D86-A	172.9	221.9	280.0	338.5	352.1	357.8
608	D86-A	178.2	217.3	277.4	335.9	350.3	358.1
614	D86-M	179	215	275	330	340	345
621	D86-M	183.4	218.4	276.5	336.5	349.6	358.6
631	D86-M	180.5	218.5	277.5	335.5	349.5	357.0
633	D86-A	178.1	217.8	276.6	336.8	350.9	356.2
634	D86-A	174.7	218.9	277.1	335.6	349.5	356.4
657	D86-M	178.8	219.8	277.8	334.0	347.2	358.8
732	D86-M	180	218.5	278.5	337.0	350.5	360.0
733		----	----	----	----	----	----
750		----	----	----	----	----	----
751		----	----	----	----	----	----
752		----	----	----	----	----	----
759	D86-M	177.0	217.5	278.0	336.0	349.0	361.0
778		----	----	----	----	----	----
779	ISO3405-M	177.0	217.5	276.0	334.0	347.5	358.5

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP
781	D86-A	177.5	220.2	277.3	334.5	348.6	358.0
782	D86-M	177.0	218.0	277.0	334.5	347.0	360.0
785	D86-A	175.6	218.5	277.4	335.4	349.9	357.9
798		----	----	----	----	----	----
825	D86-A	182.5	216.7	274.8	331.5	343.4	355.9
846		----	----	----	----	----	----
851	D86-M	175.0	217.0	278.0	334.0	346.0	359.0
854	D86-A	172.9	217.8	276.6	334.4	349.0	357.9
856	D-86	173.8	218.4	277.1	335.4	349.8	355.8
862		----	----	----	----	----	----
863		----	----	----	----	----	----
864		----	----	----	----	----	----
872		----	----	----	----	----	----
873		----	----	----	----	----	----
874	D86-M	178.0	219.0	278.5	336.5	350.0	357.5
886	D-86	179.0	217.4	277.2	335.1	347.9	358.0
887	D86-M	177.0	217.0	276.5	334.5	347.5	357.0
912	D86	180	217	276	334	347	358
922	D86-A	176.1	218.4	276.5	334.6	347.9	357.8
962	D86-M	177.5	221.0	278.0	335.0	348.5	354.0
963	D86-A	176.6	220.1	277.5	334.1	347.6	355.0
970	D86-A	174.5	217.6	276.8	334.5	348.4	357.2
971	D86-A	175.8	219.1	277.0	334.8	349.7	356.7
974	D86-A	174.1	218.7	277.7	335.8	350.4	357.1
988		----	----	----	----	----	----
994	D86-M	179.0	218.0	278.5	335.0	347.5	360.0
995	D86-M	176.5	217.5	278.5	337.5	351.5	361.0
996		----	----	----	----	----	----
997	D86-M	177.0	216.0	277.5	336.0	349.0	361.0
998	D86-M	180	218	278.5	334	347	359
1006	D86-A	175.5	217.5	276.6	333.7	346.5	356.7
1012	D86-A	173.9	215.2	275.8	333.1	346.2	357.2
1026	ISO3405-A	176.8	215.3	275.6	332.7	345	356.9
1059	D86-A	178.8	220.1	277.1	334.7	348.4	358.3
1079		180.1	219.7	277.8	334.8	348.1	358.9
1080		----	----	----	----	----	----
1082	ISO3405-A	177.9	----	278.5	336.1	350.7	358.8
1090		----	----	----	----	----	----
1097	ISO3405-A	171.9	218.1	277.2	334.9	347.7	355.4
1105	D86-A	176.7	220.2	277.0	334.2	347.5	357.5
1109	D86-A	175.4	217.6	276.3	333.1	346.4	357.5
1121		178.0	216.0	278.0	338.5	346.5	356.5
1126		178.5	218.3	276.2	335.7	349.7	362.2
1146	D86-A	173.4	216.0	276.9	335.2	348.6	358.5
1161	ISO3405-A	176.2	219.9	277.4	335	347.3	359
1182	D86-A	170.8	218.6	277.6	337	352.5	357.8
1194		----	----	----	----	----	----
1199		----	----	----	----	----	----
1213	D86	178.8	219.2	278.2	338.3	351.7	359.2
1227		177	221.9	277.4	334.9	348.9	358.2
1277		----	----	----	----	----	----
1284	D86-A	176.0	218.4	277.2	334.3	347.6	357.5
1297		175.5	217.2	276.5	334.5	348.8	357.0
1299	D86-A	178.0	219.9	277.6	335.1	348.9	358.5
1345	D86-M	178.0	215.0	276.0	335.0	348.0	356.0
1347	D86-M	181	217	277	335	351	357
1348	D86-A	168.8	213.4	274.9	332.5	343.7	349.5
1356	ISO3405-M	----	217	282	342	----	----
1385	D86-M	179.5	217	278	333.5	347	356.5
1412	D86-M	177.0	218.0	278.0	336.0	349.0	356.0
1417	D86-A	181	222.2	279.2	336.9	353	359.3
1428	D86-A	182.2	219.4	278.0	334.1	347.4	359.7
1430		175.1	216.6	274.9	331.2	343.6	354.5
1441		----	----	----	----	----	----
1483		----	----	----	----	----	----
1498		173.8	218.4	277.6	335.5	349.1	358.5
1544	D86-A	176.65	219.50	278.30	336.40	350.90	358.20
1588		----	----	----	----	----	----
1612	D86-M	181.037	218.040	276.044	337.049	351.051	357.903
1629		----	----	----	----	----	----
1634	D86-A	178.7	219.2	277.8	335.0	348.5	359.2
1636	D86-A	175.0	217.6	276.7	334.3	346.6	356.3
1650	D86-A	174.0	218.1	277.2	334.9	349.2	359.2
1710	ISO3405-A	174.6	219.8	277.5	334.8	348.4	359.0
1720		----	----	----	----	----	----
1724	D86-A	177.1	219.0	276.0	333.2	346.2	355.1
1740	D86-A	177.0	216.6	276.9	335.6	351.1	356.7
1792	D86-A	177.4	218.5	277.8	335.5	350.4	356.7
1807		177.2	217.2	276.0	332.8	345.3	357.1

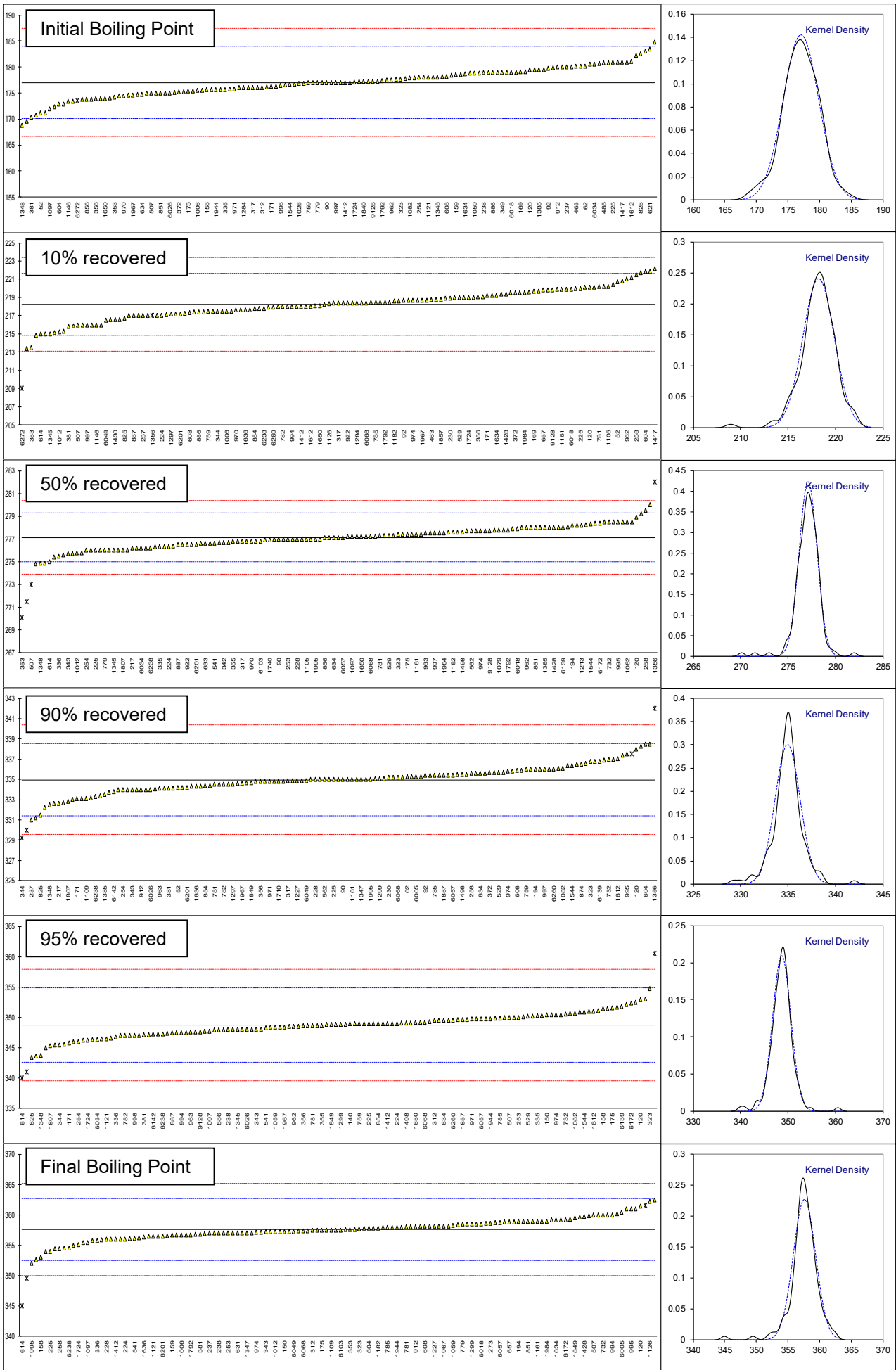
lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP	
1849	ISO3405-A	177.2	218.6	277.2	334.7	348.8	359.5	
1857	D86-A	180.7	218.8	278.0	335.4	349.6	358.1	
1906		----	----	----	----	----	----	
1944	D86-M	175.6	218.7	277.7	335.3	349.8	357.9	
1967	D86-A	174.6	218.7	276.8	334.6	348.4	358.2	
1984	ISO3405-A	179.5	219.5	277.5	335.1	349.2	359.0	
1995	D86-A	181	216	277	335	348	352	
6005	ISO3405-A	178.4	220.4	278.4	335.3	348.9	360.4	
6018	ISO3405-A	179.0	219.9	277.9	335.4	349.6	358.5	
6026	D86-M	175.0	219.0	277.0	334.0	348.0	356.0	
6034	D86-A	180.5	217.5	276.2	333.4	346.4	358.4	
6049	ISO3405-A	176.9	216.5	276.2	334.9	349	357.3	
6054		----	----	----	----	----	----	
6057	D86-A	177.9	218.7	277.1	335.4	349.7	358.7	
6068	ISO3405-A	175.6	218.4	277.2	335.2	349.2	357.4	
6103	ISO3405-A	177.2	217.6	276.8	335.3	350.2	357.5	
6139	D86-A	179.1	219.6	278.0	336.8	351.8	357.0	
6142	ISO3405	171.2	215.9	275.8	333.8	347.25	357.4	
6172	D86-A	175.3	218	278.4	337.4	352.4	359.2	
6201	D86-A	180.8	217.2	276.5	334.2	348.0	356.5	
6238	D86-A	173.4	217.8	276.2	333.3	347.3	354.5	
6253		----	----	----	----	----	----	
6260	GB/T 6536	176.0	218.5	278.5	336.0	349.5	362.5	
6262		----	----	----	----	----	----	
6266		----	----	----	----	----	----	
6269	D86-A	179.0	217.9	277.2	335.2	349.1	358.2	
6271		----	----	----	----	----	----	
6272	D86-M	173.5	ex 209	C,R1 271.5	R1 337.5	ex 360.5	R1 361.5	ex
6277		----	----	----	----	----	----	----
6291		----	----	----	----	----	----	----
9128	D86-A	177.2	219.8	277.7	334.8	347.6	359.9	
normality		OK	OK	OK	suspect	OK	suspect	
n		137	135	135	135	133	133	
outliers		0+1ex	1+1ex	4	3+1ex	3	2+1ex	
mean (n)		177.04	218.24	277.13	334.98	348.72	357.61	
st.dev. (n)		2.811	1.657	0.945	1.329	1.911	1.764	
R(calc.)		7.87	4.64	2.65	3.72	5.35	4.94	
st.dev.(D86-A:18)		3.478	1.715	1.071	1.795	3.056	2.536	
R(D86-A:18)		9.74	4.80	3.00	5.02	8.56	7.10	
compare								
R(D86-M:18)		6.63	4.46	3.74	3.92	4.81	3.85	

Please note: R1 and R5 means R(0.01) and R(0.05) respectively

Lab 631 first reported 212.5  
 Lab 851 first reported 259.0  
 Lab 1299 first reported 296.1, 317.8 and 325.9 respectively  
 Lab 1385 first reported 182, 214, 273, 333, 346 and 358.5 respectively  
 Lab 6272 first reported 209.5

Test values of laboratories 6272 and 1356 are excluded as related test values are statistical outliers





z-scores Distillation on sample #19160

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
52	-1.68	1.44	-0.68	-0.43	-0.04	-0.12
53	----	----	----	----	----	----
62	0.91	-0.02	-0.03	0.18	0.19	-0.12
90	-0.01	-0.14	-0.12	0.01	-0.56	-0.24
92	0.79	0.27	0.72	0.24	-0.07	-0.32
120	0.71	1.09	1.65	1.69	1.37	1.49
140	0.19	-0.20	-0.31	-0.10	0.09	-0.08
150	-0.21	1.49	0.16	0.40	0.55	-0.12
158	-0.41	-0.66	-0.12	0.79	0.91	-1.78
159	0.42	0.97	-1.62	-1.32	-1.09	-0.36
169	0.59	0.85	0.44	0.35	0.55	0.11
171	-0.21	0.56	-0.78	-1.05	-0.95	-0.87
175	-0.47	-0.49	0.25	0.91	0.94	-0.04
186	----	----	----	----	----	----
194	0.71	1.15	1.00	0.57	----	0.51
203	----	----	----	----	----	----
217	0.82	0.27	-0.87	-1.32	-1.02	-1.27
221	----	----	----	----	----	----
224	0.06	-0.69	-0.74	-1.10	0.10	-0.63
225	1.14	1.03	-1.06	0.01	0.09	-1.42
228	0.56	-0.14	-0.12	0.01	0.09	-0.64
230	-0.67	0.39	0.53	0.13	0.12	0.78
237	0.85	-0.72	-1.06	-2.22	-2.53	-0.24
238	0.56	0.45	0.81	0.01	-0.23	-0.24
240	----	----	----	----	----	----
253	-0.59	1.03	-0.12	0.01	0.42	-0.24
254	0.28	-1.30	-1.06	-0.54	-0.89	0.94
256	-0.30	-1.89	-1.06	0.01	0.42	-0.24
258	1.74	1.90	2.21	0.35	-0.23	-1.27
273	2.23	2.02	-0.12	0.57	0.45	0.39
312	-0.27	0.74	1.00	0.24	0.26	-0.04
317	-0.27	0.10	-0.31	-0.04	0.09	0.47
323	0.19	-0.49	0.25	1.02	1.96	0.03
333	----	----	----	----	----	----
335	-0.38	-2.00	-0.78	0.63	0.52	-0.01
336	-0.36	-0.95	-1.52	-1.55	-0.63	-0.72
337	----	----	----	----	----	----
339	----	----	----	----	----	----
342	0.22	0.33	-0.40	-0.10	-0.33	-1.98
343	-1.36	----	-1.34	-0.54	-0.20	-0.16
344	-0.59	-0.43	-1.34	-3.22	-1.05	----
349	0.56	0.68	-0.40	-0.49	-0.27	-0.01
353	-0.82	-2.76	-6.56	-0.32	0.26	-0.01
355	-2.16	-1.80	-0.33	-0.53	-0.02	-0.43
356	-0.90	0.50	0.53	-0.10	-0.04	0.07
372	-0.53	0.74	0.16	0.40	0.09	-0.60
381	-1.91	-1.42	-0.31	-0.49	-0.53	-0.32
433	----	----	----	----	----	----
463	0.88	0.33	0.90	0.52	0.65	1.02
485	1.07	1.70	1.04	0.49	0.39	0.43
507	-0.59	-1.30	-3.86	0.57	0.42	0.94
511	----	----	----	----	----	----
529	-0.93	0.45	0.16	0.40	0.48	0.19
541	-0.74	-0.58	-0.45	-0.35	-0.15	-0.60
554	----	----	----	----	----	----
555	----	----	----	----	----	----
558	----	----	----	----	----	----
562	-0.01	0.10	0.53	0.01	----	----
575	----	----	----	----	----	----
603	----	----	----	----	----	----
604	-1.19	2.14	2.68	1.96	1.11	0.07
608	0.33	-0.55	0.25	0.52	0.52	0.19
614	0.56	-1.89	-1.99	-2.77	-2.85	-4.97
621	1.83	0.10	-0.59	0.85	0.29	0.39
631	1.00	0.15	0.34	0.29	0.26	-0.24
633	0.31	-0.25	-0.50	1.02	0.71	-0.56
634	-0.67	0.39	-0.03	0.35	0.26	-0.48
657	0.51	0.91	0.62	-0.54	-0.50	0.47
732	0.85	0.15	1.28	1.13	0.58	0.94
733	----	----	----	----	----	----
750	----	----	----	----	----	----
751	----	----	----	----	----	----
752	----	----	----	----	----	----
759	-0.01	-0.43	0.81	0.57	0.09	1.34
778	----	----	----	----	----	----
779	-0.01	-0.43	-1.06	-0.54	-0.40	0.35

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
781	0.13	1.15	0.16	-0.27	-0.04	0.15
782	-0.01	-0.14	-0.12	-0.27	-0.56	0.94
785	-0.41	0.15	0.25	0.24	0.39	0.11
798	----	----	----	----	----	----
825	1.57	-0.90	-2.18	-1.94	-1.74	-0.68
846	----	----	----	----	----	----
851	-0.59	-0.72	0.81	-0.54	-0.89	0.55
854	-1.19	-0.25	-0.50	-0.32	0.09	0.11
856	-0.93	0.10	-0.03	0.24	0.35	-0.72
862	----	----	----	----	----	----
863	----	----	----	----	----	----
864	----	----	----	----	----	----
872	----	----	----	----	----	----
873	----	----	----	----	----	----
874	0.28	0.45	1.28	0.85	0.42	-0.04
886	0.56	-0.49	0.06	0.07	-0.27	0.15
887	-0.01	-0.72	-0.59	-0.27	-0.40	-0.24
912	0.85	-0.72	-1.06	-0.54	-0.56	0.15
922	-0.27	0.10	-0.59	-0.21	-0.27	0.07
962	0.13	1.61	0.81	0.01	-0.07	-1.42
963	-0.13	1.09	0.34	-0.49	-0.37	-1.03
970	-0.73	-0.37	-0.31	-0.27	-0.10	-0.16
971	-0.36	0.50	-0.12	-0.10	0.32	-0.36
974	-0.84	0.27	0.53	0.46	0.55	-0.20
988	----	----	----	----	----	----
994	0.56	-0.14	1.28	0.01	-0.40	0.94
995	-0.15	-0.43	1.28	1.41	0.91	1.34
996	----	----	----	----	----	----
997	-0.01	-1.30	0.34	0.57	0.09	1.34
998	0.85	-0.14	1.28	-0.54	-0.56	0.55
1006	-0.44	-0.43	-0.50	-0.71	-0.73	-0.36
1012	-0.90	-1.77	-1.24	-1.05	-0.82	-0.16
1026	-0.07	-1.71	-1.43	-1.27	-1.22	-0.28
1059	0.51	1.09	-0.03	-0.15	-0.10	0.27
1079	0.88	0.85	0.62	-0.10	-0.20	0.51
1080	----	----	----	----	----	----
1082	0.25	----	1.28	0.63	0.65	0.47
1090	----	----	----	----	----	----
1097	-1.48	-0.08	0.06	-0.04	-0.33	-0.87
1105	-0.10	1.15	-0.12	-0.43	-0.40	-0.04
1109	-0.47	-0.37	-0.78	-1.05	-0.76	-0.04
1121	0.28	-1.30	0.81	1.96	-0.73	-0.44
1126	0.42	0.04	-0.87	0.40	0.32	1.81
1146	-1.05	-1.30	-0.22	0.13	-0.04	0.35
1161	-0.24	0.97	0.25	0.01	-0.46	0.55
1182	-1.79	0.21	0.44	1.13	1.24	0.07
1194	----	----	----	----	----	----
1199	----	----	----	----	----	----
1213	0.51	0.56	1.00	1.85	0.98	0.63
1227	-0.01	2.14	0.25	-0.04	0.06	0.23
1277	----	----	----	----	----	----
1284	-0.30	0.10	0.06	-0.38	-0.37	-0.04
1297	-0.44	-0.60	-0.59	-0.27	0.03	-0.24
1299	0.28	0.97	0.44	0.07	0.06	0.35
1345	0.28	-1.89	-1.06	0.01	-0.23	-0.64
1347	1.14	-0.72	-0.12	0.01	0.75	-0.24
1348	-2.37	-2.82	-2.08	-1.38	-1.64	-3.20
1356	----	-0.72	4.54	3.91	----	----
1385	0.71	-0.72	0.81	-0.82	-0.56	-0.44
1412	-0.01	-0.14	0.81	0.57	0.09	-0.64
1417	1.14	2.31	1.93	1.07	1.40	0.67
1428	1.48	0.68	0.81	-0.49	-0.43	0.82
1430	-0.56	-0.95	-2.08	-2.10	-1.67	-1.23
1441	----	----	----	----	----	----
1483	----	----	----	----	----	----
1498	-0.93	0.10	0.44	0.29	0.12	0.35
1544	-0.11	0.74	1.09	0.79	0.71	0.23
1588	----	----	----	----	----	----
1612	1.15	-0.11	-1.02	1.16	0.76	0.11
1629	----	----	----	----	----	----
1634	0.48	0.56	0.62	0.01	-0.07	0.63
1636	-0.59	-0.37	-0.40	-0.38	-0.69	-0.52
1650	-0.87	-0.08	0.06	-0.04	0.16	0.63
1710	-0.70	0.91	0.34	-0.10	-0.10	0.55
1720	----	----	----	----	----	----
1724	0.02	0.45	-1.06	-0.99	-0.82	-0.99
1740	-0.01	-0.95	-0.22	0.35	0.78	-0.36
1792	0.10	0.15	0.62	0.29	0.55	-0.36
1807	0.05	-0.60	-1.06	-1.21	-1.12	-0.20

