# Results of Proficiency Test
# Gasoil (ASTM Spec)
# September 2014


Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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# 1 INTRODUCTION

Since 1994, the institute for Interlaboratory Studies organizes every year proficiency tests for Gasoil. In the annual proficiency testing program of 2014-2015, it was decided to continue the proficiency test for the analysis of Gasoil in accordance with the latest applicable version of ASTM D975 specification.
In the main PT, 173 laboratories in 72 different countries have participated. In the PT for Cetane Number, 57 laboratories in 31 different countries participated. In the PT for the Total Contamination on Gasoil, 64 laboratories in 27 different countries and in the PT for the Oxidation Stability on Gasoil, 55 laboratories in 26 different countries participated. See appendix 3 for the number of participants per country. In this report, the results of the 2014 proficiency test are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

# 2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. In this Gasoil round robin dedicated to the ASTM specification, it was decided to send low sulphur gasoil samples for the regular round robin (1*1 L glass bottle and 1*0.5 L glass botlle, both labelled #14175),for the Cetane Number round robin (4*1L glass bottle, all labelled #14176) and for the Total Contamination round robin (1*1L, 85% filled glass bottle, labelled #14177). For the Oxidation stability round robin (1*0.5L glass bottle labelled #14178), it was decided to send a gasoil from a batch of retained Gasoil samples. Sample analyses for fit-for-use and homogeneity testing were subcontracted. Participants were requested to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

## 2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentially of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

## 2.2 PROTOCOL

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

## 2.3 CONFIDENTIALITY STATEMENT

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

## 2.4 SAMPLES

### 2.4.1 regular low sulphur winter Gasoil

From the 800 litre low sulphur Gasoil (automotive diesel), which was purchased from the local market, approx. 400 litre was homogenized. For the regular Gasoil samples, from a 400 litre batch 220 amber glass bottles of 1L and 220 amber glass bottles of 0.5L, with inner and outer caps were filled and labelled #14175. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 8 stratified randomly selected samples.

| | Density @ 15 °C in kg/m$^3$ | | Density @ 15 °C in kg/m$^3$ |
|---|---|---|---|
| sample #14175-1 | 835.76 | sample #14175-5 | 835.74 |
| sample #14175-2 | 835.74 | sample #14175-6 | 835.75 |
| sample #14175-3 | 835.72 | sample #14175-7 | 835.75 |
| sample #14175-4 | 835.75 | sample #14175-8 | 835.76 |

Table 1: homogeneity test results of subsamples #14175

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

| | Density @ 15ºC in kg/m$^3$ |
|---|---|
| r (sample #14175) | 0.04 |
| reference test | ASTM D4052:11 |
| 0.3*R (reference test) | 0.15 |

Table 2: precision data of the subsamples #14175

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #14175 was assumed.

### 2.4.2 Gasoil for Cetane Number

From the starting batch of 800 litre, another 400 litre was homogenized for the Gasoil Cetane Number samples. From the 400 litre batch, 320 amber glass bottles of 1L, with inner and outer caps were filled and labelled #14176. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 10 stratified randomly selected samples.

| | Density @ 15 °C in kg/m$^3$ | | Density @ 15 °C in kg/m$^3$ |
|---|---|---|---|
| sample #14176-1 | 835.00 | sample #14176-6 | 835.00 |
| sample #14176-2 | 835.00 | sample #14176-7 | 834.97 |
| sample #14176-3 | 835.00 | sample #14176-8 | 834.98 |
| sample #14176-4 | 834.98 | sample #14176-9 | 834.96 |
| sample #14176-5 | 834.97 | sample #14176-10 | 834.98 |

Table 3: homogeneity test results of subsamples #14176

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

| | Density @ 15ºC in kg/m$^3$ |
|---|---|
| r (sample #14176) | 0.04 |
| reference test | ASTM D4052:11 |
| 0.3*R (reference test) | 0.15 |

Table 4: precision data of the subsamples #14165

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #14176 was assumed.

2.4.3 Total contamination

The remaining material (approx. 150 liter) of the low sulphur Gasoil batch was homogenized. From this batch, 95 amber glass bottles of 1L with inner and outer caps were filled and labelled #14177.
For the Total Contamination determination, each of the 95 filled bottles was spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-070 (ø 1.2-20 µm) in oil suspention. The addition was checked by weighting each bottle before and after addition of the spike.

2.4.4 Oxidation Stability

For the Oxidation Stability determination, 50 liter of Gasoil from a batch of retained Gasoil, was homogenised and subsequently divided over 85 amber glass bottles of 0.5L, with inner and outer caps and labelled #14178. The homogeneity of the subsamples was checked by the determination of Density in accordance with ASTM D4052:11 on 8 stratified randomly selected samples.

| | Density @ 15 °C in kg/m$^3$ | | Density @ 15 °C in kg/m$^3$ |
|---|---|---|---|
| sample #14178-1 | 844.21 | sample #14178-5 | 844.22 |
| sample #14178-2 | 844.21 | sample #14178-6 | 844.21 |
| sample #14178-3 | 844.22 | sample #14178-7 | 844.21 |
| sample #14178-4 | 844.20 | sample #14178-8 | 844.21 |

Table 5: homogeneity test results of subsamples #14178

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

| | Density @ 15ºC in kg/m$^3$ |
|---|---|
| r (sample #14178) | 0.02 |
| reference test | ASTM D4052:11 |
| 0.3*R (reference test) | 0.15 |

Table 6: precision data of the subsamples #14178

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #14178 was assumed.

Depending on the registration of the participant: one bottle of 1L and one bottle of 0.5L, labelled #14175, four bottles of 1L #14176, one bottle of 1L #14177 and/or 1 bottle of 0.5L labelled #14178 were sent to the participating laboratories on September 3, 2014.

### 2.5 STABILITY OF THE SAMPLES

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

### 2.6 ANALYSIS

The participants were asked to determine on the samples #14175: Acid number (TAN), Aromatics by FIA, Ash Content, Cetane Index (D979 and D4737), Cold Filter Plugging Point, Cloudpoint, Color ASTM, Copper Corrosion, Density @ 15°C, Distillation (IBP, 5%, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250ºC and 350ºC), FAME content, Flash Point PMcc, Kinematic Viscosity @ 40°C, Lubricity by HFRR, Nitrogen, Pour Point, Ramsbottom Carbon Residue, Sulphur content, Water content and Water & Sediment (D2709 & D1796).
On sample #14176: Cetane number and/or DCN were requested to be determined, on sample #14177 only Total Contamination was requested to be determined and on sample #14178 only Oxidation Stability was requested to be determined. The participants were also requested to report additional information for some determinations.
To get comparable results a detailed report form, on which the units were prescribed as well as the required standards and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The detailed report form was also made available for download on the iis website www.iisnl.com.
A SDS and a form to confirm receipt of the samples were added to the sample package.

## 3 RESULTS

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

Directly after deadline, a reminder fax was sent to those laboratories that had not yet reported. Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the (raw data of the) reported results. Additional or corrected results have been used for data analysis and the original results are placed under 'Remarks' in the result tables in appendix 1.

### 3.1 STATISTICS

Statistical calculations were performed as described in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' (iis-protocol, April 2014 version 3.3). For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…' were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results should be used with due care.
In accordance to ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon, Grubbs and Rosner outlier tests. Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test and by R(0.01) for the Rosner General ESD test (see appendix 4, no.16). Stragglers are marked by D(0.05) for the Dixon 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 the averages and the standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

### 3.2 GRAPHICS

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

from the calculations, are represented as a “x”. Accepted data are represented as a triangle. Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 4; nos.13 and 14). Also a normal Gauss curve was projected over the Kernel Density Graph.

### 3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the spread of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8.

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

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

The $z_{(target)}$ scores are listed in the result tables in appendix 1.

Absolute values for z<2 are very common and absolute values for z>3 are very rare.
Therefore the usual interpretation of z-scores maybe as follows:

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

## 4 EVALUATION

In this interlaboratory study, several problems with customs clearance were encountered during dispatch of the samples to laboratories in Afghanistan, Brazil, Chile, Colombia, Costa Rica, Equatorial Guinea, Malaysia, Morocco, Mozambique, Russia, Sudan, Tanzania, Trinidad and Turkmenistan.
For the regular Gasoil PT: Thirty-one participants reported test results after the final reporting date and ten participants did not report any test results at all.
For the Cetane Number PT: eight participants reported the test results after the final reporting date and six participants did not report any test results at all.
For the Total Contamination PT: ten participants reported the test results after the final reporting date and six participants did not report any test results at all.
For the Oxidation Stability PT: eight participants reported the test results after the final reporting date and eight participants did not report any test results at all.

Finally, 163 participants reported in total 3419 numerical results. Observed were 68 outlying results, which is 2.0%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

### 4.1 EVALUATION PER TEST

In this section, the results are discussed per sample and per test. The specified test methods and requirements were taken into account for explaining the observed differences when possible and applicable. These methods are also in the tables together with the reported data. The abbreviations, used in these tables, are listed in appendix 3.
In the iis PT reports, ASTM methods are referred to with a number (e.g. D976) and an added designation for the year that the 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 (2011)). In the results tables of Appendix 1 only the method number and year of adoption or revision will be used.

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.

Acid Number (Total): This determination was problematic for a number of laboratories. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D974:12.

Aromatics (FIA): This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D1319:13. One should be aware that this Gasoil does not meet the scope of ASTM D1319 (petroleum fractions should be distilling below 315ºC).

Ash: Four statistical outliers were observed. Regretfully, the ash content for this sample was below or near the application range of the method. Still, the calculated reproducibility after rejection of the statistical outliers is smaller then the extrapolated reproducibility of ASTM D482:13.

C.I. D976: Regretfully, no reproducibility limits are mentioned in ASTM D976:06 (2011). Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is the same as found in the previous i.i.s. proficiency test (see also iis13G04). Ten participants possibly made calculation errors.

C.I. D4737: Regretfully, no reproducibility limits are mentioned in ASTM D4737:10. Four statistical outliers were observed. In this case, it appeared that not all participants used the same calculation method. Five participants reported results according ASTM D4737 procedure B. All other participants reported test results according procedure A of ISO4264:95/IP380:98/ASTM D4737.

Up to 2003 ISO4264 and ASTM D4737 were equivalent test methods. However since 2003 only in ASTM D4737 two possible calculation methods for Cetane Index are given. The actual calculation method to be used depends on the type of Gasoil that is specified in table 1 of ASTM D975:12. This makes it rather confusing because the latest version of ISO4264 is said to be similar to ASTM D4737:96a(01) and in this version only calculation A is described. Seven participants possibly made a calculation error. One should keep in mind that Biodiesel blends are excluded from this test method, because they were not part of the datasets use to develop both procedures. (see ASTM D4737, chapter 1.6).

Cloud Point: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D2500:11.

CFPP: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D6371:05 (2010). Rounding to 1ºC may explain part of the spread.

Colour ASTM: This determination was not problematic. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D1500:12.

Conradson CR: 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 D189:06e1 (2010).

Ramsbottom CR: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D524:10.

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

Density @15°C: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D4052:11.

Distillation: The automated method was not problematic. In total ten statistical outliers were observed. One other test result from one laboratory was excluded from statistical evaluation as all other reported test results form this laboratory were marked as statistical outliers. All calculated reproducibilities were, after rejection of the suspect test results, in agreement with the requirements of ASTM D86:12.

The manual method was problematic. No statistical outliers were observed. However, the calculated reproducibilities for Initial Boiling Point, 10% recovered, 95% recovered and Final Boiling Point were after rejection of the statistical outliers not in agreement with the requirements of ASTM D86:12.

FAME: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D7371:14. It was remarkable to see that most laboratories used EN14078. When the results for EN14078 were evaluated separately the calculated reproducibility was not in agreement with the requiremenst of the standard.

Flash Point: This determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with the requirements of ASTM D93:13e1 (procedure A).

Kinematic. Visc. 40°C: This determination was problematic for a number of laboratories. Seven statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D445:14e2.

Lubricity: This determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with ASTM D6079:11. When the calculated reproducibilities for ASTM D6079 and for ISO12156 (equal to ASTM D7688/IP450) are evaluated separately, both observed reproducibilities are not in agreement with the requirements of the respective standards.

Nitrogen: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D4629:12.

Pour Point: For the manual mode, the determination was not problematic. No statistical outliers were observed and the calculated reproducibility is in full agreement with ASTM D97:12.
Also for the automated mode, the determination was not problematic. Only one statistical outlier was observed. Four results were excluded as the reported test method is a manual method. However, the calculated reproducibility after rejection of the suspect data is in full agreement with ASTM D5950:14.

Sulphur: 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 D5453:12.

Water: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the ASTM D6304:07.

A number of laboratories used ASTM D95, which is not applicable for low water concentrations.

Water&Sediment (D2709): All reporting laboratories reported a “less then” result or zero. Therefore no significant conclusions were drawn.

Water&Sediment (D1796): All reporting laboratories reported a “less then” result or zero. Therefore no significant conclusions were drawn.

CN - D613: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D613:13.

DCN - D6890: This determination may not be problematic. In total, two statistical outliers were observed. The calculated reproducibility for DCN after rejection of the statistical outlier is not in agreement with the ASTM D6890:13be1. Three participants possibly made a calculation error. The spread for DCN after recalculation of the results by iis is in good agreement with the requirements of ASTM D6890:13be1. The calculated reproducibility for “Ignition delay” is not in agreement with the requirements.

DCN - D7668: This determination was very problematic. In total, only one statistical outlier wa observed and two results were excluded for several reasons. The calculated reproducibility for DCN after rejection of the suspect data is not at all in agreement with the ASTM D7668:14a. The calculated reproducibility for “Ignition delay” after rejection of the suspect data is also not in agreement with the requirements. The variety of equipment software used may partly explain the large spread.

Total Contamination: This determination was very problematic at the level of 25.9 mg/kg. The samples were spiked with 1 ml of a fresh prepared and ultrasonically homogenized, 10 g/kg particulate quartz material BCR-070 (ø 1.2-20 µm) in oil suspention. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirements of ASTM D6217:11 or EN12662:08. It is unclear whether the laboratories that reported results according EN12662 used 300 mL (as prescribed in the latest EN12662, 2014 version) or 1 Liter as prescribed in ASTM D6217. The correctness of the sample pretreatment is critical for this determination.

Oxidation Stability: This determination may not be problematic at this low level of 0.21 mg/100ml. Four statistical outliers were observed. Two results were excluded as they probably reported in a deviating unit. The calculated reproducibility after rejection of the suspect results is in good agreement with ASTM D2274:10.

## 4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

| Parameters | unit | n | average | 2.8 * sd | R (lit) |
|---|---|---|---|---|---|
| Acid Number (TAN) | mgKOH/g | 81 | 0.020 | 0.026 | 0.040 |
| Aromatics by FIA | %V/V | 36 | 22.35 | 7.05 | 3.70 |
| Ash content | %M/M | 73 | 0.0008 | 0.0013 | (0.0050) |
| Cetane Index ASTM D976 | | 83 | 53.20 | 0.73 | unknown |
| Cetane Index ASTM D4737 | | 97 | 52.98 | 1.16 | unknown |
| Cloud Point | °C | 132 | -7.6 | 2.3 | 4.0 |
| Cold Filter Plugging Point | °C | 104 | -24.7 | 6.9 | 5.1 |
| Colour ASTM | | 82 | 0.6 | 0.2 | 1.0 |
| Conradson Carbon Residue | %M/M | 67 | 0.020 | 0.023 | 0.029 |
| Ramsbottom Carbon Residue | %M/M | 12 | 0.066 | 0.048 | 0.030 |
| Copper Corrosion 3hrs at 50ºC | | 124 | 1(1A) | unknown | unknown |
| Density at 15 °C | kg/m$^3$ | 152 | 835.7 | 0.3 | 0.5 |
| IBP (automated) | °C | 109 | 169.3 | 8.3 | 9.3 |
| 10% recovery (automated) | °C | 109 | 209.8 | 5.0 | 4.6 |
| 50% recovery (automated) | °C | 109 | 272.8 | 2.9 | 3.0 |
| 90% recovery (automated) | °C | 110 | 331.5 | 4.7 | 5.0 |
| 95% recovery (automated) | °C | 110 | 347.3 | 7.7 | 8.8 |
| FBP (automated) | °C | 110 | 356.8 | 5.9 | 7.1 |
| Volume at 250ºC (automated) | %V/V | 102 | 32.7 | 2.1 | 2.7 |
| Volume at 350ºC (automated) | %V/V | 102 | 95.7 | 1.8 | 2.7 |
| IBP (manual) | °C | 35 | 170.6 | 8.3 | 6.2 |
| 10% recovery (manual) | °C | 35 | 207.6 | 6.7 | 4.5 |
| 50% recovery (manual) | °C | 35 | 272.3 | 3.8 | 3.9 |
| 90% recovery (manual) | °C | 35 | 331.5 | 3.7 | 4.0 |
| 95% recovery (manual) | °C | 34 | 346.5 | 8.1 | 5.2 |
| FBP (manual) | °C | 35 | 356.9 | 6.3 | 4.0 |
| Volume at 250ºC (manual) | %V/V | 33 | 33.2 | 2.8 | 2.6 |
| Volume at 350ºC (manual) | %V/V | 33 | 95.7 | 1.5 | 2.2 |
| FAME | %V/V | 61 | 2.64 | 0.34 | 0.84 |
| Flash Point PMcc | °C | 155 | 63.2 | 4.0 | 4.5 |
| Kinematic Viscosity at 40°C | mm$^2$/s | 132 | 2.767 | 0.029 | 0.031 |
| Lubricity by HFRR | µm | 78 | 287 | 140 | 80 |
| Nitrogen | mg/kg | 39 | 59.3 | 8.9 | 6.6 |
| Pour Point, manual | ºC | 81 | -26.3 | 5.9 | 6.6 |
| Pour Point, automated | ºC | 45 | -25.7 | 4.0 | 6.1 |
| Total Sulphur | mg/kg | 113 | 8.73 | 2.33 | 2.95 |
| Water | mg/kg | 124 | 47.1 | 31.3 | 170.4 |
| Water and Sediment (D2709) | %V/V | 25 | <0.05 | unknown | unknown |
| Water and Sediment (D1796) | %V/V | 19 | <0.05 | unknown | unknown |

Table 7: summary of tests results of Gasoil #14175
NB results between brackets may be near or below the limit of detection

| Parameters | unit | n | average | 2.8 * sd | R (lit) |
|---|---|---|---|---|---|
| Cetane Number | | 29 | 55.0 | 2.9 | 4.7 |
| DCN (ASTM D6890) | | 14 | 57.7 | 3.2 | 2.9 |
| Iginition delay (ASTM D6890) | | 12 | 3.55 | 0.29 | 0.19 |
| DCN (ASTM D7668) | | 11 | 57.3 | 4.4 | 1.7 |
| Ignition delay (ASTM D7668) | | 9 | 2.74 | 0.16 | 0.12 |

Table 8: summary of tests results of Gasoil #14176

| Parameters | unit | n | average | 2.8 * sd | R (lit) |
|---|---|---|---|---|---|
| Total Contamination | mg/kg | 54 | 25.9 | 12.0 | 5.7 |

Table 9: summary of tests results of Gasoil #14177

| Parameters | unit | n | average | 2.8 * sd | R (lit) |
|---|---|---|---|---|---|
| Oxidation Stability | mg/100mL | 37 | 0.21 | 0.36 | 0.72 |

Table 10: summary of tests results of Gasoil #14178

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

### 4.3 COMPARISON OF THE INTERLABORATORY STUDY OF SEPTEMBER 2014 WITH PREVIOUS PTS.

| | *September 2014* | *September 2013* | *October 2012* | *October 2011* |
|---|---|---|---|---|
| Number of reporting labs | 163 | 160 | 158 | 163 |
| Number of results reported | 3419 | 3123 | 3086 | 2882 |
| Statistical outliers | 68 | 67 | 97 | 84 |
| Percentage outliers | 2.0% | 2.1% | 3.1% | 2.9% |

Table 11: comparison with previous proficiency tests.

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.
The performance of the determinations of the proficiency tests was compared against the requirements of the respective standards. The conclusions are given the following table:

| | *September 2014* | *September 2013* | *October 2012* | *October 2011* |
|---|---|---|---|---|
| Acid Number (Total) | ++ | ++ | ++ | ++ |
| Aromatics (FIA) | -- | -- | -- | -- |
| Ash content | (++) | (++) | (++) | (++) |
| Cloud Point | ++ | ++ | ++ | ++ |
| Cold Filter Plugging Point | - | - | -- | -- |
| Colour ASTM | ++ | ++ | ++ | ++ |
| Conradson Carbon Residue | + | + | +/- | n.e. |
| Ramsbottom Carbon Residue | -- | -- | -- | -- |
| Density @ 15 °C | ++ | ++ | ++ | ++ |
| Distillation – automated mode | ++ | ++ | + | ++ |
| Distillation – manual mode | - | -- | -- | -- |
| FAME | ++ | ++ | (++) | (++) |
| Flash Point PMcc | + | + | ++ | ++ |
| Kinematic Viscosity @ 40 °C | + | - | - | -- |
| Lubricity by HFRR | -- | - | - | -- |
| Nitrogen content | -- | -- | -- | -- |
| Pour Point | ++ | + | ++ | ++ |
| Sulphur | ++ | +/- | + | + |
| Water content | ++ | ++ | ++ | ++ |

Table 12: comparison determinations against the standard
result between brackets was out of application range

| | *September 2014* | *September 2013* | *October 2012* | *October 2011* |
|---|---|---|---|---|
| Cetane Number | ++ | ++ | ++ | + |
| DCN (ASTM D6890) | - | ++ | ++ | -- |
| Ignition Delay (D6890) | -- | ++ | ++ | -- |
| DCN (ASTM D7170) | n.e. | -- | + | n.e. |
| Ignition Delay (D7170) | n.e. | n.e. | +/- | n.e. |
| DCN (ASTM D7668) | -- | n.e. | n.e. | n.e. |
| Ignition Delay (D7668) | -- | n.e. | n.e. | n.e. |
| Total Contamination | -- | -- | n.e. | n.e. |
| Oxidation Stability | ++ | + | ++ | -- |

Table 13: comparison determinations against the standard

The performance of the determinations against the requirements of the respective standards is listed in the above table. The following performance categories were used:

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

## APPENDIX 1

Determination of Acid Number (TAN) on sample #14175; result in mgKOH/g

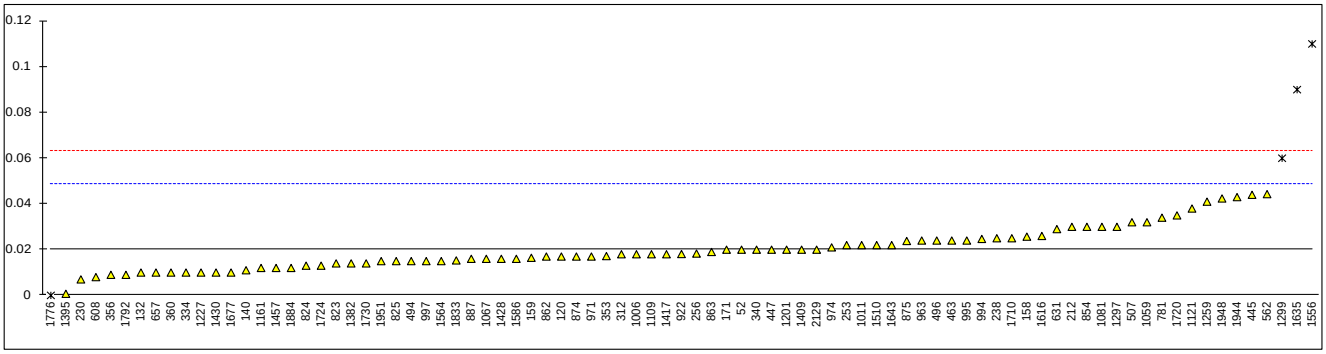
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D664 | 0.02 | | -0.01 | 825 | D664 | 0.015 | | -0.36 |
| 53 | | ----- | | ----- | 854 | D664 | 0.03 | | 0.69 |
| 92 | | ----- | | ----- | 862 | D664 | 0.0170 | | -0.22 |
| 120 | D664 | 0.017 | | -0.22 | 863 | D664 | 0.019 | | -0.08 |
| 132 | D664 | 0.01 | | -0.71 | 873 | | ----- | | ----- |
| 140 | D664 | 0.011 | | -0.64 | 874 | D664 | 0.017 | | -0.22 |
| 150 | D664 | <0.05 | | ----- | 875 | D664 | 0.0238 | | 0.26 |
| 158 | D664 | 0.0257 | | 0.39 | 887 | D664 | 0.016 | | -0.29 |
| 159 | D664 | 0.01645 | | -0.26 | 902 | D664 | <0.1 | | ----- |
| 169 | | ----- | | ----- | 922 | D664 | 0.0181 | | -0.14 |
| 171 | D664 | 0.02 | | -0.01 | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D974 | 0.024 | | 0.27 |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D664 | 0.017 | | -0.22 |
| 212 | D664 | 0.03 | | 0.69 | 974 | D974 | 0.021 | | 0.06 |
| 217 | | ----- | | ----- | 994 | D664 | 0.0247 | | 0.32 |
| 221 | | ----- | | ----- | 995 | D664 | 0.024 | | 0.27 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | D974 | <0.02 | C | ----- | 997 | D974 | 0.015 | | -0.36 |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | D664 | 0.007 | | -0.92 | 1006 | D664 | 0.018 | | -0.15 |
| 238 | D974 | 0.025 | | 0.34 | 1011 | D664 | 0.022 | C | 0.13 |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | ISO6619 | 0.032 | | 0.83 |
| 253 | D664 | 0.022 | | 0.13 | 1067 | D974 | 0.016 | | -0.29 |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | D974 | 0.0183 | | -0.13 | 1081 | D664 | 0.03 | | 0.69 |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | D664 | <0.10 | | ----- | 1107 | D664 | <0.001 | U | ----- |
| 312 | D974 | 0.018 | | -0.15 | 1109 | D974 | 0.018 | | -0.15 |
| 323 | D664 | <0.02 | | ----- | 1121 | D664 | 0.038 | | 1.25 |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | D664 | 0.01 | | -0.71 | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | D664 | 0.012 | | -0.57 |
| 338 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 340 | D664 | 0.02 | | -0.01 | 1171 | | ----- | | ----- |
| 343 | D664 | <0.05 | | ----- | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D974 | 0.02 | | -0.01 |
| 350 | | ----- | | ----- | 1227 | D664 | 0.01 | | -0.71 |
| 353 | IP177 | 0.0172 | | -0.21 | 1229 | | ----- | | ----- |
| 356 | D974 | 0.009 | | -0.78 | 1259 | D664 | 0.0410 | | 1.46 |
| 360 | D974 | 0.010 | | -0.71 | 1297 | D664 | 0.03 | | 0.69 |
| 430 | | ----- | | ----- | 1299 | D664 | 0.060 | R(0.01) | 2.79 |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | D664 | 0.044 | | 1.67 | 1379 | | ----- | | ----- |
| 447 | D664 | 0.02 | | -0.01 | 1382 | GB/T7304 | 0.014 | | -0.43 |
| 463 | D664 | 0.024 | | 0.27 | 1395 | D664 | 0.0007 | | -1.36 |
| 485 | | ----- | | ----- | 1409 | D664 | 0.02 | | -0.01 |
| 491 | | ----- | | ----- | 1417 | IP177 | 0.018 | | -0.15 |
| 493 | | ----- | | ----- | 1428 | D664 | 0.016 | | -0.29 |
| 494 | D664 | 0.015 | | -0.36 | 1430 | D664 | 0.01 | | -0.71 |
| 496 | D664 | 0.024 | | 0.27 | 1431 | | ----- | | ----- |
| 507 | D664 | 0.032 | | 0.83 | 1457 | D974 | 0.012 | | -0.57 |
| 511 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 541 | D664 | <0.1 | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | D974 | 0.022 | | 0.13 |
| 562 | D664 | 0.0443 | | 1.69 | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | D664 | 0.11 | R(0.01) | 6.29 |
| 603 | | ----- | | ----- | 1564 | D664 | 0.015 | | -0.36 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D664 | 0.016 | | -0.29 |
| 608 | D664 | 0.008 | | -0.85 | 1616 | D974 | 0.026 | | 0.41 |
| 631 | D664 | 0.029 | | 0.62 | 1629 | | ----- | | ----- |
| 657 | D664 | 0.01 | | -0.71 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | D664 | 0.09 | R(0.01) | 4.89 |
| 732 | | ----- | | ----- | 1643 | D664 | 0.022 | | 0.13 |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D664 | 0.034 | | 0.97 | 1677 | D664 | 0.01 | | -0.71 |
| 823 | D664 | 0.014 | | -0.43 | 1709 | | ----- | | ----- |
| 824 | D974 | 0.013 | | -0.50 | 1710 | D664 | 0.025 | | 0.34 |

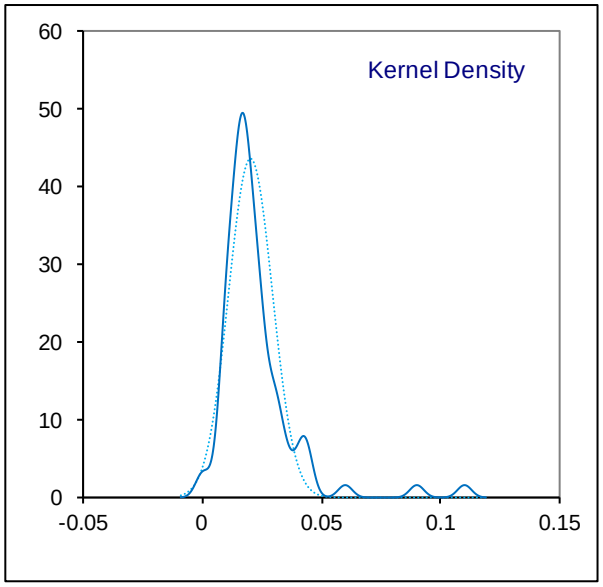
| | | | | |
|---|---|---|---|---|
| 1720 | D974 | 0.035 | | 1.04 |
| 1724 | D664 | 0.013 | | -0.50 |
| 1730 | D974 | 0.014 | | -0.43 |
| 1776 | D664 | 0.00 | ex | -1.41 |
| 1792 | D664 | 0.009 | | -0.78 |
| 1807 | | ----- | | ----- |
| 1810 | | ----- | | ----- |
| 1811 | | ----- | | ----- |
| 1833 | D664 | 0.0153 | | -0.34 |
| 1842 | | ----- | | ----- |
| 1849 | | ----- | | ----- |
| 1872 | | ----- | | ----- |
| 1884 | D664 | 0.012 | | -0.57 |
| 1896 | D664 | <0.05 | | ----- |
| 1906 | | ----- | | ----- |
| 1938 | | ----- | | ----- |
| 1944 | D664 | 0.043 | | 1.60 |
| 1948 | D664 | 0.0424 | | 1.56 |
| 1951 | IP139 | 0.01499 | | -0.36 |
| 2129 | D664 | 0.02 | | -0.01 |
| 7012 | | ----- | | ----- |

| | | |
|---|---|---|
| normality | OK | |
| n | 81 | |
| outliers | 3 | + 1 excl |
| mean (n) | 0.0201 | |
| st.dev. (n) | 0.00921 | |
| R(calc.) | 0.0258 | |
| R(D974:12) | 0.0400 | |

Lab 1776: result excluded, zero is not a real result

Lab 225: First reported 0.05
Lab 1011: First reported 0.05
Lab 1107: probably a unit error