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
1849	0.05	0.21	0.06	-0.15	0.03	0.74
1857	1.05	0.33	0.81	0.24	0.29	0.19
1906	----	----	----	----	----	----
1944	-0.41	0.27	0.53	0.18	0.35	0.11
1967	-0.70	0.27	-0.31	-0.21	-0.10	0.23
1984	0.71	0.74	0.34	0.07	0.16	0.55
1995	1.14	-1.30	-0.12	0.01	-0.23	-2.21
6005	0.39	1.26	1.18	0.18	0.06	1.10
6018	0.56	0.97	0.72	0.24	0.29	0.35
6026	-0.59	0.45	-0.12	-0.54	-0.23	-0.64
6034	1.00	-0.43	-0.87	-0.88	-0.76	0.31
6049	-0.04	-1.01	-0.87	-0.04	0.09	-0.12
6054	----	----	----	----	----	----
6057	0.25	0.27	-0.03	0.24	0.32	0.43
6068	-0.41	0.10	0.06	0.13	0.16	-0.08
6103	0.05	-0.37	-0.31	0.18	0.48	-0.04
6139	0.59	0.80	0.81	1.02	1.01	-0.24
6142	-1.68	-1.36	-1.24	-0.66	-0.48	-0.08
6172	-0.50	-0.14	1.18	1.35	1.20	0.63
6201	1.08	-0.60	-0.59	-0.43	-0.23	-0.44
6238	-1.05	-0.25	-0.87	-0.93	-0.46	-1.23
6253	----	----	----	----	----	----
6260	-0.30	0.15	1.28	0.57	0.26	1.93
6262	----	----	----	----	----	----
6266	----	----	----	----	----	----
6269	0.56	-0.20	0.06	0.13	0.12	0.23
6271	----	----	----	----	----	----
6272	-1.02	-5.39	-5.26	1.41	3.86	1.53
6277	----	----	----	----	----	----
6291	----	----	----	----	----	----
9128	0.05	0.91	0.53	-0.10	-0.37	0.90

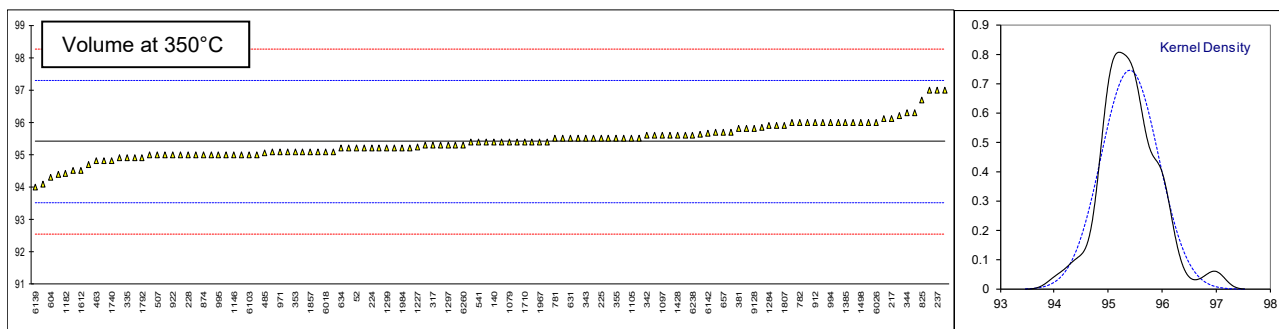
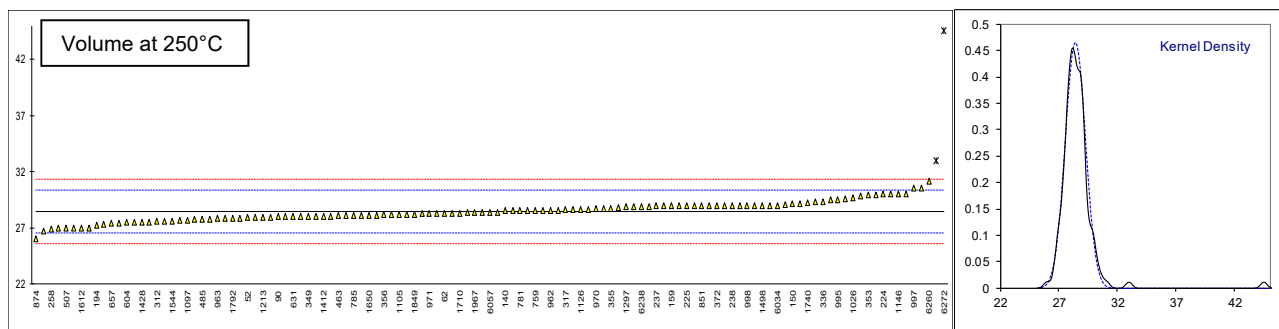
Determination of Distillation on sample #19160; results in %V/V

lab	method	Vol.250°C	mark	z(targ)	Vol.350°C	mark	z(targ)	%residue
52	D86-A	27.9		-0.57	95.2		-0.22	1.4
53		----		----			----	----
62	D86-A	28.3		-0.15	95.2		-0.22	1.1
90	D86-M	28.0		-0.46	95.5		0.10	1.7
92	D86-A	27.4		-1.10	95.4		0.00	1.7
120	D86-A	----		----			----	1.2
140	D86-A	28.5		0.06	95.4		0.00	1.4
150	D86-A	29.1		0.69	96.3		0.94	1.2
158	D86-A	----		----			----	1.8
159	D86-A	29.0		0.59	96.1		0.73	1.0
169	D86-A	----		----			----	1.4
171	D86-A	29.3		0.90	97.0		1.68	1.0
175	D86-A	----		----			----	0.6
186		----		----			----	----
194	D86-A	27.2	C	-1.31	94.5		-0.95	1.3
203		----		----			----	----
217	D86-A	29.1		0.69	96.1		0.73	1.4
221		----		----			----	----
224	D86-M	30.0		1.64	95.2		-0.22	1.5
225	D86-M	29.0		0.59	95.5		0.10	1.5
228	D86-M	29.0		0.59	95		-0.43	1.5
230	D86-A	28.3		-0.15	95.2		-0.22	0.4
237	D86-M	29.0		0.59	97.0		1.68	0.5
238	D86-M	29.0		0.59	96.0		0.63	1.5
240		----		----			----	----
253	D86-M	28.1		-0.36	95.0		-0.43	1.2
254	D86-M	----		----			----	----
256	D86-M	----		----			----	----
258	D86-A	26.9		-1.62	95.6		0.21	1.1
273	D86-A	----		----			----	----
312	D86-A	27.6		-0.89	95.1		-0.32	2.0
317	D86-A	28.6		0.17	95.3		-0.11	1.4
323	D86-A	29.9		1.54	95.4		0.00	1.4
333		----		----			----	----
335	D86	29.6		1.22	94.9		-0.53	1
336	D86-A	29.3		0.90	95.7		0.31	0.9
337		----		----			----	----
339		----		----			----	----
342	D86	28.0		-0.46	95.6		0.21	1.4
343	D86-A	----		----	95.5		0.10	1.4
344	D86-A	27.9		-0.57	96.3		0.94	1.0
349	D86-A	28.0		-0.46	----		----	1.4
353	IP123-A	29.9		1.54	95.1		-0.32	1.2
355	D86-M	28.75		0.33	95.5		0.10	1.75
356	D86-A	28.2		-0.25	95.5		0.10	1.8
372	D86	29.0		0.59	95.3		-0.11	1.6
381	D86-A	28.6		0.17	95.8		0.42	0.8
433		----		----			----	----
463	D86-A	28.1		-0.36	94.8		-0.64	1.7
485	D86-A	27.75		-0.73	95.05		-0.37	1.2
507	D86-M	27.0		-1.52	95.0		-0.43	2.0
511		----		----			----	----
529	D86-A	28.5		0.06	95.0		-0.43	1.6
541	D86-A	28.80		0.38	95.40		0.00	1.40
554		----		----			----	----
555		----		----			----	----
558		----		----			----	----
562		----		----			----	----
575		----		----			----	----
603		----		----			----	----
604	D86-A	27.5		-0.99	94.3		-1.16	1.4
608	D86-A	----		----			----	1.4
614	D86-M	30		1.64	----		----	----
621	D86-M	29		0.59	96		0.63	1.0
631	D86-M	28		-0.46	95.5		0.10	2.0
633	D86-A	----		----			----	1.7
634	D86-A	28.5		0.06	95.2		-0.22	1.4
657	D86-M	27.4		-1.10	95.7		0.31	1.0
732	D86-M	29.0		0.59	95.0		-0.43	1.5
733		----		----			----	----
750		----		----			----	----
751		----		----			----	----
752		----		----			----	----
759	D86-M	28.5		0.06	95.5		0.10	1.6
778		----		----			----	----
779	ISO3405-M	29.0		0.59	95.5		0.10	1.7

lab	method	Vol.250°C	mark	z(targ)	Vol.350°C	mark	z(targ)	%residue
781	D86-A	28.5		0.06	95.5		0.10	0.8
782	D86-M	29.0		0.59	96.0		0.63	1.4
785	D86-A	28.1		-0.36	95.0		-0.43	1.4
798		----		----	----		----	----
825	D86-A	29.5		1.11	96.7		1.36	0.3
846		----		----	----		----	----
851	D86-M	29		0.59	96		0.63	1.0
854	D86-A	28.5		0.06	95.3		-0.11	0.6
856	D-86	28.0		-0.46	95.1		-0.32	1.4
862		----		----	----		----	----
863		----		----	----		----	----
864		----		----	----		----	----
872		----		----	----		----	----
873		----		----	----		----	----
874	D86-M	26.0		-2.57	95.0		-0.43	1.5
886	D-86	----		----	----		----	----
887	D86-M	27		-1.52	95		-0.43	1.4
912	D86	27		-1.52	96		0.63	1.7
922	D86-A	27.5		-0.99	95.0		-0.43	1.4
962	D86-M	28.5		0.06	95.5		0.10	1.5
963	D86-A	27.8		-0.67	95.7		0.31	1.4
970	D86-A	28.7		0.27	95.2		-0.22	1.3
971	D86-A	28.3		-0.15	95.1		-0.32	1.4
974	D86-A	28.3		-0.15	94.9		-0.53	1.2
988		----		----	----		----	----
994	D86-M	29		0.59	96		0.63	1.5
995	D86-M	29.5		1.11	95.0		-0.43	1.5
996		----		----	----		----	----
997	D86-M	30.5		2.17	95.0		-0.43	1.5
998	D86-M	29		0.59	96		0.63	1.5
1006	D86-A	----		----	----		----	1.5
1012	D86-A	----		----	----		----	1.4
1026	ISO3405-A	29.7		1.33	96.2		0.84	0.8
1059	D86-A	28.2		-0.25	95.4		0.00	1.4
1079		27.6		-0.89	95.4		0.00	1.4
1080		----		----	----		----	----
1082	ISO3405-A	27.3		-1.20	94.8		-0.64	----
1090		----		----	----		----	----
1097	ISO3405-A	27.7		-0.78	95.6		0.21	1.8
1105	D86-A	28.2		-0.25	95.5		0.10	1.4
1109	D86-A	28.7		0.27	95.8		0.42	1.3
1121		----		----	----		----	----
1126		28.6		0.17	95.1		-0.32	----
1146	D86-A	30		1.64	95		-0.43	1.1
1161	ISO3405-A	27.8		-0.67	95.6		0.21	1.4
1182	D86-A	27.74		-0.74	94.42		-1.04	1.4
1194		----		----	----		----	----
1199		----		----	----		----	----
1213	D86	27.9		-0.57	94.9		-0.53	1.4
1227		27.64		-0.84	95.25		-0.16	0.87
1277		----		----	----		----	----
1284	D86-A	28.0		-0.46	95.9		0.52	1.4
1297		28.9		0.48	95.3		-0.11	1.4
1299	D86-A	28.1	C	-0.36	95.2	C	-0.22	1.4 C
1345	D86-M	30.5		2.17	95.5		0.10	1.5
1347	D86-M	29		0.59	95		-0.43	2.0
1348	D86-A	33	R(0.01)	4.80	97		1.68	1.8
1356	ISO3405-M	----		----	----		----	----
1385	D86-M	28.5	C	0.06	96		0.63	1.1
1412	D86-M	28.0		-0.46	96.0		0.63	1.5
1417	D86-A	26.7		-1.83	94.4		-1.06	1.2
1428	D86-A	27.5		-0.99	95.6		0.21	1.5
1430		----		----	----		----	----
1441		----		----	----		----	----
1483		----		----	----		----	----
1498		29		0.59	96		0.63	1.4
1544	D86-A	27.60		-0.89	94.70		-0.74	1.6
1588		----		----	----		----	----
1612	D86-M	27.0		-1.52	94.5		-0.95	1.7
1629		----		----	----		----	----
1634	D86-A	28.2		-0.25	95.4		0.00	1.3
1636	D86-A	28.3		-0.15	95.9		0.52	1.4
1650	D86-A	28.1		-0.36	95.2		-0.22	1.2
1710	ISO3405-A	28.3		-0.15	95.4		0.00	1.5
1720		----		----	----		----	----
1724	D86-A	28.4		-0.04	96.0		0.63	1.4
1740	D86-A	29.2		0.80	94.8		-0.64	1.4
1792	D86-A	27.8		-0.67	94.9		-0.53	1.6
1807		28.9		0.48	95.9		0.52	1.0

lab	method	Vol.250°C	mark	z(targ)	Vol.350°C	mark	z(targ)	%residue
1849	ISO3405-A	28.2		-0.25	95.4		0.00	1.4
1857	D86-A	27.8		-0.67	95.1		-0.32	1.7
1906		----		----	----		----	----
1944	D86-M	28.0		-0.46	95.1		-0.32	1.4
1967	D86-A	28.4		-0.04	95.4		0.00	1.0
1984	ISO3405-A	27.75		-0.73	95.2		-0.22	1.4
1995	D86-A	28.92		0.50	95.62		0.23	2.1
6005	ISO3405-A	27.5		-0.99	95.3		-0.11	1.3
6018	ISO3405-A	27.9		-0.57	95.1		-0.32	1.1
6026	D86-M	29.0		0.59	96.0		0.63	1.0
6034	D86-A	29.0		0.59	95.85		0.47	1.5
6049	ISO3405-A	28.4		-0.04	95.4		0.00	1.4
6054		----		----	----		----	----
6057	D86-A	28.4		-0.04	95.1		-0.32	0.6
6068	ISO3405-A	28.4		-0.04	95.2		-0.22	1.4
6103	ISO3405-A	29.8		1.43	95.0		-0.43	1.4
6139	D86-A	27		-1.52	94		-1.48	1.4
6142	ISO3405	29.05		0.64	95.65		0.26	1.4
6172	D86-A	30		1.64	95	C	-0.43	----
6201	D86-A	28.6		0.17	95.6		0.21	1.4
6238	D86-A	28.9		0.48	95.6		0.21	1.7
6253		----		----	----		----	----
6260	GB/T 6536	31.1		2.80	95.3		-0.11	0.7
6262		----		----	----		----	----
6266		----		----	----		----	----
6269	D86-A	----		----	----		----	----
6271		----		----	----		----	----
6272	D86-M	44.5	R(0.01)	16.90	94.1		-1.37	0.70
6277		----		----	----		----	----
6291		----		----	----		----	----
9128	D86-A	28.1		-0.36	95.8		0.42	1.3
normality	OK				suspect			
n	119				120			
outliers	2				0			
mean (n)	28.44				95.40			
st.dev. (n)	0.859				0.534			
R(calc.)	2.40				1.50			
st.dev.(D86-A:18)	0.950				0.950			
R(D86-A:18)	2.66				2.66			
compare								
R(D86-M:18)	2.71				2.50			

Lab 194 first reported 37.2  
 Lab 1299 first reported 335.1, 348.5 and 358.5 respectively  
 Lab 1385 first reported 33.5  
 Lab 6172 first reported 30



Determination of FAME Content on sample #19160; results in %V/V

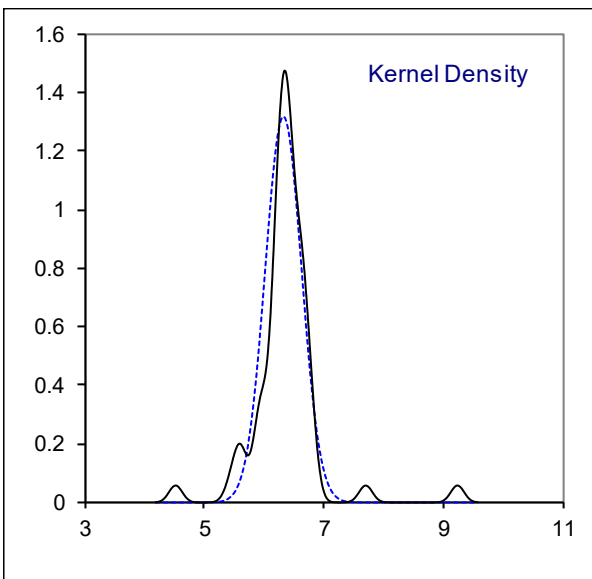
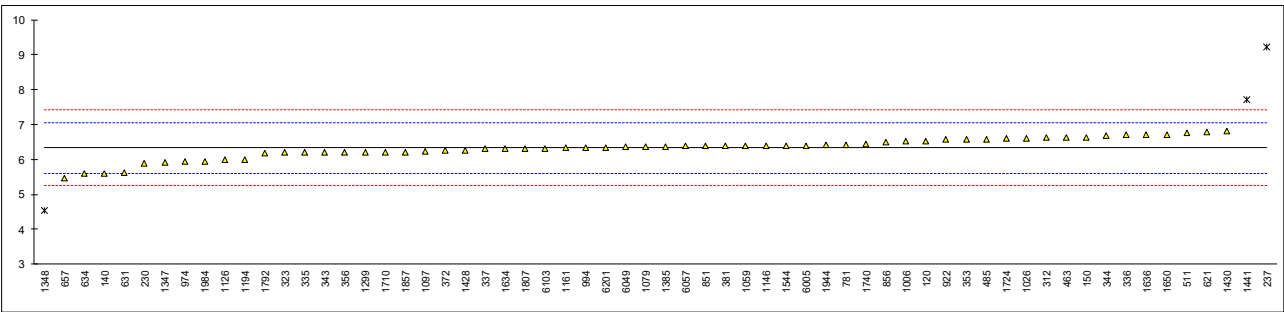
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52		----		----	781	EN14078-B	6.42		0.26
53		----		----	782		----		----
62		----		----	785		----		----
90		----		----	798		----		----
92		----		----	825		----		----
120	D7371	6.53		0.56	846		----		----
140	D7371	5.61		-1.98	851	EN14078-A	6.4		0.20
150	D7371	6.64		0.87	854		----		----
158		----		----	856	D7371	6.50		0.48
159		----		----	862		----		----
169		----		----	863		----		----
171		----		----	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874		----		----
203		----		----	886		----		----
217		----		----	887		----		----
221		----		----	912		----		----
224		----		----	922	EN14078-B	6.57		0.67
225		----		----	962		----		----
228		----		----	963		----		----
230	EN14078-A	5.89		-1.21	970		----		----
237	D7371	9.23	C,R(0.01)	8.03	971		----		----
238		----		----	974	EN14078-A	5.95		-1.04
240		----		----	988		----		----
253		----		----	994	EN14078-A	6.35		0.06
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312	EN14075-B	6.62		0.81	1006	EN14078-A	6.51		0.51
317		----		----	1012		----		----
323	D7371	6.2	C	-0.35	1026	EN14078-A	6.6		0.76
333		----		----	1059	EN14078-B	6.4		0.20
335	EN14078-A	6.2		-0.35	1079	EN14078-B	6.37		0.12
336	EN14078	6.7		1.03	1080		----		----
337	EN14078-A	6.3		-0.07	1082		----		----
339		----		----	1090		----		----
342		----		----	1097	EN14078-B	6.24		-0.24
343	EN14078-A	6.20		-0.35	1105		----		----
344	EN14078-A	6.676		0.97	1109		----		----
349		----		----	1121		----		----
353	EN14078-A	6.58		0.70	1126		6.0		-0.90
355		----		----	1146	D7371	6.4		0.20
356	EN14078-A	6.2		-0.35	1161	EN14078-A	6.34		0.04
372	D7371	6.26		-0.18	1182		----		----
381	EN14078-A	6.4		0.20	1194	EN14078-A	6		-0.90
433		----		----	1199		----		----
463	EN14075-B	6.63		0.84	1213		----		----
485	EN14078-A	6.58		0.70	1227		----		----
507		----		----	1277		----		----
511	D7371	6.751		1.17	1284		----		----
529		----		----	1297		----		----
541		----		----	1299	EN14078-A	6.2		-0.35
554		----		----	1345		----		----
555		----		----	1347	D7371	5.905		-1.17
558		----		----	1348	EN14078-A	4.529	R(0.01)	-4.97
562		----		----	1356		----		----
575		----		----	1385	EN14078-A	6.373		0.13
603		----		----	1412		----		----
604		----		----	1417		----		----
608		----		----	1428	EN14078-A	6.26		-0.18
614		----		----	1430		6.81		1.34
621	EN14078-A	6.8		1.31	1441	D7371	7.7	R(0.01)	3.80
631	EN14078Mod.	5.62	C	-1.95	1483		----		----
633		----		----	1498		----		----
634	EN14078	5.6		-2.01	1544	D7371	6.40		0.20
657	EN14078-A	5.453		-2.42	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634	EN14078-A	6.3		-0.07
751		----		----	1636	EN14078-A	6.71		1.06
752		----		----	1650	EN14078-B	6.72		1.09
759		----		----	1710	EN14078-A	6.2		-0.35
778		----		----	1720		----		----
779		----		----	1724	EN14078-A	6.59		0.73



lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	EN14078-A	6.44		0.31	6068		----		----
1792	EN14078-A	6.19		-0.38	6103	EN14078-A	6.32		-0.02
1807	D7371	6.3		-0.07	6139		----		----
1849		----		----	6142		----		----
1857	EN14078-A	6.218		-0.30	6172		----		----
1906		----		----	6201	D7371	6.35		0.06
1944	EN14078-A	6.41		0.23	6238		----		----
1967		----		----	6253		----		----
1984	EN14078-B	5.95		-1.04	6260		----		----
1995		----		----	6262		----		----
6005	EN14078-A	6.4		0.20	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049	EN14078-A	6.36		0.09	6277		----		----
6054		----		----	6291		----		----
6057	EN14078-A	6.38		0.15	9128		----		----

normality OK  
 n 59  
 outliers 3  
 mean (n) 6.327  
 st.dev. (n) 0.3023  
 R(calc.) 0.846  
 st.dev.(D7371:14) 0.3617  
 R(D7371:14) 1.013  
 compare  
 R(EN14078-A:14) 0.339  
 R(EN14078-B:14) 0.460

Lab 237 first reported 9.48  
 Lab 323 first reported 1.2  
 Lab 631 first reported 4.62



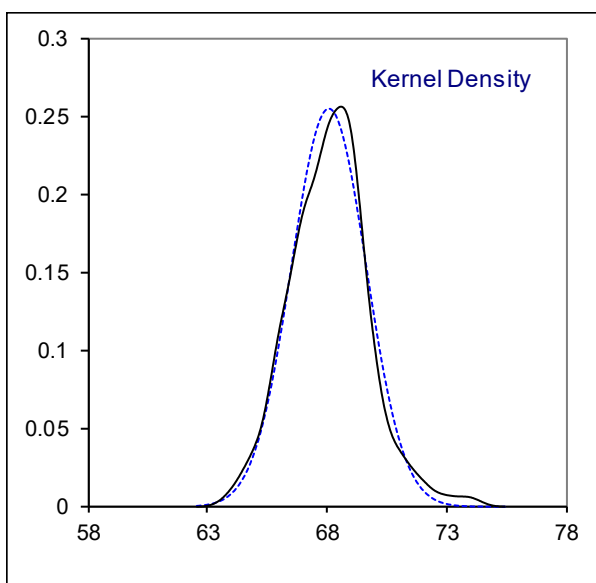
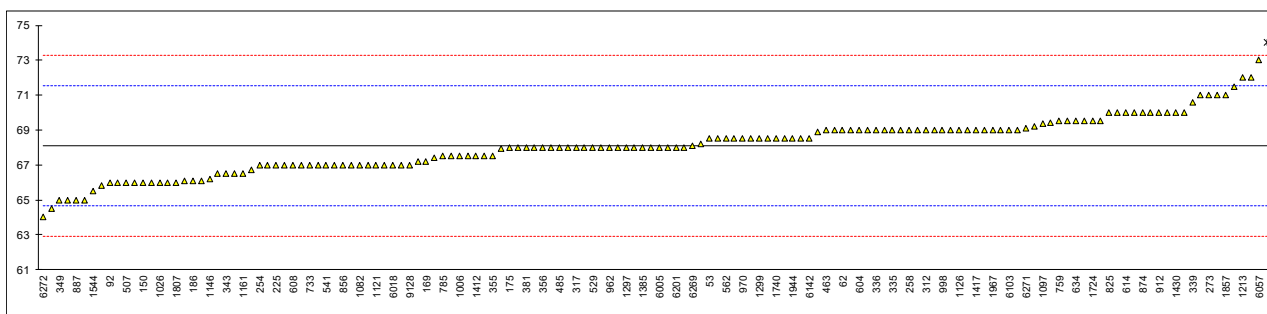
Determination of Flash Point PMcc, on sample #19160; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D93-A	70.0		1.10	781	D93-A	69.0		0.52
53	D93-A	68.5		0.23	782	D93-A	71.5		1.97
62	D93-A	69.0		0.52	785	D93-A	67.5		-0.35
90	D93-A	66.07		-1.18	798		----		----
92	D93-A	66.0		-1.22	825	D93-A	70.0		1.10
120	D93-A	67.2		-0.52	846		----		----
140	D93-A	69.5		0.81	851	D93-A	71.0		1.68
150	D93-A	66.0		-1.22	854	D93-A	68.0		-0.06
158	D93-A	68		-0.06	856	D93	67.0		-0.64
159	D93-A	69.4		0.75	862		----		----
169	D93-A	67.2		-0.52	863		----		----
171	D93-A	70.0		1.10	864		----		----
175	D93-A	68		-0.06	872		----		----
186	D93-A	66.1		-1.16	873		----		----
194	D93-A	66.0		-1.22	874	D93-A	70.0		1.10
203	D93-A	67	C	-0.64	886		----		----
217	D93-A	67.0		-0.64	887	D93-A	65.0		-1.80
221		----		----	912	D93-B	70.0		1.10
224	D93-A	68.50		0.23	922	D93-A	68.0		-0.06
225	D93-A	67.0		-0.64	962	D93-A	68.0		-0.06
228	D93-A	69		0.52	963	D93-A	69.0		0.52
230	ISO2719-A	66.0		-1.22	970	D93-A	68.5		0.23
237	D93-A	69.0		0.52	971	D93-A	69.2		0.64
238	D93-A	66.5		-0.93	974	D93-A	68.5		0.23
240		----		----	988		----		----
253	D93-A	69		0.52	994	D93-A	67.5		-0.35
254	D93-A	67.0		-0.64	995	D93-A	66.5		-0.93
256	D93-A	68.0		-0.06	996		----		----
258	D93-A	69.0		0.52	997	D93-A	67.0		-0.64
273	D93-A	71.0		1.68	998	D93-A	69		0.52
312	D93-A	69.0		0.52	1006	D93-A	67.5		-0.35
317	D93-A	68.0		-0.06	1012		----		----
323	D93-A	66.0		-1.22	1026	D93-A	66.0		-1.22
333	D93-A	68.5		0.23	1059	ISO2719-A	69.0		0.52
335	D93-A	69.0		0.52	1079	D93-A	67.5		-0.35
336	D93-A	69.0		0.52	1080		----		----
337		----		----	1082	ISO2719-A	67.0		-0.64
339	D93-B	70.6		1.45	1090		----		----
342	ISO2719-A	65.8		-1.33	1097	ISO2719-A	69.35		0.72
343	D93-A	66.5		-0.93	1105	D93-A	69.5		0.81
344	D93-A	69		0.52	1109	D93-A	67.0		-0.64
349	D93-A	65		-1.80	1121	D93-A	67.0		-0.64
353	IP34-A	69.550		0.84	1126	D93-A	69		0.52
355	D93-A	67.5271		-0.33	1146	D93-A	66.2		-1.10
356	D93-A	68.0		-0.06	1161	ISO2719-A	66.5		-0.93
372	D93-A	68.0		-0.06	1182	D93-A	66		-1.22
381	ISO2719-A	68.0		-0.06	1194		----		----
433	ISO2719-A	67.0		-0.64	1199		----		----
463	D93-A	69.0		0.52	1213	D93	72		2.26
485	D93-A	68.0		-0.06	1227	D93-A	69		0.52
507	D93-A	66.0		-1.22	1277		----		----
511	D93-A	64.5		-2.09	1284	D93-A	68.0		-0.06
529	D93-A	68		-0.06	1297	D93-A	68.0		-0.06
541	D93-A	67.0		-0.64	1299	D93-A	68.5		0.23
554		----		----	1345	D93-A	65		-1.80
555		----		----	1347	D93-A	70.0		1.10
558		----		----	1348	D93-A	68		-0.06
562	D93	68.5		0.23	1356	ISO2719-A	72		2.26
575		----		----	1385	D93-A	68.0		-0.06
603	D93-A	69.0		0.52	1412	D93-A	67.5		-0.35
604	D93-A	69.0		0.52	1417	D93-A	69		0.52
608	D93-A	67.0		-0.64	1428	D93-A	68.5		0.23
614	D93-A	70		1.10	1430		70	C	1.10
621	D93-A	67.0		-0.64	1441		----		----
631	D93-A	65.0		-1.80	1483		----		----
633	D93-A	68.2		0.06	1498	D93-A	67.5		-0.35
634	D93-A	69.5		0.81	1544	D93-A	65.50		-1.51
657	D93-A	71.0		1.68	1588		----		----
732	ISO2719-A	67		-0.64	1612	D93-A	67.95250		-0.09
733	ISO2719-A	67		-0.64	1629	D93-A	67.4		-0.41
750		----		----	1634	D93-A	69.0		0.52
751		----		----	1636	D93-A	66.7		-0.81
752		----		----	1650	D93-A	68.9		0.46
759	D93-A	69.5		0.81	1710	ISO2719-A	67.0		-0.64
778	D93-A	70.0		1.10	1720		----		----
779	D93-A	68.0		-0.06	1724	D93-A	69.5		0.81

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D93-A	68.5		0.23	6068	ISO2719-A	68.0		-0.06
1792	D93-A	68.0		-0.06	6103	ISO2719-A	69.0		0.52
1807	D93-A	66		-1.22	6139	D93-A	70.0		1.10
1849	ISO2719-A	68.5		0.23	6142	EN2179	68.5		0.23
1857	D93-A	71.0		1.68	6172	D93-A	67		-0.64
1906		----		----	6201	D93-A	68.0		-0.06
1944	D93-A	68.5		0.23	6238	D93-A	69.0		0.52
1967	D93-A	69.0		0.52	6253		----		----
1984	ISO2719-A	69.0		0.52	6260	GB/T 261	68.0		-0.06
1995	D93-A	66.1		-1.16	6262		----		----
6005	ISO2719-A	68.0		-0.06	6266		----		----
6018	ISO2719-A	67.0		-0.64	6269	D93-A	68.1		0.00
6026		----		----	6271	D93-A	69.1		0.58
6034	D93-A	74	R(0.05)	3.41	6272	D93-A	64.05		-2.35
6049	ISO2719-A	68.5		0.23	6277		----		----
6054		----		----	6291		----		----
6057	D93-A	73.0		2.84	9128	D93-A	67.0		-0.64

normality OK  
n 147  
outliers 1  
mean (n) 68.103  
st.dev. (n) 1.5633  
R(calc.) 4.377  
st.dev.(D93-A:18) 1.7269  
R(D93-A:18) 4.835

Lab 203 first reported 60  
Lab 1430 first reported 73



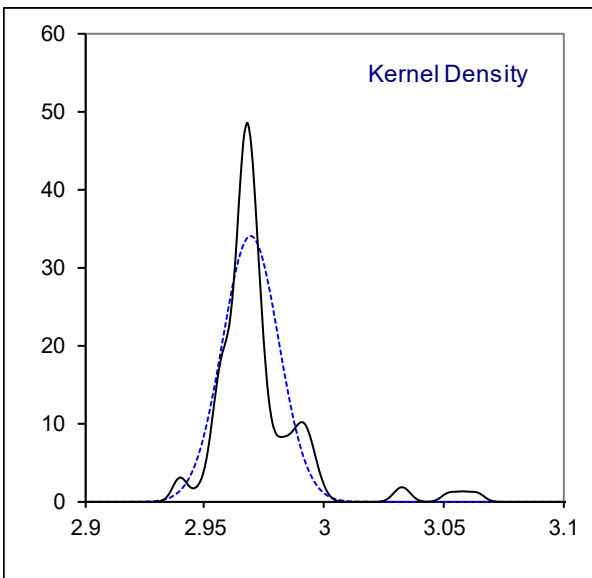
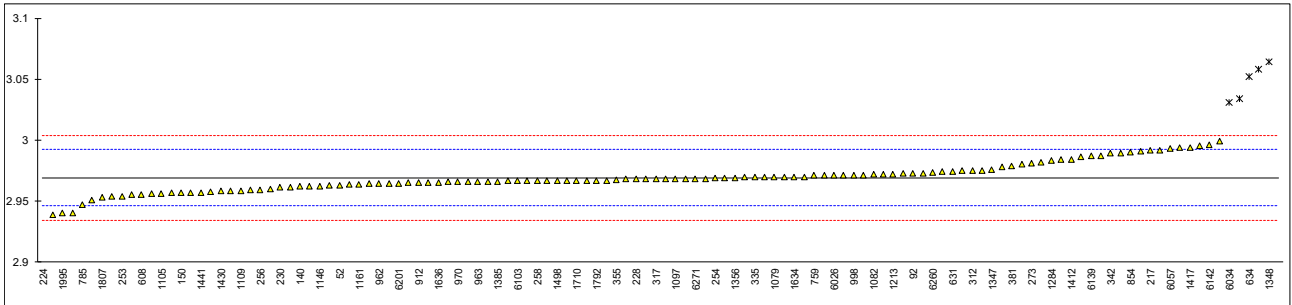
Determination of Kinematic Viscosity at 40°C, on sample #19160; results in mm<sup>2</sup>/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D445	2.963	C	-0.53	781	D445	2.969		-0.01
53		----		----	782		----		----
62	D445	2.989		1.71	785	D445	2.947		-1.91
90	D445	2.9838		1.26	798		----		----
92	D445	2.973		0.33	825	D445	2.965		-0.36
120	D445	2.97		0.07	846		----		----
140	D445	2.962		-0.62	851	D445	2.995		2.22
150	D445	2.957		-1.05	854	D445	2.9902		1.81
158	D445	2.9634		-0.50	856	D445	2.999		2.57
159	D445	2.956	C	-1.13	862		----		----
169	D445	3.058	C,R(0.01)	7.64	863		----		----
171	D445	2.962		-0.62	864		----		----
175	D445	2.951		-1.56	872		----		----
186		----		----	873		----		----
194	D445	2.975		0.50	874	D445	2.971		0.16
203		----		----	886		----		----
217	D445	2.9912	C	1.90	887		----		----
221		----		----	912	D445	2.965		-0.36
224	D445	2.817	C,R(0.01)	-13.09	922	D7042	2.963		-0.53
225	D445	2.965		-0.36	962	D445	2.964		-0.44
228	D445	2.968		-0.10	963	D445	2.966		-0.27
230	ISO3104	2.961		-0.70	970	D445	2.966		-0.27
237	D445	2.974		0.42	971	D445	2.966		-0.27
238		----		----	974	D445	2.957		-1.05
240		----		----	988		----		----
253	D445	2.954		-1.30	994	D7042	2.980		0.93
254	D445	2.969		-0.01	995	D445	2.967		-0.19
256	D445	2.959		-0.87	996		----		----
258		2.967		-0.19	997		----		----
273	D445	2.981		1.02	998	D445	2.9712		0.17
312	D445	2.975		0.50	1006		----		----
317	D445	2.968		-0.10	1012		----		----
323	D445	2.968		-0.10	1026	D445	2.973		0.33
333	D445	2.978		0.76	1059	ISO3104	2.960		-0.79
335	D445	2.970		0.07	1079	D445	2.970		0.07
336		----		----	1080	D445	2.9912		1.90
337		----		----	1082	D445	2.9719		0.24
339		----		----	1090		----		----
342	ISO3104	2.9890		1.71	1097	ISO3104	2.968		-0.10
343	D445	2.970		0.07	1105	D445	2.956		-1.13
344		----		----	1109	D445	2.9585		-0.92
349		----		----	1121		----		----
353	IP71	2.9669		-0.20	1126		----		----
355	D445	2.9677		-0.13	1146	D445	2.9621		-0.61
356	D445	2.968		-0.10	1161	ISO3104	2.9639		-0.45
372	D445	2.967		-0.19	1182	D7042	2.9403		-2.48
381	ISO3104	2.979		0.85	1194		----		----
433		----		----	1199		----		----
463	D7042	2.9725		0.29	1213	D445	2.972		0.24
485		----		----	1227	D445	2.9568	C	-1.06
507	D445	2.9640		-0.44	1277		----		----
511		----		----	1284	D445	2.983		1.19
529		----		----	1297	D7042	2.9659		-0.28
541	D445	2.9575		-1.00	1299		----		----
554		----		----	1345	D445	2.970		0.07
555		----		----	1347	D445	2.976		0.59
558		----		----	1348	D445	3.064	R(0.01)	8.16
562	D445	2.982		1.10	1356	ISO3104	2.969		-0.01
575		----		----	1385	D445	2.966		-0.27
603	D445	3.034	C,R(0.01)	5.58	1412	D445	2.984		1.28
604	D445	2.9874	C	1.57	1417	D445	2.994		2.14
608	D445	2.955		-1.22	1428	D445	2.964		-0.44
614		----		----	1430		2.958	C	-0.96
621	D445	2.955		-1.22	1441	D445	2.957		-1.05
631	D445	2.9742	C	0.43	1483		----		----
633		----		----	1498	D445	2.967		-0.19
634	D445	3.052	R(0.01)	7.13	1544	D445	2.9751		0.51
657	D445	2.968		-0.10	1588		----		----
732	D445	2.972		0.24	1612	D445	2.993740		2.11
733		----		----	1629		----		----
750		----		----	1634	D445	2.970		0.07
751		----		----	1636	D445	2.965	C	-0.36
752		----		----	1650	D445	2.9670		-0.19
759	D445	2.971		0.16	1710	ISO3104	2.967		-0.19
778	D445	2.959		-0.87	1720		----		----
779	ISO3104	2.966		-0.27	1724	D445	2.967		-0.19