## Determination of Aromatics by FIA on sample #14175; result in %V/V

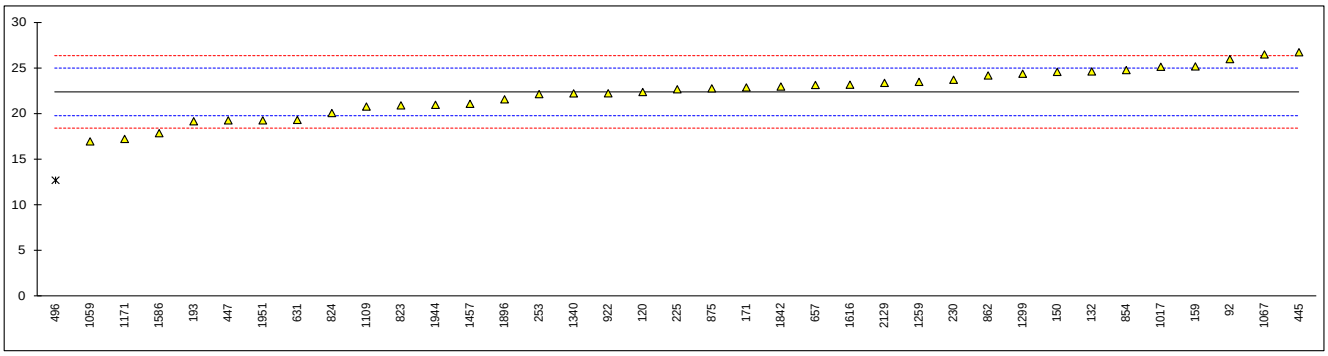
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | D1319 | 24.8 | | 1.85 |
| 92 | D1319 | 26.0 | | 2.76 | 862 | EN12916 | 24.21 | | 1.41 |
| 120 | D1319 | 22.4 | | 0.04 | 863 | | ----- | | ----- |
| 132 | D1319 | 24.65 | | 1.74 | 873 | | ----- | | ----- |
| 140 | | ----- | | ----- | 874 | | ----- | | ----- |
| 150 | D1319 | 24.6 | | 1.70 | 875 | D1319 | 22.8 | | 0.34 |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | D1319 | 25.2 | | 2.16 | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | D1319 | 22.26 | | -0.07 |
| 171 | D1319 | 22.9 | | 0.41 | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | | ----- | | ----- |
| 193 | D1319 | 19.2 | | -2.39 | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | | ----- | | ----- |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | D1319 | 22.7 | C | 0.26 | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | D1319 | 23.74 | | 1.05 | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | | ----- | | ----- | 1017 | D1319 | 25.16 | | 2.13 |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | D1319 | 17.0 | | -4.05 |
| 253 | D1319 | 22.17 | | -0.14 | 1067 | D1319 | 26.51 | | 3.15 |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 312 | | ----- | | ----- | 1109 | D1319 | 20.81 | | -1.17 |
| 323 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 338 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 340 | | ----- | | ----- | 1171 | D1319 | 17.27 | | -3.85 |
| 343 | | ----- | | ----- | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | | ----- | | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | | ----- | | ----- | 1229 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1259 | D1319 | 23.509075 | | 0.88 |
| 360 | | ----- | | ----- | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | EN12916 | 24.4 | | 1.55 |
| 431 | | ----- | | ----- | 1340 | D1319 | 22.25 | | -0.08 |
| 445 | D1319 | 26.75 | | 3.33 | 1379 | | ----- | | ----- |
| 447 | D1319 | 19.3 | | -2.31 | 1382 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | D1319 | 12.75 | R(0.05) | -7.27 | 1431 | | ----- | | ----- |
| 507 | | ----- | | ----- | 1457 | D1319 | 21.11 | | -0.94 |
| 511 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D1319 | 17.9 | | -3.37 |
| 608 | | ----- | | ----- | 1616 | D1319 | 23.2 | | 0.64 |
| 631 | D1319 | 19.35 | | -2.27 | 1629 | | ----- | | ----- |
| 657 | D1319 | 23.17 | | 0.62 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | | ----- | | ----- |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | | ----- | | ----- | 1677 | | ----- | | ----- |
| 823 | D1319 | 20.94 | | -1.07 | 1709 | | ----- | | ----- |
| 824 | D1319 | 20.1 | | -1.70 | 1710 | | ----- | | ----- |

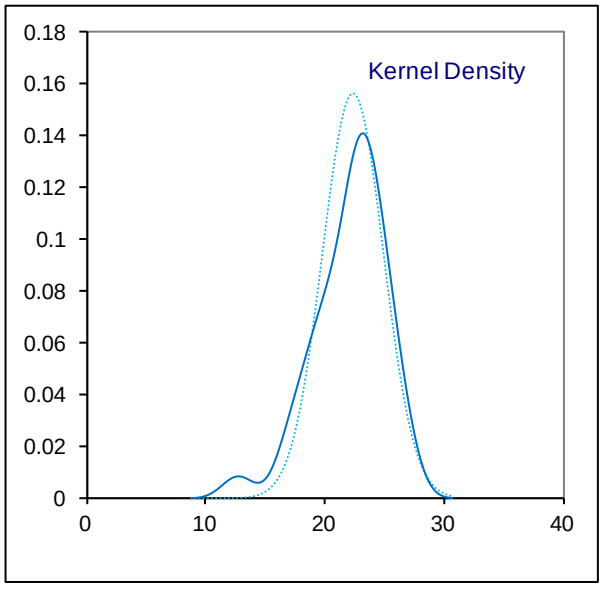
| | | | | |
|---|---|---|---|---|
| 1720 | | ----- | | ----- |
| 1724 | | ----- | | ----- |
| 1730 | | ----- | | ----- |
| 1776 | | ----- | | ----- |
| 1792 | | ----- | | ----- |
| 1807 | | ----- | | ----- |
| 1810 | | ----- | | ----- |
| 1811 | | ----- | | ----- |
| 1833 | | ----- | W | ----- |
| 1842 | D1319 | 23.0 | | 0.49 |
| 1849 | | ----- | | ----- |

| | | | | |
|---|---|---|---|---|
| 1872 | | ----- | | ----- |
| 1884 | | ----- | | ----- |
| 1896 | D1319 | 21.6 | | -0.57 |
| 1906 | | ----- | | ----- |
| 1938 | | ----- | | ----- |
| 1944 | D1319 | 21 | C | -1.02 |
| 1948 | | ----- | | ----- |
| 1951 | D1319 | 19.3 | | -2.31 |
| 2129 | D1319 | 23.4 | | 0.79 |
| 7012 | | ----- | | ----- |

| | | Only ASTM D1319 |
|---|---|---|
| normality | OK | OK |
| n | 36 | 34 |
| outliers | 1 | 1 |
| mean (n) | 22.352 | 22.237 |
| st.dev. (n) | 2.5185 | 2.5460 |
| R(calc.) | 7.052 | 7.129 |
| R(D1319:13) | 3.700 | 3.700 |

Lab 225: First reported 48.2
Lab 1833: Result withdrawn, reported 2.49
Lab 1944: First reported 71



## Determination of Ash on sample #14175; result in %M/M

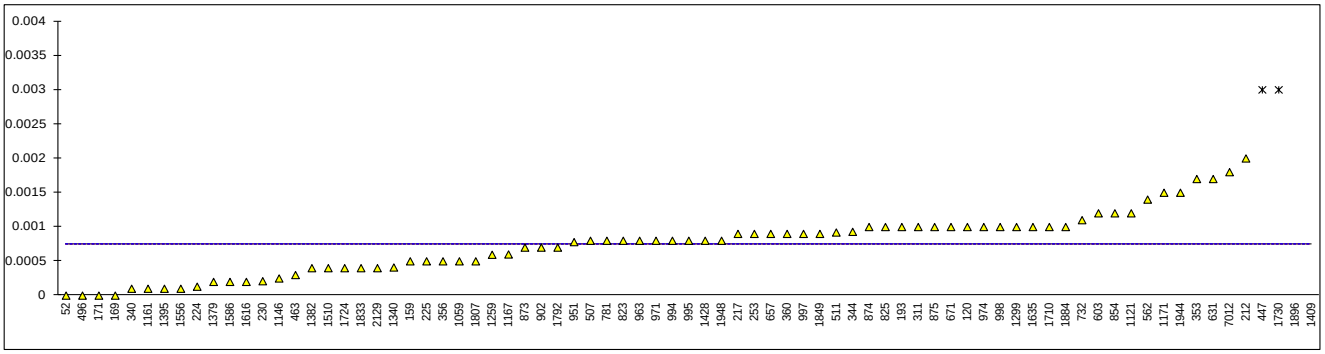
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D482 | 0 | | ----- | 825 | D482 | 0.001 | | ----- |
| 53 | | ----- | | ----- | 854 | D482 | 0.0012 | | ----- |
| 92 | D482 | <0.001 | | ----- | 862 | D482 | <0.001 | | ----- |
| 120 | D482 | 0.001 | | ----- | 863 | D482 | <0.001 | | ----- |
| 132 | D482 | <0.001 | | ----- | 873 | D482 | 0.0007 | | ----- |
| 140 | | ----- | | ----- | 874 | D482 | 0.001 | | ----- |
| 150 | D482 | <0.001 | | ----- | 875 | D482 | 0.0010 | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | D482 | 0.0005 | | ----- | 902 | D482 | 0.0007 | | ----- |
| 169 | D482 | 0.0000 | | ----- | 922 | D482 | <0.001 | | ----- |
| 171 | D482 | 0.000 | | ----- | 951 | D482 | 0.00078 | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D482 | 0.0008 | | ----- |
| 193 | D482 | 0.001 | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D482 | 0.0008 | | ----- |
| 212 | ISO6245 | 0.002 | | ----- | 974 | D482 | 0.0010 | | ----- |
| 217 | D482 | 0.0009 | | ----- | 994 | D482 | 0.0008 | | ----- |
| 221 | D482 | <0.001 | | ----- | 995 | D482 | 0.0008 | | ----- |
| 224 | D482 | 0.00013 | | ----- | 996 | | ----- | | ----- |
| 225 | D482 | 0.0005 | | ----- | 997 | D482 | 0.0009 | | ----- |
| 228 | | ----- | | ----- | 998 | D482 | 0.001 | | ----- |
| 230 | D482 | 0.00021 | | ----- | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | D482 | <0.001 | | ----- |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | D482 | <0.001 | | ----- | 1033 | | ----- | | ----- |
| 252 | D482 | <0.001 | | ----- | 1059 | ISO6245 | 0.0005 | | ----- |
| 253 | D482 | 0.0009 | | ----- | 1067 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | D482 | <0.001 | | ----- | 1081 | D482 | <0.0001 | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | D482 | 0.001 | | ----- | 1107 | | ----- | | ----- |
| 312 | | ----- | | ----- | 1109 | D482 | <0.001 | | ----- |
| 323 | D482 | <0.001 | | ----- | 1121 | IP4 | 0.0012 | | ----- |
| 332 | | ----- | | ----- | 1124 | ISO6245 | <0.001 | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | D482 | 0.00025 | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | ISO6245 | 0.0001 | | ----- |
| 338 | | ----- | | ----- | 1167 | ISO6245 | 0.0006 | | ----- |
| 340 | D482 | 0.0001 | | ----- | 1171 | ISO6245 | 0.0015 | | ----- |
| 343 | D482 | <0.001 | | ----- | 1182 | | ----- | | ----- |
| 344 | D482 | 0.00093 | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | | ----- | | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | ISO6245 | 0.0017 | | ----- | 1229 | | ----- | | ----- |
| 356 | D482 | 0.0005 | | ----- | 1259 | ISO6245 | 0.0005955 | | ----- |
| 360 | D482 | 0.0009 | | ----- | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | D482 | 0.001 | | ----- |
| 431 | | ----- | | ----- | 1340 | ISO6245 | 0.00041 | | ----- |
| 445 | D482 | <0.001 | | ----- | 1379 | INH-1461 | 0.0002 | | ----- |
| 447 | D482 | 0.003 | R(0.01) | ----- | 1382 | GB/T508 | 0.0004 | | ----- |
| 463 | D482 | 0.0003 | | ----- | 1395 | D482 | 0.0001 | | ----- |
| 485 | | ----- | | ----- | 1409 | D482 | 0.05 | R(0.01) | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO6245 | 0.0008 | | ----- |
| 494 | D482 | <0.001 | | ----- | 1430 | | ----- | | ----- |
| 496 | D482 | 0.0000 | | ----- | 1431 | | ----- | | ----- |
| 507 | D482 | 0.0008 | | ----- | 1457 | D482 | <0.001 | | ----- |
| 511 | D482 | 0.00092 | | ----- | 1459 | | ----- | | ----- |
| 541 | D482 | <0.001 | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | D482 | 0.0004 | | ----- |
| 562 | D482 | 0.0014 | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO6245 | 0.0001 | | ----- |
| 603 | D482 | 0.0012 | | ----- | 1564 | | ----- | W | ----- |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | D482 | <0.001 | | ----- | 1586 | D482 | 0.0002 | | ----- |
| 608 | D482 | <0.001 | | ----- | 1616 | D482 | 0.0002 | | ----- |
| 631 | D482 | 0.0017 | | ----- | 1629 | | ----- | | ----- |
| 657 | D482 | 0.0009 | | ----- | 1634 | | ----- | | ----- |
| 671 | D482 | 0.001 | | ----- | 1635 | D482 | 0.001 | | ----- |
| 732 | D482 | 0.0011 | | ----- | 1643 | D482 | <0.001 | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D482 | 0.0008 | | ----- | 1677 | D482 | < 0.001 | | ----- |
| 823 | D482 | 0.0008 | | ----- | 1709 | | ----- | | ----- |
| 824 | D482 | <0.001 | | ----- | 1710 | ISO6245 | 0.001 | | ----- |

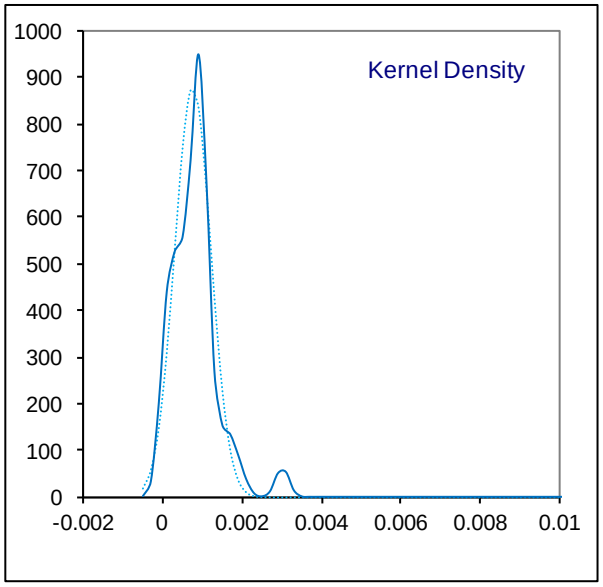
| | | | | |
|---|---|---|---|---|
| 1720 | | ----- | | ----- |
| 1724 | D482 | 0.0004 | | ----- |
| 1730 | ISO6245 | 0.003 | R(0.01) | ----- |
| 1776 | | ----- | | ----- |
| 1792 | D482 | 0.0007 | | ----- |
| 1807 | D482 | 0.0005 | | ----- |
| 1810 | | ----- | | ----- |
| 1811 | | ----- | | ----- |
| 1833 | D482 | 0.0004 | | ----- |
| 1842 | IP4 | <0.001 | | ----- |
| 1849 | ISO6245 | 0.0009 | | ----- |

| | | | | |
|---|---|---|---|---|
| 1872 | | ----- | | ----- |
| 1884 | D482 | 0.001 | | ----- |
| 1896 | D482 | 0.008 | R(0.01) | ----- |
| 1906 | | ----- | | ----- |
| 1938 | | ----- | | ----- |
| 1944 | D482 | 0.0015 | | ----- |
| 1948 | D482 | 0.0008 | | ----- |
| 1951 | D482 | <0.005 | | ----- |
| 2129 | D482 | 0.0004 | | ----- |
| 7012 | D482 | 0.0018 | | ----- |

| | |
|---|---|
| normality | OK |
| n | 73 |
| outliers | 4 |
| mean (n) | 0.00075 |
| st.dev. (n) | 0.000454 |
| R(calc.) | 0.00127 |
| R(D482:13) | (0.00500) |

Lab 1564: Result withdrawn, reported 0.004



# Determination of Cetane Index ASTM D976 on sample #14175

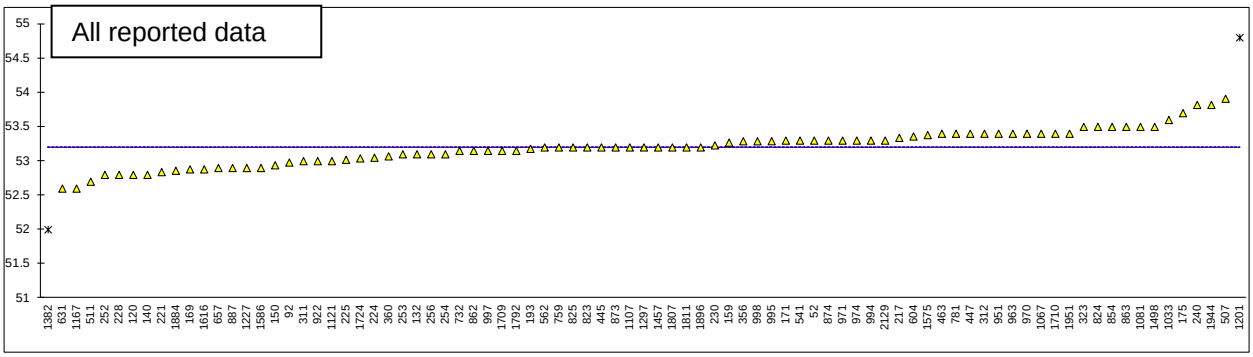
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D976 | 53.3 | | ----- | 825 | D976 | 53.2 | | ----- |
| 53 | | ----- | | ----- | 854 | D976 | 53.5 | | ----- |
| 92 | D976 | 52.98 | | ----- | 862 | D976 | 53.15 | | ----- |
| 120 | D976 | 52.8 | | ----- | 863 | D976 | 53.5 | | ----- |
| 132 | D976 | 53.1 | | ----- | 873 | D976 | 53.2 | | ----- |
| 140 | D976 | 52.8 | | ----- | 874 | D976 | 53.3 | | ----- |
| 150 | D976 | 52.94 | | ----- | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | D976 | 52.9 | | ----- |
| 159 | D976 | 53.27 | | ----- | 902 | | ----- | | ----- |
| 169 | D976 | 52.88 | E | ----- | 922 | D976 | 53.0 | | ----- |
| 171 | D976 | 53.3 | | ----- | 951 | D976 | 53.40 | | ----- |
| 175 | D976 | 53.7 | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D976 | 53.4 | | ----- |
| 193 | D976 | 53.18 | E | ----- | 970 | D976 | 53.4 | | ----- |
| 194 | | ----- | | ----- | 971 | D976 | 53.3 | | ----- |
| 212 | | ----- | | ----- | 974 | D976 | 53.3 | | ----- |
| 217 | D976 | 53.34 | | ----- | 994 | D976 | 53.3 | | ----- |
| 221 | D976 | 52.84 | | ----- | 995 | D976 | 53.291 | | ----- |
| 224 | D976 | 53.05 | | ----- | 996 | | ----- | | ----- |
| 225 | D976 | 53.02 | | ----- | 997 | D976 | 53.15 | | ----- |
| 228 | D976 | 52.8 | | ----- | 998 | D976 | 53.29 | | ----- |
| 230 | D976 | 53.23 | | ----- | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | D976 | 53.82 | E | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | D976 | 53.6 | | ----- |
| 252 | D976 | 52.8 | | ----- | 1059 | | ----- | | ----- |
| 253 | D976 | 53.1 | | ----- | 1067 | D976 | 53.4 | | ----- |
| 254 | D976 | 53.1 | | ----- | 1080 | | ----- | | ----- |
| 256 | D976 | 53.1 | | ----- | 1081 | D976 | 53.5 | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | D976 | 53.0 | | ----- | 1107 | D976 | 53.2 | | ----- |
| 312 | D976 | 53.4 | | ----- | 1109 | | ----- | | ----- |
| 323 | D976 | 53.5 | | ----- | 1121 | D976 | 53 | E | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 338 | | ----- | | ----- | 1167 | D976 | 52.6 | E | ----- |
| 340 | | ----- | | ----- | 1171 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D976 | 54.8 | R(0.01) | ----- |
| 350 | | ----- | | ----- | 1227 | D976 | 52.9 | E | ----- |
| 353 | | ----- | | ----- | 1229 | | ----- | | ----- |
| 356 | D976 | 53.29 | E | ----- | 1259 | | ----- | | ----- |
| 360 | D976 | 53.07 | | ----- | 1297 | D976 | 53.2 | | ----- |
| 430 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | D976 | 53.2 | | ----- | 1379 | | ----- | | ----- |
| 447 | D976 | 53.4 | | ----- | 1382 | GB/T11139 | 52 | E,R(0.01) | ----- |
| 463 | D976 | 53.4 | | ----- | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | D976 | 53.91 | E | ----- | 1457 | D976 | 53.2 | | ----- |
| 511 | D976 | 52.7 | | ----- | 1459 | | ----- | | ----- |
| 541 | D976 | 53.3 | | ----- | 1498 | D976 | 53.5 | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | D976 | 53.2 | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | D976 | 53.36 | | ----- | 1575 | D976 | 53.38 | | ----- |
| 607 | | ----- | | ----- | 1586 | D976 | 52.9 | | ----- |
| 608 | | ----- | | ----- | 1616 | D976 | 52.88 | | ----- |
| 631 | D976 | 52.60 | | ----- | 1629 | | ----- | | ----- |
| 657 | D976 | 52.9 | | ----- | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | | ----- | | ----- |
| 732 | D976 | 53.15 | | ----- | 1643 | | ----- | | ----- |
| 759 | D976 | 53.2 | | ----- | 1654 | | ----- | | ----- |
| 781 | D976 | 53.4 | | ----- | 1677 | | ----- | | ----- |
| 823 | D976 | 53.2 | | ----- | 1709 | D976 | 53.15 | | ----- |
| 824 | D976 | 53.5 | | ----- | 1710 | D976 | 53.4 | | ----- |

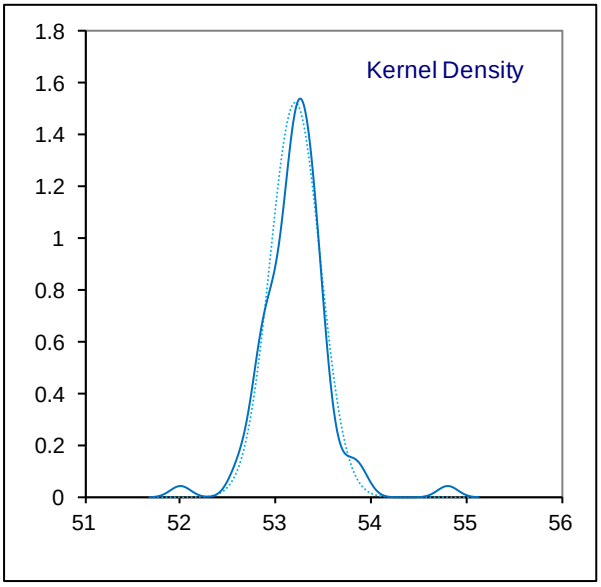
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | | ----- | ----- |
| 1724 | D976 | 53.04 | ----- | 1884 | D976 | 52.86 | ----- |
| 1730 | | ----- | ----- | 1896 | D976 | 53.2 | ----- |
| 1776 | | ----- | ----- | 1906 | | ----- | ----- |
| 1792 | D976 | 53.15 | ----- | 1938 | | ----- | ----- |
| 1807 | D976 | 53.2 | ----- | 1944 | D976 | 53.82 | ----- |
| 1810 | | ----- | ----- | 1948 | | ----- | ----- |
| 1811 | D976 | 53.2 | ----- | 1951 | D976 | 53.4 E | ----- |
| 1833 | | ----- | ----- | 2129 | D976 | 53.3 | ----- |
| 1842 | | ----- | ----- | 7012 | | ----- | ----- |
| 1849 | | ----- | ----- | | | | |

| | | Recalculated by iis: | |
|---|---|---|---|
| normality | OK | OK | |
| n | 83 | 84 | |
| outliers | 2 | 1 | |
| mean (n) | 53.201 | 53.225 | |
| st.dev. (n) | 0.2617 | 0.2465 | |
| R(calc.) | 0.733 | 0.690 | |
| R(D976:06) | unknown | unknown | Compare R(iis13G04) = 0.776 |

Recalculated values (= E)

| | |
|---|---|
| Lab 169: | 53.09 |
| Lab 193: | 53.54 |
| Lab 240: | 53.02 |
| Lab 356: | 53.56 |
| Lab 507: | 53.567 |
| Lab 1121: | 53.63 |
| Lab 1167 | 53.16 |
| Lab 1227: | 53.51 |
| Lab 1382: | 53.43 |
| Lab 1951: | 53.70 |



# Determination of Calculated Cetane Index D4737 on sample #14175

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | D4737 | 53.6 | | ----- |
| 92 | D4737 | 53.14 | | ----- | 862 | D4737-A | 52.87 | | ----- |
| 120 | D4737-A | 52.7 | | ----- | 863 | D4737 | 53.4 | | ----- |
| 132 | D4737 | 53.0 | | ----- | 873 | D4737-A | 53.1 | | ----- |
| 140 | D4737-A | 52.8 | | ----- | 874 | D4737-A | 53.2 | | ----- |
| 150 | D4737 | 52.74 | | ----- | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | D4737 | 52.6 | | ----- |
| 159 | D4737-A | 53.51 | | ----- | 902 | | ----- | | ----- |
| 169 | D4737 | 52.04 | | ----- | 922 | | ----- | | ----- |
| 171 | D4737 | 53.4 | | ----- | 951 | | ----- | | ----- |
| 175 | D4737 | 53.6 | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D4737 | 53.4 | | ----- |
| 193 | D4737 | 51.3 | R(0.05), E | ----- | 970 | D4737 | 53.1 | | ----- |
| 194 | | ----- | | ----- | 971 | D4737-A | 53.0 | | ----- |
| 212 | ISO4264 | 53.4 | | ----- | 974 | D4737-A | 53.4 | | ----- |
| 217 | D4737-A | 53.08 | | ----- | 994 | D4737-A | 53.0 | | ----- |
| 221 | D4737-A | 52.43 | | ----- | 995 | D4737-A | 53.038 | | ----- |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | D4737 | 52.77 | | ----- | 997 | D4737-A | 52.86 | | ----- |
| 228 | D4737-A | 52.68 | | ----- | 998 | D4737-A | 53.08 | | ----- |
| 230 | ISO4264 | 53.12 | | ----- | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | ISO4264 | 53.3 | | ----- |
| 240 | D4737-A | 52.49 | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | ISO4264 | 52.6 | | ----- |
| 253 | | ----- | | ----- | 1067 | D4737-B | 54.5 | R(0.05), E | ----- |
| 254 | D4737-B | 51.6 | | ----- | 1080 | D4737 | 52.7 | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | D4737 | 52.91 | | ----- | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | D4737 | 53.3 | | ----- |
| 312 | D4737-A | 53.3 | | ----- | 1109 | D4737 | 53.2 | | ----- |
| 323 | D4737 | 53.5 | | ----- | 1121 | IP380 | 53 | | ----- |
| 332 | | ----- | | ----- | 1124 | ISO4264 | 53.46 | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | D4737 | 53 | | ----- | 1146 | | ----- | | ----- |
| 336 | D4737 | 53.0 | | ----- | 1159 | | ----- | | ----- |
| 337 | D4737 | 53.3 | | ----- | 1161 | | ----- | | ----- |
| 338 | ISO4264 | 53.4 | | ----- | 1167 | | ----- | | ----- |
| 340 | ISO4264 | 53.0 | | ----- | 1171 | ISO4264 | 52.56 | E | ----- |
| 343 | | ----- | | ----- | 1182 | | ----- | | ----- |
| 344 | D4737-A | 53.03 | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D4737 | 54.9 | R(0.05) | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | IP380 | 52.33 | | ----- | 1229 | | ----- | | ----- |
| 356 | D4737-B | 51.17 | C,R(0.05), E | ----- | 1259 | D4737-A | 52.47 | | ----- |
| 360 | D4737-A | 52.91 | | ----- | 1297 | D4737-A | 53.0 | C | ----- |
| 430 | | ----- | | ----- | 1299 | D4737 | 52.6 | | ----- |
| 431 | | ----- | | ----- | 1340 | ISO4264 | 53.27 | C | ----- |
| 445 | D4737 | 53.0 | | ----- | 1379 | | ----- | | ----- |
| 447 | D4737 | 53.2 | | ----- | 1382 | | ----- | | ----- |
| 463 | D4737-A | 53.2 | | ----- | 1395 | D4737 | 53.2 | | ----- |
| 485 | D4737-A | 53.2 | | ----- | 1409 | D4737 | 53.5 | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO4264 | 52.9 | | ----- |
| 494 | D4737 | 51.95 | | ----- | 1430 | D4737 | 51.7 | E | ----- |
| 496 | D4737-A | 52.83 | | ----- | 1431 | | ----- | | ----- |
| 507 | D4737 | 53.95 | E | ----- | 1457 | D4737-A | 53.0 | | ----- |
| 511 | D4737-A | 52.4 | | ----- | 1459 | D4737 | 53.2 | | ----- |
| 541 | D4737 | 53.1 | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | IP380 | 52.6 | | ----- |
| 562 | D4737 | 52.9 | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO4264-A | 52.5 | | ----- |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | D4737-A | 53.32 | | ----- |
| 607 | | ----- | | ----- | 1586 | D4737 | 52.6 | | ----- |
| 608 | | ----- | | ----- | 1616 | D4737 | 52.4 | | ----- |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | D4737 | 52.7 | | ----- | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | D4737-A | 52.4 | | ----- |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | D4737-A | 53.1 | | ----- | 1654 | | ----- | | ----- |
| 781 | D4737-A | 53.4 | | ----- | 1677 | D4737 | 53.6 | | ----- |
| 823 | D4737-A | 53.0 | E | ----- | 1709 | D4737-A | 52.88 | | ----- |
| 824 | D4737-A | 53.4 | | ----- | 1710 | ISO4264 | 53.3 | | ----- |

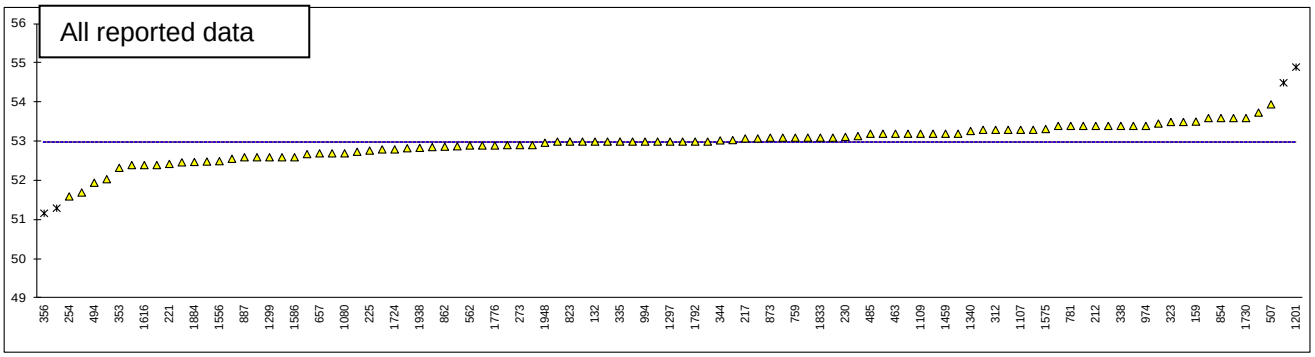
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | | ----- | ----- |
| 1724 | D4737 | 52.8 | ----- | 1884 | D4737-A | 52.48 | ----- |
| 1730 | D4737 | 53.6 | ----- | 1896 | D4737 | 53.1 | ----- |
| 1776 | ISO4264 | 52.9 | ----- | 1906 | | ----- | ----- |
| 1792 | D4737 | 53.0 | ----- | 1938 | ISO4264 | 52.84 | ----- |
| 1807 | D4737 | 53.0 | ----- | 1944 | D4737-A | 53.74 | ----- |
| 1810 | | ----- | ----- | 1948 | D4737 | 52.97 | ----- |
| 1811 | | ----- | ----- | 1951 | | ----- | ----- |
| 1833 | D4737 | 53.10 | ----- | 2129 | IP380 | 53.2 | ----- |
| 1842 | | ----- | ----- | 7012 | | ----- | ----- |
| 1849 | ISO4264 | 52.91 | ----- | | | | |