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D445	2.961		-0.70	6068		-----		-----
1792	D445	2.967		-0.19	6103	ISO3104	2.96695		-0.19
1807	D445	2.953		-1.39	6139	D445	2.987		1.53
1849	ISO3104	2.968		-0.10	6142	ISO3104	2.996		2.31
1857	D445	2.9535		-1.35	6172	D445	2.958		-0.96
1906		-----		-----	6201	D445	2.964		-0.44
1944	D445	2.9860		1.45	6238	D445	2.971		0.16
1967	D445	2.9713		0.18	6253		-----		-----
1984	ISO3104	2.9385		-2.64	6260	GB/T 265-1988	2.9734		0.36
1995	D7042	2.94		-2.51	6262		-----		-----
6005	ISO3104	2.991		1.88	6266		-----		-----
6018		-----		-----	6269	D445	2.970		0.07
6026	D445	2.971		0.16	6271	D445	2.968		-0.10
6034	D445	3.031	R(0.01)	5.32	6272	D445	3.18	R(0.01)	18.14
6049	ISO3104	2.967		-0.19	6277		-----		-----
6054		-----		-----	6291		-----		-----
6057	D445	2.993		2.05	9128	D445	2.968		-0.10

normality OK  
n 119  
outliers 7  
mean (n) 2.9692  
st.dev. (n) 0.01174  
R(calc.) 0.0329  
st.dev.(D445:19) 0.01162  
R(D445:19) 0.0325

- Lab 52 first reported 3.028
- Lab 159 first reported 3.005
- Lab 169 first reported 2.877
- Lab 217 first reported 3.0932
- Lab 224 first reported 2.797
- Lab 603 first reported 3.014
- Lab 604 first reported 2.89545
- Lab 631 first reported 2.7942
- Lab 1227 first reported 3.052
- Lab 1430 first reported 2.923
- Lab 1636 first reported 3.0127

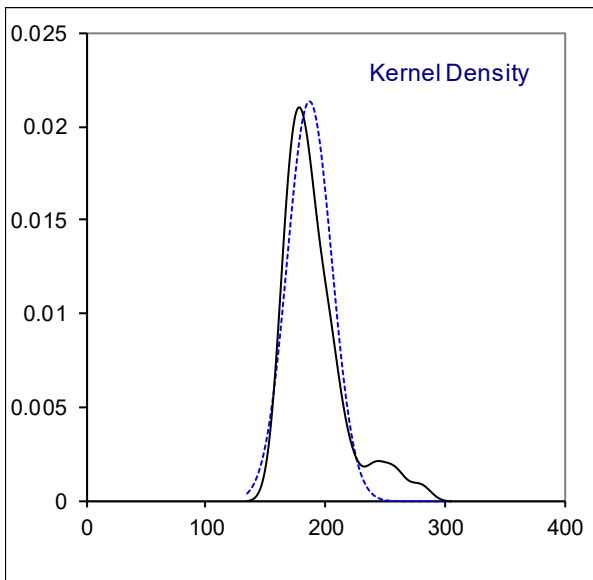
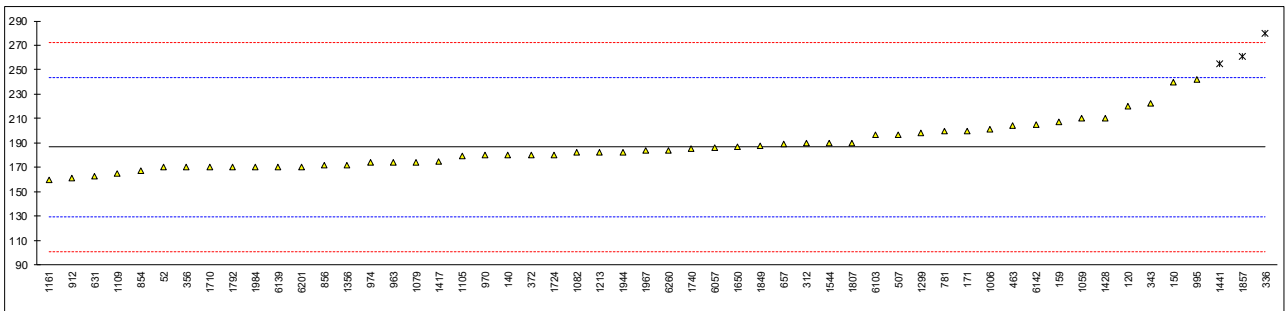


Determination of Lubricity by HFRR at 60°C, rel. humidity 30-85% on sample #19160; results in µm

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6079	170		-0.58	781	D6079	200		0.47
53		----		----	782		----		----
62		----		----	785		----		----
90		----		----	798		----		----
92		----		----	825		----		----
120	D6079	220		1.17	846		----		----
140	D6079	180		-0.23	851		----		----
150	D6079	240		1.87	854	D6079	167		-0.69
158		----		----	856	D6079	172		-0.51
159	D6079	207		0.71	862		----		----
169		----		----	863		----		----
171	D6079	200		0.47	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874		----		----
203		----		----	886		----		----
217		----		----	887		----		----
221		----		----	912	D6079	161.0		-0.90
224		----		----	922		----		----
225		----		----	962		----		----
228		----		----	963	D6079	174		-0.44
230		----		----	970	D6079	180		-0.23
237		----		----	971		----		----
238		----		----	974	D6079	174		-0.44
240		----		----	988		----		----
253		----		----	994		----		----
254		----		----	995	D6079	242		1.94
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312	ISO12156-1 meth A	190		0.12	1006	D6079	201.5		0.52
317		----		----	1012		----		----
323		----		----	1026		----		----
333		----		----	1059	ISO12156-1 meth B	210		0.82
335		----		----	1079	ISO12156-1 meth A	174		-0.44
336	D6079	280	R(0.05)	3.27	1080		----		----
337		----		----	1082	D6079	182		-0.16
339		----		----	1090		----		----
342		----		----	1097		----		----
343	ISO12156-1 (2006)	222		1.24	1105	D6079	179		-0.27
344		----		----	1109	IP450	165		-0.76
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146		----		----
356	ISO12156-1 (2006)	170		-0.58	1161	ISO12156-1 (2006)	160		-0.93
372	D6079	180		-0.23	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463	ISO12156-1 (2006)	204		0.61	1213	D6079	182.5		-0.15
485		----		----	1227		----		----
507	D6079	197.0		0.36	1277		----		----
511		----		----	1284		----		----
529		----		----	1297		----		----
541		----		----	1299	ISO12156-1 (2006)	198		0.40
554		----		----	1345		----		----
555		----		----	1347		----		----
558		----		----	1348		----		----
562		----		----	1356	ISO12156-1	172		-0.51
575		----		----	1385		----		----
603		----		----	1412		----		----
604		----		----	1417	CEC-F-06A96	175		-0.41
608		----		----	1428	ISO12156-1 meth A	210		0.82
614		----		----	1430		----		----
621		----		----	1441	D6079	255	R(0.05)	2.39
631	D7688	163		-0.83	1483		----		----
633		----		----	1498		----		----
634		----		----	1544	ISO12156-1 meth A	190		0.12
657	D6079	189.5		0.10	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650	ISO12156-1 meth B	187		0.01
759		----		----	1710	ISO12156-1 meth A	170		-0.58
778		----		----	1720		----		----
779		----		----	1724	ISO12156-1 (2006)	180		-0.23

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	ISO12156-1 meth B	185		-0.06	6068		----		----
1792	ISO12156-1 meth B	170		-0.58	6103	ISO12156-1 meth A	196.5		0.34
1807	D6079	190		0.12	6139	D6079	170		-0.58
1849	ISO12156-1 meth B	187.5		0.03	6142	EN16576	205		0.64
1857	ISO12156-1 (2006)	261	R(0.05)	2.60	6172		----		----
1906		----		----	6201	D6079	170.0		-0.58
1944	ISO12156-1 meth A	182.5		-0.15	6238		----		----
1967	D6079	183.8		-0.10	6253		----		----
1984	ISO12156-1 meth A	170		-0.58	6260	SH/T 0765	184		-0.09
1995		----		----	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057	ISO12156-1 meth A	186		-0.02	9128		----		----

normality	not OK	<u>Only D6079</u>	not OK	<u>Only ISO12156/IP450</u>
n	51	not OK	25	21
outliers	3		2	1
mean (n)	186.6		188.5	186.4
st.dev. (n)	18.68		21.12	16.04
R(calc.)	52.3		59.1	44.9
st.dev.(D6079:18)	28.57		28.57	28.57
R(D6079:18)	80		80	---
compare:				
R(ISO12156-1-A:16)	80(digital camera)	---		80(digital camera)
R(ISO12156-1-B:16)	90 (visual)	---		90 (visual)



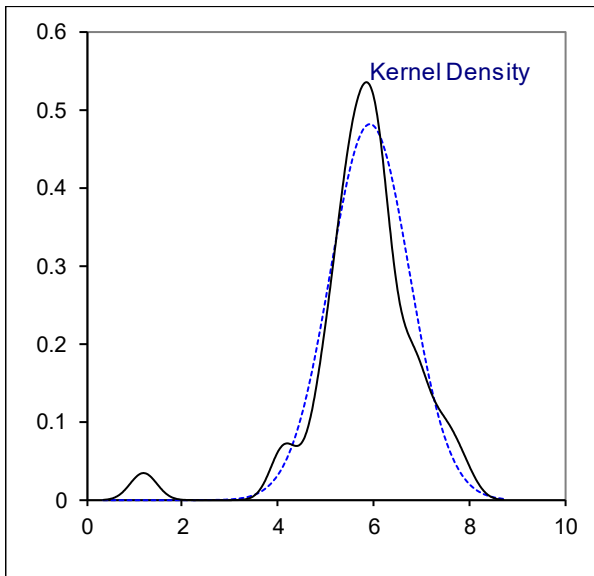
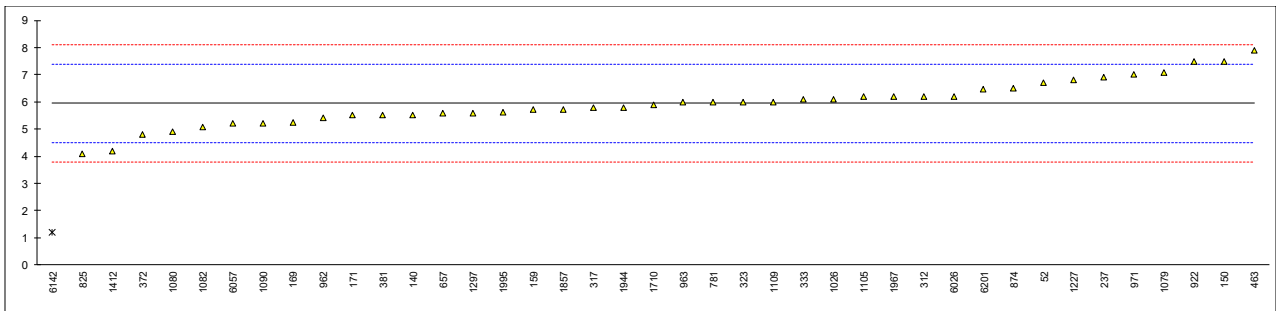
Determination of Nitrogen on sample #19160; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D4629	6.7		1.05	781	D4629	6.0		0.08
53		----		----	782		----		----
62		----		----	785		----		----
90		----		----	798		----		----
92		----		----	825	D4629	4.1		-2.54
120		----		----	846		----		----
140	D4629	5.5		-0.61	851		----		----
150	D4629	7.5		2.15	854		----		----
158		----		----	856		----		----
159	D4629	5.72		-0.31	862		----		----
169	D4629	5.23	C	-0.98	863		----		----
171	D4629	5.5		-0.61	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874	D4629	6.5		0.77
203		----		----	886		----		----
217		----		----	887		----		----
221		----		----	912		----		----
224		----		----	922	D4629	7.5		2.15
225		----		----	962	D4629	5.4		-0.75
228		----		----	963	D4629	6.0		0.08
230		----		----	970		----		----
237	D4629	6.9		1.33	971	D4629	7.0		1.46
238		----		----	974		----		----
240		----		----	988		----		----
253		----		----	994		----		----
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312	D4629	6.2		0.36	1006		----		----
317	D4629	5.8		-0.20	1012		----		----
323	D4629	6		0.08	1026	D4629	6.1		0.22
333	D4629	6.1		0.22	1059		----		----
335		----		----	1079	D4629	7.09		1.59
336		----		----	1080	D4629	4.9		-1.44
337		----		----	1082	D4629	5.08		-1.19
339		----		----	1090	D4629	5.21		-1.01
342		----		----	1097		----		----
343		----		----	1105	D4629	6.19		0.34
344		----		----	1109	D4629	6		0.08
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146		----		----
356		----		----	1161		----		----
372	D4629	4.8		-1.58	1182		----		----
381	D4629	5.5		-0.61	1194		----		----
433		----		----	1199		----		----
463	D4629	7.90		2.71	1213		----		----
485		----		----	1227	D4629	6.8		1.19
507		----		----	1277		----		----
511		----		----	1284		----		----
529		----		----	1297	D4629	5.58		-0.50
541		----		----	1299		----		----
554		----		----	1345		----		----
555		----		----	1347		----		----
558		----		----	1348		----		----
562		----		----	1356		----		----
575		----		----	1385		----		----
603		----		----	1412	D4629	4.2		-2.41
604		----		----	1417		----		----
608		----		----	1428		----		----
614		----		----	1430		----		----
621		----		----	1441		----		----
631		----		----	1483		----		----
633		----		----	1498		----		----
634		----		----	1544		----		----
657	D4629	5.58		-0.50	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650		----		----
759		----		----	1710	In house	5.9		-0.06
778		----		----	1720		----		----
779		----		----	1724		----		----



lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740		----		----	6068		----		----
1792		----		----	6103		----		----
1807		----		----	6139		----		----
1849		----		----	6142	D4629	1.2	R(0.01)	-6.55
1857	D4629	5.72		-0.31	6172		----		----
1906		----		----	6201	D4629	6.45		0.70
1944	D4629	5.80		-0.20	6238		----		----
1967	D4629	6.197		0.35	6253		----		----
1984		----		----	6260		----		----
1995	D4629	5.6		-0.47	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026	D4629	6.2		0.36	6271		----		----
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057	D4629	5.2		-1.02	9128		----		----
normality		OK							
n		40							
outliers		1							
mean (n)		5.94							
st.dev. (n)		0.829							
R(calc.)		2.32							
st.dev.(D4629:17)		0.724							
R(D4629:17)		2.03							

Lab 169 first reported 1.04



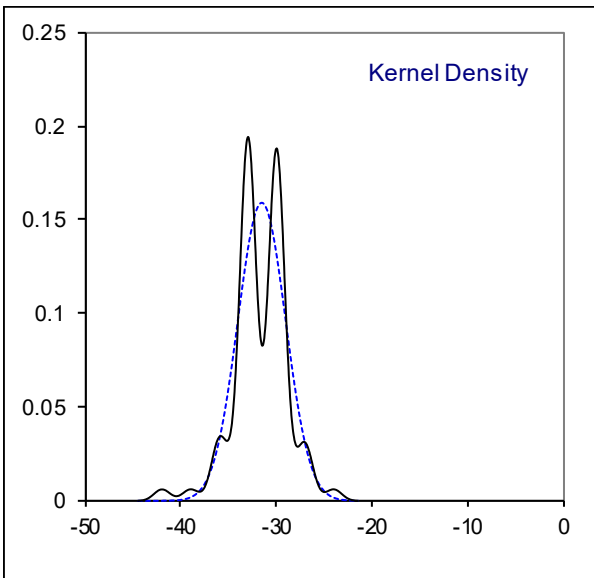
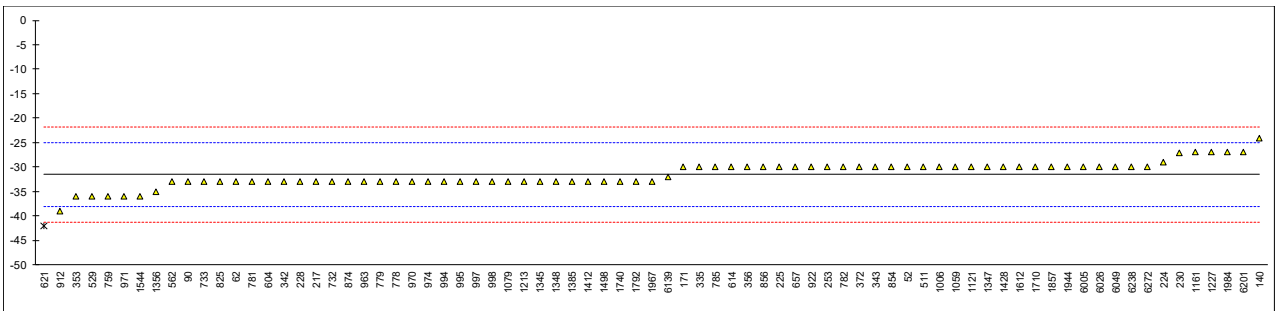
## Determination of Pour Point, Manual on sample #19160; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D97	-30		0.48	781	D97	-33		-0.45
53		----		----	782	D97	-30		0.48
62	D97	-33		-0.45	785	D97	-30		0.48
90	D97	-33		-0.45	798		----		----
92	D97	<-27		----	825	D97	-33		-0.45
120		----		----	846		----		----
140	D97	-24.0		2.35	851	D97	<-30		----
150		----		----	854	D97	-30		0.48
158		----		----	856	D97	-30		0.48
159		----		----	862		----		----
169	D97	<-30		----	863		----		----
171	D97	-30		0.48	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874	D97	-33		-0.45
203		----		----	886		----		----
217	D97	-33		-0.45	887		----		----
221		----		----	912	D97	-39	C	-2.32
224	D97	-29		0.79	922	D97	-30		0.48
225	D97	-30		0.48	962		----		----
228	D97	-33		-0.45	963	D97	-33		-0.45
230	ISO3016	-27.2		1.35	970	D97	-33		-0.45
237	D97	<-21		----	971	D97	-36		-1.39
238	D97	<-30		----	974	D97	-33		-0.45
240		----		----	988		----		----
253	D97	-30		0.48	994	D97	-33		-0.45
254		----		----	995	D97	-33		-0.45
256		----		----	996		----		----
258		----		----	997	D97	-33		-0.45
273	D97	<-24		----	998	D97	-33		-0.45
312		----		----	1006	D97	-30		0.48
317		----		----	1012		----		----
323		----		----	1026		----		----
333		----		----	1059	ISO3016	-30		0.48
335	D97	-30		0.48	1079	D97	-33		-0.45
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342	ISO3016	-33		-0.45	1097	NF T60-105	< 21		----
343	D97	-30.0		0.48	1105		----		----
344		----		----	1109		----		----
349		----		----	1121	D97	-30.0		0.48
353	IP15	-36		-1.39	1126		----		----
355		----		----	1146		----		----
356	D97	-30		0.48	1161	ISO3016	-27		1.41
372	D97	-30		0.48	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463		----		----	1213	D97	-33		-0.45
485		----		----	1227	D97	-27		1.41
507	D97	<-30.0		----	1277		----		----
511	D97	-30		0.48	1284		----		----
529	D97	-36		-1.39	1297		----		----
541		----		----	1299		----		----
554		----		----	1345	D97	-33		-0.45
555		----		----	1347	D97	-30		0.48
558		----		----	1348	D97	-33		-0.45
562	D97	-33		-0.45	1356	ISO3016	-35		-1.08
575		----		----	1385	D97	-33		-0.45
603	D97	<-30		----	1412	D97	-33		-0.45
604	D97	-33		-0.45	1417		----		----
608		----		----	1428	D97	-30		0.48
614	D97	-30		0.48	1430		----		----
621	D97	-42.0	R(0.01)	-3.25	1441		----		----
631		----		----	1483		----		----
633		----		----	1498	D97	-33		-0.45
634	D97	<-24		----	1544	D97	-36		-1.39
657	D97	-30		0.48	1588		----		----
732	D97	-33		-0.45	1612	D97	-30		0.48
733	D97	-33		-0.45	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650		----		----
759	D97	-36		-1.39	1710	ISO3016	-30		0.48
778	D97	-33		-0.45	1720		----		----
779	D97	-33		-0.45	1724		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D97	-33		-0.45	6068		----		----
1792	D97	-33		-0.45	6103		----		----
1807		----		----	6139	D97	-32		-0.14
1849		----		----	6142		----		----
1857	D97	-30		0.48	6172		----		----
1906		----		----	6201	D97	-27		1.41
1944	D97	-30		0.48	6238	ISO3016	-30		0.48
1967	D97	-33		-0.45	6253		----		----
1984	NF T60-105	-27		1.41	6260		----		----
1995		----		----	6262		----		----
6005	ISO3016	-30		0.48	6266		----		----
6018		----		----	6269		----		----
6026	D97	-30		0.48	6271		----		----
6034		----		----	6272	D97	-30		0.48
6049	ISO3016	-30		0.48	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----

normality OK  
n 76  
outliers 1  
mean (n) -31.54  
st.dev. (n) 2.501  
R(calc.) 7.00  
st.dev.(D97:17b) 3.214  
R(D97:17b) 9