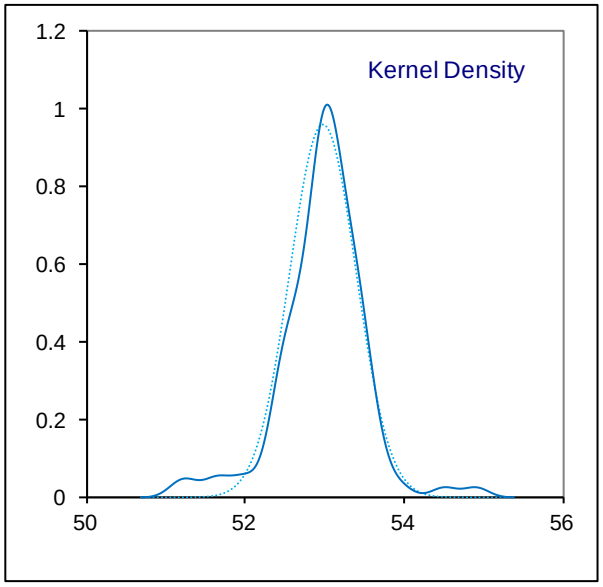
| | | Recalculated by iis | |
|---|---|---|---|
| normality | suspect | OK | |
| n | 97 | 99 | |
| outliers | 4 | 2 | |
| mean (n) | 52.983 | 52.997 | |
| st.dev. (n) | 0.4144 | 0.3922 | |
| R(calc.) | 1.160 | 1.098 | |
| R(D4737:10) | unknown | unknown | Compare R(iis13G04) = 0.951 |

Lab 356: First reported 50.63
Lab 1297: First reported 50.5
Lab 1340: Result was reported under D976

Recalculated values (= E)

| | |
|---|---|
| Lab 193: | 53.72 |
| Lab 356: | 52.97 |
| Lab 507: | 53.51 |
| Lab 823: | 53.27 |
| Lab 1067: | 52.76 |
| Lab 1171: | 52.34 |
| Lab 1430: | 54.85 |



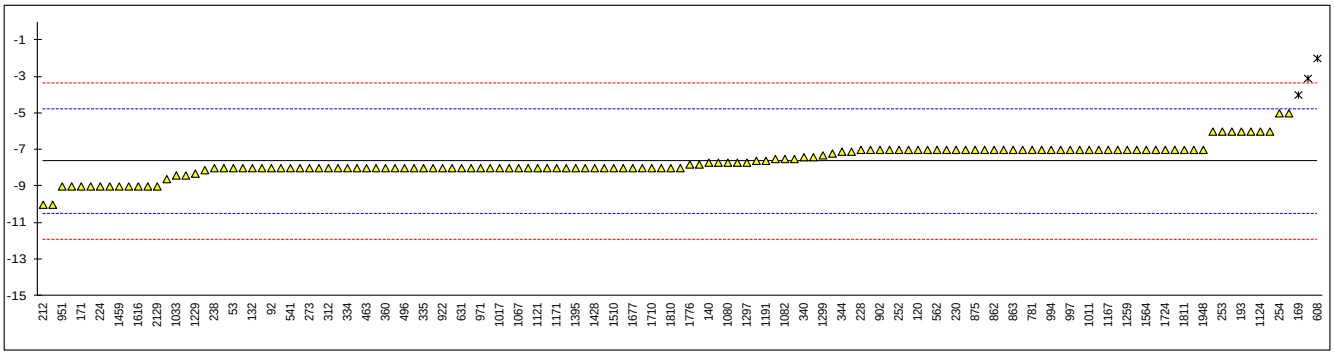
Determination of Cloud Point on sample #14175; result in °C,

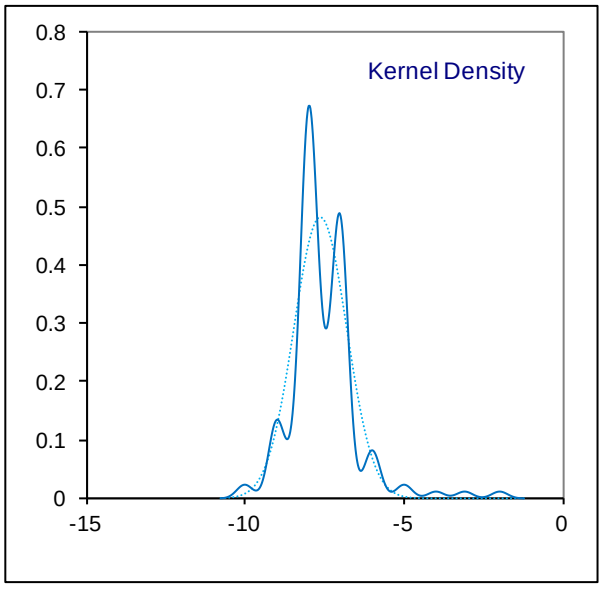
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | D2500 | -7 | | 0.44 |
| 53 | D2500 | -8 | | -0.26 | 854 | D2500 | -6 | | 1.14 |
| 92 | D2500 | -8 | | -0.26 | 862 | D2500 | -7 | | 0.44 |
| 120 | D2500 | -7 | | 0.44 | 863 | D2500 | -7 | | 0.44 |
| 132 | D2500 | -8 | | -0.26 | 873 | D2500 | -7 | | 0.44 |
| 140 | D5773 | -7.7 | | -0.05 | 874 | D2500 | -7 | | 0.44 |
| 150 | D2500 | -9 | C | -0.96 | 875 | D2500 | -7 | | 0.44 |
| 158 | D2500 | -5 | | 1.84 | 887 | D2500 | -8 | | -0.26 |
| 159 | D2500 | -9.0 | | -0.96 | 902 | D2500 | -7 | | 0.44 |
| 169 | D2500 | -4 | R(0.01) | 2.54 | 922 | D2500 | -8.0 | | -0.26 |
| 171 | D2500 | -9.0 | | -0.96 | 951 | D2500 | -9 | | -0.96 |
| 175 | D2500 | -8 | | -0.26 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D2500 | -7 | | 0.44 |
| 193 | D2500 | -6.0 | | 1.14 | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D2500 | -8 | | -0.26 |
| 212 | ISO3015 | -10 | | -1.66 | 974 | D2500 | -8 | | -0.26 |
| 217 | D2500 | -8 | | -0.26 | 994 | D2500 | -7 | | 0.44 |
| 221 | D2500 | -6 | | 1.14 | 995 | D2500 | -7 | | 0.44 |
| 224 | D2500 | -9 | C | -0.96 | 996 | | ----- | | ----- |
| 225 | D2500 | -7 | | 0.44 | 997 | D2500 | -7 | | 0.44 |
| 228 | D2500 | -7 | | 0.44 | 998 | D2500 | -7.0 | | 0.44 |
| 230 | D2500 | -7.0 | | 0.44 | 1006 | | ----- | | ----- |
| 238 | D2500 | -8 | | -0.26 | 1011 | D2500 | -7 | C | 0.44 |
| 240 | D2500 | -8 | | -0.26 | 1017 | D5771 | -8 | | -0.26 |
| 242 | | ----- | | ----- | 1033 | IP219 | -8.4 | | -0.54 |
| 252 | D2500 | -7.0 | | 0.44 | 1059 | EN23015 | -8 | | -0.26 |
| 253 | D2500 | -6 | | 1.14 | 1067 | D5771 | -8.0 | | -0.26 |
| 254 | D2500 | -5.0 | | 1.84 | 1080 | D2500 | -7.7 | | -0.05 |
| 256 | D2500 | -8.0 | | -0.26 | 1081 | D5771 | -7.7 | | -0.05 |
| 258 | | ----- | | ----- | 1082 | D7689 | -7.5 | | 0.09 |
| 273 | D2500 | -8 | | -0.26 | 1095 | | ----- | | ----- |
| 311 | D5771 | -8 | | -0.26 | 1107 | D2500 | -8 | | -0.26 |
| 312 | D2500 | -8 | | -0.26 | 1109 | D5773 | -7.0 | | 0.44 |
| 323 | D2500 | -8 | | -0.26 | 1121 | IP219 | -8 | | -0.26 |
| 332 | | ----- | | ----- | 1124 | ISO3015 | -6.0 | | 1.14 |
| 334 | D2500 | -8.0 | | -0.26 | 1134 | | ----- | | ----- |
| 335 | D2500 | -8 | | -0.26 | 1146 | D2500 | -7.6 | | 0.02 |
| 336 | D2500 | -8 | | -0.26 | 1159 | | ----- | | ----- |
| 337 | D2500 | -7.5 | | 0.09 | 1161 | D2500 | -8 | | -0.26 |
| 338 | EN23015 | -7.7 | | -0.05 | 1167 | EN23015 | -7 | | 0.44 |
| 340 | EN23015 | -7.4 | | 0.16 | 1171 | ISO3015 | -8.0 | | -0.26 |
| 343 | D2500 | -7 | | 0.44 | 1182 | D5773 | -7.1 | | 0.37 |
| 344 | D2500 | -7.1 | | 0.37 | 1191 | D5773 | -7.6 | | 0.02 |
| 349 | | ----- | | ----- | 1201 | D2500 | -7 | | 0.44 |
| 350 | | ----- | | ----- | 1227 | D2500 | -8 | | -0.26 |
| 353 | IP219 | -7 | | 0.44 | 1229 | D7689 | -8.3 | | -0.47 |
| 356 | D2500 | -8 | | -0.26 | 1259 | D2500 | -7 | | 0.44 |
| 360 | D2500 | -8 | | -0.26 | 1297 | D5771 | -7.7 | | -0.05 |
| 430 | | ----- | | ----- | 1299 | D2500 | -7.3 | | 0.23 |
| 431 | | ----- | | ----- | 1340 | D2500 | -7.2 | | 0.30 |
| 445 | D2500 | -8 | | -0.26 | 1379 | INH-5066 | -9 | | -0.96 |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | D2500 | -8.0 | | -0.26 | 1395 | D2500 | -8 | | -0.26 |
| 485 | | ----- | | ----- | 1409 | D2500 | -8 | | -0.26 |
| 491 | | ----- | | ----- | 1417 | IP444 | -7 | | 0.44 |
| 493 | | ----- | | ----- | 1428 | EN23015 | -8 | | -0.26 |
| 494 | D2500 | -8 | | -0.26 | 1430 | D5771 | -7.4 | | 0.16 |
| 496 | D2500 | -8.0 | | -0.26 | 1431 | | ----- | | ----- |
| 507 | D2500 | -8 | C | -0.26 | 1457 | D2500 | -8.11 | | -0.34 |
| 511 | | ----- | | ----- | 1459 | EN23015 | -9 | | -0.96 |
| 541 | D2500 | -8 | | -0.26 | 1498 | D2500 | -8 | | -0.26 |
| 557 | | ----- | | ----- | 1510 | D2500 | -8 | | -0.26 |
| 562 | D2500 | -7.0 | | 0.44 | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO3015 | -9 | | -0.96 |
| 603 | | ----- | | ----- | 1564 | D5772 | -7.0 | | 0.44 |
| 604 | D2500 | -10 | | -1.66 | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D2500 | -8 | | -0.26 |
| 608 | D2500 | -2 | R(0.01) | 3.94 | 1616 | D2500 | -9 | | -0.96 |
| 631 | D2500 | -8 | | -0.26 | 1629 | | ----- | | ----- |
| 657 | D2500 | -7 | | 0.44 | 1634 | | ----- | | ----- |
| 671 | D2500 | -6 | | 1.14 | 1635 | D2500 | -8.6 | | -0.68 |
| 732 | D2500 | -8 | | -0.26 | 1643 | D2500 | -7 | | 0.44 |
| 759 | D2500 | -7 | | 0.44 | 1654 | | ----- | | ----- |
| 781 | D2500 | -7 | | 0.44 | 1677 | D2500 | -8 | | -0.26 |
| 823 | D2500 | -7 | | 0.44 | 1709 | D2500 | -8 | | -0.26 |
| 824 | D2500 | -8 | | -0.26 | 1710 | EN23015 | -8 | | -0.26 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | D5773 | -8.4 | -0.54 | 1872 | | ----- | ----- |
| 1724 | D2500 | -7 | 0.44 | 1884 | D2500 | -7.8 | -0.12 |
| 1730 | D2500 | -8 | -0.26 | 1896 | D5771 | -7.5 | 0.09 |
| 1776 | EN23015 | -7.8 | -0.12 | 1906 | | ----- | ----- |
| 1792 | D2500 | -7 | 0.44 | 1938 | | ----- | ----- |
| 1807 | D2500 | -6 | 1.14 | 1944 | D2500 | -9 | -0.96 |
| 1810 | D2500 | -8 | -0.26 | 1948 | D2500 | -7 | 0.44 |
| 1811 | D2500 | -7 | 0.44 | 1951 | D2500 | -3.1 | R(0.01) 3.17 |
| 1833 | D2500 | -7 | 0.44 | 2129 | IP444 | -9 | -0.96 |
| 1842 | D2500 | -8 | -0.26 | 7012 | | ----- | ----- |
| 1849 | | ----- | ----- | | | | |

| | |
|---|---|
| normality | suspect |
| n | 132 |
| outliers | 3 |
| mean (n) | -7.63 |
| st.dev. (n) | 0.828 |
| R(calc.) | 2.33 |
| R(D2500:11) | 4.00 |

Lab 150: first reported -10
Lab 224: first reported -15
Lab 507: first reported -3
Lab 1011: first reported -2



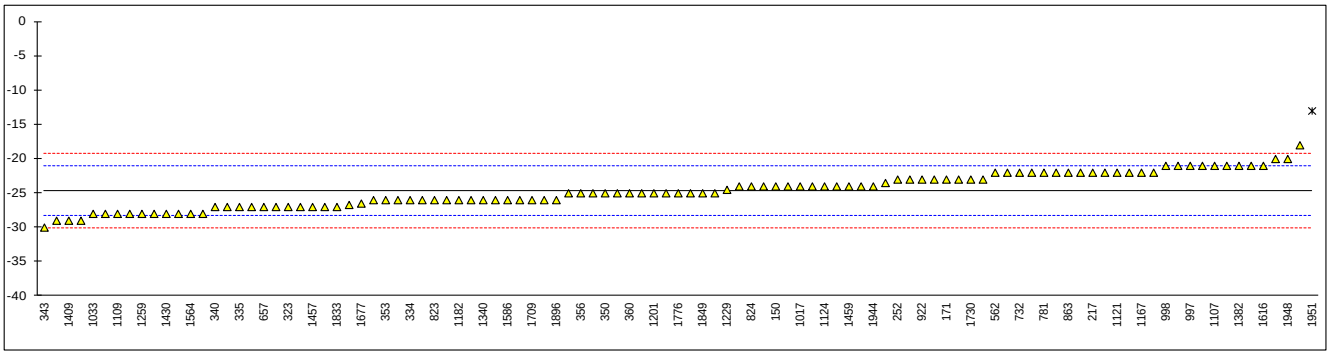
## Determination of Cold Filter Plugging Point on sample #14175; result in ºC

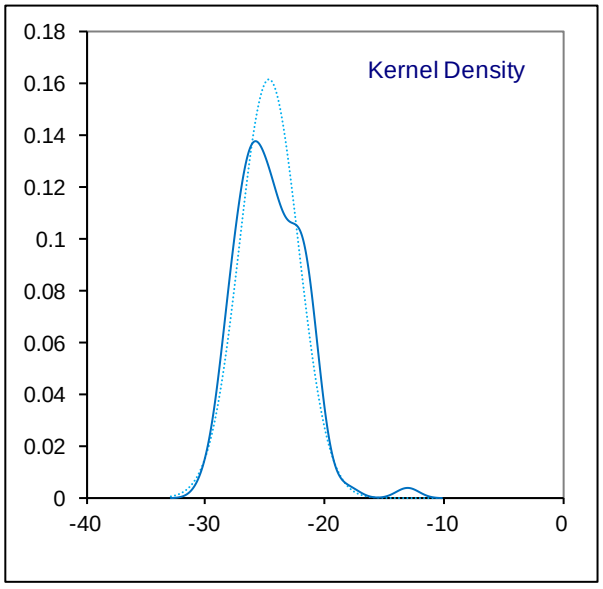
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | D6371 | -25 | | -0.20 |
| 53 | | ----- | | ----- | 854 | | ----- | | ----- |
| 92 | | ----- | | ----- | 862 | | ----- | | ----- |
| 120 | | ----- | | ----- | 863 | D6371 | -22 | | 1.46 |
| 132 | | ----- | | ----- | 873 | D6371 | -22 | | 1.46 |
| 140 | | ----- | | ----- | 874 | D6371 | -21 | | 2.02 |
| 150 | D6371 | -24.0 | | 0.36 | 875 | IP309 | -23 | | 0.91 |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | | ----- | | ----- | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | D6371 | -23.0 | | 0.91 |
| 171 | D6371 | -23.0 | | 0.91 | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | IP309 | -22 | | 1.46 |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | D6371 | -22 | | 1.46 | 994 | D6371 | -23 | | 0.91 |
| 221 | | ----- | | ----- | 995 | D6371 | -22 | | 1.46 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | D6371 | -21 | | 2.02 |
| 228 | | ----- | | ----- | 998 | D6371 | -21.0 | | 2.02 |
| 230 | IP309 | -23.0 | | 0.91 | 1006 | D6371 | -27 | | -1.30 |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | | ----- | | ----- | 1017 | EN116 | -24 | | 0.36 |
| 242 | | ----- | | ----- | 1033 | IP309 | -28 | | -1.85 |
| 252 | IP309 | -23.0 | | 0.91 | 1059 | EN116 | -25 | | -0.20 |
| 253 | | ----- | | ----- | 1067 | EN116 | -27.0 | | -1.30 |
| 254 | | ----- | | ----- | 1080 | D6371 | -26.7 | | -1.14 |
| 256 | IP309 | -22.0 | | 1.46 | 1081 | EN116 | -28 | | -1.85 |
| 258 | | ----- | | ----- | 1082 | EN116 | -24 | | 0.36 |
| 273 | IP309 | -18 | C | 3.67 | 1095 | | ----- | | ----- |
| 311 | EN116 | -25 | | -0.20 | 1107 | IP309 | -21 | | 2.02 |
| 312 | D6371 | -24 | | 0.36 | 1109 | IP309 | -28.0 | | -1.85 |
| 323 | D6371 | -27 | | -1.30 | 1121 | IP309 | -22 | | 1.46 |
| 332 | | ----- | | ----- | 1124 | EN116 | -24 | | 0.36 |
| 334 | EN116 | -26.0 | | -0.75 | 1134 | | ----- | | ----- |
| 335 | EN116 | -27 | | -1.30 | 1146 | | ----- | | ----- |
| 336 | EN116 | -25 | | -0.20 | 1159 | | ----- | | ----- |
| 337 | D6371 | -24 | | 0.36 | 1161 | EN116 | -22 | | 1.46 |
| 338 | EN116 | -22 | | 1.46 | 1167 | EN116 | -22 | | 1.46 |
| 340 | EN116 | -27.0 | | -1.30 | 1171 | EN116 | -21.0 | | 2.02 |
| 343 | D6371 | -30 | | -2.96 | 1182 | EN116 | -26 | | -0.75 |
| 344 | EN116 | -26 | | -0.75 | 1191 | EN116 | -28 | | -1.85 |
| 349 | | ----- | | ----- | 1201 | EN116 | -25 | | -0.20 |
| 350 | EN116 | -25.0 | | -0.20 | 1227 | EN116 | -22 | | 1.46 |
| 353 | IP309 | -26 | | -0.75 | 1229 | EN116 | -24.5 | | 0.08 |
| 356 | D6371 | -25 | | -0.20 | 1259 | D6371 | -28 | | -1.85 |
| 360 | D6371 | -25 | | -0.20 | 1297 | D6371 | -26 | | -0.75 |
| 430 | | ----- | | ----- | 1299 | IP309 | -24 | | 0.36 |
| 431 | EN116 | -26 | | -0.75 | 1340 | EN116 | -26 | | -0.75 |
| 445 | D6371 | -27 | | -1.30 | 1379 | | ----- | | ----- |
| 447 | IP309 | -24 | | 0.36 | 1382 | SH/T0248 | -21 | | 2.02 |
| 463 | EN116 | -26 | | -0.75 | 1395 | D6371 | -28 | | -1.85 |
| 485 | | ----- | | ----- | 1409 | EN116 | -29 | | -2.41 |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | EN116 | -20 | | 2.57 |
| 494 | EN116 | -27 | | -1.30 | 1430 | EN116 | -28 | | -1.85 |
| 496 | D6371 | -29.0 | | -2.41 | 1431 | D6371 | -29 | | -2.41 |
| 507 | | ----- | | ----- | 1457 | D6371 | -27 | | -1.30 |
| 511 | | ----- | | ----- | 1459 | EN116 | -24 | | 0.36 |
| 541 | D6371 | -26 | | -0.75 | 1498 | D6371 | -21 | | 2.02 |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | D6371 | -22 | | 1.46 | 1521 | EN116 | -28 | | -1.85 |
| 575 | | ----- | | ----- | 1556 | EN116 | -26 | | -0.75 |
| 603 | | ----- | | ----- | 1564 | IP309 | -28.0 | | -1.85 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D6371 | -26 | | -0.75 |
| 608 | | ----- | | ----- | 1616 | D6371 | -21 | | 2.02 |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | D6371 | -27 | | -1.30 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | D6371 | -26 | | -0.75 |
| 732 | D6371 | -22 | | 1.46 | 1643 | | ----- | | ----- |
| 759 | D6371 | -21 | | 2.02 | 1654 | | ----- | | ----- |
| 781 | D6371 | -22 | | 1.46 | 1677 | EN116 | -26.5 | | -1.03 |
| 823 | D6371 | -26 | | -0.75 | 1709 | D6371 | -26 | | -0.75 |
| 824 | D6371 | -24 | | 0.36 | 1710 | EN116 | -27 | | -1.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | | ----- | ----- |
| 1724 | IP309 | -25 | -0.20 | 1884 | | ----- | ----- |
| 1730 | EN116 | -23 | 0.91 | 1896 | EN116 | -26 | -0.75 |
| 1776 | EN116 | -25 | -0.20 | 1906 | | ----- | ----- |
| 1792 | EN116 | -26 | -0.75 | 1938 | EN116 | -25 | -0.20 |
| 1807 | D6371 | -24 | 0.36 | 1944 | D6371 | -24 | 0.36 |
| 1810 | EN116 | -23 | 0.91 | 1948 | D6371 | -20 | 2.57 |
| 1811 | EN116 | -23.5 | 0.63 | 1951 | D6371 | -13.0 R(0.01) | 6.44 |
| 1833 | D6371 | -27 | -1.30 | 2129 | D6371 | -28 | -1.85 |
| 1842 | IP309 | -25 | -0.20 | 7012 | | ----- | ----- |
| 1849 | EN116 | -25 | -0.20 | | | | |

| | |
|---|---|
| normality | OK |
| n | 104 |
| outliers | 1 |
| mean (n) | -24.65 |
| st.dev. (n) | 2.474 |
| R(calc.) | 6.93 |
| R(D6371:05) | 5.06 |

Lab 273: First reported -11



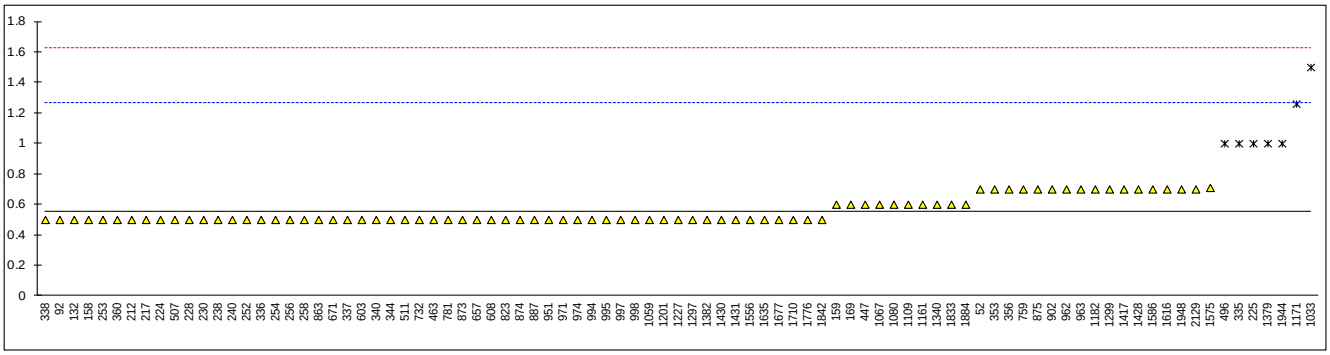



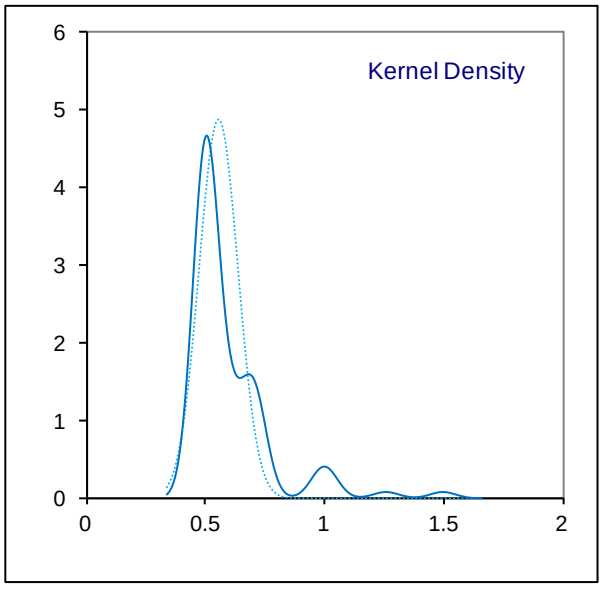
Determination of Colour ASTM on sample #14175;

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D6045 | 0.7 | | 0.41 | 825 | D1500 | L1.0 | | ----- |
| 53 | | ----- | | ----- | 854 | D1500 | L1 | | ----- |
| 92 | D1500 | 0.5 | | -0.15 | 862 | D1500 | L0.5 | | ----- |
| 120 | D1500 | L1.0 | | ----- | 863 | D1500 | 0.5 | | -0.15 |
| 132 | D1500 | 0.5 | | -0.15 | 873 | D1500 | 0.5 | | -0.15 |
| 140 | D1500 | L1.0 | | ----- | 874 | D1500 | 0.5 | | -0.15 |
| 150 | D1500 | L1.0 | | ----- | 875 | D6045 | 0.7 | | 0.41 |
| 158 | D1500 | 0.5 | | -0.15 | 887 | D1500 | 0.5 | | -0.15 |
| 159 | D1500 | 0.6 | | 0.13 | 902 | D1500 | 0.7 | | 0.41 |
| 169 | D6045 | 0.6 | | 0.13 | 922 | D1500 | L0.5 | | ----- |
| 171 | D1500 | <1.0 | | ----- | 951 | D1500 | 0.5 | | -0.15 |
| 175 | | ----- | | ----- | 962 | D1500 | 0.7 | | 0.41 |
| 186 | | ----- | | ----- | 963 | D1500 | 0.7 | | 0.41 |
| 193 | D1500 | <0.5 | | ----- | 970 | D1500 | L0.5 | | ----- |
| 194 | | ----- | | ----- | 971 | D1500 | 0.5 | | -0.15 |
| 212 | D1500 | 0.5 | | -0.15 | 974 | D1500 | 0.5 | | -0.15 |
| 217 | D1500 | 0.5 | | -0.15 | 994 | D1500 | 0.5 | | -0.15 |
| 221 | D1500 | L0.5 | | ----- | 995 | D1500 | 0.5 | | -0.15 |
| 224 | D1500 | 0.5 | | -0.15 | 996 | | ----- | | ----- |
| 225 | D1500 | 1.0 | R(0.01) | 1.25 | 997 | D1500 | 0.5 | | -0.15 |
| 228 | D1500 | 0.5 | | -0.15 | 998 | D1500 | 0.5 | | -0.15 |
| 230 | D1500 | 0.5 | | -0.15 | 1006 | | ----- | | ----- |
| 238 | D1500 | 0.5 | | -0.15 | 1011 | D1500 | L0.5 | | ----- |
| 240 | D1500 | 0.5 | | -0.15 | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | D1500 | 1.5 | R(0.01) | 2.65 |
| 252 | D1500 | 0.5 | | -0.15 | 1059 | D1500 | 0.5 | | -0.15 |
| 253 | D1500 | 0.5 | | -0.15 | 1067 | D6045 | 0.6 | | 0.13 |
| 254 | D1500 | 0.5 | | -0.15 | 1080 | D1500 | 0.6 | | 0.13 |
| 256 | D1500 | 0.5 | | -0.15 | 1081 | D6045 | L1.0 | | ----- |
| 258 | D6756 | 0.5 | | -0.15 | 1082 | | ----- | | ----- |
| 273 | D1500 | L0.5 | | ----- | 1095 | | ----- | | ----- |
| 311 | D1500 | L0.5 | | ----- | 1107 | D1500 | L1.0 | | ----- |
| 312 | D1500 | <1.0 | | ----- | 1109 | D6045 | 0.6 | | 0.13 |
| 323 | D1500 | L1.0 | | ----- | 1121 | D1500 | L1.0 | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | D1500 | 1 | R(0.01) | 1.25 | 1146 | | ----- | | ----- |
| 336 | D1500 | 0.5 | | -0.15 | 1159 | | ----- | | ----- |
| 337 | D1500 | 0.5 | | -0.15 | 1161 | D1500 | 0.6 | | 0.13 |
| 338 | D1500 | 0.5 | | -0.15 | 1167 | | ----- | | ----- |
| 340 | D1500 | 0.5 | | -0.15 | 1171 | D1500 | 1.26 | R(0.01) | 1.98 |
| 343 | D1500 | L1.0 | | ----- | 1182 | D1500 | 0.7 | | 0.41 |
| 344 | D1500 | 0.5 | | -0.15 | 1191 | | ----- | | ----- |
| 349 | D6045 | <1.0 | | ----- | 1201 | D1500 | 0.5 | | -0.15 |
| 350 | | ----- | | ----- | 1227 | D1500 | 0.5 | | -0.15 |
| 353 | D6045 | 0.7 | | 0.41 | 1229 | | ----- | | ----- |
| 356 | D6045 | 0.7 | | 0.41 | 1259 | D1500 | L0.5 | | ----- |
| 360 | D1500 | 0.5 | | -0.15 | 1297 | D1500 | 0.5 | | -0.15 |
| 430 | | ----- | | ----- | 1299 | D6045 | 0.7 | | 0.41 |
| 431 | | ----- | | ----- | 1340 | D1500 | 0.6 | | 0.13 |
| 445 | D1500 | L1.0 | | ----- | 1379 | D1500 | 1 | R(0.01) | 1.25 |
| 447 | D6045 | 0.6 | | 0.13 | 1382 | GB/T6540 | 0.5 | | -0.15 |
| 463 | D1500 | 0.5 | | -0.15 | 1395 | D1500 | <1.0 | | ----- |
| 485 | | ----- | | ----- | 1409 | D1500 | <1 | | ----- |
| 491 | | ----- | | ----- | 1417 | D6045 | 0.7 | | 0.41 |
| 493 | | ----- | | ----- | 1428 | D6045 | 0.7 | | 0.41 |
| 494 | D1500 | L0.5 | | ----- | 1430 | D1500 | 0.5 | | -0.15 |
| 496 | D1500 | 1.0 | R(0.01) | 1.25 | 1431 | D1500 | 0.5 | | -0.15 |
| 507 | D1500 | 0.5 | | -0.15 | 1457 | D1500 | L1.0 | | ----- |
| 511 | D6045 | 0.5 | | -0.15 | 1459 | D1500 | L0.5 | | ----- |
| 541 | D1500 | L0.5 | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | D1500 | L1.0 | | ----- |
| 562 | D1500 | L1.0 | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO2049 | 0.5 | | -0.15 |
| 603 | D1500 | 0.5 | | -0.15 | 1564 | | ----- | | ----- |
| 604 | D1500 | L1.0 | | ----- | 1575 | D1500 | 0.71 | | 0.44 |
| 607 | | ----- | | ----- | 1586 | D1500 | 0.7 | | 0.41 |
| 608 | D1500 | 0.5 | | -0.15 | 1616 | D6045 | 0.7 | | 0.41 |
| 631 | D1500 | <1.0 | | ----- | 1629 | | ----- | | ----- |
| 657 | D1500 | 0.5 | | -0.15 | 1634 | | ----- | | ----- |
| 671 | D1500 | 0.5 | | -0.15 | 1635 | D1500 | 0.5 | | -0.15 |
| 732 | D1500 | 0.5 | | -0.15 | 1643 | | ----- | | ----- |
| 759 | D6045 | 0.7 | | 0.41 | 1654 | | ----- | | ----- |
| 781 | D1500 | 0.5 | | -0.15 | 1677 | D1500 | 0.5 | | -0.15 |
| 823 | D1500 | 0.5 | | -0.15 | 1709 | | ----- | | ----- |
| 824 | D1500 | L1.0 | | ----- | 1710 | ISO2049 | 0.5 | | -0.15 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | | ----- | | ----- |
| 1724 | | ----- | ----- | 1884 | D1500 | 0.6 | | 0.13 |
| 1730 | D1500 | L1.0 | ----- | 1896 | D1500 | <1.0 | | ----- |
| 1776 | D1500 | 0.5 | -0.15 | 1906 | | ----- | | ----- |
| 1792 | D1500 | L0.5 | ----- | 1938 | | ----- | | ----- |
| 1807 | D1500 | < 0.5 | ----- | 1944 | D1500 | 1 | R(0.01) | 1.25 |
| 1810 | | ----- | ----- | 1948 | D1500 | 0.7 | | 0.41 |
| 1811 | | ----- | ----- | 1951 | D1500 | <0.5 | | ----- |
| 1833 | D1500 | 0.6 | 0.13 | 2129 | D6045 | 0.7 | | 0.41 |
| 1842 | D1500 | 0.5 | -0.15 | 7012 | | ----- | | ----- |
| 1849 | | ----- | ----- | | | | | |

| | | Only D6045 |
|---|---|---|
| normality | suspect | OK |
| n | 82 | 18 |
| outliers | 7 | 0 |
| mean (n) | 0.55 | 0.63 |
| st.dev. (n) | 0.082 | 0.084 |
| R(calc.) | 0.23 | 0.24 |
| R(D1500:12) | 1.00 | 0.48 |



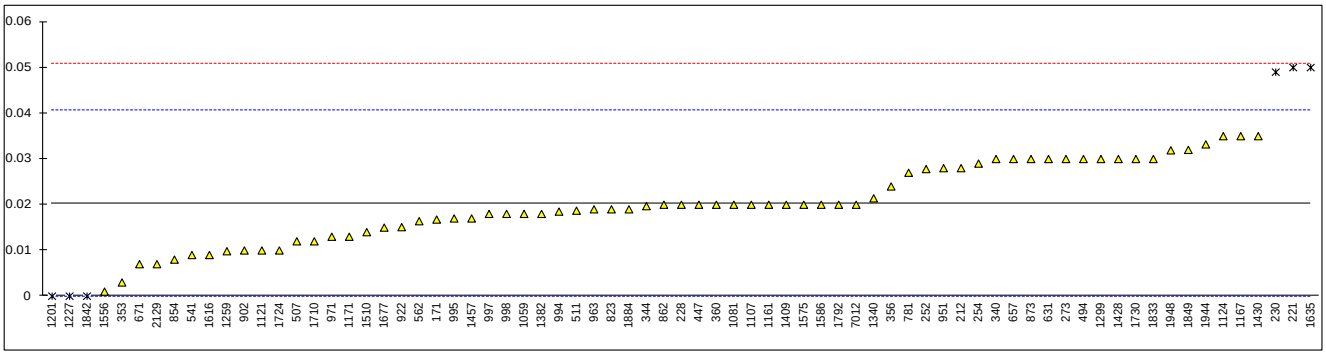
Determination of Conradson Carbon Residue on 10% residue on sample #14175; result in %M/M

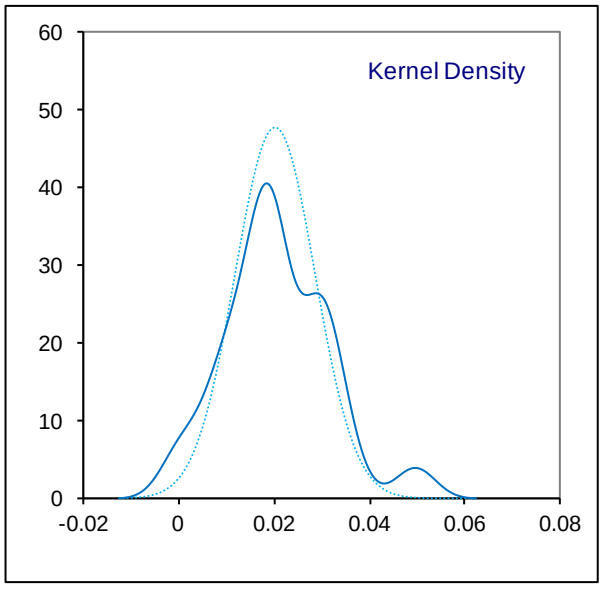
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | D4530 | 0.008 | | -1.21 |
| 92 | | ----- | | ----- | 862 | D4530 | 0.02 | | -0.03 |
| 120 | | ----- | | ----- | 863 | | ----- | | ----- |
| 132 | | ----- | | ----- | 873 | D189 | 0.030 | | 0.96 |
| 140 | | ----- | | ----- | 874 | | ----- | | ----- |
| 150 | | ----- | | ----- | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | | ----- | | ----- | 902 | D4530 | 0.01 | | -1.01 |
| 169 | | ----- | | ----- | 922 | D189 | 0.0151 | | -0.51 |
| 171 | D189 | 0.01676 | | -0.34 | 951 | D189 | 0.028 | | 0.76 |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D189 | 0.019 | | -0.12 |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D189 | 0.013 | | -0.71 |
| 212 | ISO10370 | 0.028 | | 0.76 | 974 | | ----- | | ----- |
| 217 | | ----- | | ----- | 994 | D189 | 0.0185 | | -0.17 |
| 221 | D189 | 0.05 | R(0.05) | 2.92 | 995 | D189 | 0.017 | | -0.32 |
| 224 | D189 | <0.001 | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | D189 | 0.018 | | -0.22 |
| 228 | D189 | 0.02 | | -0.03 | 998 | D189 | 0.018 | | -0.22 |
| 230 | D189 | 0.049 | R(0.05) | 2.82 | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | D4530 | 0.0278 | | 0.74 | 1059 | ISO10370 | 0.018 | | -0.22 |
| 253 | | ----- | | ----- | 1067 | | ----- | | ----- |
| 254 | D189 | 0.029 | | 0.86 | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | ISO10370 | 0.02 | | -0.03 |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | D4530 | 0.03 | | 0.96 | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | D4530 | 0.02 | | -0.03 |
| 312 | | ----- | | ----- | 1109 | D4530 | <0.1 | | ----- |
| 323 | | ----- | | ----- | 1121 | IP398 | 0.01 | | -1.01 |
| 332 | | ----- | | ----- | 1124 | ISO10370 | 0.035 | | 1.45 |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | ISO10370 | 0.02 | | -0.03 |
| 338 | | ----- | | ----- | 1167 | ISO10370 | 0.035 | | 1.45 |
| 340 | ISO10370 | 0.03 | | 0.96 | 1171 | ISO6615 | 0.013 | | -0.71 |
| 343 | | ----- | | ----- | 1182 | | ----- | W | ----- |
| 344 | D4530 | 0.01969 | | -0.06 | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D4530 | 0 | ex | -1.99 |
| 350 | | ----- | | ----- | 1227 | D4530 | 0.00 | ex | -1.99 |
| 353 | IP13 | 0.003 | | -1.70 | 1229 | | ----- | | ----- |
| 356 | D189 | 0.024 | | 0.37 | 1259 | ISO10370 | 0.0098305 | | -1.03 |
| 360 | D189 | 0.020 | | -0.03 | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | D4530 | 0.03 | | 0.96 |
| 431 | | ----- | | ----- | 1340 | ISO10370 | 0.0214 | | 0.11 |
| 445 | | ----- | | ----- | 1379 | | ----- | | ----- |
| 447 | IP398 | 0.02 | | -0.03 | 1382 | GB/T268 | 0.018 | | -0.22 |
| 463 | | ----- | | ----- | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | D189 | 0.02 | | -0.03 |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO10370 | 0.030 | | 0.96 |
| 494 | D4530 | 0.03 | | 0.96 | 1430 | D189 | 0.035 | | 1.45 |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | D189 | 0.012 | | -0.81 | 1457 | D4530 | 0.017 | | -0.32 |
| 511 | D189 | 0.0187 | | -0.15 | 1459 | | ----- | | ----- |
| 541 | D189 | 0.009 | | -1.11 | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | D189 | 0.014 | | -0.62 |
| 562 | D189 | 0.0164 | | -0.38 | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO10370 | 0.001 | | -1.89 |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | D4530 | 0.020 | | -0.03 |
| 607 | | ----- | | ----- | 1586 | D189 | 0.02 | | -0.03 |
| 608 | | ----- | | ----- | 1616 | D4530 | 0.009 | | -1.11 |
| 631 | D4530 | 0.03 | | 0.96 | 1629 | | ----- | | ----- |
| 657 | D189 | 0.03 | | 0.96 | 1634 | | ----- | | ----- |
| 671 | D4530 | 0.007 | | -1.30 | 1635 | D189 | 0.05 | R(0.05) | 2.92 |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D4530 | 0.027 | | 0.66 | 1677 | D4530 | 0.015 | | -0.52 |
| 823 | D189 | 0.019 | | -0.12 | 1709 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1710 | ISO10370 | 0.012 | | -0.81 |

| | | | | |
|---|---|---|---|---|
| 1720 | | ----- | | ----- |
| 1724 | D4530 | 0.01 | | -1.01 |
| 1730 | ISO10370 | 0.03 | | 0.96 |
| 1776 | | ----- | | ----- |
| 1792 | D4530 | 0.020 | | -0.03 |
| 1807 | | ----- | | ----- |
| 1810 | | ----- | | ----- |
| 1811 | | ----- | | ----- |
| 1833 | D4530 | 0.03 | | 0.96 |
| 1842 | D189 | 0.0 | ex | -1.99 |
| 1849 | ISO10370 | 0.032 | | 1.15 |
| 1872 | | ----- | | ----- |
| 1884 | D189 | 0.019 | | -0.12 |
| 1896 | ISO10370 | <0.10 | | ----- |
| 1906 | | ----- | | ----- |
| 1938 | | ----- | | ----- |
| 1944 | D189 | 0.0332 | | 1.27 |
| 1948 | D189 | 0.0319 | | 1.14 |
| 1951 | D189 | <0.01 | | ----- |
| 2129 | IP398 | 0.007 | | -1.30 |
| 7012 | D189 | 0.02 | C | -0.03 |

| | | |
|---|---|---|
| normality | OK | |
| n | 67 | |
| outliers | 3 | + 3 excl. |
| mean (n) | 0.0203 | |
| st.dev. (n) | 0.00837 | |
| R(calc.) | 0.0234 | |
| R(D189:06e1) | 0.0285 | |

Lab 1182: Result withdrawn, reported 0.087
Lab 1201: result excluded, zero is not a real result
Lab 1227: result excluded, zero is not a real result
Lab 1842: result excluded, zero is not a real result



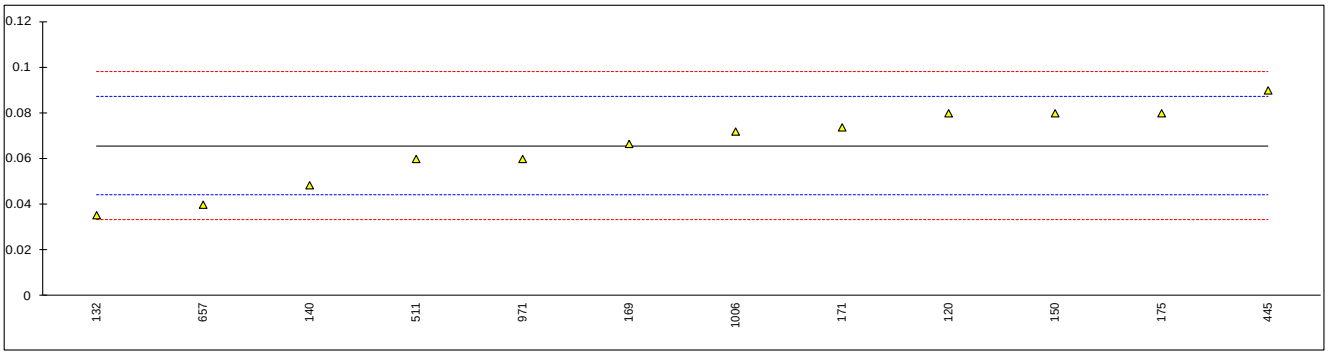
Determination of Ramsbottom Carbon Residue on 10% residue on sample #14175; result in %M/M

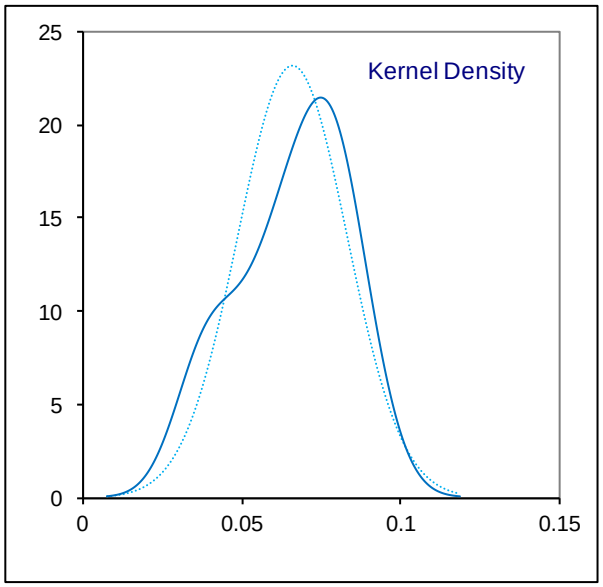
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | | ----- | | ----- |
| 92 | | ----- | | ----- | 862 | | ----- | | ----- |
| 120 | D524 | 0.08 | | 1.34 | 863 | | ----- | | ----- |
| 132 | D524 | 0.0354 | | -2.80 | 873 | | ----- | | ----- |
| 140 | D524 | 0.0485 | | -1.58 | 874 | | ----- | | ----- |
| 150 | D524 | 0.08 | | 1.34 | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | | ----- | | ----- | 902 | | ----- | | ----- |
| 169 | D524 | 0.0666 | | 0.10 | 922 | | ----- | | ----- |
| 171 | D524 | 0.07383 | | 0.77 | 951 | | ----- | | ----- |
| 175 | D524 | 0.08 | | 1.34 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | | ----- | | ----- |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D524 | 0.06 | | -0.51 |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | | ----- | | ----- |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | D524 | 0.072 | | 0.60 |
| 238 | | ----- | | ----- | 1011 | D524 | <0.04 | | ----- |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1067 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 312 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 338 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 340 | | ----- | | ----- | 1171 | | ----- | | ----- |
| 343 | D4530 | <0.1 | ex | ----- | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | | ----- | | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | | ----- | | ----- | 1229 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 360 | | ----- | | ----- | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | D524 | 0.09 | | 2.27 | 1379 | | ----- | | ----- |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | | ----- | | ----- | 1457 | | ----- | | ----- |
| 511 | D524 | 0.06 | | -0.51 | 1459 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | | ----- | | ----- |
| 608 | | ----- | | ----- | 1616 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | D524 | 0.04 | | -2.37 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | | ----- | | ----- |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | | ----- | | ----- | 1677 | | ----- | | ----- |
| 823 | | ----- | | ----- | 1709 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1710 | | ----- | | ----- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | | ----- | ----- |
| 1724 | | ----- | ----- | 1884 | | ----- | ----- |
| 1730 | | ----- | ----- | 1896 | D524 | <0.1 | ----- |
| 1776 | | ----- | ----- | 1906 | | ----- | ----- |
| 1792 | | ----- | ----- | 1938 | | ----- | ----- |
| 1807 | | ----- | ----- | 1944 | | ----- | ----- |
| 1810 | | ----- | ----- | 1948 | | ----- | ----- |
| 1811 | | ----- | ----- | 1951 | | ----- | ----- |
| 1833 | | ----- | ----- | 2129 | | ----- | ----- |
| 1842 | | ----- | ----- | 7012 | | ----- | ----- |
| 1849 | | ----- | ----- | | | | |

| | |
|---|---|
| normality | OK |
| n | 12 |
| outliers | 0 |
| mean (n) | 0.0655 |
| st.dev. (n) | 0.01719 |
| R(calc.) | 0.0481 |
| R(D524:10) | 0.0301 |

Lab 343: result excluded, the used test method is not equivalent with ASTM D524



Determination of Copper Corrosion (3 hrs @ 50°C) on sample #14175;

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D130 | 1A | | ----- | 825 | D130 | 1A | | ----- |
| 53 | | ----- | | ----- | 854 | D130 | 1A | | ----- |
| 92 | D130 | 1A | | ----- | 862 | D130 | 1A | | ----- |
| 120 | D130 | 1A | | ----- | 863 | D130 | 1A | | ----- |
| 132 | D130 | 1A | | ----- | 873 | D130 | 1A | | ----- |
| 140 | D130 | 1A | | ----- | 874 | D130 | 1A | | ----- |
| 150 | D130 | 1A | | ----- | 875 | D130 | 1A | | ----- |
| 158 | D130 | 1A | | ----- | 887 | D130 | <1A | | ----- |
| 159 | D130 | 1A | | ----- | 902 | | ----- | | ----- |
| 169 | D130 | 1A | | ----- | 922 | D130 | 1A | | ----- |
| 171 | D130 | 1A | | ----- | 951 | D130 | 1 | | ----- |
| 175 | D130 | 1A | | ----- | 962 | D130 | 1A | | ----- |
| 186 | | ----- | | ----- | 963 | D130 | 1A | | ----- |
| 193 | D130 | 1B | | ----- | 970 | D130 | 1A | | ----- |
| 194 | | ----- | | ----- | 971 | D130 | 1A | | ----- |
| 212 | D130 | 1A | | ----- | 974 | D130 | 1A | | ----- |
| 217 | D130 | 1A | | ----- | 994 | D130 | 1A | | ----- |
| 221 | D130 | 1A | | ----- | 995 | D130 | 1A | | ----- |
| 224 | D130 | 1A | | ----- | 996 | | ----- | | ----- |
| 225 | D130 | 1A | | ----- | 997 | | ----- | | ----- |
| 228 | D130 | 1A | | ----- | 998 | | ----- | | ----- |
| 230 | D130 | 1A | | ----- | 1006 | D130 | 1A | | ----- |
| 238 | D130 | 1A | | ----- | 1011 | D130 | 1B | | ----- |
| 240 | D130 | 1A | | ----- | 1017 | D130 | 1A | | ----- |
| 242 | | ----- | | ----- | 1033 | IP154 | 1A | | ----- |
| 252 | D130 | 1A | | ----- | 1059 | ISO2160 | 1A | | ----- |
| 253 | D130 | 1A | | ----- | 1067 | D130 | 1A | | ----- |
| 254 | D130 | 1A | | ----- | 1080 | | ----- | | ----- |
| 256 | D130 | 1A | | ----- | 1081 | D130 | 1B | | ----- |
| 258 | D130 | 1A | | ----- | 1082 | | ----- | | ----- |
| 273 | D130 | 1A | | ----- | 1095 | | ----- | | ----- |
| 311 | D130 | 1A | | ----- | 1107 | D130 | 1B | | ----- |
| 312 | D130 | 1A | | ----- | 1109 | D130 | 1A | | ----- |
| 323 | D130 | 1A | | ----- | 1121 | IP154 | 1A | | ----- |
| 332 | | ----- | | ----- | 1124 | ISO2160 | 1A | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | D130 | 1A | | ----- | 1146 | | ----- | | ----- |
| 336 | D130 | 1A | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | ISO2160 | 1A | | ----- |
| 338 | | ----- | | ----- | 1167 | D130 | 1A | | ----- |
| 340 | D130 | 1A | | ----- | 1171 | ISO2160 | 1A | | ----- |
| 343 | D130 | 1A | | ----- | 1182 | D130 | 1A | | ----- |
| 344 | D130 | 1A | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D130 | 1A | | ----- |
| 350 | | ----- | | ----- | 1227 | D130 | 1A | | ----- |
| 353 | IP154 | 1A | | ----- | 1229 | | ----- | | ----- |
| 356 | D130 | 1A | | ----- | 1259 | D130 | 1A | | ----- |
| 360 | D130 | 1A | | ----- | 1297 | D130 | 1A | | ----- |
| 430 | | ----- | | ----- | 1299 | D130 | 1A | | ----- |
| 431 | | ----- | | ----- | 1340 | ISO2160 | 1A | | ----- |
| 445 | D130 | 1A | | ----- | 1379 | | ----- | | ----- |
| 447 | D130 | 1A | | ----- | 1382 | GB/T5096 | 1A | | ----- |
| 463 | D130 | 1A | | ----- | 1395 | D130 | 1A | | ----- |
| 485 | | ----- | | ----- | 1409 | D130 | 1A | | ----- |
| 491 | | ----- | | ----- | 1417 | D130 | 1A | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO2160 | 1A | | ----- |
| 494 | | ----- | | ----- | 1430 | D130 | 1B | | ----- |
| 496 | D130 | 1A | | ----- | 1431 | D130 | 1A | | ----- |
| 507 | D130 | 1A | | ----- | 1457 | D130 | 1A | | ----- |
| 511 | D130 | 1A | | ----- | 1459 | | ----- | | ----- |
| 541 | | 1A | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | D130 | 1A | | ----- |
| 562 | D130 | 1A | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO2160 | 1 | | ----- |
| 603 | D130 | 1A | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | D130 | 1A | | ----- |
| 607 | | ----- | | ----- | 1586 | D130 | 1A | | ----- |
| 608 | D130 | 1A | | ----- | 1616 | D130 | 1A | | ----- |
| 631 | D130 | 1A | | ----- | 1629 | | ----- | | ----- |
| 657 | D130 | 1A | | ----- | 1634 | D130 | 1A | | ----- |
| 671 | D130 | 1A | | ----- | 1635 | | ----- | | ----- |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D130 | 1A | | ----- | 1677 | D130 | 1A | | ----- |
| 823 | D130 | 1A | | ----- | 1709 | | ----- | | ----- |
| 824 | D130 | 1A | | ----- | 1710 | ISO2160 | 1A | | ----- |

| | | | |
|---|---|---|---|
| 1720 | | ----- | ----- |
| 1724 | D130 | 1A | ----- |
| 1730 | D130 | 1A | ----- |
| 1776 | ISO2160 | 1A | ----- |
| 1792 | D130 | 1A | ----- |
| 1807 | D130 | 1A | ----- |
| 1810 | | ----- | ----- |
| 1811 | | ----- | ----- |
| 1833 | D130 | 1A | ----- |
| 1842 | IP154 | 1A | ----- |
| 1849 | ISO2160 | 1A | ----- |
| 1872 | ISO2160 | 1 | ----- |
| 1884 | D130 | 1A | ----- |
| 1896 | ISO2160 | 1 | ----- |
| 1906 | | ----- | ----- |
| 1938 | | ----- | ----- |
| 1944 | D130 | 1A | ----- |
| 1948 | D130 | 1A | ----- |
| 1951 | D130 | 1A | ----- |
| 2129 | D130 | 1A | ----- |
| 7012 | D130 | 1A | ----- |

| | |
|---|---|
| normality | unknown |
| n | 124 |
| outliers | 0 |
| mean (n) | 1(1A) |
| st.dev. (n) | n.a. |
| R(calc.) | n.a. |
| R(D130:12) | n.a. |

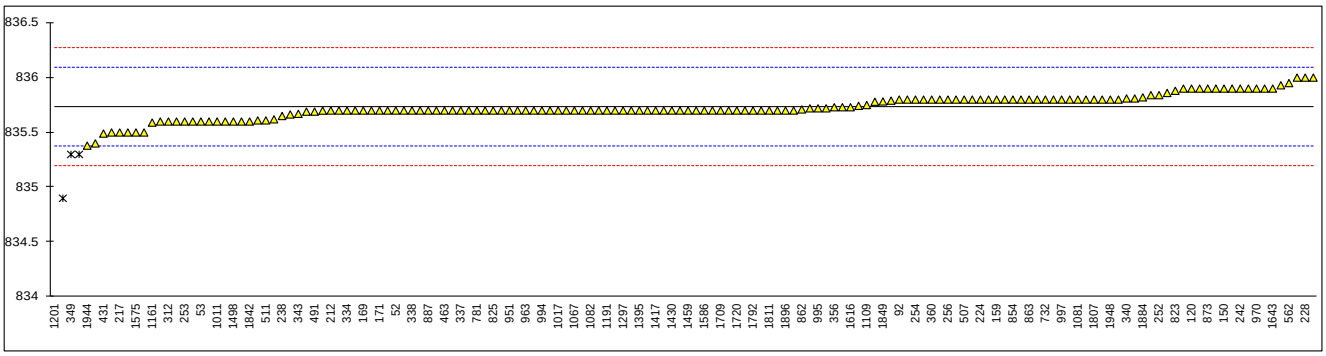
## Determination of Density @15 °C on sample #14175; result in kg/m$^3$

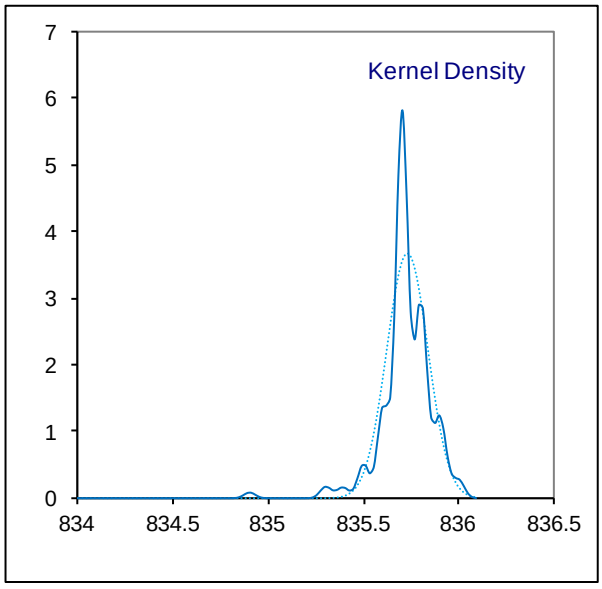
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D4052 | 835.7 | | -0.16 | 825 | D4052 | 835.7 | | -0.16 |
| 53 | D4052 | 835.6 | | -0.72 | 854 | D4052 | 835.8 | | 0.40 |
| 92 | D4052 | 835.8 | | 0.40 | 862 | D4052 | 835.71 | | -0.11 |
| 120 | D4052 | 835.9 | | 0.96 | 863 | D4052 | 835.8 | | 0.40 |
| 132 | D4052 | 835.72 | | -0.05 | 873 | D4052 | 835.9 | | 0.96 |
| 140 | D4052 | 835.8 | | 0.40 | 874 | D4052 | 835.6 | | -0.72 |
| 150 | D4052 | 835.9 | | 0.96 | 875 | D4052 | 835.8 | | 0.40 |
| 158 | D4052 | 834.9 | R(0.01) | -4.64 | 887 | D4052 | 835.7 | | -0.16 |
| 159 | D4052 | 835.8 | | 0.40 | 902 | D4052 | 835.9 | | 0.96 |
| 169 | D4052 | 835.7 | | -0.16 | 922 | D4052 | 835.7 | | -0.16 |
| 171 | D4052 | 835.70 | | -0.16 | 951 | D1298 | 835.7 | | -0.16 |
| 175 | D4052 | 835.7 | | -0.16 | 962 | D4052 | 835.7 | | -0.16 |
| 186 | | ----- | | ----- | 963 | D4052 | 835.7 | | -0.16 |
| 193 | D4052 | 835.4 | | -1.84 | 970 | D4052 | 835.9 | | 0.96 |
| 194 | | ----- | | ----- | 971 | D4052 | 835.8 | | 0.40 |
| 212 | ISO12185 | 835.7 | | -0.16 | 974 | D4052 | 835.7 | | -0.16 |
| 217 | D4052 | 835.5 | | -1.28 | 994 | D4052 | 835.7 | | -0.16 |
| 221 | D4052 | 835.8 | | 0.40 | 995 | D4052 | 835.72 | | -0.05 |
| 224 | D1298 | 835.8 | | 0.40 | 996 | | ----- | | ----- |
| 225 | D4052 | 835.6 | | -0.72 | 997 | D4052 | 835.8 | | 0.40 |
| 228 | D1298 | 836.0 | | 1.52 | 998 | D4052 | 835.7 | | -0.16 |
| 230 | D1298 | 835.7 | | -0.16 | 1006 | D4052 | 835.8 | | 0.40 |
| 238 | D4052 | 835.65 | | -0.44 | 1011 | D4052 | 835.6 | | -0.72 |
| 240 | D4052 | 835.9 | | 0.96 | 1017 | D4052 | 835.7 | | -0.16 |
| 242 | D4052 | 835.9 | | 0.96 | 1033 | IP365 | 836.0 | | 1.52 |
| 252 | D1298 | 835.84 | | 0.62 | 1059 | ISO12185 | 835.7 | | -0.16 |
| 253 | D4052 | 835.6 | | -0.72 | 1067 | D4052 | 835.7 | | -0.16 |
| 254 | D4052 | 835.8 | | 0.40 | 1080 | D4052 | 835.7 | | -0.16 |
| 256 | D4052 | 835.8 | | 0.40 | 1081 | ISO12185 | 835.8 | | 0.40 |
| 258 | D1298 | 835.8 | | 0.40 | 1082 | ISO12185 | 835.7 | | -0.16 |
| 273 | D4052 | 835.5 | | -1.28 | 1095 | | ----- | | ----- |
| 311 | D4052 | 835.7 | | -0.16 | 1107 | D4052 | 835.7 | C | -0.16 |
| 312 | D4052 | 835.6 | | -0.72 | 1109 | D4052 | 835.75 | | 0.12 |
| 323 | D4052 | 835.5 | | -1.28 | 1121 | IP365 | 835.9 | | 0.96 |
| 332 | ISO12185 | 835.7 | | -0.16 | 1124 | ISO12185 | 835.664 | | -0.36 |
| 334 | D4052 | 835.7 | | -0.16 | 1134 | | ----- | | ----- |
| 335 | D4052 | 835.7 | | -0.16 | 1146 | D4052 | 835.73 | | 0.01 |
| 336 | D4052 | 835.7 | | -0.16 | 1159 | | ----- | | ----- |
| 337 | D4052 | 835.7 | | -0.16 | 1161 | ISO12185 | 835.59 | | -0.78 |
| 338 | ISO12185 | 835.7 | | -0.16 | 1167 | D4052 | 835.78 | | 0.29 |
| 340 | D4052 | 835.81 | | 0.45 | 1171 | D4052 | 835.62 | C | -0.61 |
| 343 | D4052 | 835.67 | | -0.33 | 1182 | ISO12185 | 835.743 | | 0.08 |
| 344 | D4052 | 835.8 | | 0.40 | 1191 | ISO12185 | 835.7 | | -0.16 |
| 349 | D4052 | 835.3 | R(0.05) | -2.40 | 1201 | D4052 | 830.7 | R(0.01) | -28.16 |
| 350 | ISO3675 | 836.0 | | 1.52 | 1227 | D4052 | 835.7 | | -0.16 |
| 353 | IP365 | 835.8 | | 0.40 | 1229 | ISO12185 | 835.81 | | 0.45 |
| 356 | D4052 | 835.73 | | 0.01 | 1259 | | ----- | | ----- |
| 360 | D4052 | 835.8 | | 0.40 | 1297 | D4052 | 835.7 | | -0.16 |
| 430 | | ----- | | ----- | 1299 | D4052 | 835.6 | | -0.72 |
| 431 | ISO12185 | 835.49 | | -1.34 | 1340 | ISO12185 | 835.7 | | -0.16 |
| 445 | D4052 | 835.7 | | -0.16 | 1379 | D4052 | 835.8 | | 0.40 |
| 447 | D4052 | 835.7 | | -0.16 | 1382 | SH/T0604 | 835.3 | R(0.05) | -2.40 |
| 463 | D4052 | 835.70 | | -0.16 | 1395 | D4052 | 835.7 | | -0.16 |
| 485 | D4052 | 835.6 | | -0.72 | 1409 | D4052 | 835.7 | | -0.16 |
| 491 | D4052 | 835.69 | | -0.22 | 1417 | IP365 | 835.7 | | -0.16 |
| 493 | | ----- | | ----- | 1428 | ISO12185 | 835.7 | | -0.16 |
| 494 | D4052 | 835.7 | | -0.16 | 1430 | D4052 | 835.7 | | -0.16 |
| 496 | D4052 | 835.69 | | -0.22 | 1431 | D4052 | 835.8 | | 0.34 |
| 507 | D4052 | 835.8 | C | 0.40 | 1457 | D4052 | 835.7 | | -0.16 |
| 511 | D4052 | 835.61 | | -0.67 | 1459 | ISO12185 | 835.7 | | -0.16 |
| 541 | D4052 | 835.8 | | 0.40 | 1498 | D1298 | 835.6 | | -0.72 |
| 557 | | ----- | | ----- | 1510 | D4052 | 835.7 | C | -0.16 |
| 562 | D4052 | 835.95 | | 1.24 | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO12185 | 835.86 | | 0.73 |
| 603 | D4052 | 835.7 | | -0.16 | 1564 | D4052 | 835.6 | | -0.72 |
| 604 | D4052 | 835.84 | | 0.62 | 1575 | D4052 | 835.5 | | -1.28 |
| 607 | D1298 | 835.8 | | 0.40 | 1586 | D4052 | 835.7 | | -0.16 |
| 608 | D4052 | 835.9 | | 0.96 | 1616 | D4052 | 835.73 | | 0.01 |
| 631 | D4052 | 835.9 | | 0.96 | 1629 | | ----- | | ----- |
| 657 | D4052 | 835.8 | | 0.40 | 1634 | D4052 | 835.699 | | -0.17 |
| 671 | D4052 | 835.9 | | 0.96 | 1635 | | ----- | | ----- |
| 732 | D4294 | 835.8 | | 0.40 | 1643 | D4052 | 835.9 | | 0.96 |
| 759 | D4052 | 835.61 | | -0.67 | 1654 | | ----- | | ----- |
| 781 | D4052 | 835.7 | | -0.16 | 1677 | D4052 | 835.7 | | -0.16 |
| 823 | D4052 | 835.88 | | 0.85 | 1709 | D4052 | 835.7 | | -0.16 |
| 824 | ISO12185 | 835.6 | | -0.72 | 1710 | ISO12185 | 835.7 | | -0.16 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1720 | D4052 | 835.7 | -0.16 | 1872 | ISO12185 | 835.72 | | -0.05 |
| 1724 | D4052 | 835.93 | 1.13 | 1884 | D4052 | 835.82 | | 0.51 |
| 1730 | ISO12185 | 835.5 | -1.28 | 1896 | ISO12185 | 835.7 | | -0.16 |
| 1776 | ISO12185 | 835.7 | -0.16 | 1906 | | ----- | | ----- |
| 1792 | D4052 | 835.7 | -0.16 | 1938 | ISO12185 | 835.8 | | 0.40 |
| 1807 | D4052 | 835.8 | 0.40 | 1944 | D1298 | 835.38 | | -1.95 |
| 1810 | D4052 | 835.7 | -0.16 | 1948 | D4052 | 835.8 | | 0.40 |
| 1811 | D4052 | 835.7 | -0.16 | 1951 | D4052 | 835.8 | C | 0.40 |
| 1833 | D4052 | 835.7 | -0.16 | 2129 | D4052 | 835.7 | | -0.16 |
| 1842 | D4052 | 835.6 | -0.72 | 7012 | | ----- | | ----- |
| 1849 | ISO12185 | 835.783 | 0.30 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 152 |
| outliers | 4 |
| mean (n) | 835.73 |
| st.dev. (n) | 0.108 |
| R(calc.) | 0.30 |
| R(D4052:11) | 0.50 |