Lab 912 first reported -42

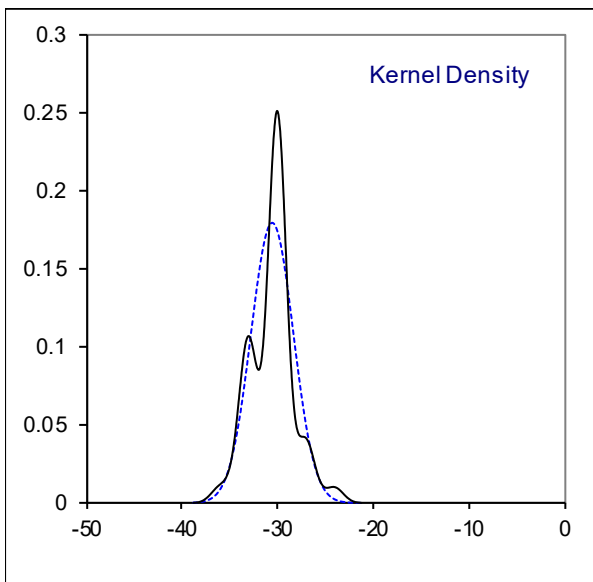
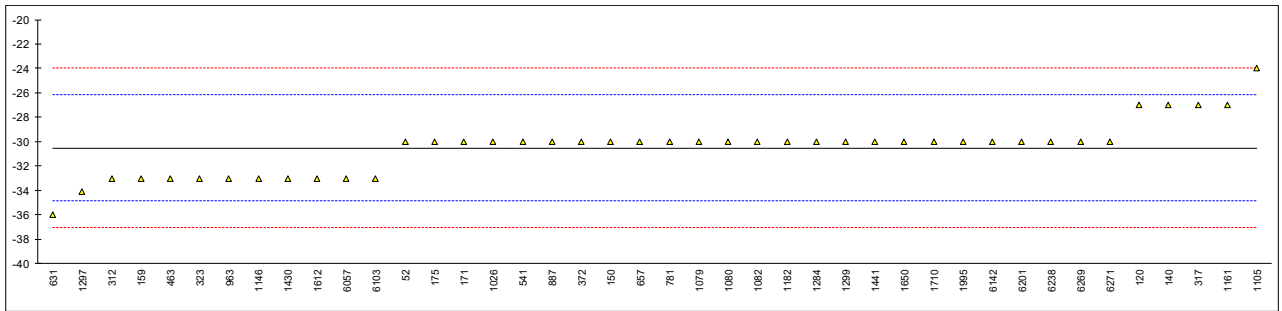


Determination of Pour Point, Automated, 3°C interval on sample #19160; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5949	-30		0.24	781	D5950	-30		0.24
53		----		----	782		----		----
62		----		----	785		----		----
90		----		----	798		----		----
92		----		----	825		----		----
120	D5949	-27		1.62	846		----		----
140	D5949	-27		1.62	851		----		----
150	D5950	-30		0.24	854		----		----
158		----		----	856		----		----
159	D7346	-33		-1.14	862		----		----
169		----		----	863		----		----
171	D5950	-30		0.24	864		----		----
175	D5950	-30		0.24	872		----		----
186		----		----	873		----		----
194		----		----	874		----		----
203		----		----	886		----		----
217		----		----	887	D6749	-30		0.24
221		----		----	912		----		----
224		----		----	922		----		----
225		----		----	962		----		----
228		----		----	963	D5950	-33		-1.14
230		----		----	970		----		----
237		----		----	971		----		----
238		----		----	974		----		----
240		----		----	988		----		----
253		----		----	994		----		----
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312	D5950	-33		-1.14	1006		----		----
317	D6749	-27		1.62	1012		----		----
323	D5950	-33		-1.14	1026	D5950	-30		0.24
333		----		----	1059		----		----
335		----		----	1079	D5950	-30		0.24
336		----		----	1080	D5950	-30.0		0.24
337		----		----	1082	D5950	-30		0.24
339		----		----	1090		----		----
342		----		----	1097		----		----
343		----		----	1105	D5949	-24		3.00
344		----		----	1109		----		----
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146	D5950	-33		-1.14
356		----		----	1161	D6749	-27		1.62
372	D5950	-30		0.24	1182	D5949	-30		0.24
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D6892	-33.0		-1.14	1213		----		----
485		----		----	1227		----		----
507		----		----	1277		----		----
511		----		----	1284	D5950	-30.0		0.24
529		----		----	1297	D5949	-34.1		-1.64
541	D5950	-30		0.24	1299	D5950	-30		0.24
554		----		----	1345		----		----
555		----		----	1347		----		----
558		----		----	1348		----		----
562		----		----	1356		----		----
575		----		----	1385		----		----
603		----		----	1412		----		----
604		----		----	1417		----		----
608		----		----	1428		----		----
614		----		----	1430		-33		-1.14
621		----		----	1441	D5950	-30		0.24
631	D5950	-36		-2.51	1483		----		----
633		----		----	1498		----		----
634		----		----	1544		----		----
657	D5950	-30		0.24	1588		----		----
732		----		----	1612	D97	-33		-1.14
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650	D5950	-30		0.24
759		----		----	1710	D5950	-30		0.24
778		----		----	1720		----		----
779		----		----	1724		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740		----		----	6068		----		----
1792		----		----	6103	D5950	-33.0		-1.14
1807		----		----	6139		----		----
1849		----		----	6142	D5950	-30		0.24
1857		----		----	6172		----		----
1906		----		----	6201	D5950	-30		0.24
1944		----		----	6238		-30		0.24
1967		----		----	6253		----		----
1984		----		----	6260		----		----
1995	D5950	-30		0.24	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269	D5950	-30.0		0.24
6026		----		----	6271	D5950	-30.0		0.24
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057	D5950	-33		-1.14	9128		----		----

normality suspect  
n 42  
outliers 0  
mean (n) -30.53  
st.dev. (n) 2.226  
R(calc.) 6.23  
st.dev.(D5950:14) 2.179  
R(D5950:14) 6.1

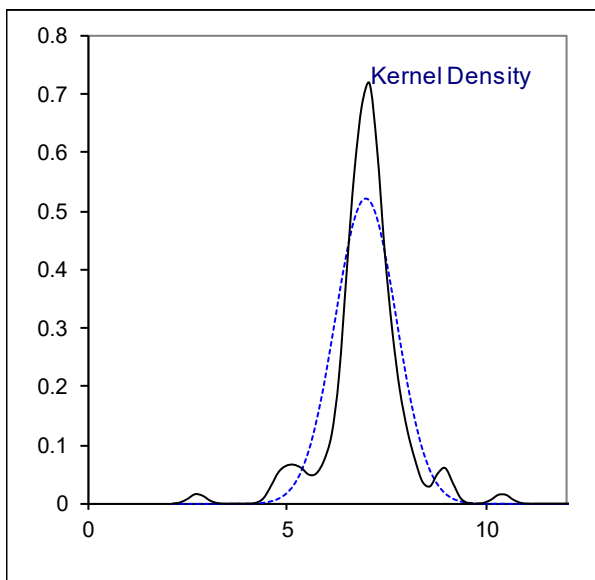
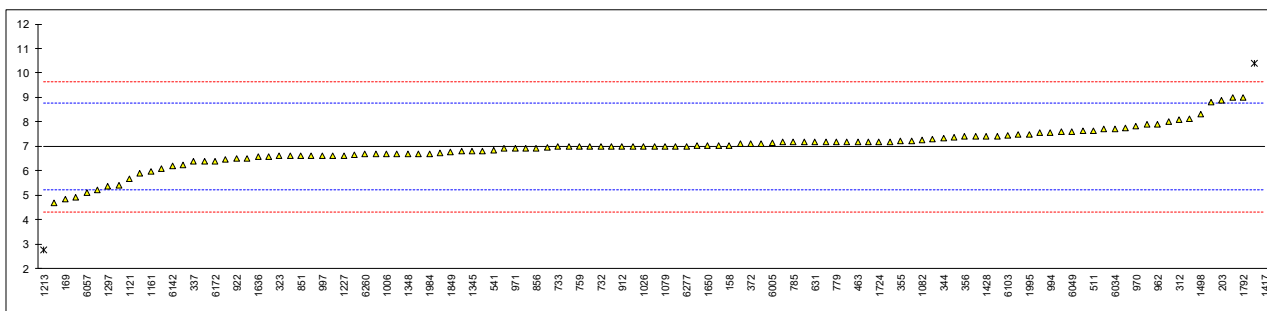


## Determination of Sulfur, total on sample #19160; results in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5453	7.2		0.25	781	D5453	6.74		-0.27
53	D5453	7.546		0.64	782		----		----
62	D5453	7.0		0.02	785	ISO20846	7.2		0.25
90		----		----	798		----		----
92	D5453	8.12		1.28	825	D5453	6.9		-0.09
120	D5453	8.8		2.05	846		----		----
140	D5453	6.4		-0.65	851	D2622	6.6		-0.43
150	D5453	6.9		-0.09	854	D5453	7.38		0.45
158	D2622	7.04		0.07	856	D5453	6.92		-0.07
159	D5453	7.74		0.86	862		----		----
169	D5453	4.84		-2.41	863		----		----
171	D5453	6.6		-0.43	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194	D2622	7.2		0.25	874	D2622	6.7		-0.31
203	D4294	8.9012		2.16	886		----		----
217		----		----	887		----		----
221		----		----	912	D5453	7.0		0.02
224		----		----	922	D5453	6.5		-0.54
225		----		----	962	D5453	7.9		1.04
228	D4294	<20		----	963	D5453	7.9		1.04
230	ISO8754	<20		----	970	D5453	7.84		0.97
237	D5453	7.0		0.02	971	D5453	6.9		-0.09
238		----		----	974		----		----
240		----		----	988		----		----
253		----		----	994	D5453	7.56		0.65
254	D4294	<20		----	995	D5453	6.5		-0.54
256		----		----	996		----		----
258	D5453	6.79		-0.21	997	D5453	6.6		-0.43
273		----		----	998		----		----
312	D5453	8.1		1.26	1006	D5453	6.7		-0.31
317	D5453	7.2		0.25	1012	D5453	4.907		-2.33
323	D5453	6.6		-0.43	1026	ISO20846	7.0		0.02
333	D5453	7.1		0.14	1059	ISO20846	7.0		0.02
335	ISO20846	6.1		-0.99	1079	ISO20846	7.0		0.02
336	D5453	7.2		0.25	1080	D5453	6.6		-0.43
337	ISO20846	6.4		-0.65	1082	ISO20846	7.27		0.33
339	INH-050	<1000		----	1090		----		----
342		----		----	1097	D5453	7.02		0.05
343	ISO20846	7.00		0.02	1105	D7039	6.97		-0.01
344	D5453	7.32		0.38	1109	D7039	6.7		-0.31
349		----		----	1121	D5453	5.69		-1.45
353	ISO20846	7.628		0.73	1126		----		----
355	D2622	7.22		0.27	1146		----		----
356	ISO20846	7.4		0.47	1161	ISO20846	5.99		-1.11
372	D5453	7.1		0.14	1182	ISO20846	4.7		-2.56
381	ISO20846	6.6		-0.43	1194	In house	6.46		-0.58
433		----		----	1199		----		----
463	D5453	7.20		0.25	1213	D5453	2.75	R(0.01)	-4.76
485	D5453	7.23		0.28	1227	D5453	6.6		-0.43
507		----		----	1277		----		----
511	D5453	7.63		0.73	1284	D2622	8.031		1.18
529		----		----	1297	D5453	5.36		-1.82
541	D5453	6.83		-0.17	1299		----		----
554		----		----	1345	D5453	6.8		-0.20
555		----		----	1347	D5453	5.901		-1.21
558		----		----	1348	D5453	6.7		-0.31
562	D5453	7.4		0.47	1356	ISO8754	<0.030	f-?	<-7.82
575		----		----	1385	D5453	6.81		-0.19
603		----		----	1412	D5453	7.2		0.25
604		----		----	1417	IP336	50	R(0.01)	48.40
608	D5453	9		2.27	1428	D5453	7.4		0.47
614		----		----	1430	ISO20847	7.4		0.47
621	D4294	<20		----	1441	D7039	7.3		0.36
631	D7039	7.2		0.25	1483		----		----
633		----		----	1498	D5453	8.3		1.49
634	D7039	7.0		0.02	1544	ISO20884	7.00		0.02
657	D5453	7.037		0.07	1588		----		----
732	D4294	7		0.02	1612		----		----
733	ISO20884	7		0.02	1629		----		----
750		----		----	1634	D5453	7.6		0.70
751		----		----	1636	ISO20846	6.58		-0.45
752		----		----	1650	D5453	7.02		0.05
759	ISO20884	7		0.02	1710	ISO20846	6.7		-0.31
778	ISO20884	7.5		0.59	1720		----		----
779	ISO20884	7.2		0.25	1724	D5453	7.2		0.25

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D5453	7.1		0.14	6068	ISO20884	10.4	R(0.01)	3.85
1792	ISO13032	9.0		2.27	6103	D4294	7.45		0.53
1807	D5453	5.4		-1.78	6139	D5453	7.2		0.25
1849	ISO20846	6.75		-0.26	6142	ISO20846	6.2		-0.88
1857	D5453	6.67		-0.35	6172	D5453	6.4		-0.65
1906		----		----	6201	D5453	5.2		-2.00
1944	D5453	6.22		-0.85	6238		----		----
1967	ISO20884	7.6965		0.81	6253		----		----
1984	ISO20846	6.7		-0.31	6260	SH/T 0689	6.69		-0.32
1995	D5453	7.5		0.59	6262		----		----
6005	ISO20846	7.14		0.18	6266		----		----
6018	ISO20846	6.59		-0.44	6269		----		----
6026		----		----	6271		----		----
6034	D5453	7.7		0.81	6272		----		----
6049	ISO20846	7.6		0.70	6277	D2622	7		0.02
6054		----		----	6291		----		----
6057	D5453	5.1		-2.11	9128		----		----

normality suspect  
n 112  
outliers 3  
mean (n) 6.979  
st.dev. (n) 0.7663  
R(calc.) 2.146  
st.dev.(D5453:19a) 0.8890  
R(D5453:19a) 2.489



## Determination of Water on sample #19160; results in mg/kg

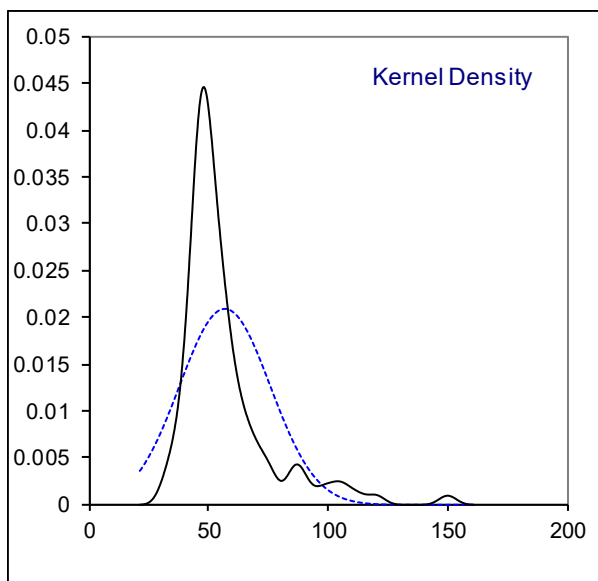
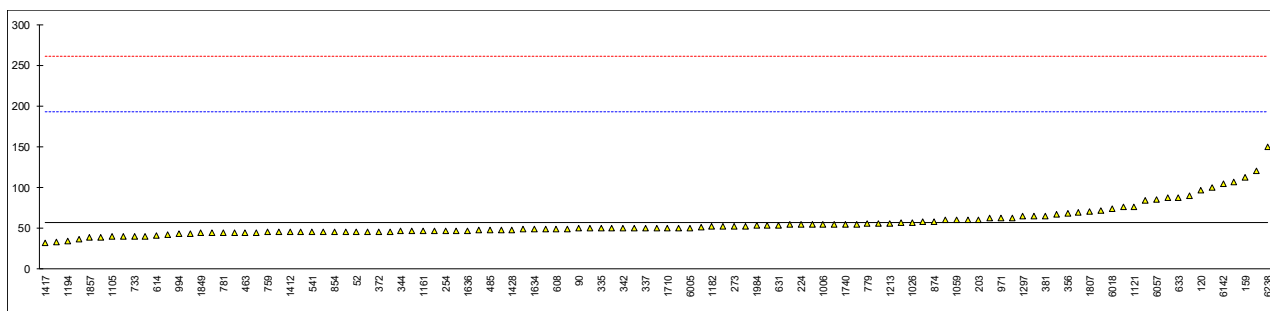
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D6304-A	46		-0.16	781	D6304-A	44.1		-0.18
53		----		----	782		----		----
62	D6304-A	46		-0.16	785	D6304	58		0.02
90	D6304-A	49.8		-0.10	798		----		----
92	E203	90		0.49	825	D6304-A	50		-0.10
120	E203	96.5		0.59	846		----		----
140	D6304-A	67		0.15	851		----		----
150	D6304-A	76		0.28	854	D6304-A	45.9		-0.16
158		----		----	856	D95	<500		----
159	D6304-A	112		0.81	862		----		----
169	D6304-A	50		-0.10	863		----		----
171	D6304-A	52		-0.07	864		----		----
175		----		----	872		----		----
186	D4928	72		0.23	873		----		----
194		----		----	874	D6304	58		0.02
203	D6304-A	60.3595		0.05	886		----		----
217	D6304-A	87.5		0.45	887	D6304-A	55		-0.02
221		----		----	912		----		----
224	ISO12937	55.0		-0.02	922	D6304-A	36		-0.30
225		----		----	962	D6304-A	57		0.01
228		----		----	963	D6304-A	56		-0.01
230		----		----	970	D6304-A	60		0.05
237	D6304-C	62.2		0.08	971	D6304-A	62.0		0.08
238		----		----	974	D6304-A	69		0.18
240		----		----	988		----		----
253	D6304	65		0.12	994	IP439	43		-0.20
254	D6304-B	47		-0.14	995	D6304-A	47		-0.14
256	D6304-B	40		-0.24	996		----		----
258	D6304	33.04		-0.35	997	D6304-A	39		-0.26
273	D6304-A	52		-0.07	998		----		----
312	ISO12937	120		0.93	1006	D6304-A	55		-0.02
317	D6304-A	48		-0.13	1012		----		----
323	D6304-A	50		-0.10	1026	D6304-A	57		0.01
333	D6304-A	100		0.64	1059	ISO12937	60		0.05
335	ISO12937	50		-0.10	1079	ISO12937	48.4		-0.12
336		----		----	1080		----		----
337	ISO12937	50		-0.10	1082	ISO12937	42.1		-0.21
339		----		----	1090		----		----
342	ISO12937	50.0		-0.10	1097		----		----
343	ISO12937	40.0		-0.24	1105	D6304-C	39.4		-0.25
344	ISO12937	46.45		-0.15	1109	D6304-C	48.5		-0.12
349	D6304-A	46		-0.16	1121	IP438	76	C	0.28
353	IP438	84.5		0.41	1126		----		----
355		----		----	1146	D6304-C	<100		----
356	D6304-A	68		0.17	1161	D6304-B	46.685		-0.15
372	D6304-A	46		-0.16	1182	ISO12937	51.99		-0.07
381	ISO12937	65		0.12	1194	ISO12937	34.44		-0.33
433		----		----	1199		----		----
463	D6304-A	44.75		-0.17	1213	D6304	56		-0.01
485	D6304-A	48.0		-0.13	1227	D6304-A	46		-0.16
507		----		----	1277		----		----
511		----		----	1284		----		----
529	D6304-A	49.9		-0.10	1297	D6304-A	64.5		0.12
541	D6304-A	45.5		-0.16	1299	ISO12937	60		0.05
554		----		----	1345	D6304-A	53.1		-0.05
555		----		----	1347		----		----
558		----		----	1348		----		----
562		----		----	1356	D6304	<200	C	----
575		----		----	1385		----		----
603	D6304-A	50.9		-0.08	1412	D6304-A	45.0		-0.17
604		----		----	1417	D6304-A	32		-0.36
608	D6304-A	49.0		-0.11	1428	D6304-A	48		-0.13
614	D6304-C	41		-0.23	1430		46.9		-0.14
621	D6304-A	106.36		0.73	1441		----		----
631	D6304-B	54		-0.04	1483		----		----
633	D6304-A	87.6		0.46	1498		----		----
634	D6304	62		0.08	1544	ISO12937	55.0		-0.02
657	D6304-A	45		-0.17	1588		----		----
732		----		----	1612		----		----
733	ISO12937	40		-0.24	1629		----		----
750		----		----	1634	D6304-A	48.4		-0.12
751		----		----	1636	ISO12937	47.0		-0.14
752		----		----	1650	ISO12937	54.5		-0.03
759	D6304	45		-0.17	1710	ISO12937	50.0		-0.10
778	D6304	48		-0.13	1720		----		----
779	ISO12937	56		-0.01	1724	D6304-A	52.3		-0.06



lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D6304-A	55		-0.02	6068	ISO12937	45		-0.17
1792	ISO12937	50		-0.10	6103	ISO12937	44.15		-0.18
1807	D6304-A	70		0.20	6139		----		----
1849	ISO12937	44		-0.19	6142	ISO12937	104.4		0.70
1857	D6304-A	38.5		-0.27	6172		----		----
1906	D6304-C	43.2375		-0.20	6201	D6304-A	55		-0.02
1944	D6304-A	44.94		-0.17	6238	ISO12937	150	C	1.37
1967	D6304	46.55		-0.15	6253		----		----
1984	ISO12937	53		-0.05	6260	GB/T 11133	45.54		-0.16
1995		----		----	6262		----		----
6005	ISO12937	50		-0.10	6266		----		----
6018	ISO12937	74		0.26	6269		----		----
6026		----		----	6271		----		----
6034	D6304-A	44		-0.19	6272		----		----
6049	ISO12937	49		-0.11	6277		----		----
6054		----		----	6291		----		----
6057	ISO12937	85		0.42	9128		----		----

normality not OK  
n 111  
outliers 0  
mean (n) 56.63  
st.dev. (n) 19.028  
R(calc.) 53.28  
st.dev.(D6304-A:16e1) 67.974  
R(D6304-A:16e1) 190.33