Lab 242: First reported 853.9
Lab 507: First reported 0.8348
Lac 1107: First reported 0.8357
Lab 1171: First reported 835.12
Lab 1951: Reported 0.8358



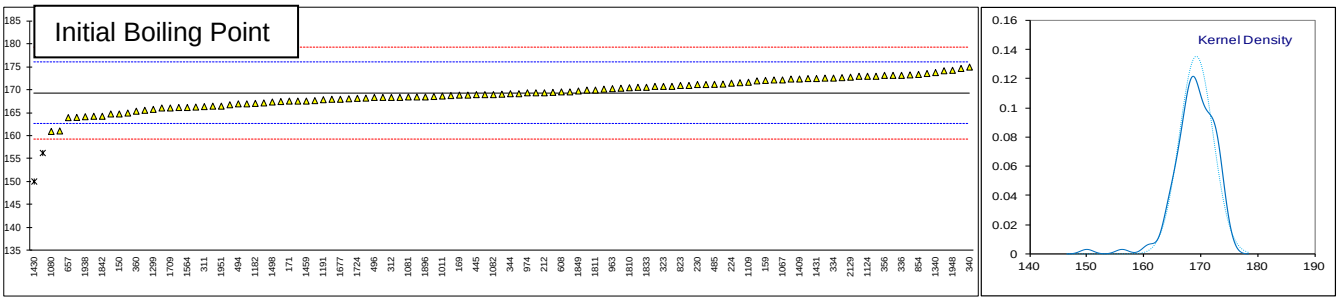
## Determination of Distillation (automated) on sample #14175; result in °C

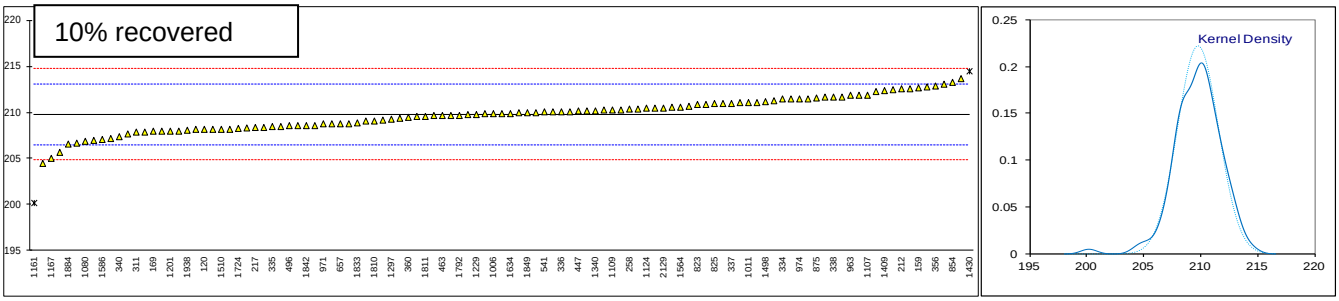
| lab | method | IBP | mark | 10% rec | mark | 50%rec | mark | 90%rec | mark | 95%rec | mark | FBP | mark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | D86 | 168.0 | | 207.9 | | 273.1 | | 329.4 | | 344.6 | | 354.2 | |
| 53 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 92 | D86 | 173.6 | | 211.7 | | 272.5 | | 328.9 | | 343.5 | | 354.9 | |
| 120 | D86 | 166.2 | | 208.2 | | 271.6 | | 331.0 | | 347.1 | | 352.2 | |
| 132 | D86 | 168.1 | | 210.3 | | 272.3 | | 329.5 | | 343.7 | | 354.5 | |
| 140 | D86 | 169.5 | | 211.1 | | 271.0 | | 329.2 | | 346.0 | | 354.8 | |
| 150 | D86 | 164.8 | | 205.7 | | 272.3 | | 331.9 | | 348.9 | | 356.1 | |
| 158 | D86 | 164.8 | | 210.1 | | 269.3 | R(0.05) | 327.9 | | 345.6 | | 354.4 | |
| 159 | D86 | 172.1 | | 212.7 | | 273.9 | | 332.4 | | 347.8 | | 358.3 | |
| 169 | D86 | 168.9 | | 208.0 | | 272.0 | | 331.6 | | 348.3 | | 357.5 | |
| 171 | D86 | 167.6 | | 212.6 | | 273.0 | | 331.7 | | 347.5 | | 355.4 | |
| 175 | D86 | 172.6 | | 209.6 | | 275.3 | | 336.0 | | 353.8 | | 358.9 | |
| 186 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 193 | D86 | 170.2 | | 213.7 | | 273.7 | | 331.1 | | 346.9 | | 354.9 | |
| 194 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 212 | D86 | 169.4 | | 212.6 | | 273.3 | | 335.2 | | 354.1 | | 357.4 | |
| 217 | D86 | 171.0 | | 208.4 | | 272.9 | | 331.0 | | 346.5 | | 357.1 | |
| 221 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 224 | D86 | 171.50 | | 207.0 | | 272.0 | | 332.33 | | 349.0 | | 359.2 | |
| 225 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 228 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 230 | D86 | 171.2 | | 210.2 | | 272.7 | | 331.3 | | 348.7 | | 359.5 | |
| 238 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 240 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 242 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 252 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 253 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 254 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 256 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 258 | D86 | 173.0 | | 210.4 | | 272.6 | | 330.2 | | 343.4 | | 352.5 | |
| 273 | D86 | 169.1 | | 208.8 | | 271.9 | | 330.0 | | 344.6 | | 353.5 | C |
| 311 | D86 | 166.4 | | 207.9 | | 271.6 | | 330.8 | | 347.2 | | 356.6 | |
| 312 | D86 | 168.4 | | 210.1 | | 273.4 | | 330.8 | | 346.1 | | 354.1 | |
| 323 | D86 | 170.8 | | 211.5 | | 273.4 | | 332.1 | | 349.5 | | 356.4 | |
| 332 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 334 | D86 | 172.6 | | 211.5 | | 273.4 | | 330.6 | | 345.8 | | 357.0 | |
| 335 | D86 | 172.2 | | 208.5 | | 272.6 | | 331.7 | | 348.4 | | 358.0 | |
| 336 | D86 | 173.2 | | 210.1 | | 272.2 | | 329.4 | | 345.7 | | 358.3 | |
| 337 | D86 | 174.7 | | 211.0 | | 273.1 | | 331.9 | | 346.6 | | 356.4 | |
| 338 | ISO3405 | 173.2 | | 211.7 | | 273.6 | | 333.6 | | 351.0 | | 359.0 | |
| 340 | D86 | 175.0 | | 207.4 | | 273.3 | | 333.1 | | 350.0 | | 357.5 | |
| 343 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 344 | D86 | 169.2 | | 209.9 | | 272.7 | | 329.8 | | 343.6 | | 355.7 | |
| 349 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 350 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 353 | IP123 | 156.3 | R(0.01) | 204.5 | | 271.1 | | 332.2 | | 348.3 | | 358.5 | |
| 356 | D86 | 173.2 | | 212.9 | | 274.4 | | 333.3 | | 350.8 | | 360.8 | |
| 360 | D86 | 165.4 | | 209.5 | | 272.1 | | 331.3 | | 346.7 | | 353.6 | |
| 430 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 431 | D86 | 167.0 | | 210.6 | | 272.7 | | 334.6 | | 355.6 | | 356.2 | |
| 445 | D86 | 169.0 | | 209.7 | | 272.4 | | 331.2 | | 348.0 | | 357.2 | |
| 447 | D86 | 164.3 | | 210.2 | | 273.3 | | 331.3 | | 346.4 | | 357.9 | |
| 463 | D86 | 168.6 | | 209.7 | | 273.3 | | 332.8 | | 350.1 | | 359.6 | |
| 485 | D86 | 171.25 | | 211.10 | | 272.80 | | 330.55 | | 346.00 | | 353.20 | |
| 491 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 493 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 494 | D86 | 167.0 | | 208.5 | | 271.7 | | 329.9 | | 345.3 | | 357.2 | |
| 496 | D86 | 168.4 | | 208.6 | | 271.9 | | 330.4 | | 346.2 | | 357.8 | |
| 507 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 511 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 541 | D86 | 172.4 | | 210.1 | | 273.1 | | 331.4 | | 346.5 | | 358.3 | |
| 557 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 562 | D86 | 168.25 | | 208.35 | | 272.80 | | 332.40 | | 348.55 | | 359.50 | |
| 575 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 603 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 604 | D86 | 172.5 | | 211.0 | | 273.5 | | 333.2 | | 349.4 | | 353.6 | |
| 607 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 608 | D86 | 169.6 | | 209.9 | | 273.0 | | 331.0 | | 346.7 | | 357.1 | |
| 631 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 657 | D86 | 164.0 | | 208.8 | | 271.1 | | 327.4 | | 341.3 | | 353.8 | |
| 671 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 732 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 759 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 781 | D86 | 168.4 | | 211.9 | | 273.4 | | 331.4 | | 346.2 | | 357.5 | |
| 823 | D86 | 171.0 | | 210.9 | | 273.6 | | 332.9 | | 349.9 | | 358.8 | |
| 824 | D86 | 170.8 | | 210.7 | | 273.7 | | 333.3 | | 350.3 | | 359.1 | |

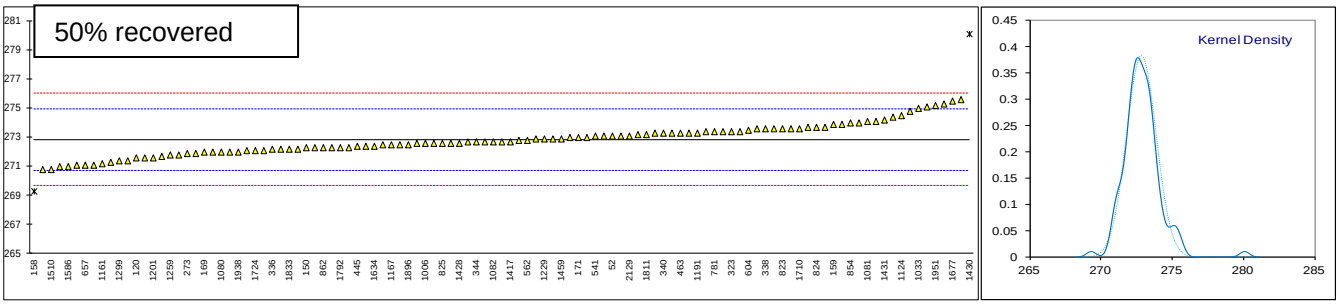
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 825 | D86 | 166.1 | | 211.0 | | 272.6 | | 332.0 | | 348.4 | | 358.1 | |
| 854 | D86 | 173.4 | | 213.3 | | 274.0 | | 331.9 | | 349.0 | | 357.2 | |
| 862 | D86 | 161.1 | | 208.2 | | 272.3 | | 330.2 | | 345.8 | | 356.2 | |
| 863 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 873 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 874 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 875 | D86 | 169.4 | | 211.6 | | 273.6 | | 331.5 | | 347.0 | | 359.2 | |
| 887 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 902 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 922 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 951 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 962 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 963 | D86 | 170.3 | | 211.9 | | 273.3 | | 330.9 | | 345.4 | | 357.1 | |
| 970 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 971 | D86 | 170.6 | | 208.8 | | 273.0 | | 333.1 | | 347.1 | | 358.0 | |
| 974 | D86 | 169.4 | | 211.5 | | 273.6 | | 331.6 | | 346.7 | | 353.7 | |
| 994 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 995 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 996 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 997 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 998 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1006 | D86 | 169.0 | | 209.9 | | 272.6 | | 329.8 | | 344.0 | | 354.2 | |
| 1011 | ISO3405 | 168.7 | | 211.1 | | 273.2 | | 332.0 | | 348.1 | | 358.7 | |
| 1017 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1033 | IP123 | 173.3 | | 212.5 | | 275.0 | | 333.0 | | 346.9 | | 358.1 | |
| 1059 | ISO3405 | 168.9 | | 208.0 | | 270.8 | | 328.1 | | 342.9 | | 353.8 | |
| 1067 | D86 | 172.2 | | 212.3 | | 273.6 | | 332.4 | | 348.1 | | 353.8 | |
| 1080 | D86 | 161.0 | | 206.9 | | 272.0 | | 331.1 | | 346.9 | | 356.9 | |
| 1081 | D86 | 168.5 | | 211.5 | | 274.1 | | 334.6 | | 353.8 | | 358.7 | |
| 1082 | ISO3405 | 169.0 | | 208.8 | | 272.7 | | 332.1 | | 348.3 | | 355.8 | |
| 1095 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1107 | D86 | 171.6 | | 211.9 | | 272.7 | | 330.4 | | 346.1 | | 355.8 | |
| 1109 | D86 | 171.7 | | 210.3 | | 273.1 | | 330.8 | | 345.6 | | 358.0 | |
| 1121 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1124 | ISO3405 | 173.0 | | 210.5 | | 274.5 | | 334.5 | | 351.0 | | 355.0 | |
| 1134 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1146 | ISO3405 | 169.6 | | 208.2 | | 271.3 | | 329.5 | | 343.5 | | 356.7 | |
| 1159 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1161 | ISO3405 | 167.7 | | 200.2 | R(0.01) | 271.2 | | 331.8 | | 347.7 | | 357.3 | |
| 1167 | D86 | 164.05 | | 205.05 | | 272.50 | | 330.7 | | 345.8 | | 356.3 | |
| 1171 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1182 | D86 | 167.1 | | 210.4 | | 273.4 | | 334.1 | | 352.5 | | 355.9 | |
| 1191 | ISO3405 | 167.9 | | 209.8 | | 273.3 | | 333.3 | | 349.8 | | 358.0 | |
| 1201 | D86 | 166.5 | | 208.0 | | 271.6 | | 330.4 | | 346.3 | | 353.6 | |
| 1227 | D86 | 172.7 | | 209.7 | | 274.1 | | 334.0 | | 350.0 | | 357.9 | |
| 1229 | ISO3405 | 170.0 | | 209.8 | | 272.9 | | 331.7 | | 347.5 | | 358.4 | |
| 1259 | D86 | 167.6 | | 208.0 | | 271.8 | | 327.9 | | 340.0 | | 358.0 | |
| 1297 | D86 | 170.8 | | 209.3 | | 272.6 | | 330.0 | | 344.2 | | 355.0 | |
| 1299 | D86 | 165.8 | | 206.7 | | 271.4 | | 331.4 | | 347.8 | | 358.2 | |
| 1340 | ISO3405 | 173.8 | | 210.2 | | 273.7 | | 333.5 | | 352.9 | | 357.7 | |
| 1379 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1382 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1395 | D86 | 173.0 | | 211.3 | | 272.9 | | 331.3 | | 345.9 | | 357.3 | |
| 1409 | D86 | 172.4 | | 212.4 | | 274.0 | | 333.2 | | 350.8 | | 358.0 | |
| 1417 | ISO3405 | 171.2 | | 207.7 | | 272.7 | | 332.3 | | 350.1 | | 357.4 | |
| 1428 | ISO3405 | 169.2 | | 208.4 | | 272.6 | | 330.4 | | 345.7 | | 357.0 | |
| 1430 | D86 | 150.1 | C,R(1) | 214.5 | C,R(1) | 280.1 | C,R(1) | 342.3 | C,R(1) | 352.1 | C,ex | 338.3 | R(1) |
| 1431 | D86 | 172.5 | | 212.8 | | 274.2 | | 333.0 | | 350.5 | | 361.2 | |
| 1457 | D86 | 168.8 | | 209.2 | | 272.4 | | 330.5 | | 346.0 | | 358.9 | |
| 1459 | ISO3405 | 167.6 | | 210.5 | | 272.9 | | 329.5 | | 343.6 | | 354.4 | |
| 1498 | D86 | 167.4 | | 211.2 | | 273.9 | | 332.6 | | 349.0 | | 358.5 | |
| 1510 | D86 | 165.6 | | 208.2 | | 270.8 | | 329.8 | | 345.5 | | 353.2 | |
| 1521 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1556 | ISO3405 | 165.0 | | 207.2 | | 271.4 | | 329.9 | | 345.4 | | 355.6 | |
| 1564 | D86 | 166.2 | | 210.6 | | 272.2 | | 330.0 | | 345.7 | | 355.8 | |
| 1575 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1586 | D86 | 168.4 | | 207.1 | | 271.0 | | 330.8 | | 347.1 | | 356.8 | C |
| 1616 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1629 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1634 | D86 | 170.4 | | 209.9 | | 272.4 | | 330.2 | | 345.3 | | 356.5 | |
| 1635 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1643 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1654 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 1677 | D86 | 168.0 | | 210.0 | | 275.5 | | 334.0 | | 349.5 | | 358.5 | |
| 1709 | D86 | 166.1 | | 208.2 | | 272.3 | | 331.5 | | 347.3 | | 358.0 | |
| 1710 | ISO3405 | 167.5 | | 210.3 | | 273.6 | | 331.7 | | 347.1 | | 357.0 | |
| 1720 | D86 | 172.0 | | 213.1 | | 274.8 | | 334.6 | | 352.7 | | 359.3 | |
| 1724 | D86 | 168.2 | | 208.3 | | 272.1 | | 330.3 | | 345.4 | | 357.6 | |
| 1730 | D86 | 167.2 | | 209.4 | | 275.6 | | 332.8 | | 348.8 | | 359.2 | |
| 1776 | ISO3405 | 166.3 | | 208.6 | | 272.0 | | 332.6 | | 350.1 | | 356.7 | |

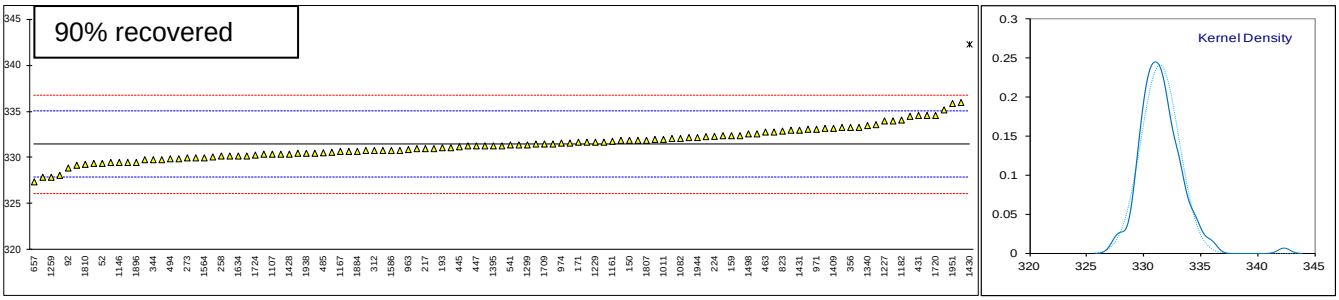
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1792 | D86 | 166.8 | 209.7 | 272.3 | 330.7 | 346.1 | 352.1 |
| 1807 | D86 | 174.2 | 209.1 | 272.5 | 331.9 | 347.6 | 359.5 |
| 1810 | D86 | 170.5 | 209.1 | 272.3 | 329.3 | 342.5 | 354.6 |
| 1811 | D86 | 170.0 | 209.6 | 273.2 | 331.3 | 346.5 | 356.4 |
| 1833 | D86 | 170.6 | 208.9 | 272.2 | 330.8 | 345.9 | 358 |
| 1842 | D86 | 164.3 | 208.6 | 272.1 | 330.2 | 345.3 | 357.4 |
| 1849 | ISO3405 | 169.8 | 210 | 271.8 | 330.1 | 344 | 357.5 |
| 1872 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1884 | D86 | 168.5 | 206.6 | 271.1 | 330.7 | 346.5 | 356.5 |
| 1896 | ISO3405 | 168.5 | 211.7 | 272.5 | 329.5 | 343.5 | 353.3 |
| 1906 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1938 | ISO3405 | 164.2 | 208.1 | 272.0 | 330.5 | 346.4 | 356.4 |
| 1944 | D86 | 171.3 | 210.9 | 275.1 | 332.2 | 348.1 | 355.7 |
| 1948 | D86 | 174.3 | 210 | 272.2 | 331.5 | 349.4 | 358.2 |
| 1951 | D86 | 166.5 | 208.6 | 275.2 | 335.9 | 351.8 | 363.2 |
| 2129 | D86 | 172.8 | 210.5 | 273.1 | 330.5 | 344.3 | 361.2 |
| 7012 | | ----- | ----- | ----- | ----- | ----- | ----- |
| | normality | OK | OK | OK | OK | OK | OK |
| | n | 109 | 109 | 109 | 110 | 110 | 110 |
| | outliers | 2 | 2 | 2 | 1 | 0 + 1 excl. | 1 |
| | mean (n) | 169.31 | 209.78 | 272.83 | 331.45 | 347.32 | 356.84 |
| | st.dev. (n) | 2.950 | 1.800 | 1.045 | 1.661 | 2.758 | 2.088 |
| | R(calc.) | 8.26 | 5.04 | 2.93 | 4.65 | 7.72 | 5.85 |
| | R(D86:12) | 9.31 | 4.62 | 2.97 | 4.97 | 8.77 | 7.10 |

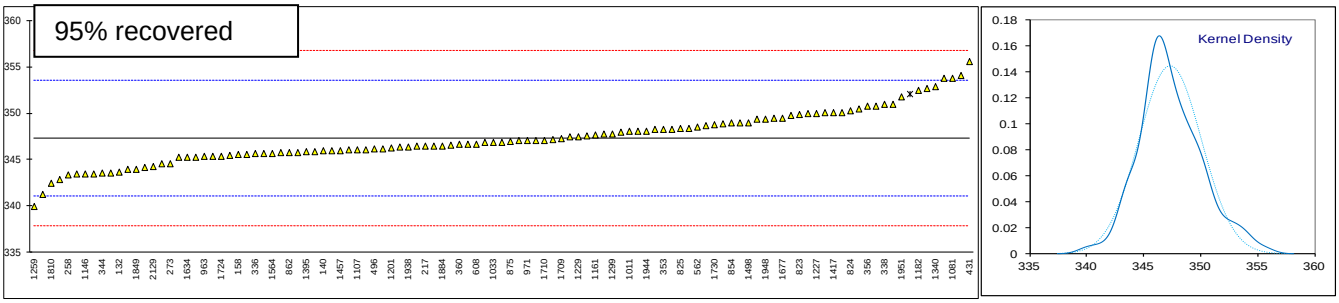
Lab 273: First reported 350.1
Lab 1430: First reported, 140.0, 202.1, 269.1, 325.5, 336.9, 338.3
Lab 1586: First reported 365.8

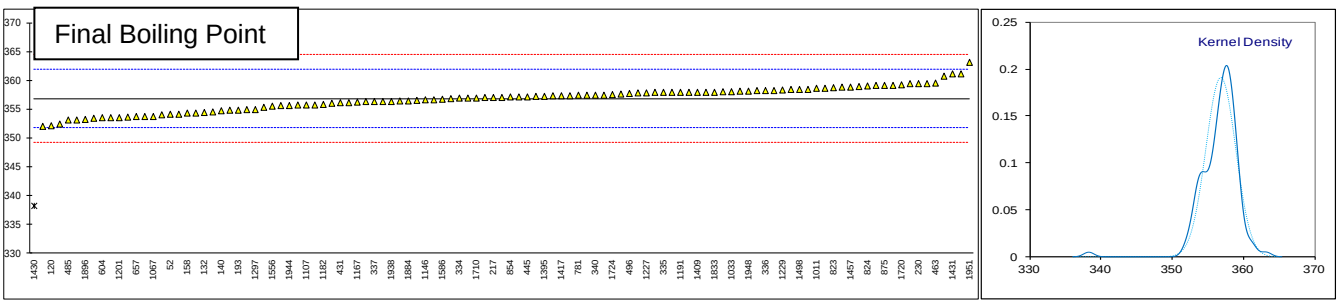

Initial Boiling Point
Kernel Density


10% recovered
Kernel Density


50% recovered
Kernel Density


90% recovered
Kernel Density


95% recovered
Kernel Density


Final Boiling Point
Kernel Density

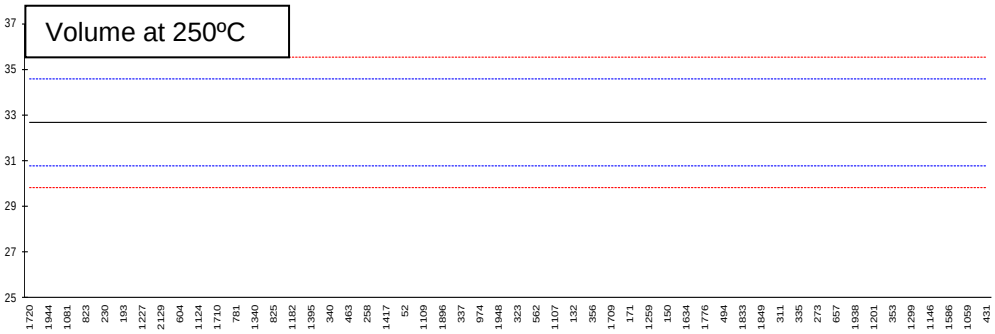
## Determination of Distillation (automated) on sample #14175; result in %V/V

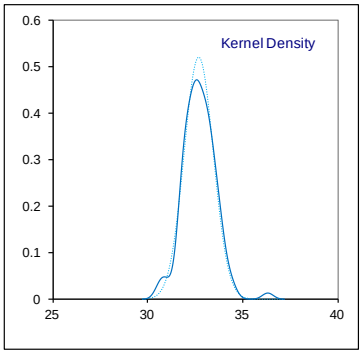
| lab | method | Vol. 250°C | mark | z(targ) | Vol. 350°C | mark | z(targ) | %residue |
|---|---|---|---|---|---|---|---|---|
| 52 | D86 | 32.5 | | -0.18 | 96.1 | | 0.43 | 1.3 |
| 53 | | ----- | | ----- | ----- | | ----- | ----- |
| 92 | D86 | 32.7 | | 0.03 | 96.5 | | 0.86 | 1.7 |
| 120 | D86 | 33.7 | | 1.08 | 95.8 | | 0.12 | 1.3 |
| 132 | D86 | 32.8 | | 0.14 | 96.3 | | 0.65 | 1.5 |
| 140 | D86 | 33.3 | | 0.66 | 95.9 | | 0.22 | 0.8 |
| 150 | D86 | 33.1 | | 0.45 | 95.2 | | -0.51 | 1.4 |
| 158 | | ----- | | ----- | ----- | | ----- | 1.6 |
| 159 | | ----- | | ----- | ----- | | ----- | 1.7 |
| 169 | | ----- | | ----- | ----- | | ----- | 1.7 |
| 171 | D86 | 33.0 | | 0.35 | 95.0 | | -0.72 | 1.7 |
| 175 | | ----- | | ----- | ----- | | ----- | 1.5 |
| 186 | | ----- | | ----- | ----- | | ----- | ----- |
| 193 | D86 | 31.8 | | -0.92 | 95.6 | | -0.09 | 1.6 |
| 194 | | ----- | | ----- | ----- | | ----- | ----- |
| 212 | | ----- | | ----- | ----- | | ----- | 2.0 |
| 217 | D86 | 32.5 | | -0.18 | 95.8 | | 0.12 | 1.4 |
| 221 | | ----- | | ----- | ----- | | ----- | ----- |
| 224 | D86 | 33.60 | | 0.98 | 95.50 | | -0.20 | 1.3 |
| 225 | | ----- | | ----- | ----- | | ----- | ----- |
| 228 | | ----- | | ----- | ----- | | ----- | ----- |
| 230 | D86 | 31.8 | | -0.92 | 95.3 | | -0.41 | 1.3 |
| 238 | | ----- | | ----- | ----- | | ----- | ----- |
| 240 | | ----- | | ----- | ----- | | ----- | ----- |
| 242 | | ----- | | ----- | ----- | | ----- | ----- |
| 252 | | ----- | | ----- | ----- | | ----- | ----- |
| 253 | | ----- | | ----- | ----- | | ----- | ----- |
| 254 | | ----- | | ----- | ----- | | ----- | ----- |
| 256 | | ----- | | ----- | ----- | | ----- | ----- |
| 258 | D86 | 32.4 | | -0.28 | 96.5 | | 0.86 | 1.3 |
| 273 | D86 | 33.4 | | 0.77 | 97.2 | | 1.59 | 2.3 |
| 311 | D86 | 33.3 | | 0.66 | 95.6 | | -0.09 | 1.4 |
| 312 | D86 | 31.8 | | -0.92 | 95.8 | | 0.12 | 2.0 |
| 323 | D86 | 32.7 | | 0.03 | 95.9 | | 0.22 | 1.4 |
| 332 | | ----- | | ----- | ----- | | ----- | ----- |
| 334 | D86 | 33.5 | | 0.87 | 95.8 | | 0.12 | 1.4 |
| 335 | D86 | 33.3 | | 0.66 | 95.4 | | -0.30 | 0.6 |
| 336 | D86 | 32.7 | | 0.03 | 96.1 | | 0.43 | 1.0 |
| 337 | D86 | 32.6 | | -0.07 | 95.6 | | -0.09 | 1.4 |
| 338 | ISO3405 | 32.1 | | -0.60 | 94.8 | | -0.93 | 1.4 |
| 340 | D86 | 32.3 | | -0.39 | 95.0 | | -0.72 | 1.4 |
| 343 | | ----- | | ----- | ----- | | ----- | ----- |
| 344 | D86 | 32.6 | | -0.07 | 96.4 | | 0.75 | 1.0 |
| 349 | | ----- | | ----- | ----- | | ----- | ----- |
| 350 | | ----- | | ----- | ----- | | ----- | ----- |
| 353 | IP123 | 33.7 | | 1.08 | 95.4 | | -0.30 | 1.0 |
| 356 | D86 | 32.9 | | 0.24 | 95.9 | | 0.22 | 1.4 |
| 360 | D86 | 33.4 | | 0.77 | 95.5 | | -0.20 | 1.4 |
| 430 | | ----- | | ----- | ----- | | ----- | ----- |
| 431 | D86 | 36.3 | R(0.01) | 3.82 | 97.9 | | 2.33 | 0.0 |
| 445 | D86 | 32.4 | | -0.28 | 95.5 | | -0.20 | 1.4 |
| 447 | D86 | 32.1 | | -0.60 | 95.7 | | 0.01 | 1.4 |
| 463 | D86 | 32.4 | | -0.28 | 95 | | -0.72 | 1.8 |
| 485 | D86 | 32.35 | | -0.34 | 96.15 | | 0.49 | 1.75 |
| 491 | | ----- | | ----- | ----- | | ----- | ----- |
| 493 | | ----- | | ----- | ----- | | ----- | ----- |
| 494 | D86 | 33.2 | | 0.56 | 96.0 | | 0.33 | 1.4 |
| 496 | D86 | 32.8 | | 0.14 | 95.9 | | 0.22 | 1.2 |
| 507 | | ----- | | ----- | ----- | | ----- | ----- |
| 511 | | ----- | | ----- | ----- | | ----- | ----- |
| 541 | D86 | 33.0 | | 0.35 | 95.0 | | -0.72 | 1.4 |
| 557 | | ----- | | ----- | ----- | | ----- | ----- |
| 562 | D86 | 32.7 | | 0.03 | 95.3 | | -0.41 | 1.9 |
| 575 | | ----- | | ----- | ----- | | ----- | ----- |
| 603 | | ----- | | ----- | ----- | | ----- | ----- |
| 604 | D86 | 31.9 | | -0.81 | 95.2 | | -0.51 | 1.4 |
| 607 | | ----- | | ----- | ----- | | ----- | ----- |
| 608 | | ----- | | ----- | ----- | | ----- | 1.4 |
| 631 | | ----- | | ----- | ----- | | ----- | ----- |
| 657 | D86 | 33.5 | | 0.87 | 97.1 | | 1.49 | 0.8 |
| 671 | | ----- | | ----- | ----- | | ----- | ----- |
| 732 | | ----- | | ----- | ----- | | ----- | ----- |
| 759 | | ----- | | ----- | ----- | | ----- | ----- |
| 781 | D86 | 32.1 | | -0.60 | 96.0 | | 0.33 | 1.2 |
| 823 | D86 | 31.7 | | -1.02 | 95.0 | | -0.72 | 1.4 |
| 824 | D86 | 32.3 | | -0.39 | 94.9 | | -0.83 | 1.4 |

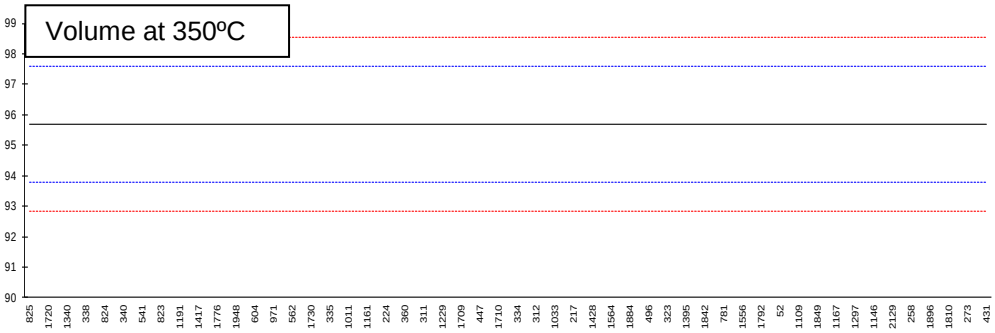
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 825 | D86 | 32.2 | -0.50 | 93.5 | R(0.05) | -2.30 | 1.6 |
| 854 | D86 | 31.6 | -1.13 | 95.3 | | -0.41 | 0.8 |
| 862 | D86 | 33.3 | 0.66 | 95.8 | | 0.12 | 1.7 |
| 863 | | ----- | ----- | ----- | | ----- | ----- |
| 873 | | ----- | ----- | ----- | | ----- | ----- |
| 874 | | ----- | ----- | ----- | | ----- | ----- |
| 875 | D86 | 31.9 | -0.81 | 95.7 | | 0.01 | 1.4 |
| 887 | | ----- | ----- | ----- | | ----- | ----- |
| 902 | | ----- | ----- | ----- | | ----- | ----- |
| 922 | | ----- | ----- | ----- | | ----- | ----- |
| 951 | | ----- | ----- | ----- | | ----- | ----- |
| 962 | | ----- | ----- | ----- | | ----- | ----- |
| 963 | D86 | 31.8 | -0.92 | 96.0 | | 0.33 | 1.2 |
| 970 | | ----- | ----- | ----- | | ----- | ----- |
| 971 | D86 | 32.6 | -0.07 | 95.3 | | -0.41 | 1.4 |
| 974 | D86 | 32.6 | -0.07 | 95.8 | | 0.12 | 1.3 |
| 994 | | ----- | ----- | ----- | | ----- | ----- |
| 995 | | ----- | ----- | ----- | | ----- | ----- |
| 996 | | ----- | ----- | ----- | | ----- | ----- |
| 997 | | ----- | ----- | ----- | | ----- | ----- |
| 998 | | ----- | ----- | ----- | | ----- | ----- |
| 1006 | | ----- | ----- | ----- | | ----- | 1.8 |
| 1011 | ISO3405 | 32.2 | -0.50 | 95.4 | | -0.30 | 1.2 |
| 1017 | | ----- | ----- | ----- | | ----- | ----- |
| 1033 | IP123 | 30.7 | -2.07 | 95.8 | | 0.12 | 1.5 |
| 1059 | ISO3405 | 34.4 | 1.82 | 96.6 | | 0.96 | 1.8 |
| 1067 | D86 | 31.8 | -0.92 | 95.4 | | -0.30 | 2.0 |
| 1080 | D86 | 33.7 | 1.08 | 95.7 | | 0.01 | 1.2 |
| 1081 | D86 | 31.5 | -1.23 | 94.3 | | -1.46 | 0.6 |
| 1082 | ISO3405 | 32.7 | 0.03 | 95.3 | | -0.41 | ----- |
| 1095 | | ----- | ----- | ----- | | ----- | ----- |
| 1107 | D86 | 32.7 | 0.03 | 95.8 | | 0.12 | 1.9 |
| 1109 | D86 | 32.5 | -0.18 | 96.1 | | 0.43 | ----- |
| 1121 | | ----- | ----- | ----- | | ----- | ----- |
| 1124 | ISO3405 | 32.0 | -0.71 | 95.0 | | -0.72 | 1.9 |
| 1134 | | ----- | ----- | ----- | | ----- | ----- |
| 1146 | ISO3405 | 33.84 | 1.23 | 96.33 | | 0.68 | 1.0 |
| 1159 | | ----- | ----- | ----- | | ----- | ----- |
| 1161 | ISO3405 | 34.4 | 1.82 | 95.4 | | -0.30 | 1.4 |
| 1167 | D86 | 33.5 | 0.87 | 96.2 | | 0.54 | 1.5 |
| 1171 | | ----- | ----- | ----- | | ----- | ----- |
| 1182 | D86 | 32.2 | -0.50 | 94.5 | | -1.25 | 1.6 |
| 1191 | ISO3405 | 32.2 | -0.50 | 95.0 | | -0.72 | ----- |
| 1201 | D86 | 33.6 | 0.98 | 95.9 | | 0.22 | 1.4 |
| 1227 | D86 | 31.8 | -0.92 | 95.0 | | -0.72 | 1.0 |
| 1229 | ISO3405 | 32.4 | -0.28 | 95.6 | | -0.09 | 1.7 |
| 1259 | D86 | 33.0 | 0.35 | 97.5 | | 1.91 | 1.4 |
| 1297 | D86 | 32.9 | 0.24 | 96.3 | | 0.65 | 1.4 |
| 1299 | D86 | 33.8 | 1.19 | 95.4 | | -0.30 | 1.2 |
| 1340 | ISO3405 | 32.1 | -0.60 | 94.5 | | -1.25 | 1.2 |
| 1379 | | ----- | ----- | ----- | | ----- | ----- |
| 1382 | | ----- | ----- | ----- | | ----- | ----- |
| 1395 | D86 | 32.2 | -0.50 | 95.9 | | 0.22 | 1.4 |
| 1409 | D86 | 32.1 | -0.60 | 94.8 | | -0.93 | 1.4 |
| 1417 | ISO3405 | 32.4 | -0.28 | 95.0 | | -0.72 | 0.9 |
| 1428 | ISO3405 | 32.6 | -0.07 | 95.8 | | 0.12 | 1.6 |
| 1430 | | ----- | ----- | ----- | | ----- | 1.4 |
| 1431 | D86 | 31.8 | -0.92 | 94.9 | | -0.83 | 2.3 |
| 1457 | D86 | 33.1 | 0.45 | 95.8 | | 0.12 | 1.3 |
| 1459 | ISO3405 | 32.5 | -0.18 | 96.3 | | 0.65 | 1.4 |
| 1498 | D86 | 32 | -0.71 | 95 | | -0.72 | 1.3 |
| 1510 | D86 | 33.8 | 1.19 | 96.1 | | 0.43 | 1.2 |
| 1521 | | ----- | ----- | ----- | | ----- | ----- |
| 1556 | ISO3405 | 34.1 | 1.50 | 96.0 | | 0.33 | 1.4 |
| 1564 | D86 | 32.8 | 0.14 | 95.8 | | 0.12 | 1.1 |
| 1575 | | ----- | ----- | ----- | | ----- | ----- |
| 1586 | D86 | 34.0 | 1.40 | 95.6 | | -0.09 | 1.2 |
| 1616 | | ----- | ----- | ----- | | ----- | ----- |
| 1629 | | ----- | ----- | ----- | | ----- | ----- |
| 1634 | D86 | 33.1 | 0.45 | 96.5 | | 0.86 | 1.4 |
| 1635 | | ----- | ----- | ----- | | ----- | ----- |
| 1643 | | ----- | ----- | ----- | | ----- | ----- |
| 1654 | | ----- | ----- | ----- | | ----- | ----- |
| 1677 | D86 | 31.0 | -1.76 | 95.1 | | -0.62 | 2.0 |
| 1709 | D86 | 32.9 | 0.24 | 95.6 | | -0.09 | 1.6 |
| 1710 | ISO3405 | 32.0 | -0.71 | 95.7 | | 0.01 | 1.5 |
| 1720 | D86 | 30.6 | -2.18 | 94.4 | | -1.35 | 1.4 |
| 1724 | D86 | 33.2 | 0.56 | 96.0 | | 0.33 | 1.4 |
| 1730 | D86 | 33.1 | 0.45 | 95.3 | | -0.41 | 0.8 |
| 1776 | ISO3405 | 33.1 | 0.45 | 95.0 | | -0.72 | 1.4 |

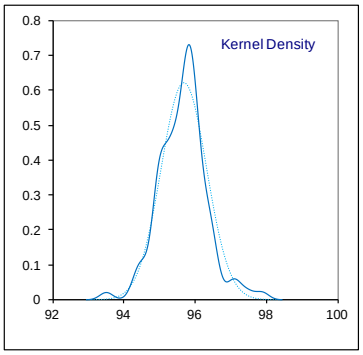
| | | | | | | |
|---|---|---|---|---|---|---|
| 1792 | D86 | 32.9 | 0.24 | 96.0 | 0.33 | 1.4 |
| 1807 | D86 | 33.0 | 0.35 | 95.3 | -0.41 | 1.4 |
| 1810 | D86 | 33.1 | 0.45 | 97.0 | 1.38 | 0.8 |
| 1811 | D86 | 32.4 | -0.28 | 95.9 | 0.22 | 1.4 |
| 1833 | D86 | 33.2 | 0.56 | 95.8 | 0.12 | 1.6 |
| 1842 | D86 | 33.2 | 0.56 | 95.9 | 0.22 | 1.4 |
| 1849 | ISO3405 | 33.2 | 0.56 | 96.1 | 0.43 | 1.4 |
| 1872 | | ----- | ----- | ----- | ----- | ----- |
| 1884 | D86 | 33.9 | 1.29 | 95.8 | 0.12 | 1.4 |
| 1896 | ISO3405 | 32.5 | -0.18 | 96.5 | 0.86 | 0.9 |
| 1906 | | ----- | ----- | ----- | ----- | ----- |
| 1938 | ISO3405 | 33.5 | 0.87 | 95.7 | 0.01 | 1.4 |
| 1944 | D86 | 30.9 | -1.86 | 96.0 | 0.33 | 1.8 |
| 1948 | D86 | 32.6 | -0.07 | 95.1 | -0.62 | 1.7 |
| 1951 | D86 | 31.9 | -0.81 | 94.5 | -1.25 | 1.4 |
| 2129 | D86 | 31.8 | -0.92 | 96.4 | 0.75 | 1.4 |
| 7012 | | ----- | ----- | ----- | ----- | ----- |

| | | |
|---|---|---|
| normality | OK | suspect |
| n | 102 | 102 |
| outliers | 1 | 1 |
| mean (n) | 32.67 | 95.69 |
| st.dev. (n) | 0.766 | 0.641 |
| R(calc.) | 2.14 | 1.79 |
| R(D86:12) | 2.66 | 2.66 |



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## Determination of Distillation (Manual) on sample #14175; result in °C

| lab | method | IBP | mark | 10%rec | mark | 50%rec | mark | 90%rec | mark | 95%rec | mark | FBP | mark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 53 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 92 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 120 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 132 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 140 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 150 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 158 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 159 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 169 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 171 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 175 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 186 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 193 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 194 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 212 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 217 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 221 | D86 | 167.0 | | 206.0 | | 271.0 | | 332.0 | | 339.0 | | 355.0 | |
| 224 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 225 | D86 | 171.0 | | 208.0 | | 271.5 | | 332.0 | | 350.0 | | 357.0 | |
| 228 | D86 | 174.0 | | 210.0 | | 271.0 | | 332.0 | | 348.0 | | 356.0 | |
| 230 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 238 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 240 | D86 | 170.0 | | 205.0 | | 272.0 | | 332.0 | | 350.0 | | 356.0 | |
| 242 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 252 | D86 | 172.0 | | 205.0 | | 271.0 | | 331.0 | | 346.0 | | 358.0 | |
| 253 | D86 | 168.0 | | 208.5 | | 272.0 | | 331.0 | | 348.5 | | 357.0 | |
| 254 | D86 | 172.0 | | 205.0 | | 272.0 | | 331.0 | | 348.0 | | 358.0 | |
| 256 | D86 | 172.0 | | 207.0 | | 272.0 | | 331.0 | | ----- | | 357.0 | |
| 258 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 273 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 311 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 312 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 323 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 332 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 334 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 335 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 336 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 337 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 338 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 340 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 343 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 344 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 349 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 350 | ISO3405 | 164.84 | | 202.82 | | 270.80 | | 330.78 | | 347.27 | | 357.77 | |
| 353 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 356 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 360 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 430 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 431 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 445 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 447 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 463 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 485 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 491 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 493 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 494 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 496 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 507 | D86 | 177.40 | | 211.40 | | 274.50 | | 333.50 | | 343.50 | | 353.50 | |
| 511 | D86 | 172.5 | | 207.5 | | 270.0 | | 330.5 | | 347.5 | | 356.0 | |
| 541 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 557 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 562 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 575 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 603 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 604 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 607 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 608 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 631 | D86 | 171.0 | | 201.5 | | 270.0 | | 329.0 | | 343.0 | | 353.0 | |
| 657 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 671 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 732 | D86 | 171.5 | | 207.5 | | 272.5 | | 333.0 | | 349.5 | | 359.0 | |
| 759 | D86 | 167.0 | | 209.5 | | 272.5 | | 330.5 | | 345.5 | | 356.5 | |
| 781 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 823 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |
| 824 | | ----- | | ----- | | ----- | | ----- | | ----- | | ----- | |

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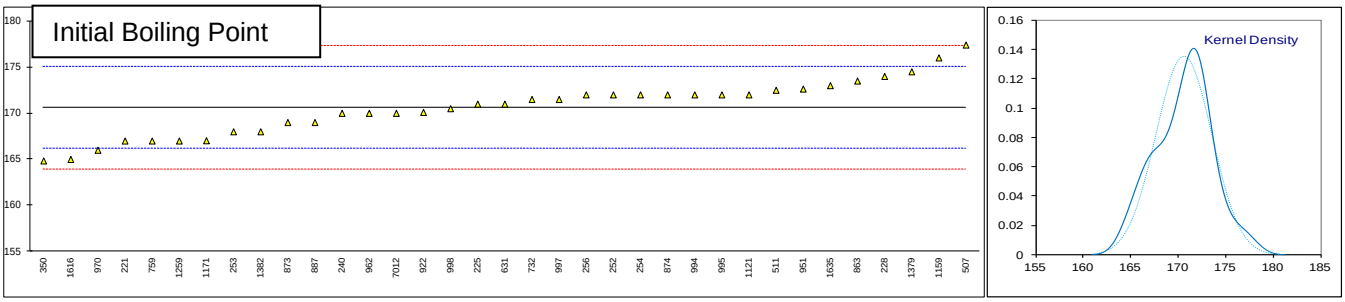
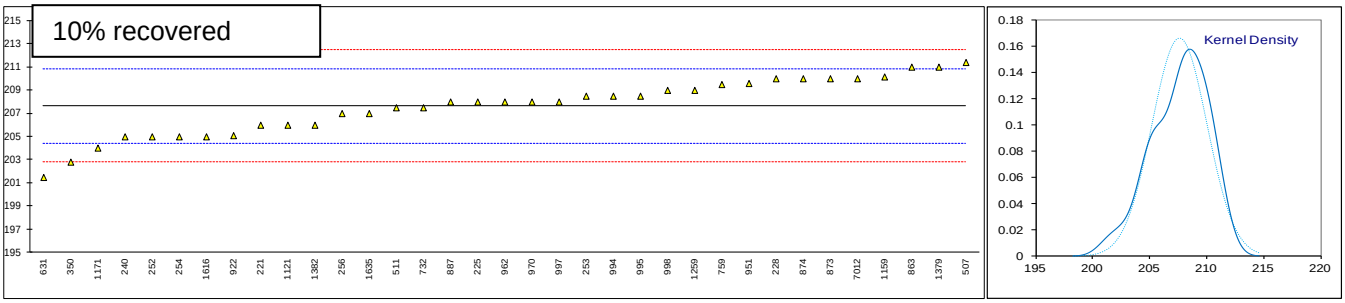
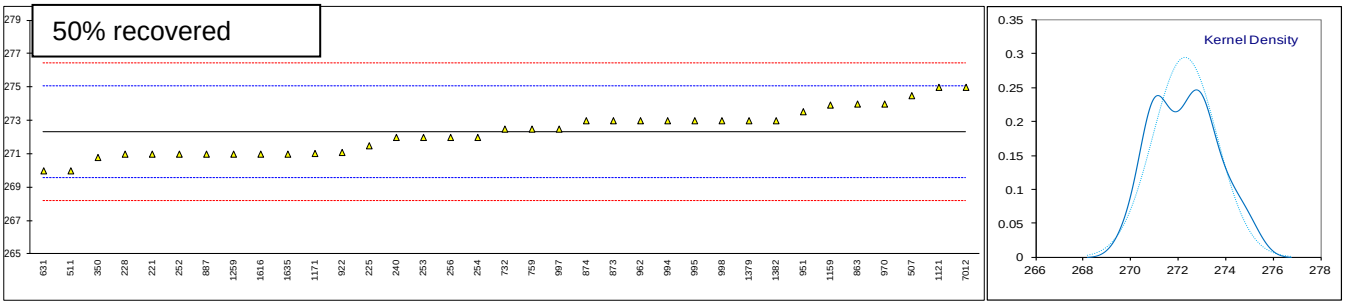
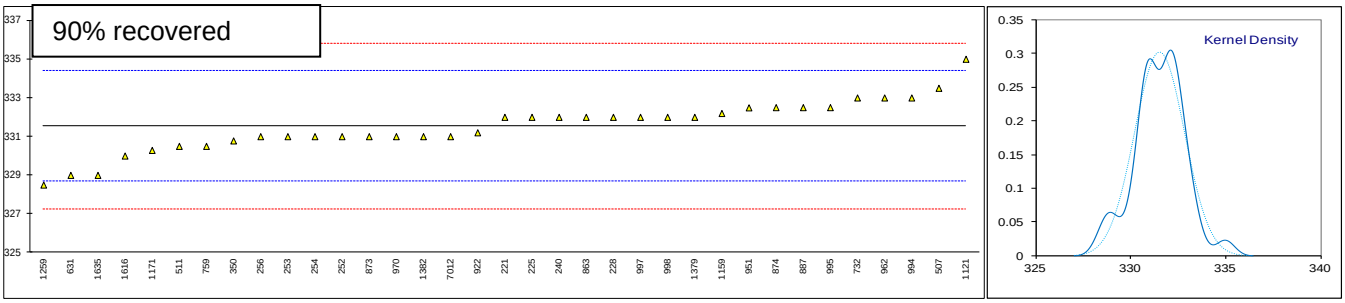
|---|---|---|---|---|---|---|---|
| 825 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 854 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 862 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 863 | D86 | 173.5 | 211.0 | 274.0 | 332.0 | 347.5 | 361.0 |
| 873 | D86 | 169.0 | 210.0 | 273.0 | 331.0 | 346.5 | 357.5 |
| 874 | D86 | 172.0 | 210.0 | 273.0 | 332.5 | 350.0 | 357.0 |
| 875 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 887 | D86 | 169.0 | 208.0 | 271.0 | 332.5 | 347.5 | 355.5 |
| 902 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 922 | D86 | 170.1 | 205.1 | 271.1 | 331.2 | 345.2 | 359.2 |
| 951 | D86 | 172.63 | 209.59 | 273.54 | 332.49 | 346.48 | 356.47 |
| 962 | D86 | 170.0 | 208.0 | 273.0 | 333.0 | 341.5 | 359.0 |
| 963 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 970 | D86 | 166.0 | 208.0 | 274.0 | 331.0 | 346.0 | 354.0 |
| 971 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 974 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 994 | D86 | 172.0 | 208.5 | 273.0 | 333.0 | 350.0 | 358.5 |
| 995 | D86 | 172.0 | 208.5 | 273.0 | 332.5 | 350.0 | 359.0 |
| 996 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 997 | D86 | 171.5 | 208.0 | 272.5 | 332.0 | 350.0 | 359.0 |
| 998 | D86 | 170.5 | 209.0 | 273.0 | 332.0 | 348.5 | 358.5 |
| 1006 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1011 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1017 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1033 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1059 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1067 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1080 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1081 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1082 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1095 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1107 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1109 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1121 | IP123 | 172.0 | 206.0 | 275.0 | 335.0 | 349.0 | 360.0 |
| 1124 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1134 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1146 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1159 | D86 | 176.008 | 210.154 | 273.938 | 332.198 | 348.111 | 352.343 |
| 1161 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1167 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1171 | ISO3405 | 167.03 | 204.03 | 271.04 | 330.29 | 345.97 | 356.80 |
| 1182 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1191 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1201 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1227 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1229 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1259 | D86 | 167.0 | 209.0 | 271.0 | 328.5 | 340.5 | 357.5 |
| 1297 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1299 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1340 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1379 | INH-2177 | 174.5 | 211 | 273 | 332 | 343 | 351 |
| 1382 | GB/T6536 | 168 | 206 | 273 | 331 | 345 | 356 |
| 1395 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1409 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1417 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1428 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1430 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1431 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1457 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1459 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1498 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1510 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1521 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1556 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1564 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1575 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1586 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1616 | D86 | 165 | 205 | 271 | 330 | 344 | 357 |
| 1629 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1634 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1635 | D86 | 173.0 | 207.0 | 271.0 | 329.0 | 344.0 | 360.0 |
| 1643 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1654 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1677 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1709 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1710 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1720 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1724 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1730 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1776 | | ----- | ----- | ----- | ----- | ----- | ----- |

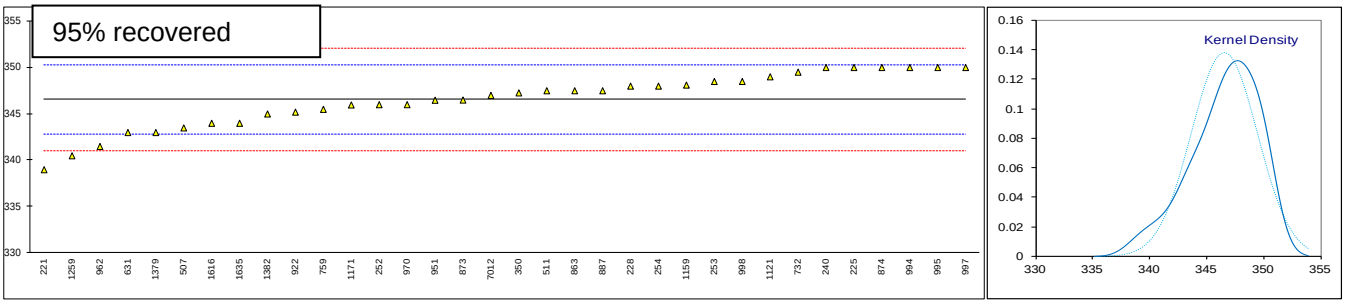
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1792 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1807 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1810 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1811 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1833 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1842 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1849 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1872 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1884 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1896 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1906 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1938 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1944 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1948 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 1951 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 2129 | | ----- | ----- | ----- | ----- | ----- | ----- |
| 7012 | D86 | 170 | 210 | 275 | 331 | 347 | 355 |
| | normality | OK | OK | OK | OK | OK | OK |
| | n | 35 | 35 | 35 | 35 | 34 | 35 |
| | outliers | 0 | 0 | 0 | 0 | 0 | 0 |
| | mean (n) | 170.60 | 207.62 | 272.31 | 331.53 | 346.52 | 356.86 |
| | st.dev. (n) | 2.956 | 2.403 | 1.352 | 1.320 | 2.895 | 2.246 |
| | R(calc.) | 8.28 | 6.73 | 3.79 | 3.70 | 8.11 | 6.29 |
| | R(D86:12) | 6.24 | 4.51 | 3.86 | 3.99 | 5.17 | 3.97 |

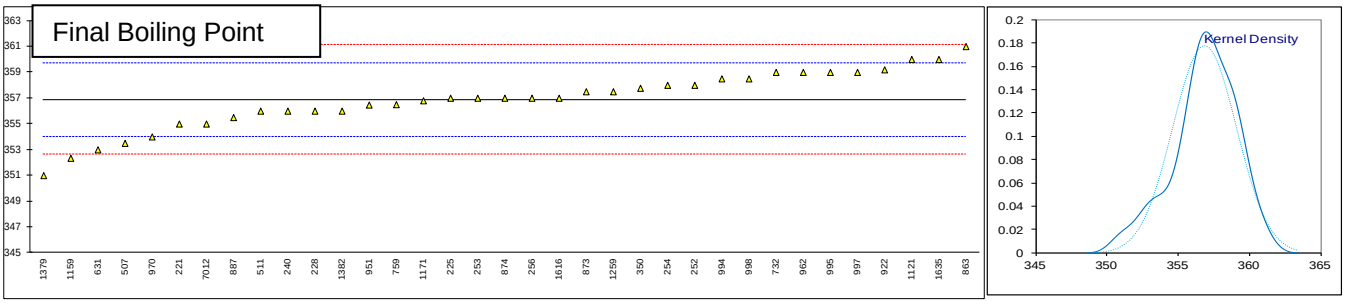

Initial Boiling Point
Kernel Density


10% recovered
Kernel Density


50% recovered
Kernel Density


90% recovered
Kernel Density


95% recovered
Kernel Density


Final Boiling Point
Kernel Density

## Determination of Distillation (Manual) on sample #14175; result in %V/V

| lab | method | Vol. 250°C | mark | z(targ) | Vol. 350°C | mark | z(targ) | %residue |
|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | ----- | | ----- | ----- |
| 53 | | ----- | | ----- | ----- | | ----- | ----- |
| 92 | | ----- | | ----- | ----- | | ----- | ----- |
| 120 | | ----- | | ----- | ----- | | ----- | ----- |
| 132 | | ----- | | ----- | ----- | | ----- | ----- |
| 140 | | ----- | | ----- | ----- | | ----- | ----- |
| 150 | | ----- | | ----- | ----- | | ----- | ----- |
| 158 | | ----- | | ----- | ----- | | ----- | ----- |
| 159 | | ----- | | ----- | ----- | | ----- | ----- |
| 169 | | ----- | | ----- | ----- | | ----- | ----- |
| 171 | | ----- | | ----- | ----- | | ----- | ----- |
| 175 | | ----- | | ----- | ----- | | ----- | ----- |
| 186 | | ----- | | ----- | ----- | | ----- | ----- |
| 193 | | ----- | | ----- | ----- | | ----- | ----- |
| 194 | | ----- | | ----- | ----- | | ----- | ----- |
| 212 | | ----- | | ----- | ----- | | ----- | ----- |
| 217 | | ----- | | ----- | ----- | | ----- | ----- |
| 221 | D86 | 35 | | 1.91 | 96 | | 0.34 | 1.8 |
| 224 | | ----- | | ----- | ----- | | ----- | ----- |
| 225 | D86 | 34.0 | | 0.84 | 95.0 | | -0.93 | 1.6 |
| 228 | D86 | 33.0 | | -0.24 | 95.0 | | -0.93 | 1.8 |
| 230 | | ----- | | ----- | ----- | | ----- | ----- |
| 238 | | ----- | | ----- | ----- | | ----- | ----- |
| 240 | D86 | 34.0 | | 0.84 | 95.0 | | -0.93 | 2.0 |
| 242 | | ----- | | ----- | ----- | | ----- | ----- |
| 252 | | ----- | | ----- | ----- | | ----- | ----- |
| 253 | D86 | 33.0 | | -0.24 | 95.2 | | -0.68 | 1.3 |
| 254 | D86 | 32.0 | | -1.32 | 96.0 | | 0.34 | ----- |
| 256 | | ----- | | ----- | ----- | | ----- | ----- |
| 258 | | ----- | | ----- | ----- | | ----- | ----- |
| 273 | | ----- | | ----- | ----- | | ----- | ----- |
| 311 | | ----- | | ----- | ----- | | ----- | ----- |
| 312 | | ----- | | ----- | ----- | | ----- | ----- |
| 323 | | ----- | | ----- | ----- | | ----- | ----- |
| 332 | | ----- | | ----- | ----- | | ----- | ----- |
| 334 | | ----- | | ----- | ----- | | ----- | ----- |
| 335 | | ----- | | ----- | ----- | | ----- | ----- |
| 336 | | ----- | | ----- | ----- | | ----- | ----- |
| 337 | | ----- | | ----- | ----- | | ----- | ----- |
| 338 | | ----- | | ----- | ----- | | ----- | ----- |
| 340 | | ----- | | ----- | ----- | | ----- | ----- |
| 343 | | ----- | | ----- | ----- | | ----- | ----- |
| 344 | | ----- | | ----- | ----- | | ----- | ----- |
| 349 | | ----- | | ----- | ----- | | ----- | ----- |
| 350 | ISO3405 | 33.67 | | 0.48 | 95.50 | | -0.29 | 1.0 |
| 353 | | ----- | | ----- | ----- | | ----- | ----- |
| 356 | | ----- | | ----- | ----- | | ----- | ----- |
| 360 | | ----- | | ----- | ----- | | ----- | ----- |
| 430 | | ----- | | ----- | ----- | | ----- | ----- |
| 431 | | ----- | | ----- | ----- | | ----- | ----- |
| 445 | | ----- | | ----- | ----- | | ----- | ----- |
| 447 | | ----- | | ----- | ----- | | ----- | ----- |
| 463 | | ----- | | ----- | ----- | | ----- | ----- |
| 485 | | ----- | | ----- | ----- | | ----- | ----- |
| 491 | | ----- | | ----- | ----- | | ----- | ----- |
| 493 | | ----- | | ----- | ----- | | ----- | ----- |
| 494 | | ----- | | ----- | ----- | | ----- | ----- |
| 496 | | ----- | | ----- | ----- | | ----- | ----- |
| 507 | D86 | 32 | | -1.32 | 96 | | 0.34 | 1.4 |
| 511 | D86 | 34.5 | | 1.37 | 95.5 | | -0.29 | 1.0 |
| 541 | | ----- | | ----- | ----- | | ----- | ----- |
| 557 | | ----- | | ----- | ----- | | ----- | ----- |
| 562 | | ----- | | ----- | ----- | | ----- | ----- |
| 575 | | ----- | | ----- | ----- | | ----- | ----- |
| 603 | | ----- | | ----- | ----- | | ----- | ----- |
| 604 | | ----- | | ----- | ----- | | ----- | ----- |
| 607 | | ----- | | ----- | ----- | | ----- | ----- |
| 608 | | ----- | | ----- | ----- | | ----- | ----- |
| 631 | D86 | 35.0 | | 1.91 | 96.5 | | 0.98 | 1.5 |
| 657 | | ----- | | ----- | ----- | | ----- | ----- |
| 671 | | ----- | | ----- | ----- | | ----- | ----- |
| 732 | D86 | 32.5 | | -0.78 | 95.5 | | -0.29 | 1.6 |
| 759 | D86 | 33.5 | | 0.30 | 96.0 | | 0.34 | 1.9 |
| 781 | | ----- | | ----- | ----- | | ----- | ----- |
| 823 | | ----- | | ----- | ----- | | ----- | ----- |
| 824 | | ----- | | ----- | ----- | | ----- | ----- |