Lab 1121 first reported 0.0075 mg/kg  
Lab 1356 reported <0.02 mg/kg  
Lab 6238 first reported 0.015 no unit



Determination of Water and Sediment (D2709) on sample #19160; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D2709	<0.01		----	781	D2709	<0.01		----
53		----		----	782		----		----
62	D2709	<0.01		----	785		----		----
90		----		----	798		----		----
92	D2709	0		----	825	D2709	L0.01		----
120	D2709	0		----	846		----		----
140	D2709	0.00		----	851		----		----
150	D2709	0.01		----	854	D2709	<0.01		----
158	D2709	0		----	856		----		----
159	D2709	<0.01		----	862		----		----
169		----		----	863		----		----
171	D2709	<0.01		----	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874	D2709	0.0		----
203		----		----	886		----		----
217	D2709	0		----	887		----		----
221		----		----	912		----		----
224		----		----	922		----		----
225		----		----	962		----		----
228		----		----	963	D2709	<0.01		----
230		----		----	970	D2709	0.00		----
237	D2709	<0.01		----	971	D2709	<0.01		----
238		----		----	974	D2709	0.00		----
240		----		----	988		----		----
253		----		----	994	D2709	0.00		----
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312		----		----	1006	D2709	0		----
317		----		----	1012		----		----
323		----		----	1026		----		----
333		----		----	1059	D2709	<0,05		----
335		----		----	1079		----		----
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342		----		----	1097		----		----
343	D2709	<0.05		----	1105	D2709	<0.03		----
344	D2709	<0.05		----	1109	D2709	<0.01		----
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146		----		----
356	D2709	<0.05		----	1161		----		----
372		----		----	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D2709	<0,005		----	1213		----		----
485		----		----	1227		----		----
507	D2709	0.0000		----	1277		----		----
511		----		----	1284		----		----
529	D2709	0.005		----	1297		----		----
541	D2709	<0.05		----	1299		----		----
554		----		----	1345		----		----
555		----		----	1347	D2709	0		----
558		----		----	1348	D2709	0.005		----
562	D2709	<0.01		----	1356		----		----
575		----		----	1385	D2709	less than 0.05		----
603		----		----	1412		----		----
604		----		----	1417		----		----
608		----		----	1428		----		----
614		----		----	1430		----		----
621	D2709	<0.01		----	1441		----		----
631	D2709	<0.01		----	1483		----		----
633	D2709	0		----	1498	D2709	0.005		----
634	D2709	0.005		----	1544		----		----
657	D2709	L0.01		----	1588		----		----
732		----		----	1612		----		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650	D2709	0		----
759		----		----	1710		----		----
778		----		----	1720		----		----
779		----		----	1724		----		----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D2709	<0.01		----	6068		----		----
1792	D2709	0.01		----	6103		----		----
1807		----		----	6139		----		----
1849		----		----	6142		----		----
1857		----		----	6172		----		----
1906		----		----	6201		----		----
1944	D2709	<0.05		----	6238		----		----
1967	D2709	<0.01		----	6253		----		----
1984		----		----	6260		----		----
1995		----		----	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----
	n	46							
	mean (n)	<0.05							

Determination of Water and Sediment (D1796) on sample #19160; results in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D1796	0		----	781	D1796	0.00		----
53		----		----	782		----		----
62	D1796	<0.01		----	785		----		----
90		----		----	798		----		----
92		----		----	825	D1796	0		----
120		----		----	846		----		----
140	D1796	0.00		----	851		----		----
150		----		----	854		----		----
158		----		----	856		----		----
159		----		----	862		----		----
169	D1796	0.0		----	863		----		----
171	D1796	<0.01		----	864		----		----
175		----		----	872		----		----
186		----		----	873		----		----
194		----		----	874	D1796	0.00		----
203		----		----	886		----		----
217	D1796	0		----	887		----		----
221		----		----	912		----		----
224		----		----	922	D1796	<0.05		----
225	D1796	<0.05		----	962		----		----
228		----		----	963		----		----
230		----		----	970	D1796	0.00		----
237		----		----	971	D1796	0.00		----
238		----		----	974	D1796	0.00		----
240		----		----	988		----		----
253		----		----	994	D1796	0.00		----
254		----		----	995		----		----
256		----		----	996		----		----
258		----		----	997		----		----
273		----		----	998		----		----
312		----		----	1006		----		----
317		----		----	1012		----		----
323		----		----	1026		----		----
333		----		----	1059		----		----
335		----		----	1079		----		----
336		----		----	1080		----		----
337		----		----	1082		----		----
339		----		----	1090		----		----
342		----		----	1097		----		----
343		----		----	1105		----		----
344		----		----	1109	D1796	0.00		----
349		----		----	1121		----		----
353		----		----	1126		----		----
355		----		----	1146		----		----
356		----		----	1161		----		----
372		----		----	1182		----		----
381		----		----	1194		----		----
433		----		----	1199		----		----
463		----		----	1213		----		----
485		----		----	1227	D1796	<0.05		----
507	D1796	0.000		----	1277		----		----
511		----		----	1284		----		----
529	D1796	0.025		----	1297		----		----
541	D1796	<0.1		----	1299		----		----
554		----		----	1345		----		----
555		----		----	1347		----		----
558		----		----	1348	D1796	0.005		----
562		----		----	1356		----		----
575		----		----	1385		----		----
603		----		----	1412		----		----
604		----		----	1417		----		----
608		----		----	1428	D1796	<0,05		----
614	D1796	<0.025		----	1430		----		----
621	D1796	<0.01		----	1441		----		----
631	D1796	<0.01		----	1483		----		----
633		----		----	1498		----		----
634		----		----	1544		----		----
657		----		----	1588		----		----
732		----		----	1612	D1796	<0.05		----
733		----		----	1629		----		----
750		----		----	1634		----		----
751		----		----	1636		----		----
752		----		----	1650		----		----
759		----		----	1710		----		----
778		----		----	1720		----		----
779		----		----	1724		----		----

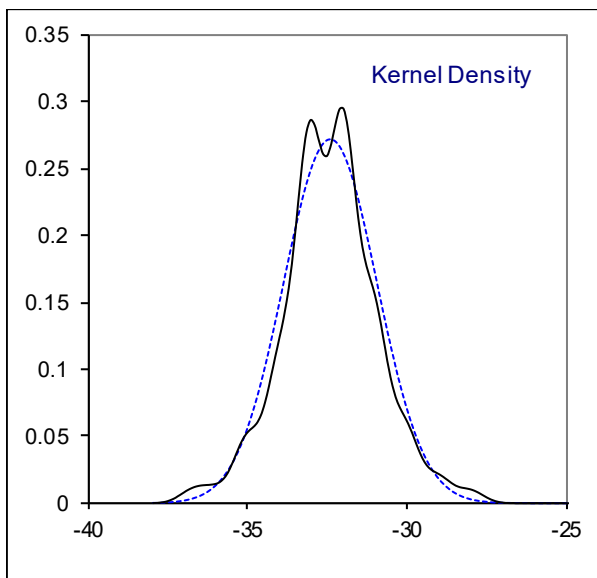
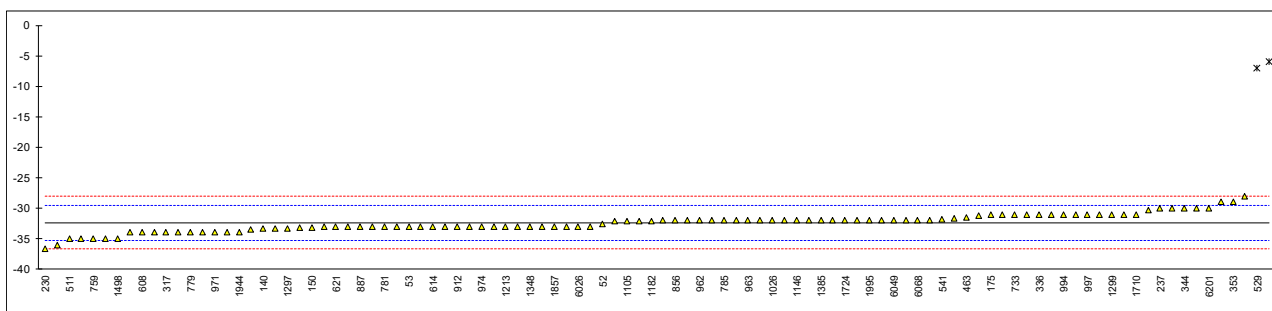
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D1796	0		----	6068		----		----
1792		----		----	6103	D1796	< 0.05		----
1807		----		----	6139		----		----
1849		----		----	6142		----		----
1857		----		----	6172		----		----
1906		----		----	6201		----		----
1944		----		----	6238		----		----
1967		----		----	6253		----		----
1984		----		----	6260		----		----
1995		----		----	6262		----		----
6005		----		----	6266		----		----
6018		----		----	6269		----		----
6026		----		----	6271		----		----
6034		----		----	6272		----		----
6049		----		----	6277		----		----
6054		----		----	6291		----		----
6057		----		----	9128		----		----
	n	28							
	mean (n)	<0.1							

Determination of Cloud Point on sample #19164; results in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
52	D5771	-32.6		-0.15	781	D2500	-33		-0.43
53	D2500	-33		-0.43	782	D2500	-34		-1.13
62		----		----	785	D2500	-32		0.27
90	D2500	-35		-1.83	798		----		----
92		----		----	825	D2500	-33		-0.43
120	D5773	-32.1		0.20	846		----		----
140	D5773	-33.3		-0.64	851	D2500	<-30		----
150	D5771	-33.1		-0.50	854	D2500	-32		0.27
158		----		----	856	D2500	-32		0.27
159	D7689	-35		-1.83	862		----		----
169	D2500	<-30		----	863		----		----
171	D2500	-31		0.97	864		----		----
175	D5771	-31		0.97	872		----		----
186		----		----	873		----		----
194		----		----	874	D2500	-34		-1.13
203		----		----	886		----		----
217		----		----	887	D2500	-33		-0.43
221		----		----	912	D2500	-33		-0.43
224		----		----	922	D2500	-30.0		1.67
225	D2500	<-24		----	962	D2500	-32		0.27
228		----		----	963	D2500	-32		0.27
230	D2500	-36.7		-3.02	970	D2500	-34		-1.13
237	D2500	-30		1.67	971	D2500	-34		-1.13
238	D2500	<-30		----	974	D2500	-33		-0.43
240		----		----	988		----		----
253	D2500	-32		0.27	994	D2500	-31		0.97
254	D2500	<-18		----	995	D2500	-31		0.97
256	D2500	-31		0.97	996		----		----
258		----		----	997	D2500	-31		0.97
273	D2500	<-21		----	998	D2500	-32		0.27
312	D5771	-33		-0.43	1006		----		----
317	D5771	-34		-1.13	1012		----		----
323	D2500	-32		0.27	1026	D5773	-32		0.27
333	D2500	-33.0		-0.43	1059	ISO3015	-33		-0.43
335	D2500	-33		-0.43	1079	D5771	-33.2		-0.57
336	D2500	-31		0.97	1080	D2500	-33.3		-0.64
337	EN23015	-33		-0.43	1082	D5771	-32		0.27
339		----		----	1090		----		----
342	ISO3015	-29		2.37	1097	EN23015	< -24		----
343		----		----	1105	D5773	-32.1		0.20
344	D2500	-30.0		1.67	1109	D5773	-32.1		0.20
349		----		----	1121	D2500	-31.0		0.97
353	IP219	-29		2.37	1126		----		----
355		----		----	1146	D2500	-32		0.27
356	D2500	-33		-0.43	1161		----		----
372	D2500	-30		1.67	1182	D5773	-32.1		0.20
381		----		----	1194		----		----
433		----		----	1199		----		----
463	D2500	-31.5		0.62	1213	D2500	-33		-0.43
485		----		----	1227	D2500	-32		0.27
507		----		----	1277		----		----
511	D2500	-35		-1.83	1284		----		----
529	D2500	-7	R(0.01)	17.77	1297	D5773	-33.25		-0.60
541	D5771	-31.8		0.41	1299	D2500	-31		0.97
554		----		----	1345	D2500	-31.0		0.97
555		----		----	1347	D2500	-33		-0.43
558		----		----	1348	D2500	-33		-0.43
562	D2500	-6	R(0.01)	18.47	1356		----		----
575		----		----	1385	D2500	-32		0.27
603		----		----	1412	D2500	-33		-0.43
604		----		----	1417	IP444	-30.3		1.46
608	D2500	-34		-1.13	1428		----		----
614	D2500	-33		-0.43	1430		----		----
621	D2500	-33.0		-0.43	1441		----		----
631	D5773	-33	C	-0.43	1483		----		----
633		----		----	1498	D2500	-35		-1.83
634	D2500	<-24		----	1544	D2500	-34		-1.13
657	D2500	-32		0.27	1588		----		----
732	D2500	-31		0.97	1612	D2500	-32		0.27
733	EN23015	-31		0.97	1629		----		----
750		----		----	1634		----		----
751		----		----	1636	D5771	-31.2		0.83
752		----		----	1650		----		----
759	D2500	-35		-1.83	1710	EN23015	-31		0.97
778	D2500	-34		-1.13	1720		----		----
779	EN23015	-34		-1.13	1724	D2500	-32		0.27

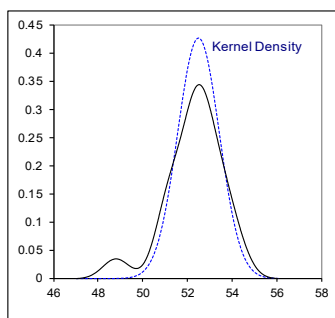
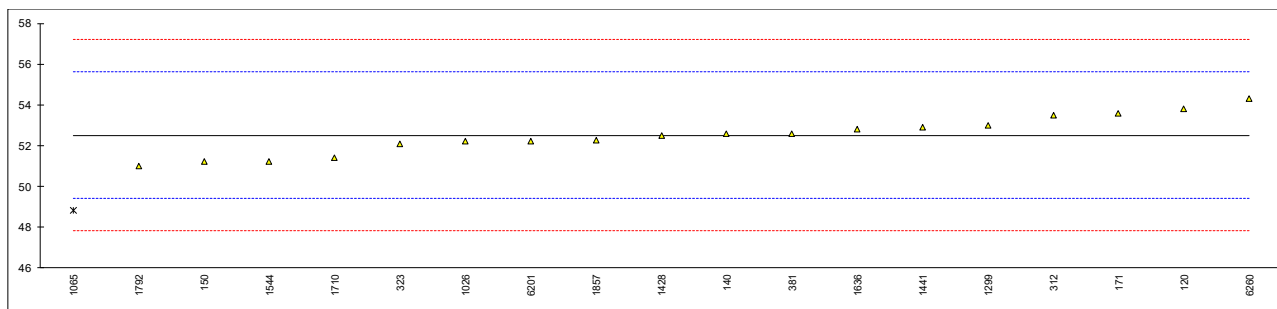
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1740	D2500	-32		0.27	6068	ISO3015	-32		0.27
1792	D2500	-36		-2.53	6103		----		----
1807	EN23015	<-24		----	6139	D2500	-32.0		0.27
1849		----		----	6142		----		----
1857	D2500	-33		-0.43	6172		----		----
1906		----		----	6201	D2500	-30		1.67
1944	D2500	-34		-1.13	6238	D2500	-31.7		0.48
1967	D2500	-33		-0.43	6253		----		----
1984	ISO3015	-33.5		-0.78	6260		----		----
1995	D5771	-32		0.27	6262		----		----
6005	ISO3015	-32		0.27	6266		----		----
6018		----		----	6269	ISO3015	-33.0		-0.43
6026	D2500	-33		-0.43	6271		----		----
6034		----		----	6272	D2500	-28		3.07
6049	D2500	-32		0.27	6277		----		----
6054		----		----	6291		----		----
6057	EN23015	-32		0.27	9128		----		----
normality		OK							
n		100							
outliers		2							
mean (n)		-32.39							
st.dev. (n)		1.464							
R(calc.)		4.10							
st.dev.(D2500:17a)		1.429							
R(D2500:17a)		4							

Lab 631 first reported -7.45



Determination of Cetane Number (ASTM D613) of sample #19161

lab	method	value	mark	z(targ)	remarks
120	D613	53.8		0.83	
140	D613	52.6		0.06	
150	D613	51.2		-0.84	
171	D613	53.6		0.70	
312	D613	53.5		0.64	
323	D613	52.1		-0.26	
336		----		----	
343		----		----	
356		----		----	
381	D613	52.6		0.06	
657		----		----	
754		----		----	
846		----		----	
862		----		----	
1026	ISO5165	52.2		-0.20	
1059		----		----	
1065	D613	48.8	G(0.05)	-2.38	
1080		----		----	
1161		----		----	
1194		----		----	
1299	D613	53.0		0.31	
1399		----		----	
1428	D613	52.5		-0.01	
1441	D613	52.9		0.25	
1544	D613	51.2		-0.84	
1610		----		----	
1636	ISO5165	52.82		0.20	
1710	ISO5165	51.4		-0.71	
1792	D613	51.0		-0.97	
1807		----		----	
1857	ISO5165	52.26		-0.16	
6057		----		----	
6142		----		----	
6201	D613	52.2		-0.20	
6238		----		----	
6253		----		----	
6260	GB/T 386-2010	54.3		1.15	
6262		----		----	
normality		OK			
n		18			
outliers		1			
mean (n)		52.51			
st.dev. (n)		0.936			
R(calc.)		2.62			
st.dev.(D613:18a)		1.558			
R(D613:18a)		4.36			



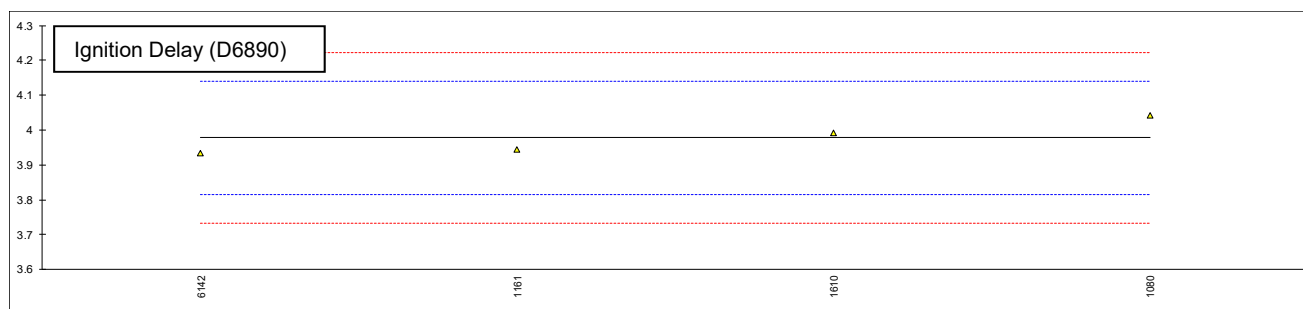
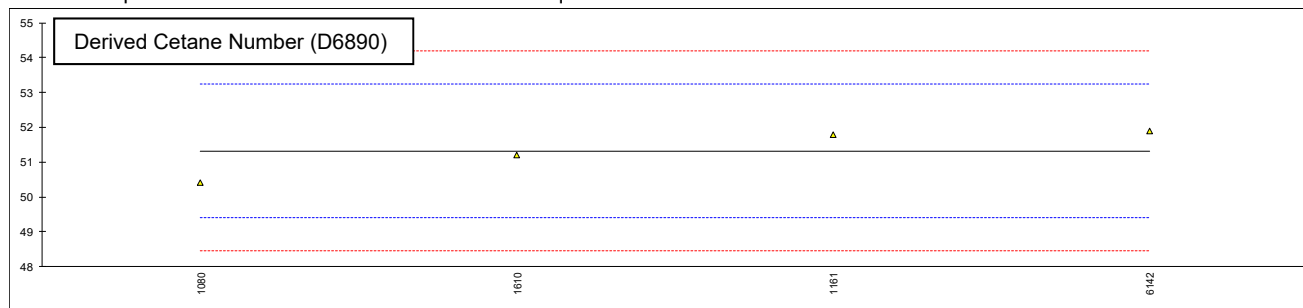