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|---|---|---|---|---|---|---|
| 825 | | ----- | ----- | ----- | ----- | ----- |
| 854 | | ----- | ----- | ----- | ----- | ----- |
| 862 | | ----- | ----- | ----- | ----- | ----- |
| 863 | D86 | 31.9 | -1.43 | 96.0 | 0.34 | 1.1 |
| 873 | D86 | 32.5 | -0.78 | 96.5 | 0.98 | 1.8 |
| 874 | D86 | 33.0 | -0.24 | 95.0 | -0.93 | 1.5 |
| 875 | | ----- | ----- | ----- | ----- | ----- |
| 887 | D86 | 33 | -0.24 | 96 | 0.34 | 1.7 |
| 902 | | ----- | ----- | ----- | ----- | ----- |
| 922 | D86 | 35 | 1.91 | 96 | 0.34 | 1.10 |
| 951 | D86 | 32.5 | -0.78 | 95.5 | -0.29 | 1.8 |
| 962 | D86 | 33.5 | 0.30 | 96.5 | 0.98 | 1.0 |
| 963 | | ----- | ----- | ----- | ----- | ----- |
| 970 | D86 | 32.6 | -0.67 | 96.3 | 0.72 | 1.6 |
| 971 | | ----- | ----- | ----- | ----- | ----- |
| 974 | | ----- | ----- | ----- | ----- | ----- |
| 994 | D86 | 33.0 | -0.24 | 95.0 | -0.93 | 1.3 |
| 995 | D86 | 33.7 | 0.51 | 95.0 | -0.93 | 1.38 |
| 996 | | ----- | ----- | ----- | ----- | ----- |
| 997 | D86 | 34.0 | 0.84 | 95.0 | -0.93 | 1.4 |
| 998 | D86 | 32.5 | -0.78 | 95.5 | -0.29 | 1.4 |
| 1006 | | ----- | ----- | ----- | ----- | ----- |
| 1011 | | ----- | ----- | ----- | ----- | ----- |
| 1017 | | ----- | ----- | ----- | ----- | ----- |
| 1033 | | ----- | ----- | ----- | ----- | ----- |
| 1059 | | ----- | ----- | ----- | ----- | ----- |
| 1067 | | ----- | ----- | ----- | ----- | ----- |
| 1080 | | ----- | ----- | ----- | ----- | ----- |
| 1081 | | ----- | ----- | ----- | ----- | ----- |
| 1082 | | ----- | ----- | ----- | ----- | ----- |
| 1095 | | ----- | ----- | ----- | ----- | ----- |
| 1107 | | ----- | ----- | ----- | ----- | ----- |
| 1109 | | ----- | ----- | ----- | ----- | ----- |
| 1121 | IP123 | 32 | -1.32 | 95 | -0.93 | 1.4 |
| 1124 | | ----- | ----- | ----- | ----- | ----- |
| 1134 | | ----- | ----- | ----- | ----- | ----- |
| 1146 | | ----- | ----- | ----- | ----- | ----- |
| 1159 | D86 | 34.0 | 0.84 | 95.5 | -0.29 | 2.6 |
| 1161 | | ----- | ----- | ----- | ----- | ----- |
| 1167 | | ----- | ----- | ----- | ----- | ----- |
| 1171 | ISO3405 | 34.01 | 0.85 | 96.15 | 0.53 | 1.1 |
| 1182 | | ----- | ----- | ----- | ----- | ----- |
| 1191 | | ----- | ----- | ----- | ----- | ----- |
| 1201 | | ----- | ----- | ----- | ----- | ----- |
| 1227 | | ----- | ----- | ----- | ----- | ----- |
| 1229 | | ----- | ----- | ----- | ----- | ----- |
| 1259 | D86 | 34.0 | 0.84 | 97.0 | 1.61 | 1.2 |
| 1297 | | ----- | ----- | ----- | ----- | ----- |
| 1299 | | ----- | ----- | ----- | ----- | ----- |
| 1340 | | ----- | ----- | ----- | ----- | ----- |
| 1379 | INH-2177 | 33 | -0.24 | 96 | 0.34 | 2.5 |
| 1382 | GB/T6536 | 33 | -0.24 | 96 | 0.34 | 2.0 |
| 1395 | | ----- | ----- | ----- | ----- | ----- |
| 1409 | | ----- | ----- | ----- | ----- | ----- |
| 1417 | | ----- | ----- | ----- | ----- | ----- |
| 1428 | | ----- | ----- | ----- | ----- | ----- |
| 1430 | | ----- | ----- | ----- | ----- | ----- |
| 1431 | | ----- | ----- | ----- | ----- | ----- |
| 1457 | | ----- | ----- | ----- | ----- | ----- |
| 1459 | | ----- | ----- | ----- | ----- | ----- |
| 1498 | | ----- | ----- | ----- | ----- | ----- |
| 1510 | | ----- | ----- | ----- | ----- | ----- |
| 1521 | | ----- | ----- | ----- | ----- | ----- |
| 1556 | | ----- | ----- | ----- | ----- | ----- |
| 1564 | | ----- | ----- | ----- | ----- | ----- |
| 1575 | | ----- | ----- | ----- | ----- | ----- |
| 1586 | | ----- | ----- | ----- | ----- | ----- |
| 1616 | D86 | 32 | -1.32 | 96 | 0.34 | 1.6 |
| 1629 | | ----- | ----- | ----- | ----- | ----- |
| 1634 | | ----- | ----- | ----- | ----- | ----- |
| 1635 | D86 | 34.0 | 0.84 | 96.0 | 0.34 | 1.3 |
| 1643 | | ----- | ----- | ----- | ----- | ----- |
| 1654 | | ----- | ----- | ----- | ----- | ----- |
| 1677 | | ----- | ----- | ----- | ----- | ----- |
| 1709 | | ----- | ----- | ----- | ----- | ----- |
| 1710 | | ----- | ----- | ----- | ----- | ----- |
| 1720 | | ----- | ----- | ----- | ----- | ----- |
| 1724 | | ----- | ----- | ----- | ----- | ----- |
| 1730 | | ----- | ----- | ----- | ----- | ----- |
| 1776 | | ----- | ----- | ----- | ----- | ----- |

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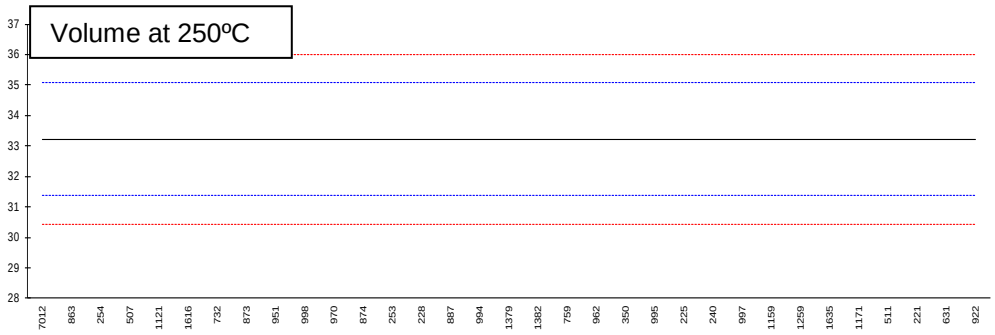
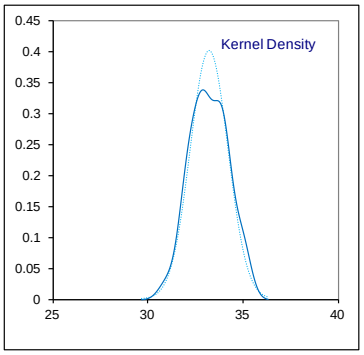
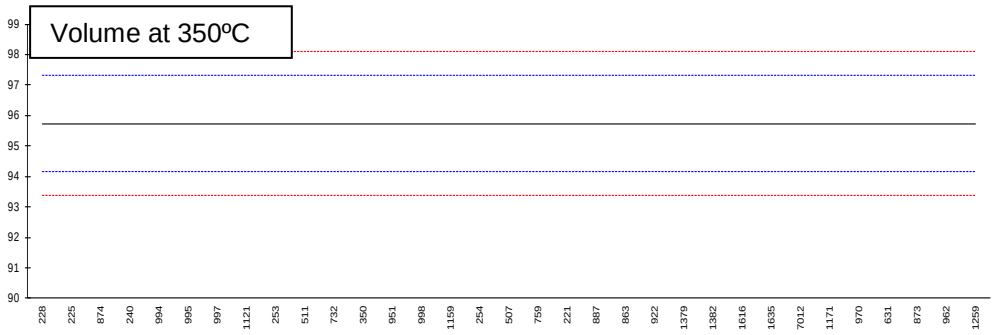
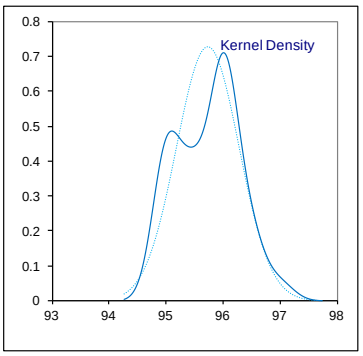
|---|---|---|---|---|---|---|
| 1792 | | ----- | ----- | ----- | ----- | ----- |
| 1807 | | ----- | ----- | ----- | ----- | ----- |
| 1810 | | ----- | ----- | ----- | ----- | ----- |
| 1811 | | ----- | ----- | ----- | ----- | ----- |
| 1833 | | ----- | ----- | ----- | ----- | ----- |
| 1842 | | ----- | ----- | ----- | ----- | ----- |
| 1849 | | ----- | ----- | ----- | ----- | ----- |
| 1872 | | ----- | ----- | ----- | ----- | ----- |
| 1884 | | ----- | ----- | ----- | ----- | ----- |
| 1896 | | ----- | ----- | ----- | ----- | ----- |
| 1906 | | ----- | ----- | ----- | ----- | ----- |
| 1938 | | ----- | ----- | ----- | ----- | ----- |
| 1944 | | ----- | ----- | ----- | ----- | ----- |
| 1948 | | ----- | ----- | ----- | ----- | ----- |
| 1951 | | ----- | ----- | ----- | ----- | ----- |
| 2129 | | ----- | ----- | ----- | ----- | ----- |
| 7012 | D86 | 31 | -2.39 | 96 | 0.34 | 1.1 |
| | normality | OK | | OK | | |
| | n | 33 | | 33 | | |
| | outliers | 0 | | 0 | | |
| | mean (n) | 33.22 | | 95.73 | | |
| | st.dev. (n) | 0.991 | | 0.549 | | |
| | R(calc.) | 2.77 | | 1.54 | | |
| | R(D86:12) | 2.60 | | 2.20 | | |



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# Determination of FAME Content on sample #14175; result in %V/V

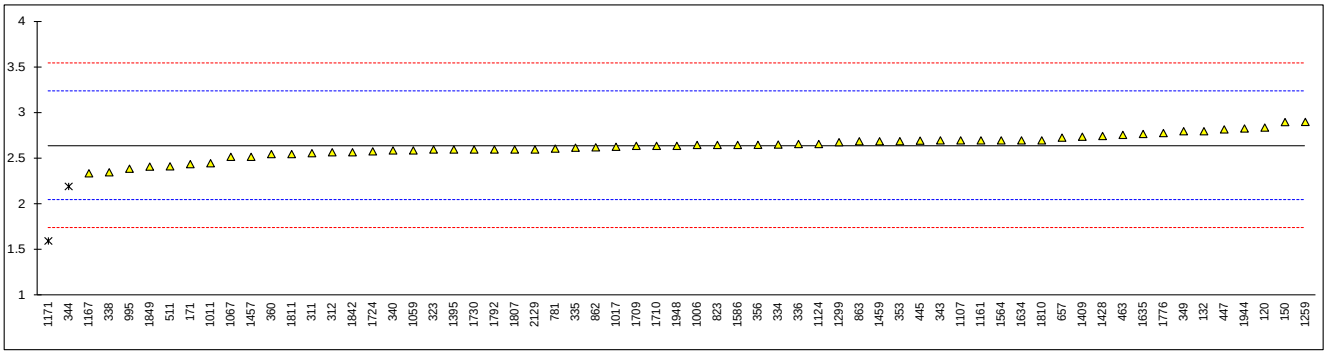
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | | ----- | | ----- |
| 92 | | ----- | | ----- | 862 | EN14078 | 2.624 | | -0.05 |
| 120 | D7371 | 2.84 | | 0.67 | 863 | EN14078 | 2.69 | | 0.17 |
| 132 | D7371 | 2.80 | | 0.53 | 873 | | ----- | | ----- |
| 140 | | ----- | | ----- | 874 | | ----- | | ----- |
| 150 | D7371 | 2.9 | | 0.87 | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | | ----- | | ----- | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | | ----- | | ----- |
| 171 | D7371 | 2.44 | | -0.67 | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | | ----- | | ----- |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | D7371 | 2.39 | | -0.84 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | EN14078 | 2.65 | | 0.03 |
| 238 | | ----- | | ----- | 1011 | EN14078 | 2.45 | | -0.64 |
| 240 | | ----- | | ----- | 1017 | EN14078 | 2.63 | | -0.03 |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | EN14078 | 2.59 | | -0.17 |
| 253 | | ----- | | ----- | 1067 | EN14078 | 2.52 | | -0.40 |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | EN14078 | 2.56 | | -0.27 | 1107 | in house | 2.7 | | 0.20 |
| 312 | EN14078 | 2.57 | | -0.23 | 1109 | | ----- | | ----- |
| 323 | D7371 | 2.60 | | -0.13 | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | EN14078 | 2.66 | | 0.07 |
| 334 | EN14078 | 2.654 | | 0.05 | 1134 | | ----- | | ----- |
| 335 | EN14078 | 2.62 | | -0.07 | 1146 | | ----- | | ----- |
| 336 | EN14078 | 2.66 | | 0.07 | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | EN14078 | 2.7 | | 0.20 |
| 338 | EN14078 | 2.351 | | -0.97 | 1167 | EN14078 | 2.340 | | -1.00 |
| 340 | EN14078 | 2.59 | | -0.17 | 1171 | EN14078 | 1.60 | R(0.01) | -3.48 |
| 343 | EN14078 | 2.7 | | 0.20 | 1182 | | ----- | | ----- |
| 344 | EN14078 | 2.196 | R(0.05) | -1.49 | 1191 | | ----- | | ----- |
| 349 | EN14078 | 2.80 | | 0.53 | 1201 | | ----- | | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | EN14078 | 2.691 | | 0.17 | 1229 | | ----- | | ----- |
| 356 | EN14078 | 2.651 | | 0.04 | 1259 | EN14078 | 2.90186 | | 0.88 |
| 360 | EN14078 | 2.55 | | -0.30 | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | EN14078 | 2.68 | | 0.13 |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | EN14078 | 2.697 | | 0.19 | 1379 | | ----- | | ----- |
| 447 | EN14078 | 2.82 | | 0.60 | 1382 | | ----- | | ----- |
| 463 | EN14078 | 2.76 | | 0.40 | 1395 | D7371 | 2.6 | | -0.13 |
| 485 | | ----- | | ----- | 1409 | EN14078 | 2.74 | | 0.33 |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | EN14078 | 2.7478 | | 0.36 |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | | ----- | | ----- | 1457 | EN14078 | 2.52 | | -0.40 |
| 511 | D7371 | 2.416 | | -0.75 | 1459 | EN14078 | 2.69 | | 0.17 |
| 541 | | ----- | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1564 | EN14078 | 2.7 | | 0.20 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | EN14078 | 2.65 | | 0.03 |
| 608 | | ----- | | ----- | 1616 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | EN14078 | 2.73 | | 0.30 | 1634 | EN14078 | 2.7 | | 0.20 |
| 671 | | ----- | | ----- | 1635 | D7371 | 2.77 | | 0.43 |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | EN14078 | 2.61 | | -0.10 | 1677 | | ----- | | ----- |
| 823 | D7371 | 2.65 | | 0.03 | 1709 | EN14078 | 2.64 | | 0.00 |
| 824 | | ----- | | ----- | 1710 | EN14078 | 2.64 | | 0.00 |

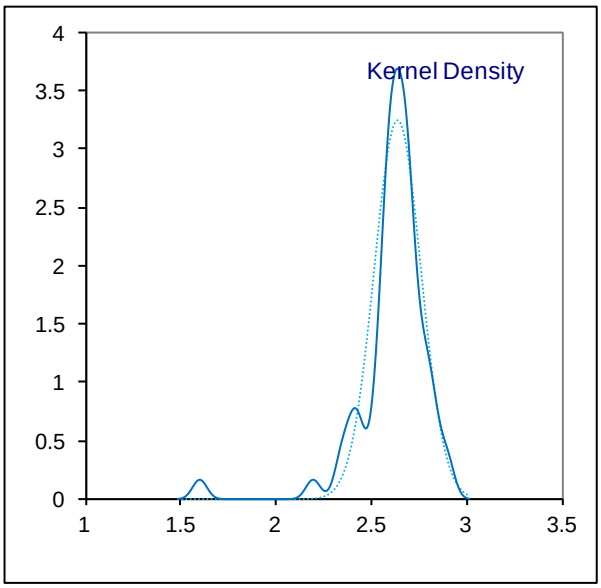
| | | | |
|---|---|---|---|
| 1720 | | ----- | ----- |
| 1724 | EN14078 | 2.58 | -0.20 |
| 1730 | EN14078 | 2.6 | -0.13 |
| 1776 | EN14078 | 2.78 | 0.47 |
| 1792 | EN14078 | 2.60 | -0.13 |
| 1807 | EN14078 | 2.60 | -0.13 |
| 1810 | D7371 | 2.7 | 0.20 |
| 1811 | EN14078 | 2.55 | -0.30 |
| 1833 | | ----- | ----- |
| 1842 | EN14078 | 2.57 | -0.23 |
| 1849 | EN14078 | 2.413 | -0.76 |

| | | | |
|---|---|---|---|
| 1872 | | ----- | ----- |
| 1884 | | ----- | ----- |
| 1896 | | ----- | ----- |
| 1906 | | ----- | ----- |
| 1938 | | ----- | ----- |
| 1944 | EN14078 | 2.83 | 0.64 |
| 1948 | D7371 | 2.64 | 0.00 |
| 1951 | | ----- | ----- |
| 2129 | IP579 | 2.60 | -0.13 |
| 7012 | | ----- | ----- |

| | | Only D7371 | Only EN14078 |
|---|---|---|---|
| normality | OK | OK | suspect |
| n | 61 | 13 | 47 |
| outliers | 2 | 0 | 2 |
| mean (n) | 2.640 | 2.642 | 2.638 |
| st.dev. (n) | 0.1229 | 0.1610 | 0.1134 |
| R(calc.) | 0.344 | 0.451 | 0.318 |
| R(D7371:14) | 0.837 | 0.837 | 0.155 |

Application Range: 1 – 20%V/V Compare R(EN14078:09 range A) = 0.155



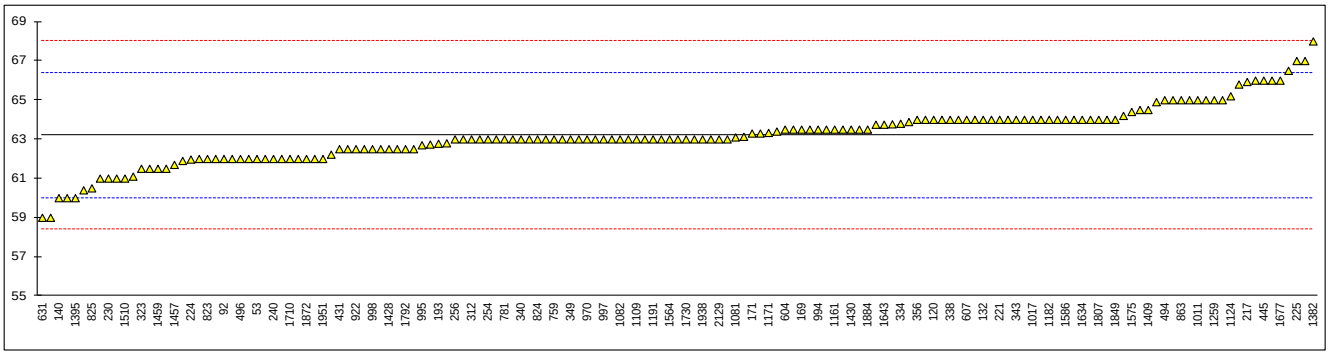



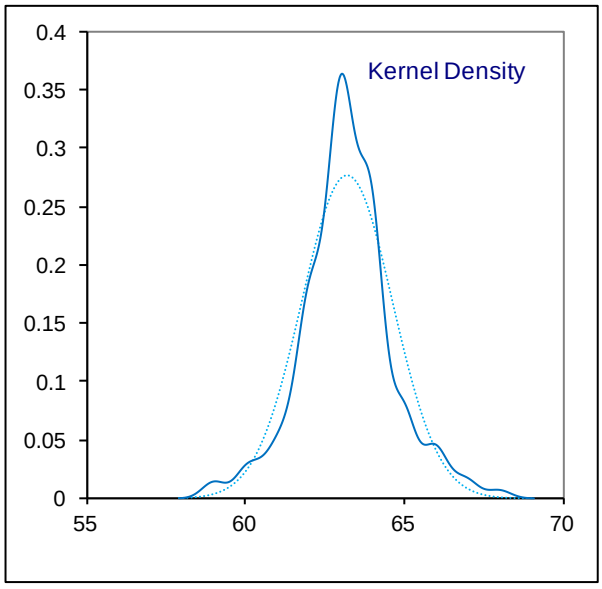
## Determination of Flash Point PMcc, on sample #14175; result in °C

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D93 | 65.0 | | 1.12 | 825 | D93 | 60.5 | | -1.69 |
| 53 | D93 | 62 | | -0.75 | 854 | D93 | 63.5 | | 0.18 |
| 92 | D93 | 62.0 | | -0.75 | 862 | D93 | 66.0 | | 1.74 |
| 120 | D93 | 64 | | 0.50 | 863 | D93 | 65.0 | | 1.12 |
| 132 | D93 | 64.0 | | 0.50 | 873 | D93 | 64.0 | | 0.50 |
| 140 | D93 | 60.0 | | -2.00 | 874 | D93 | 64.5 | | 0.81 |
| 150 | D93 | 63.3 | | 0.06 | 875 | D93 | 63.0 | | -0.13 |
| 158 | D93 | 64 | | 0.50 | 887 | D93 | 62.5 | | -0.44 |
| 159 | D93 | 62.22 | | -0.61 | 902 | D93 | 63.0 | | -0.13 |
| 169 | D93 | 63.5 | | 0.18 | 922 | D93 | 62.5 | | -0.44 |
| 171 | D93 | 63.3 | | 0.06 | 951 | D93 | 63.77 | | 0.35 |
| 175 | D93 | 64 | | 0.50 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D93 | 62.0 | | -0.75 |
| 193 | D93 | 62.778 | | -0.27 | 970 | D93 | 63.0 | | -0.13 |
| 194 | | ----- | | ----- | 971 | D93 | 61.5 | | -1.06 |
| 212 | ISO2719 | 64.9 | | 1.06 | 974 | D93 | 63.0 | | -0.13 |
| 217 | D93 | 65.93 | | 1.70 | 994 | D93 | 63.5 | | 0.18 |
| 221 | D93 | 64.0 | | 0.50 | 995 | D93 | 62.7 | | -0.31 |
| 224 | D93 | 61.97 | | -0.77 | 996 | | ----- | | ----- |
| 225 | D93 | 67.0 | | 2.37 | 997 | D93 | 63.0 | | -0.13 |
| 228 | D93 | 64.0 | | 0.50 | 998 | D93 | 62.5 | | -0.44 |
| 230 | D93 | 61.0 | | -1.38 | 1006 | D93 | 62.5 | | -0.44 |
| 238 | D93 | 62.0 | | -0.75 | 1011 | D93 | 65.0 | | 1.12 |
| 240 | D93 | 62.0 | | -0.75 | 1017 | D93 | 64.0 | | 0.50 |
| 242 | D93 | 64.2 | | 0.62 | 1033 | IP34 | 63.5 | | 0.18 |
| 252 | D93 | 64.0 | | 0.50 | 1059 | ISO2719 | 64.0 | | 0.50 |
| 253 | D93 | 62.5 | | -0.44 | 1067 | D93 | 63.0 | | -0.13 |
| 254 | D93 | 63.0 | | -0.13 | 1080 | | ----- | | ----- |
| 256 | D93 | 63.0 | | -0.13 | 1081 | D93 | 63.1 | | -0.07 |
| 258 | D93 | 63.132 | | -0.05 | 1082 | ISO2719 | 63.0 | | -0.13 |
| 273 | D93 | 62.0 | | -0.75 | 1095 | | ----- | | ----- |
| 311 | D93 | 63.0 | | -0.13 | 1107 | D93 | 63.0 | | -0.13 |
| 312 | D93 | 63.0 | | -0.13 | 1109 | D93 | 63.0 | | -0.13 |
| 323 | D93 | 61.5 | | -1.06 | 1121 | IP34 | 61.0 | | -1.38 |
| 332 | | ----- | | ----- | 1124 | ISO3675 | 65.2 | | 1.24 |
| 334 | D93 | 63.8 | | 0.37 | 1134 | | ----- | | ----- |
| 335 | D93 | 64.0 | | 0.50 | 1146 | D93 | 61.9 | | -0.81 |
| 336 | D93 | 63.0 | | -0.13 | 1159 | D93 | 62.73625 | | -0.29 |
| 337 | D93 | 66.0 | | 1.74 | 1161 | ISO2719 | 63.5 | | 0.18 |
| 338 | ISO2719 | 64.0 | | 0.50 | 1167 | ISO2719 | 63.0 | | -0.13 |
| 340 | D93 | 63.0 | | -0.13 | 1171 | ISO2719 | 63.33 | | 0.08 |
| 343 | D93 | 64.0 | | 0.50 | 1182 | D93 | 64 | | 0.50 |
| 344 | D93 | 60.0 | | -2.00 | 1191 | ISO2719 | 63.0 | | -0.13 |
| 349 | D93 | 63 | | -0.13 | 1201 | D93 | 59.0 | | -2.62 |
| 350 | ISO2719 | 63.885 | | 0.42 | 1227 | D93 | 65.0 | | 1.12 |
| 353 | IP34 | 63.750 | | 0.34 | 1229 | | ----- | | ----- |
| 356 | D93 | 64.0 | | 0.50 | 1259 | D93 | 65.0 | | 1.12 |
| 360 | D93 | 63.0 | | -0.13 | 1297 | D93 | 64 | | 0.50 |
| 430 | | ----- | | ----- | 1299 | D93 | 66.5 | | 2.06 |
| 431 | ISO2719 | 62.5 | | -0.44 | 1340 | ISO2719 | 65.0 | | 1.12 |
| 445 | D93 | 66.0 | | 1.74 | 1379 | D93 | 63.5 | | 0.18 |
| 447 | D93 | 65.0 | | 1.12 | 1382 | GB/T261 | 68.0 | | 2.99 |
| 463 | D93 | 63.5 | | 0.18 | 1395 | D93 | 60.0 | | -2.00 |
| 485 | D93 | 63.0 | | -0.13 | 1409 | D93 | 64.5 | | 0.81 |
| 491 | | ----- | | ----- | 1417 | D93 | 63 | | -0.13 |
| 493 | | ----- | | ----- | 1428 | ISO2719 | 62.5 | | -0.44 |
| 494 | D93 | 65.0 | | 1.12 | 1430 | D93 | 63.5 | | 0.18 |
| 496 | D93 | 62.0 | | -0.75 | 1431 | D93 | 63.4 | | 0.12 |
| 507 | D93 | 61.0 | | -1.38 | 1457 | D93 | 61.7 | | -0.94 |
| 511 | D93 | 61.1 | | -1.31 | 1459 | ISO2719 | 61.5 | | -1.06 |
| 541 | D93 | 63.0 | | -0.13 | 1498 | D93 | 63.5 | | 0.18 |
| 557 | | ----- | | ----- | 1510 | D93 | 61.0 | | -1.38 |
| 562 | D93 | 65.80 | | 1.62 | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO2719 | 62.5 | | -0.44 |
| 603 | D93 | 63.0 | | -0.13 | 1564 | D93 | 63.0 | | -0.13 |
| 604 | D93 | 63.5 | | 0.18 | 1575 | D93 | 64.4 | | 0.75 |
| 607 | D93 | 64.0 | | 0.50 | 1586 | D93 | 64.0 | | 0.50 |
| 608 | D93 | 62.0 | | -0.75 | 1616 | D93 | 64.0 | | 0.50 |
| 631 | D93 | 59.0 | | -2.62 | 1629 | D93 | 62.8 | | -0.25 |
| 657 | D93 | 64.0 | | 0.50 | 1634 | D93 | 64.0 | | 0.50 |
| 671 | D93 | 62 | | -0.75 | 1635 | D93 | 67.0 | | 2.37 |
| 732 | D93 | 62.0 | | -0.75 | 1643 | D93 | 63.75 | | 0.34 |
| 759 | D93 | 63.0 | | -0.13 | 1654 | | ----- | | ----- |
| 781 | D93 | 63.0 | | -0.13 | 1677 | D93 | 66.0 | | 1.74 |
| 823 | D93 | 62.0 | | -0.75 | 1709 | | ----- | | ----- |
| 824 | ISO2719 | 63.0 | | -0.13 | 1710 | ISO2719 | 62.0 | | -0.75 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | D93 | 64.0 | 0.50 | 1872 | ISO2719 | 62 | -0.75 |
| 1724 | D93 | 63 | -0.13 | 1884 | D93 | 63.5 | 0.18 |
| 1730 | ISO2719 | 63.0 | -0.13 | 1896 | D93 | 62 | -0.75 |
| 1776 | ISO2719 | 63.0 | -0.13 | 1906 | | ----- | ----- |
| 1792 | D93 | 62.5 | -0.44 | 1938 | ISO2719 | 63 | -0.13 |
| 1807 | D93 | 64.0 | 0.50 | 1944 | D93 | 62.5 | -0.44 |
| 1810 | D93 | 61.5 | -1.06 | 1948 | D93 | 63.0 | -0.13 |
| 1811 | ISO2719 | 60.4 | -1.75 | 1951 | D93 | 62.0 | -0.75 |
| 1833 | D93 | 64 | 0.50 | 2129 | D93 | 63.0 | -0.13 |
| 1842 | D93 | 62.0 | -0.75 | 7012 | D93 | 63 | -0.13 |
| 1849 | ISO2719 | 64 | 0.50 | | | | |

| | |
|---|---|
| normality | suspect |
| n | 155 |
| outliers | 0 |
| mean (n) | 63.205 |
| st.dev. (n) | 1.4389 |
| R(calc.) | 4.029 |
| R(D93:13e1) | 4.488 |