Determination of Derived Cetane Number (D6890) of sample #19161

lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	Air Temp. (°C)
120		----		----	----		----	----
140		----		----	----		----	----
150		----		----	----		----	----
171		----		----	----		----	----
312		----		----	----		----	----
323		----		----	----		----	----
336		----		----	----		----	----
343		----		----	----		----	----
356		----		----	----		----	----
381		----		----	----		----	----
657		----		----	----		----	----
754		----		----	----		----	----
846		----		----	----		----	----
862		----		----	----		----	----
1026		----		----	----		----	----
1059		----		----	----		----	----
1065		----		----	----		----	----
1080	D6890	50.4		-0.97	4.042		0.79	595.0
1161	EN15195	51.79		0.49	3.943		-0.42	561.5
1194		----		----	----		----	----
1299		----		----	----		----	----
1399		----		----	----		----	----
1428		----		----	----		----	----
1441		----		----	----		----	----
1544		----		----	----		----	----
1610	EN15195	51.21	C	-0.12	3.991	C	0.17	550.0 C
1636		----		----	----		----	----
1710		----		----	----		----	----
1792		----		----	----		----	----
1807		----		----	----		----	----
1857		----		----	----		----	----
6057		----		----	----		----	----
6142	IP498	51.89		0.60	3.934		-0.53	----
6201		----		----	----		----	----
6238		----		----	----		----	----
6253		----		----	----		----	----
6260		----		----	----		----	----
6262		----		----	----		----	----

normality	unknown	unknown
n	4	4
outliers	0	0
mean (n)	51.32	3.98
st.dev. (n)	0.684	0.050
R(calc.)	1.92	0.14
st.dev.(D6890:16e2)	0.953	0.081
R(D6890:16e2)	2.67	0.23

Lab 1610 reported DCN with method EN15195 which is equivalent to method ASTM D6890 and not to method ASTM D7668

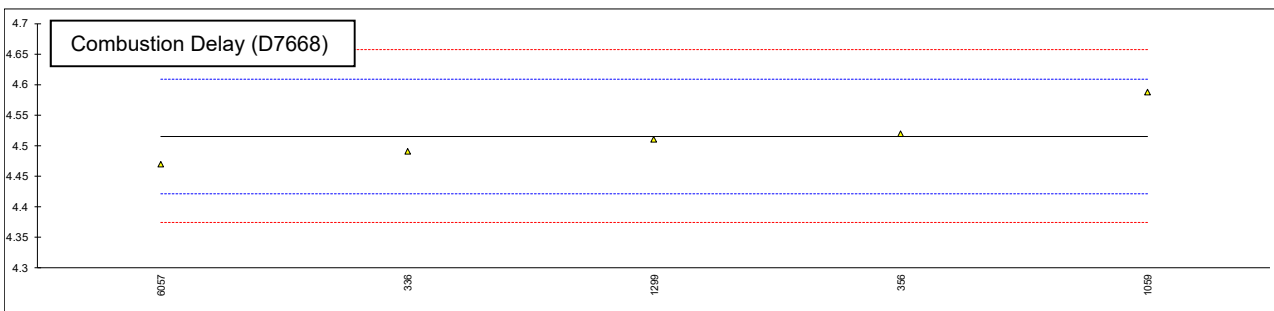
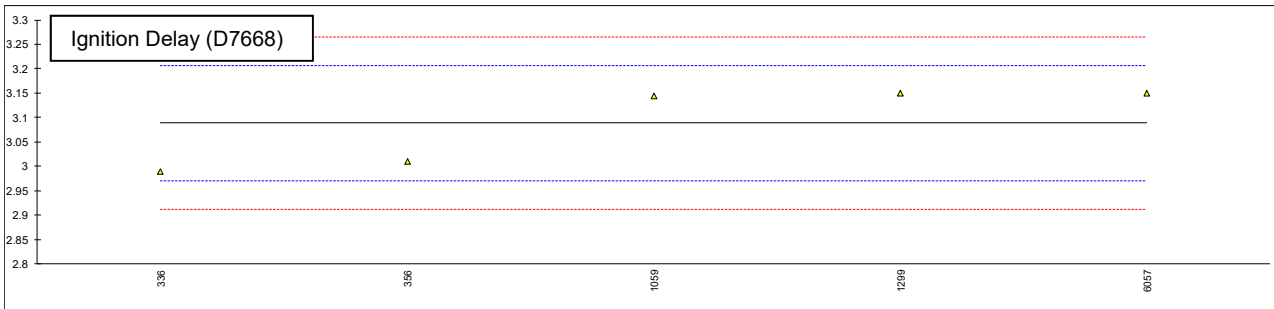
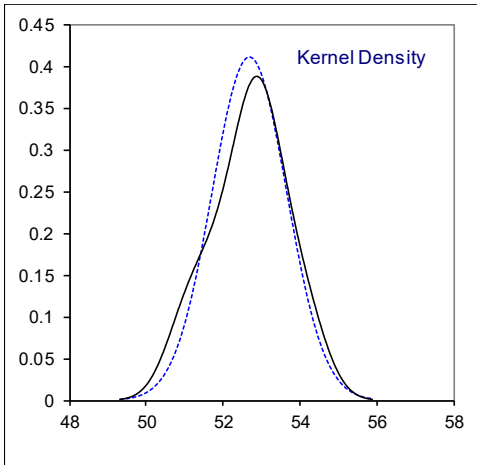
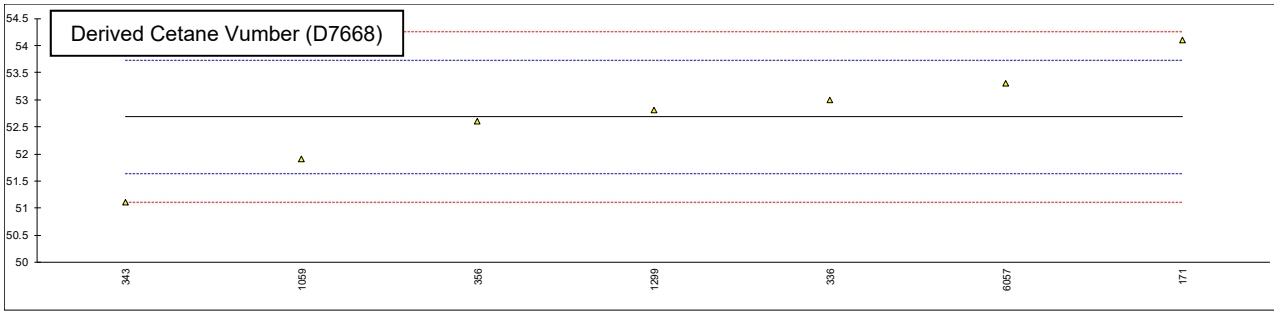


Determination of Derived Cetane Number (D7668) of sample #19161

lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	CD (ms)	mark	z(targ)	W. T. (°C)
120		----		----	----		----	----		----	----
140		----		----	----		----	----		----	----
150		----		----	----		----	----		----	----
171	D7668	54.1		2.70	----		----	----		----	----
312		----		----	----		----	----		----	----
323		----		----	----		----	----		----	----
336	D7668	53.0		0.60	2.99		-1.67	4.49		-0.54	604.8
343	D7668	51.1		-3.03	----		----	----		----	----
356	D7668	52.6		-0.16	3.01		-1.33	4.52		0.10	610
381		----		----	----		----	----		----	----
657		----		----	----		----	----		----	----
754		----		----	----		----	----		----	----
846		----		----	----		----	----		----	----
862		----		----	----		----	----		----	----
1026		----		----	----		----	----		----	----
1059	D7668	51.9		-1.50	3.1437		0.93	4.5875		1.54	596.19
1065		----		----	----		----	----		----	----
1080		----		----	----		----	----		----	----
1161		----		----	----		----	----		----	----
1194		----		----	----		----	----		----	----
1299	D7668	52.8		0.22	3.15	C	1.04	4.51	C	-0.12	588.6
1399		----		----	----		----	----		----	----
1428		----		----	----		----	----		----	----
1441		----		----	----		----	----		----	----
1544		----		----	----		----	----		----	----
1610		----		----	----		----	----		----	----
1636		----		----	----		----	----		----	----
1710		----		----	----		----	----		----	----
1792		----		----	----		----	----		----	----
1807		----		----	----		----	----		----	----
1857		----		----	----		----	----		----	----
6057	D7668	53.3		1.17	3.15		1.04	4.47		-0.97	591.98
6142		----		----	----		----	----		----	----
6201		----		----	----		----	----		----	----
6238		----		----	----		----	----		----	----
6253		----		----	----		----	----		----	----
6260		----		----	----		----	----		----	----
6262		----		----	----		----	----		----	----
normality		unknown			unknown			unknown			
n		7			5			5			
outliers		0			0			0			
mean (n)		52.69			3.09			4.52			
st.dev. (n)		0.969			0.081			0.045			
R(calc.)		2.71			0.23			0.12			
st.dev.(D7668:17)		0.524			0.059			0.047			
R(D7668:17)		1.47			0.17			0.13			

W.T. = Chamber Wall Temperature

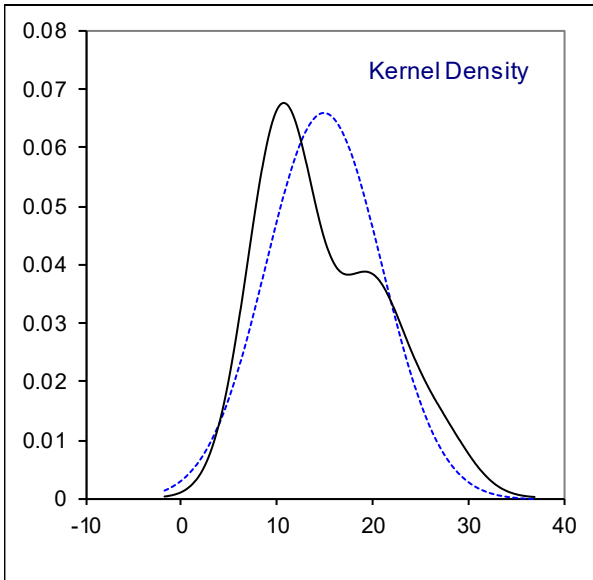
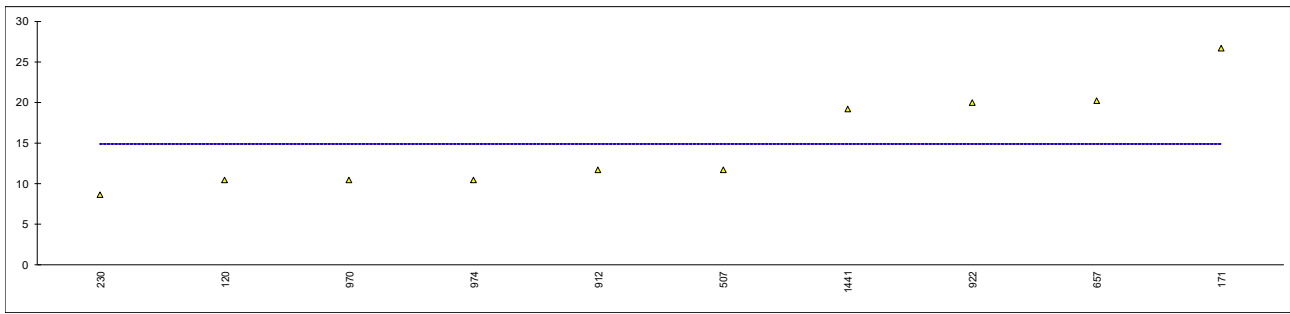
Lab 1299 first reported 4.51 and 3.15 respectively



Determination of Particulate Contamination on sample #19162; results in mg/L

lab	method	Part.C	mark	z(targ)	Vol. filtered	No. of filtrations	Remarks
120	D6217	10.4		----	960	1	
140		----		----	----	----	
150		----		----	----	----	
171	D6217	26.6		----	1000	----	
230	D6217	8.6		----	850	1	
237		----		----	----	----	
273		----		----	----	----	
317		----		----	----	----	
323		----		----	----	----	
333		----		----	----	----	
335		----		----	----	----	
336		----		----	----	----	
342		----		----	----	----	
349		----		----	----	----	
353		----		----	----	----	
356		----		----	----	----	
372		----		----	----	----	
463		----		----	----	----	
507	D6217	11.73		----	980	3	
603		----		----	----	----	
621		----		----	----	----	
657	D6217	20.2		----	420	1	
798		----		----	----	----	
825		----		----	----	----	
846		----		----	----	----	
862		----		----	----	----	
873		----		----	----	----	
874		----		----	----	----	
912	D6217	11.68		----	----	----	
922	D6217	20.0		----	960	4	
970	D6217	10.4		----	960	2	
974	D6217	10.4		----	960	2	
994		----		----	----	----	
1006		----		----	----	----	
1059		----		----	----	----	
1079		----		----	----	----	
1105		----		----	----	----	
1161		----		----	----	----	
1299		----		----	----	----	
1428		----		----	----	----	
1441	D6217	19.2		----	500	----	
1544		----		----	----	----	
1650		----		----	----	----	
1710		----		----	----	----	
1724		----		----	----	----	
1792		----		----	----	----	
1807		----		----	----	----	
1849		----		----	----	----	
1857		----		----	----	----	
1984		----		----	----	----	
6005		----		----	----	----	
6018		----		----	----	----	
6034		----		----	----	----	
6057		----		----	----	----	
6201		----		----	----	----	
6238		----		----	----	----	
6260		----		----	----	----	
6262		----		----	----	----	
6291		----		----	----	----	

normality OK  
 n 10  
 outliers 0  
 mean (n) (14.92)  
 st.dev. (n) (6.058)  
 R(calc.) (16.96)  
 st.dev.(D6217:18) (1.559)  
 R(D6217:18) (4.36)

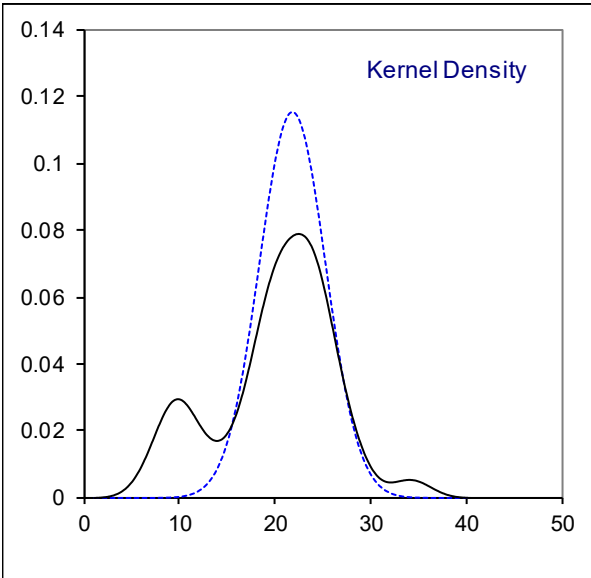
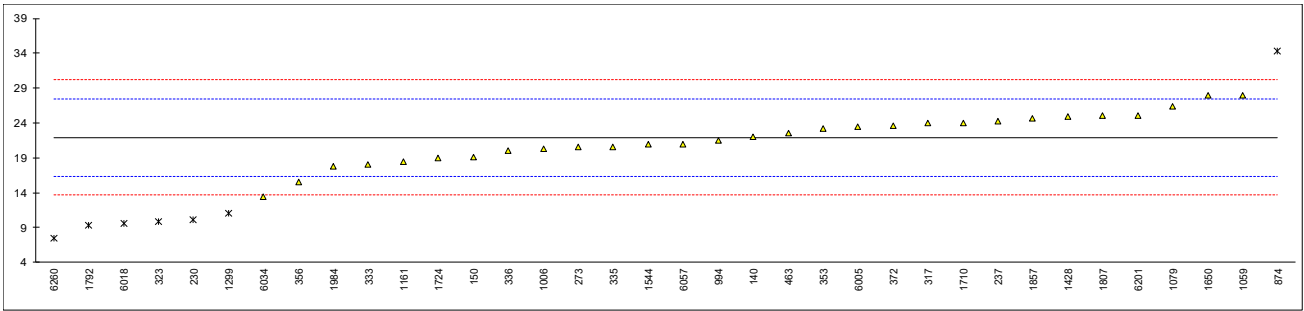


Determination of Total Contamination on sample #19162; results in mg/kg

lab	method	Total C.	mark	z(targ)	incomplete	vol. filtered (mL)	stopped (min)	remarks
120		----		----		----	----	
140	EN12662:2014	22.0		0.04	NO	----	----	
150	EN12662:2014	19.1		-1.01	NO	300	----	
171		----		----		----	----	
230	EN12662:2014	10.1	ex	-4.28	NO	850	4	vol. not acc. to test method
237	EN12662:2014	24.2		0.84	NO	----	----	
273	IP440	20.5		-0.50		----	----	
317	EN12662:2014	24.0		0.77	NO	----	----	
323	EN12662:2014	9.8	ex	-4.39		300	----	
333	EN12662:2014	18.0		-1.41	NO	----	----	
335	EN12662:2014	20.5		-0.50	NO	----	----	
336	EN12662:2014	20.0		-0.69		----	----	
342		----		----		----	----	
349	EN12662:2014	>30	C	----	YES	270	4	vol. not acc. to test method
353	IP440	23.21		0.48		----	----	
356	EN12662:2014	15.5		-2.32	NO	300	----	
372	EN12662:2014	23.6		0.62	NO	----	----	
463	EN12662:2014	22.59		0.25	NO	300	1.06	
507		----		----		----	----	
603		----		----		----	----	
621		----		----		----	----	
657		----		----		----	----	
798		----		----		----	----	
825		----		----		----	----	
846		----		----		----	----	
862		----		----		----	----	
873		----		----		----	----	
874	EN12662	34.3	R(0.05)	4.51	NO	----	----	
912		----		----		----	----	
922		----		----		----	----	
970		----		----		----	----	
974		----		----		----	----	
994	EN12662:2014	21.5		-0.14	NO	500	4	vol. not acc. to test method
1006	EN12662:2014	20.3		-0.58	YES	300	----	
1059	EN12662:2014	28.0		2.22	YES	305	----	vol. not acc. to test method
1079	EN12662:2014	26.33		1.61		----	----	
1105		----		----		----	----	
1161	EN12662:2014	18.5		-1.23		----	----	
1299	EN12662:2014	11.1	ex	-3.92	NO	----	----	
1428	EN12662:2014	24.9		1.09		----	----	
1441		----		----		----	----	
1544	EN12662:2014	20.89		-0.36		----	26.09	
1650	EN12662:2014	27.93		2.19	NO	----	----	
1710	EN12662:2014	24.0		0.77	NO	----	----	
1724	IP440	18.99		-1.05		----	----	
1792	EN12662:2014	9.29	ex	-4.58	NO	300	----	
1807	EN12662:2014	25.0		1.13		----	----	
1849		----		----		----	----	
1857	EN12662:2014	24.67		1.01	NO	----	----	
1984	EN12662:2008	17.75		-1.50	NO	300	15	
6005	EN12662:2014	23.4		0.55	NO	300	----	
6018	EN12662:2014	9.6	ex	-4.46	NO	300	----	
6034	EN12662:2014	13.4		-3.08	NO	300	15	
6057	EN12662:2014	21		-0.32		----	----	
6201	EN12662:2014	25.06		1.15	NO	300	5	
6238		----		----		----	----	
6260	GB/T 33400-2016	7.4	ex	-5.26		----	----	
6262		----		----		----	----	
6291		----		----		----	----	

normality OK  
n 29  
outliers 1+6ex Spike:  
mean (n) 21.89 16 mg/kg  
st.dev. (n) 3.467  
R(calc.) 9.71  
st.dev.(EN12662:14) 2.753  
R(EN12662:14) 7.71

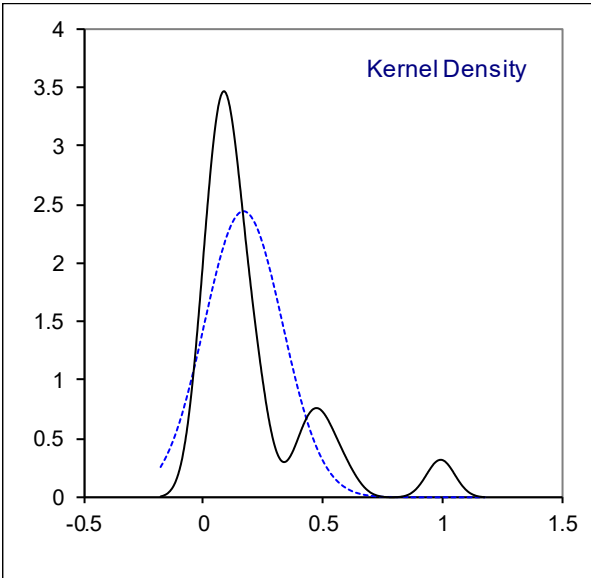
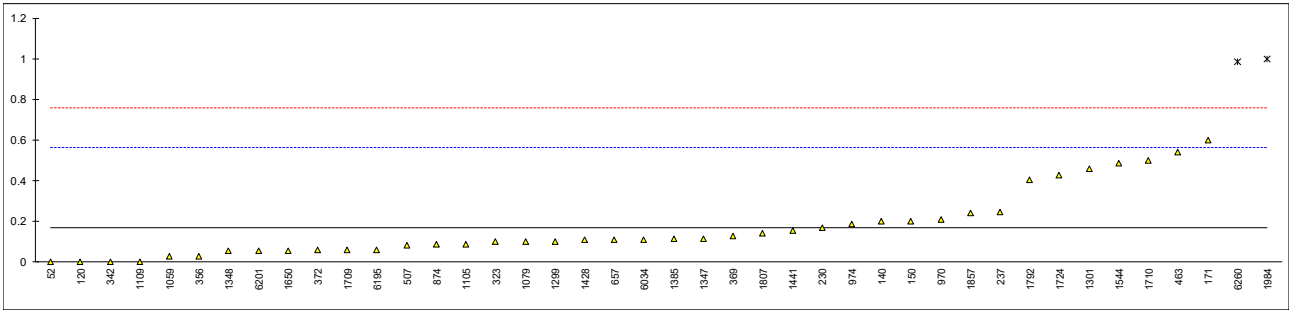
Lab 349 first reported 38.1



Determination of Oxidation Stability Filterable Insolubles (A) on sample #19163; results in mg/100mL

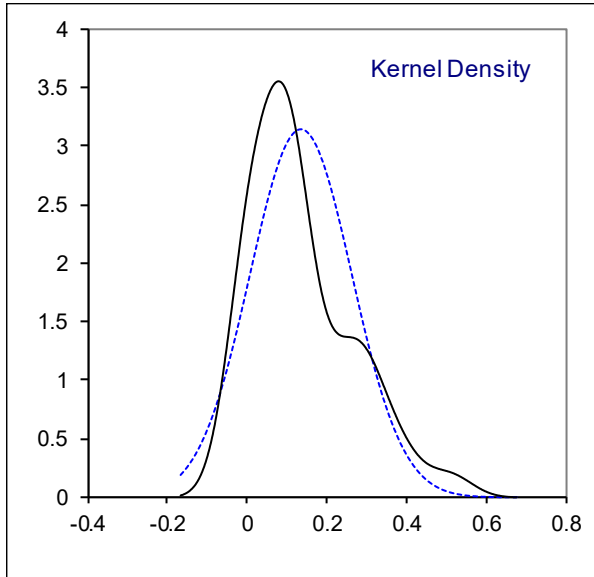
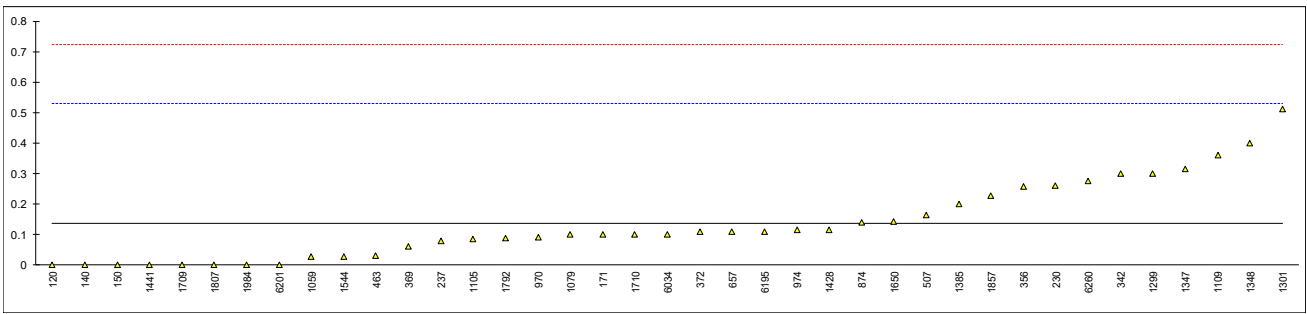
lab	method	value	mark	z(targ)	remarks
52	D2274	0		-0.87	
120	D2274	0.0		-0.87	
140	D2274	0.2	C	0.15	first reported 0.8
150	D2274	0.2		0.15	
158		----		----	
171	D2274	0.6		2.19	
230	D2274	0.17		0.00	
237	D2274	0.247		0.39	
312	D2274	<0.1		----	
323	D2274	0.1		-0.36	
342	ISO12205	0		-0.87	
344		----		----	
356	ISO12205	0.029		-0.72	
369	D2274	0.13		-0.21	
372	D2274	0.06		-0.56	
463	ISO12205	0.54		1.88	
507	D2274	0.082		-0.45	
657	D2274	0.11		-0.31	
846		----		----	
862		----		----	
864		----		----	
874	D2274	0.086		-0.43	
970	D2274	0.21		0.20	
974	D2274	0.185		0.07	
1012		----		----	
1026		----		----	
1059	D2274	0.0286		-0.72	
1079	D2274	0.1		-0.36	
1105	D2274	0.086		-0.43	
1109	D2274	0.00		-0.87	
1161		----		----	
1299	D2274	0.1	C	-0.36	first reported 1, no unit
1301	D2274	0.46		1.48	
1347	D2274	0.1143		-0.29	
1348	D2274	0.057		-0.58	
1385	D2274	0.114		-0.29	
1428	ISO12205	0.109		-0.31	
1441	D2274	0.155		-0.08	
1544	ISO12205	0.486		1.61	
1650	D2274	0.0571		-0.58	
1709	D2274	0.06		-0.56	
1710	ISO12205	0.5		1.68	
1724	D2274	0.429		1.32	
1792	D2274	0.403		1.19	
1807	ISO12205	0.14		-0.16	
1849		----		----	
1857	D2274	0.243		0.37	
1984	ISO12205	1	R(0.01)	4.23	
6005		----		----	
6034	D2274	0.11		-0.31	
6057		----		----	
6195	D2274	0.06		-0.56	
6201	D2274	0.057		-0.58	
6238		----		----	
6260	SH/T 0175-2004	0.985	R(0.01)	4.15	
6262		----		----	
6291		----		----	
	normality	suspect			
	n	40			
	outliers	2			
	mean (n)	0.170			
	st.dev. (n)	0.1631			
	R(calc.)	0.457			
	st.dev.(D2274:14)	0.1961			
	R(D2274:14)	0.549			





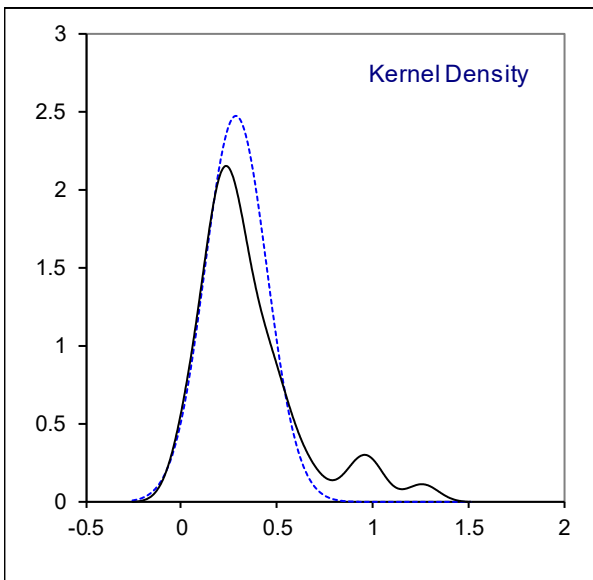
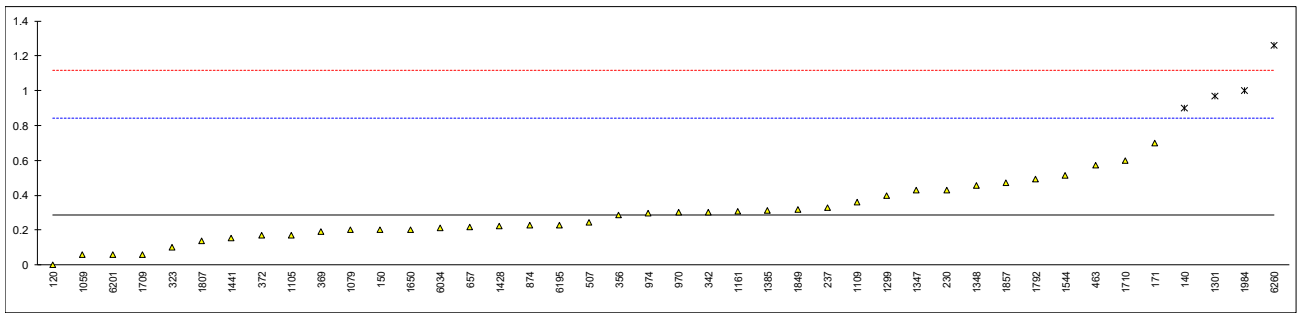
Determination of Oxidation Stability Adherent Insolubles (B) on sample #19163; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D2274	<0.1		----	
120	D2274	0.0		-0.69	
140	D2274	0.0		-0.69	
150	D2274	0.0		-0.69	
158		----		----	
171	D2274	0.1		-0.18	
230	D2274	0.26		0.63	
237	D2274	0.080		-0.29	
312	D2274	<0.1		----	
323	D2274	<1		----	
342	ISO12205	0.3		0.84	
344		----		----	
356	ISO12205	0.257		0.62	
369	D2274	0.06		-0.39	
372	D2274	0.11		-0.13	
463	ISO12205	0.03		-0.54	
507	D2274	0.164		0.14	
657	D2274	0.11		-0.13	
846		----		----	
862		----		----	
864		----		----	
874	D2274	0.14		0.02	
970	D2274	0.09		-0.23	
974	D2274	0.114		-0.11	
1012		----		----	
1026		----		----	
1059	D2274	0.0286		-0.55	
1079	D2274	0.1		-0.18	
1105	D2274	0.086		-0.25	
1109	D2274	0.36		1.14	
1161		----		----	
1299	D2274	0.3	C	0.84	first reported 3, no unit
1301	D2274	0.51		1.91	
1347	D2274	0.3143		0.91	
1348	D2274	0.400		1.35	
1385	D2274	0.2		0.33	
1428	ISO12205	0.114		-0.11	
1441	D2274	0		-0.69	
1544	ISO12205	0.029		-0.55	
1650	D2274	0.1429		0.04	
1709	D2274	0		-0.69	
1710	ISO12205	0.1		-0.18	
1724		----		----	
1792	D2274	0.088		-0.24	
1807	ISO12205	0		-0.69	
1849		----		----	
1857	D2274	0.228		0.47	
1984	ISO12205	0		-0.69	
6005		----		----	
6034	D2274	0.10		-0.18	
6057		----		----	
6195	D2274	0.11		-0.13	
6201	D2274	0.0006		-0.69	
6238		----		----	
6260		0.275		0.71	
6262		----		----	
6291		----		----	
	normality	suspect			
	n	39			
	outliers	0			
	mean (n)	0.136			
	st.dev. (n)	0.1271			
	R(calc.)	0.356			
	st.dev.(D2274:14)	0.1961			
	R(D2274:14)	0.549			



Determination of Oxidation Stability Total Insolubles (A+B) on sample #19163; results in mg/100mL

lab	method	value	mark	z(targ)	remarks
52	D2274	<0.1		----	
120	D2274	0.0		-1.04	
140	D2274	0.9	R(0.05)	2.21	E, iis calculated 0.2 after correction of Insolubles A
150	D2274	0.2		-0.32	
158		----		----	
171	D2274	0.7		1.49	
230	D2274	0.43		0.51	
237	D2274	0.327		0.14	
312	D2274	<0.1		----	
323	D2274	0.1		-0.68	
342	ISO12205	0.3		0.04	
344		----		----	
356	ISO12205	0.286		-0.01	
369	D2274	0.19		-0.35	
372	D2274	0.17		-0.42	
463	ISO12205	0.57		1.02	
507	D2274	0.246		-0.15	
657	D2274	0.22		-0.24	
846		----		----	
862		----		----	
864		----		----	
874	D2274	0.23		-0.21	
970	D2274	0.30		0.04	
974	D2274	0.299		0.04	
1012		----		----	
1026		----		----	
1059	D2274	0.0572		-0.83	
1079	D2274	0.2		-0.32	
1105	D2274	0.17		-0.42	
1109	D2274	0.36		0.26	
1161	ISO12205	0.31		0.08	
1299	D2274	0.4	C	0.40	first reported 4, no unit
1301	D2274	0.97	R(0.05)	2.46	
1347	D2274	0.4286		0.51	
1348	D2274	0.457		0.61	
1385	D2274	0.314		0.09	
1428	ISO12205	0.223		-0.23	
1441	D2274	0.155		-0.48	
1544	ISO12205	0.515		0.82	
1650	D2274	0.2000		-0.32	
1709	D2274	0.06		-0.82	
1710	ISO12205	0.6		1.13	
1724		----		----	
1792	D2274	0.491		0.73	
1807	ISO12205	0.14		-0.53	
1849	ISO12205	0.317		0.11	
1857	D2274	0.471		0.66	
1984	ISO12205	1	R(0.05)	2.57	
6005		----		----	
6034	D2274	0.21		-0.28	
6057		----		----	
6195	D2274	0.23		-0.21	
6201	D2274	0.0576		-0.83	
6238		----		----	
6260		1.26	R(0.05)	3.51	
6262		----		----	
6291		----		----	
	normality	OK			
	n	38			
	outliers	4			
	mean (n)	0.288			
	st.dev. (n)	0.1614			
	R(calc.)	0.452			
	st.dev.(D2274:14)	0.2773			
	R(D2274:14)	0.776			



**APPENDIX 2: Lotnumber of Dye used for FIA ASTM D1319**

lab	lotnumber	lab	lotnumber	lab	lotnumber
52	----	759	----	1634	----
53	----	778	----	1636	----
62	----	779	----	1650	----
90	----	781	3000000958	1710	----
92	----	782	----	1720	----
120	----	785	----	1724	----
140	----	798	----	1740	----
150	----	825	----	1792	----
158	----	846	----	1807	----
159	----	851	----	1849	----
169	----	854	----	1857	----
171	----	856	----	1906	----
175	----	862	----	1944	----
186	----	863	----	1967	----
194	----	864	----	1984	----
203	----	872	----	1995	----
217	----	873	----	6005	----
221	----	874	----	6018	----
224	----	886	----	6026	----
225	----	887	----	6034	----
228	----	912	----	6049	----
230	3000000954	922	3000000855	6054	----
237	3000000962	962	----	6057	----
238	----	963	----	6068	----
240	----	970	----	6103	----
253	3000000821	971	----	6139	----
254	----	974	3000000848	6142	----
256	----	988	----	6172	----
258	----	994	----	6201	----
273	----	995	----	6238	----
312	----	996	----	6253	----
317	----	997	----	6260	----
323	----	998	----	6262	----
333	----	1006	----	6266	----
335	----	1012	----	6269	----
336	----	1026	----	6271	----
337	----	1059	----	6272	----
339	----	1079	3000000961	6277	----
342	----	1080	----	6291	----
343	3000000925	1082	----	9128	----
344	----	1090	----		
349	----	1097	----		
353	----	1105	----		
355	----	1109	----		
356	----	1121	----		
372	3000000800	1126	----		
381	----	1146	----		
433	----	1161	----		
463	300000 0870	1182	----		
485	----	1194	----		
507	----	1199	----		
511	----	1213	----		
529	----	1227	----		
541	----	1277	----		
554	----	1284	----		
555	----	1297	----		
558	----	1299	----		
562	----	1345	----		
575	----	1347	----		
603	----	1348	----		
604	----	1356	----		
608	----	1385	----		
614	----	1412	----		
621	----	1417	----		
631	----	1428	----		
633	----	1430	----		
634	----	1441	----		
657	3000000917	1483	----		
732	----	1498	----		
733	----	1544	----		
750	----	1588	----		
751	----	1612	----		
752	----	1629	----		

**APPENDIX 3****Participants per country**

1 lab in AFGHANISTAN	2 labs in MAURITIUS
1 lab in ALBANIA	1 lab in MEXICO
1 lab in ALGERIA	2 labs in MOROCCO
1 lab in ARGENTINA	1 lab in MOZAMBIQUE
2 labs in AUSTRALIA	7 labs in NETHERLANDS
1 lab in AUSTRIA	3 labs in NIGERIA
2 labs in AZERBAIJAN	1 lab in NORTH MACEDONIA, Republic of
3 labs in BELGIUM	2 labs in NORWAY
3 labs in BRAZIL	1 lab in OMAN
1 lab in BRUNEI DARUSSALAM	1 lab in P.R. of CHINA
1 lab in BULGARIA	1 lab in PAKISTAN
5 labs in CANADA	1 lab in PANAMA
2 labs in CHILE	1 lab in PERU
8 labs in CHINA, People's Republic	3 labs in PHILIPPINES
1 lab in COLOMBIA	2 labs in POLAND
1 lab in CONGO Brazzaville	3 labs in PORTUGAL
1 lab in CONGO, Republic Democrate	1 lab in QATAR
2 labs in COTE D'IVOIRE	1 lab in ROMANIA
2 labs in CYPRUS	17 labs in RUSSIAN FEDERATION
1 lab in DAGESTAN, Republic of	2 labs in SAUDI ARABIA
1 lab in DJIBOUTI	1 lab in SENEGAL
3 labs in EGYPT	1 lab in SERBIA
1 lab in EQUATORIAL GUINEA	1 lab in SINGAPORE
1 lab in ESTONIA	1 lab in SLOVENIA
1 lab in FINLAND	2 labs in SOUTH AFRICA
7 labs in FRANCE	3 labs in SOUTH KOREA
4 labs in GEORGIA	8 labs in SPAIN
1 lab in GERMANY	1 lab in ST. LUCIA – WEST INDIES
5 labs in GREECE	1 lab in SUDAN
1 lab in GUINEA REPUBLIC	1 lab in SWEDEN
3 labs in HONG KONG	4 labs in TAIWAN
2 labs in HUNGARY	2 labs in TANZANIA
1 lab in INDIA	1 lab in TOGO
1 lab in INDONESIA	1 lab in TUNISIA
2 labs in IRELAND	5 labs in TURKEY
1 lab in ISRAEL	1 lab in TURKMENISTAN
2 labs in KAZAKHSTAN	5 labs in UNITED ARAB EMIRATES
1 lab in KENYA	4 labs in UNITED KINGDOM
1 lab in LATVIA	9 labs in UNITED STATES OF AMERICA
3 labs in LEBANON	1 lab in VIETNAM
1 lab in MACEDONIA	1 lab in ZAMBIA
3 labs in MALAYSIA	
1 lab in MALTA	

## APPENDIX 4

### 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)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
E	= possibly an error in calculations
W	= test result withdrawn on request of participant
ex	= test result excluded from statistical evaluation
fr.	= first reported
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
SDS	= Safety Data Sheet

### Literature:

- 1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, June 2018
- 2 ASTM E178:16
- 3 ASTM E1301:95(2003)
- 4 ISO 5725:86 (1994)
- 5 ISO 5725, parts 1-6, 1994
- 6 ISO 13528:05
- 7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
- 8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
- 9 IP 367:84
- 10 DIN 38402 T41/42
- 11 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
- 12 J.N. Miller, Analyst, 118, 455, (1993)
- 13 Analytical Methods Committee Technical Brief, No 4 January, 2001
- 14 P.J. Lowthian and M. Thompson, The Royal Society of Chemistry, Analyst 2002, 127, 1359-1364, (2002)
- 15 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)
- 16 Horwitz, W and Albert, R, J. AOAC Int, 79, 3, 589, (1996)
- 17 iis memo 1904 Precision data of Calculated Cetane Index Four Variables in Gasoil