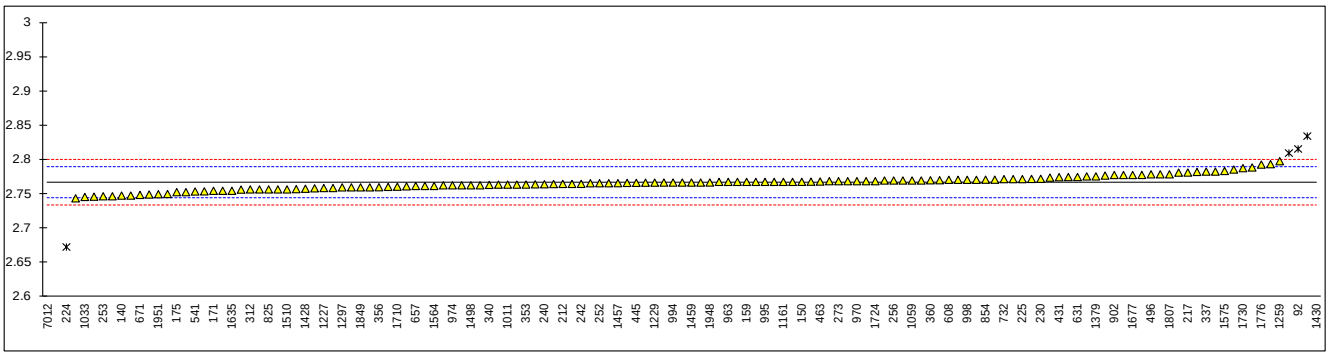
Determination of Kinematic Viscosity @ 40°C, on sample #14175; result in $mm^2/s$

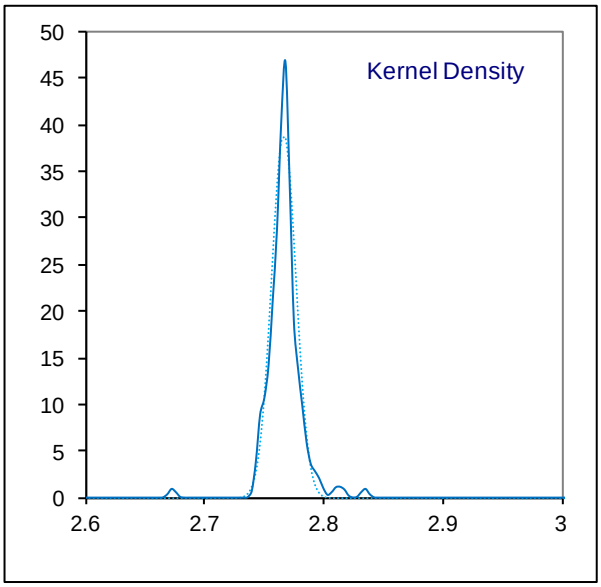
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D445 | 2.768 | | 0.13 | 825 | D445 | 2.757 | | -0.87 |
| 53 | | ----- | | ----- | 854 | D445 | 2.7712 | | 0.42 |
| 92 | D445 | 2.816 | R(0.01) | 4.48 | 862 | D445 | 2.7790 | | 1.12 |
| 120 | D445 | 2.753 | C | -1.23 | 863 | D445 | 2.7683 | | 0.15 |
| 132 | D445 | 2.769 | | 0.22 | 873 | D445 | 2.772 | | 0.49 |
| 140 | D445 | 2.748 | C | -1.69 | 874 | D445 | 2.767 | | 0.03 |
| 150 | D445 | 2.7681 | | 0.13 | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | D445 | 2.768 | | 0.13 | 902 | D445 | 2.778 | | 1.03 |
| 169 | D445 | 2.7440 | | -2.05 | 922 | D445 | 2.7781 | | 1.04 |
| 171 | D445 | 2.755 | | -1.05 | 951 | D445 | 2.7503 | | -1.48 |
| 175 | D445 | 2.753 | | -1.23 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D445 | 2.768 | | 0.13 |
| 193 | D445 | 2.4249 | R(0.01) | -30.98 | 970 | D7042 | 2.769 | | 0.22 |
| 194 | | ----- | | ----- | 971 | D445 | 2.778 | | 1.03 |
| 212 | ISO3104 | 2.765 | | -0.15 | 974 | D445 | 2.763 | | -0.33 |
| 217 | D445 | 2.7816 | | 1.36 | 994 | D445 | 2.767 | | 0.03 |
| 221 | D445 | 2.771 | | 0.40 | 995 | D445 | 2.768 | | 0.13 |
| 224 | D445 | 2.673 | C,R(0.01) | -8.49 | 996 | | ----- | | ----- |
| 225 | D445 | 2.772 | | 0.49 | 997 | D445 | 2.770 | | 0.31 |
| 228 | D445 | 2.776 | C | 0.85 | 998 | D445 | 2.771 | | 0.40 |
| 230 | D445 | 2.7725 | | 0.53 | 1006 | D445 | 2.7680 | | 0.13 |
| 238 | | ----- | | ----- | 1011 | D445 | 2.764 | | -0.24 |
| 240 | D445 | 2.7645 | | -0.19 | 1017 | D445 | 2.8347 | R(0.01) | 6.17 |
| 242 | D445 | 2.7650911 | | -0.14 | 1033 | IP71 | 2.746 | | -1.87 |
| 252 | D445 | 2.766 | | -0.06 | 1059 | ISO3104 | 2.770 | | 0.31 |
| 253 | D445 | 2.747 | | -1.78 | 1067 | D445 | 2.775 | | 0.76 |
| 254 | D445 | 2.764 | | -0.24 | 1080 | D7042 | 2.7574 | | -0.84 |
| 256 | D445 | 2.770 | | 0.31 | 1081 | D445 | 2.755 | | -1.05 |
| 258 | D445 | 2.749581 | | -1.54 | 1082 | ISO3104 | 2.7644 | | -0.20 |
| 273 | D445 | 2.769 | | 0.22 | 1095 | | ----- | | ----- |
| 311 | D445 | 2.768 | | 0.13 | 1107 | D445 | 2.786 | | 1.76 |
| 312 | D445 | 2.757 | | -0.87 | 1109 | D445 | 2.7615 | | -0.46 |
| 323 | D445 | 2.769 | | 0.22 | 1121 | IP71 | 2.769 | | 0.22 |
| 332 | | ----- | | ----- | 1124 | ISO3104 | 2.7630 | | -0.33 |
| 334 | D445 | 2.768 | | 0.13 | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | D445 | 2.7665 | | -0.01 |
| 336 | | ----- | | ----- | 1159 | D445 | 2.756722 | | -0.90 |
| 337 | D445 | 2.783 | | 1.48 | 1161 | D445 | 2.768 | | 0.13 |
| 338 | | ----- | | ----- | 1167 | ISO3104 | 2.762 | | -0.42 |
| 340 | D445 | 2.7636 | | -0.27 | 1171 | ISO3104 | 2.7464 | C | -1.83 |
| 343 | D445 | 2.7938 | | 2.46 | 1182 | | ----- | W | ----- |
| 344 | | ----- | | ----- | 1191 | ISO3104 | 2.7668 | | 0.02 |
| 349 | D445 | 2.810 | R(0.01) | 3.93 | 1201 | D445 | 2.767 | | 0.03 |
| 350 | | ----- | | ----- | 1227 | D445 | 2.759 | | -0.69 |
| 353 | IP71 | 2.7641 | | -0.23 | 1229 | ISO3104 | 2.7669 | | 0.03 |
| 356 | D445 | 2.7602 | | -0.58 | 1259 | D445 | 2.79812856 | | 2.86 |
| 360 | D445 | 2.7703 | | 0.33 | 1297 | D7042 | 2.760 | | -0.60 |
| 430 | | ----- | | ----- | 1299 | D445 | 2.757 | | -0.87 |
| 431 | ISO3104 | 2.7748 | | 0.74 | 1340 | ISO3104 | 2.789 | | 2.03 |
| 445 | D445 | 2.7666 | | 0.00 | 1379 | D445 | 2.776 | | 0.85 |
| 447 | D445 | 2.766 | | -0.06 | 1382 | | ----- | | ----- |
| 463 | D445 | 2.7685 | | 0.17 | 1395 | D445 | 2.748 | C | -1.69 |
| 485 | | ----- | | ----- | 1409 | D445 | 2.771 | | 0.40 |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO3104 | 2.758 | | -0.78 |
| 494 | D445 | 2.783 | | 1.48 | 1430 | D445 | 3.230 | R(0.01) | 42.01 |
| 496 | D445 | 2.7790 | | 1.12 | 1431 | D7042 | 2.7712 | | 0.42 |
| 507 | D445 | 2.7742 | | 0.69 | 1457 | D445 | 2.7661 | | -0.05 |
| 511 | D445 | 2.7723 | | 0.51 | 1459 | D7042 | 2.767 | | 0.03 |
| 541 | D445 | 2.754 | | -1.14 | 1498 | D445 | 2.763 | | -0.33 |
| 557 | | ----- | | ----- | 1510 | D445 | 2.757 | | -0.87 |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO3104 | 2.7648 | | -0.17 |
| 603 | D445 | 2.7815 | | 1.35 | 1564 | D445 | 2.762 | | -0.42 |
| 604 | D445 | 2.747 | | -1.78 | 1575 | D445 | 2.7839 | | 1.57 |
| 607 | D445 | 2.7542 | | -1.13 | 1586 | D445 | 2.765 | | -0.15 |
| 608 | D445 | 2.771 | | 0.40 | 1616 | D445 | 2.763 | | -0.33 |
| 631 | D445 | 2.7751 | | 0.77 | 1629 | | ----- | | ----- |
| 657 | D445 | 2.762 | | -0.42 | 1634 | | ----- | | ----- |
| 671 | D445 | 2.749 | | -1.60 | 1635 | D445 | 2.755 | | -1.05 |
| 732 | D445 | 2.772 | | 0.49 | 1643 | D445 | 2.760 | | -0.60 |
| 759 | D445 | 2.757 | | -0.87 | 1654 | | ----- | | ----- |
| 781 | D445 | 2.770 | | 0.31 | 1677 | D445 | 2.778 | | 1.03 |
| 823 | D445 | 2.7607 | | -0.54 | 1709 | | ----- | | ----- |
| 824 | ISO3104 | 2.763 | | -0.33 | 1710 | ISO3104 | 2.761 | | -0.51 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | ISO3104 | 2.760 | | -0.60 |
| 1724 | D445 | 2.769 | 0.22 | 1884 | D445 | 2.764 | | -0.24 |
| 1730 | D445 | 2.788 | 1.94 | 1896 | ISO3104 | 2.770 | | 0.31 |
| 1776 | D7042 | 2.7932 | 2.41 | 1906 | | ----- | | ----- |
| 1792 | D445 | 2.768 | 0.13 | 1938 | ISO3104 | 2.7704 | | 0.34 |
| 1807 | D445 | 2.779 | 1.12 | 1944 | D445 | 2.7586 | | -0.73 |
| 1810 | D445 | 2.766 | -0.06 | 1948 | D445 | 2.7671 | | 0.04 |
| 1811 | ISO3104 | 2.7772 | 0.96 | 1951 | D445 | 2.750 | | -1.51 |
| 1833 | D445 | 2.767 | 0.03 | 2129 | D445 | 2.7825 | | 1.44 |
| 1842 | IP71 | 2.759 | -0.69 | 7012 | D445 | 2.345 | C,R(0.01) | -38.22 |
| 1849 | ISO3104 | 2.76 | -0.60 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 132 |
| outliers | 7 |
| mean (n) | 2.7666 |
| st.dev. (n) | 0.01023 |
| R(calc.) | 0.0286 |
| R(D445:14e2) | 0.0309 |

Lab 120: First reported 2.735
Lab 140: First reported 2.799
Lab 224: First reported 2.897
Lab 228: First reported 2.824
Lab 1171: First reported 2.7313
Lab 1182: Result withdrawn, reported 2.81
Lab 1395: First reported 2.808



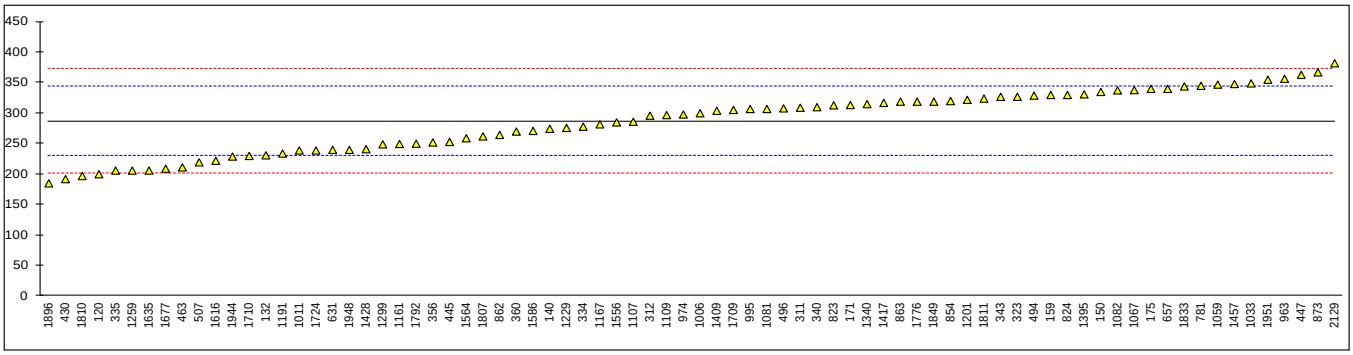



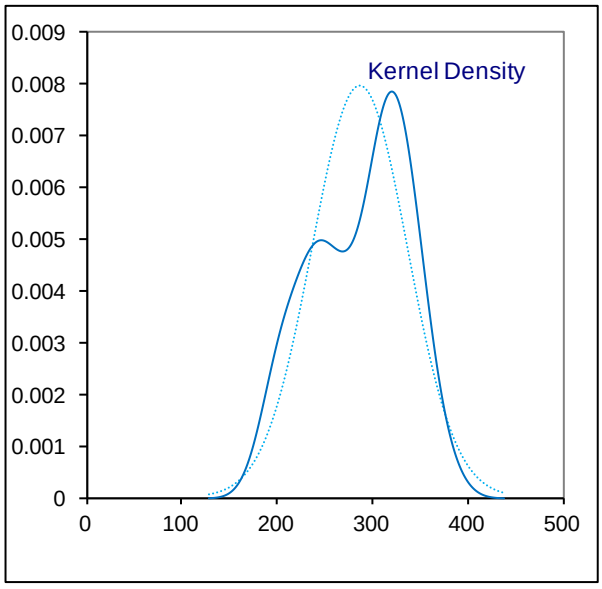
## Determination of Lubricity by HFRR on sample #14175; result in µm

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | D6079 | 320 | | 1.16 |
| 92 | | ----- | | ----- | 862 | D6079 | 264.5 | | -0.79 |
| 120 | D6079 | 200 | | -3.04 | 863 | D6079 | 319 | | 1.12 |
| 132 | D6079 | 231 | | -1.96 | 873 | D6079 | 367 | | 2.80 |
| 140 | D6079 | 274.5 | | -0.44 | 874 | | ----- | | ----- |
| 150 | D6079 | 335.0 | | 1.68 | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | D6079 | 330.0 | | 1.51 | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | | ----- | | ----- |
| 171 | D6079 | 313.5 | | 0.93 | 951 | | ----- | | ----- |
| 175 | D6079 | 340 | | 1.86 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D6079 | 356.5 | | 2.43 |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | D6079 | 298 | | 0.39 |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | D6079 | 307 | | 0.70 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | D6079 | 300 | | 0.46 |
| 238 | | ----- | | ----- | 1011 | ISO12156-1 | 239 | | -1.68 |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | ISO12156-1 | 349 | | 2.17 |
| 252 | | ----- | | ----- | 1059 | ISO12156-1 | 347 | | 2.10 |
| 253 | | ----- | | ----- | 1067 | D7688 | 338 | | 1.79 |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | ISO12156-1 | 307 | | 0.70 |
| 258 | | ----- | | ----- | 1082 | ISO12156-1 | 337.5 | | 1.77 |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | ISO12156-1 | 309 | | 0.77 | 1107 | ISO12156 | 286 | | -0.03 |
| 312 | ISO12156-1 | 296 | | 0.32 | 1109 | IP450 | 297 | | 0.35 |
| 323 | D6079 | 327 | | 1.40 | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | D6079 | 278 | | -0.31 | 1134 | | ----- | | ----- |
| 335 | ISO12156 | 206 | | -2.83 | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | ISO12156-1 | 249.62 | | -1.31 |
| 338 | | ----- | | ----- | 1167 | ISO12156-1 | 281.84 | | -0.18 |
| 340 | D6079 | 310 | | 0.81 | 1171 | | ----- | | ----- |
| 343 | D6079 | 327 | | 1.40 | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | ISO12156-1 | 234 | | -1.85 |
| 349 | | ----- | | ----- | 1201 | D6079 | 322 | | 1.23 |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | | ----- | | ----- | 1229 | ISO12156-1 | 276 | | -0.38 |
| 356 | D6079 | 252 | | -1.22 | 1259 | ISO12156-1 | 206 | | -2.83 |
| 360 | ISO12156-1 | 270 | | -0.59 | 1297 | | ----- | | ----- |
| 430 | D6079 | 192 | | -3.32 | 1299 | ISO12156-1 | 249 | | -1.33 |
| 431 | | ----- | | ----- | 1340 | ISO12156-1 | 315 | | 0.98 |
| 445 | D6079 | 253 | | -1.19 | 1379 | | ----- | | ----- |
| 447 | ISO12156-1 | 363 | | 2.66 | 1382 | | ----- | | ----- |
| 463 | ISO12156 | 211.2 | | -2.65 | 1395 | D6079 | 331 | | 1.54 |
| 485 | | ----- | | ----- | 1409 | ISO12156-1 | 304 | | 0.60 |
| 491 | | ----- | | ----- | 1417 | INH-96 | 317 | | 1.05 |
| 493 | | ----- | | ----- | 1428 | ISO12156-1 | 241 | | -1.61 |
| 494 | D6079 | 329 | | 1.47 | 1430 | | ----- | | ----- |
| 496 | D6079 | 308 | | 0.74 | 1431 | | ----- | | ----- |
| 507 | D6079 | 219.5 | | -2.36 | 1457 | D6079 | 348.0 | | 2.14 |
| 511 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO12156-1 | 285 | | -0.07 |
| 603 | | ----- | | ----- | 1564 | ISO12156-1 | 259 | | -0.98 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | ISO12156-1 | 271 | | -0.56 |
| 608 | | ----- | | ----- | 1616 | D6079 | 222 | | -2.27 |
| 631 | D7688 | 240 | | -1.64 | 1629 | | ----- | | ----- |
| 657 | D6079 | 340 | | 1.86 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | D6079 | 206 | | -2.83 |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D6079 | 345 | | 2.03 | 1677 | D6079 | 209 | | -2.73 |
| 823 | D6079 | 313.0 | | 0.91 | 1709 | D6079 | 305.5 | | 0.65 |
| 824 | D6079 | 330 | | 1.51 | 1710 | ISO12156-1 | 230 | | -1.99 |

| | | | |
|---|---|---|---|
| 1720 | | ----- | ----- |
| 1724 | ISO12156-1 | 239 | -1.68 |
| 1730 | | ----- | ----- |
| 1776 | ISO12156-1 | 319 | 1.12 |
| 1792 | ISO12156-1 | 250 | -1.29 |
| 1807 | ISO12156-1 | 262 | -0.87 |
| 1810 | D6079 | 197 | -3.15 |
| 1811 | D6079 | 324 | 1.30 |
| 1833 | D6079 | 344 | 2.00 |
| 1842 | | ----- | ----- |
| 1849 | ISO12156-1 | 319 | 1.12 |
| 1872 | | ----- | ----- |
| 1884 | | ----- | ----- |
| 1896 | ISO12156-1 | 185 | -3.57 |
| 1906 | | ----- | ----- |
| 1938 | | ----- | ----- |
| 1944 | D6079 | 229 | -2.03 |
| 1948 | D6079 | 240 | -1.64 |
| 1951 | D6079 | 355 | 2.38 |
| 2129 | D6079 | 382 | 3.33 |
| 7012 | | ----- | ----- |

| | | Only D6079 | Only D7688/ISO12156/IP450 |
|---|---|---|---|
| normality | OK | OK | OK |
| n | 78 | 43 | 35 |
| outliers | 0 | 0 | 0 |
| mean (n) | 287.0 | 295.2 | 276.8 |
| st.dev. (n) | 50.17 | 52.75 | 45.50 |
| R(calc.) | 140.5 | 147.7 | 127.4 |
| R(D6079:11) | 80.0 | 80.0 | 102.0 |



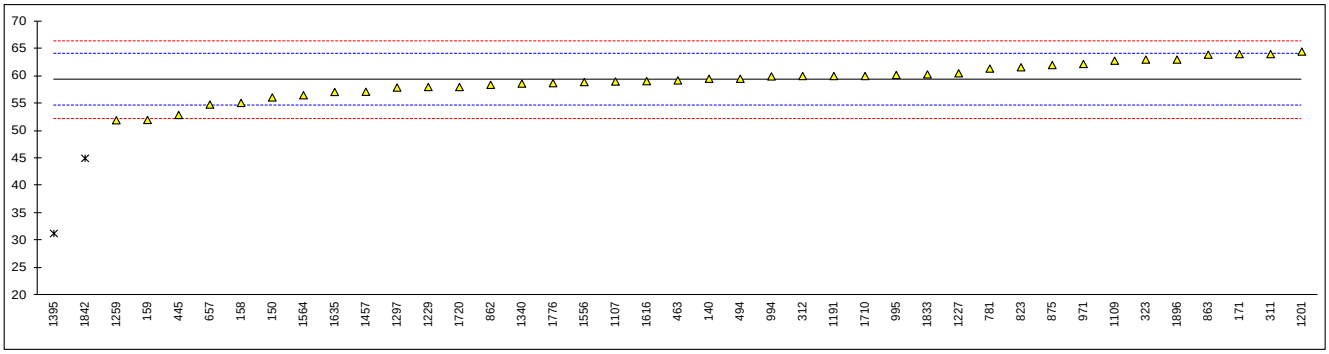
## Determination of Nitrogen on sample #14175; result in mg/kg

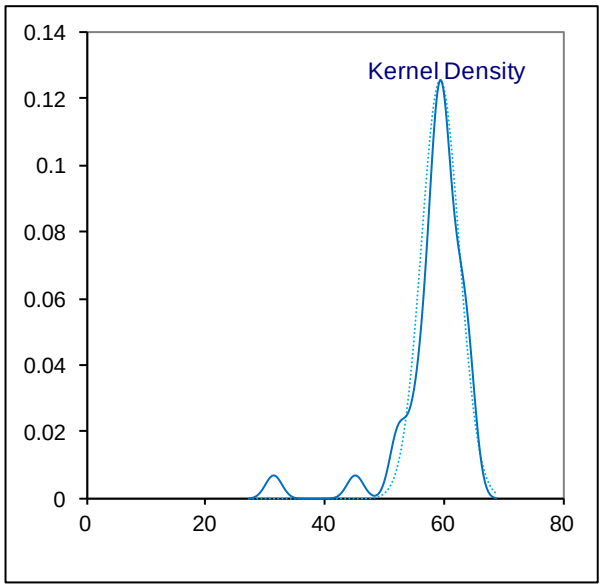
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | | ----- | | ----- |
| 92 | | ----- | | ----- | 862 | D4629 | 58.4 | | -0.37 |
| 120 | | ----- | | ----- | 863 | D4629 | 63.9 | | 1.96 |
| 132 | | ----- | | ----- | 873 | | ----- | | ----- |
| 140 | D4629 | 59.5 | | 0.10 | 874 | | ----- | | ----- |
| 150 | D4629 | 56.1 | | -1.34 | 875 | D4629 | 62 | | 1.15 |
| 158 | D4629 | 55.1 | | -1.76 | 887 | | ----- | | ----- |
| 159 | D4629 | 52 | | -3.07 | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | | ----- | | ----- |
| 171 | D4629 | 64.0 | | 2.00 | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | | ----- | | ----- |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D4629 | 62.2 | | 1.24 |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | | ----- | | ----- | 994 | D4629 | 59.93 | | 0.28 |
| 221 | | ----- | | ----- | 995 | D3228 | 60.2 | | 0.39 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1067 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | D4629 | 64 | | 2.00 | 1107 | D4629 | 59 | | -0.11 |
| 312 | D4629 | 60 | | 0.31 | 1109 | D4629 | 62.8 | | 1.49 |
| 323 | D4629 | 63 | | 1.58 | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 338 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 340 | | ----- | | ----- | 1171 | | ----- | | ----- |
| 343 | D5291 | <0.1 | U | ----- | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | D4629 | 60 | | 0.31 |
| 349 | | ----- | | ----- | 1201 | D4629 | 64.46 | | 2.19 |
| 350 | | ----- | | ----- | 1227 | D4629 | 60.5 | | 0.52 |
| 353 | | ----- | | ----- | 1229 | D4629 | 58 | | -0.54 |
| 356 | | ----- | | ----- | 1259 | D4629 | 51.94 | | -3.10 |
| 360 | | ----- | | ----- | 1297 | D4629 | 57.9 | | -0.58 |
| 430 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 431 | | ----- | | ----- | 1340 | D4629 | 58.625 | | -0.27 |
| 445 | D4629 | 52.9 | | -2.69 | 1379 | | ----- | | ----- |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | D4629 | 59.2 | | -0.03 | 1395 | D4629 | 31.3 | R(0.01) | -11.83 |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | D4629 | 59.5 | | 0.10 | 1430 | | ----- | | ----- |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | | ----- | | ----- | 1457 | D4629 | 57.13 | | -0.91 |
| 511 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | D4629 | 58.9 | | -0.16 |
| 603 | | ----- | | ----- | 1564 | D4629 | 56.5 | | -1.17 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | | ----- | | ----- |
| 608 | | ----- | | ----- | 1616 | D4629 | 59.06 | | -0.09 |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | D4629 | 54.8 | | -1.89 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | D4629 | 57.1 | | -0.92 |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D4629 | 61.36 | | 0.88 | 1677 | | ----- | | ----- |
| 823 | D4629 | 61.6 | | 0.98 | 1709 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1710 | D4629 | 60.0 | | 0.31 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1720 | D4629 | 58.0 | | -0.54 | 1872 | | ----- | ----- |
| 1724 | | ----- | | ----- | 1884 | | ----- | ----- |
| 1730 | | ----- | | ----- | 1896 | D4629 | 63 | 1.58 |
| 1776 | D4629 | 58.7 | | -0.24 | 1906 | | ----- | ----- |
| 1792 | | ----- | | ----- | 1938 | | ----- | ----- |
| 1807 | | ----- | | ----- | 1944 | | ----- | ----- |
| 1810 | | ----- | | ----- | 1948 | | ----- | ----- |
| 1811 | | ----- | | ----- | 1951 | | ----- | ----- |
| 1833 | D4629 | 60.3 | | 0.43 | 2129 | | ----- | ----- |
| 1842 | INH-12 | 45 | R(0.01) | -6.03 | 7012 | | ----- | ----- |
| 1849 | | ----- | | ----- | | | | |

| | |
|---|---|
| normality | OK |
| n | 39 |
| outliers | 2 |
| mean (n) | 59.27 |
| st.dev. (n) | 3.176 |
| R(calc.) | 8.89 |
| R(D4629:12) | 6.62 |

Lab 343: reported test method is not applicable for low Nitrogen amounts. Result probably reported in %m/m



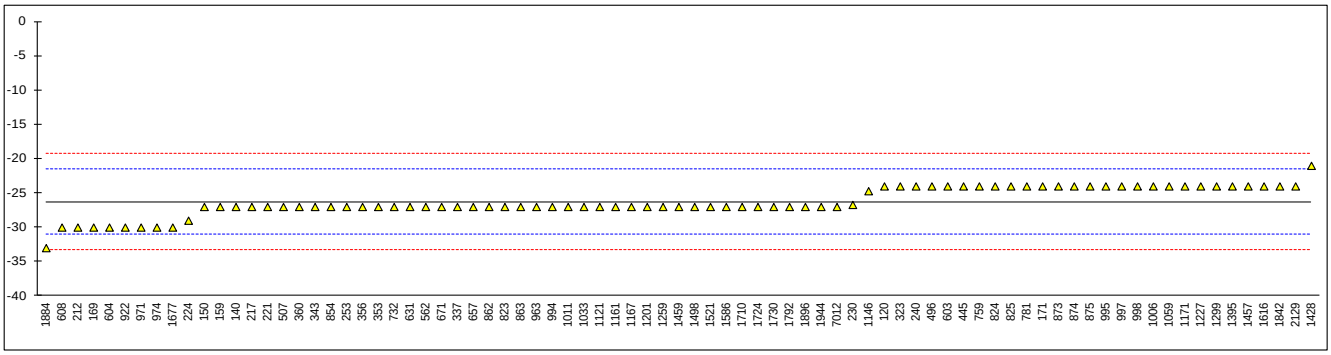



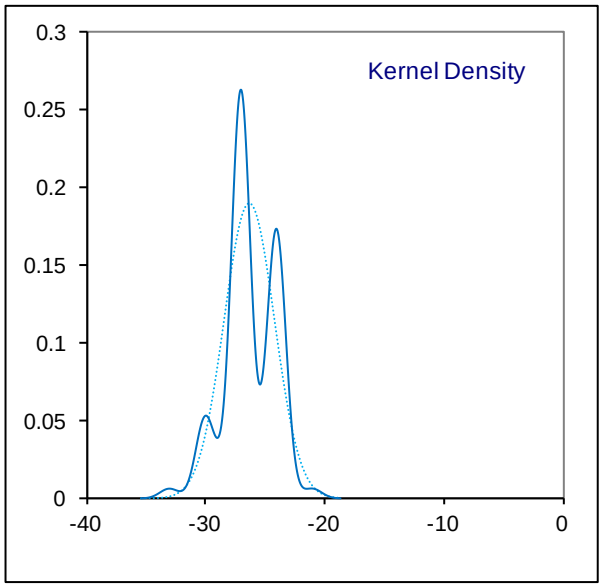
## Determination of Pour Point (Manual) on sample #14175; result in °C

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | D97 | -24 | | 0.97 |
| 53 | | ----- | | ----- | 854 | D97 | -27 | | -0.30 |
| 92 | D97 | <-30 | | ----- | 862 | D97 | -27 | | -0.30 |
| 120 | D97 | -24 | | 0.97 | 863 | D97 | -27 | | -0.30 |
| 132 | D97 | <-27 | | ----- | 873 | D97 | -24 | | 0.97 |
| 140 | D97 | -27 | | -0.30 | 874 | D97 | -24 | | 0.97 |
| 150 | D97 | -27 | | -0.30 | 875 | D97 | -24 | | 0.97 |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | D97 | -27 | | -0.30 | 902 | | ----- | | ----- |
| 169 | D97 | -30 | | -1.57 | 922 | D97 | -30.0 | | -1.57 |
| 171 | D97 | -24.0 | | 0.97 | 951 | D97 | < -21 | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D97 | -27 | | -0.30 |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | D97 | -30 | | -1.57 |
| 212 | ISO3016 | -30 | | -1.57 | 974 | D97 | -30 | | -1.57 |
| 217 | D97 | -27 | | -0.30 | 994 | D97 | -27 | | -0.30 |
| 221 | D97 | -27 | | -0.30 | 995 | D97 | -24 | | 0.97 |
| 224 | D97 | -29 | | -1.15 | 996 | | ----- | | ----- |
| 225 | D97 | <-24 | | ----- | 997 | D97 | -24 | | 0.97 |
| 228 | D97 | <-18 | | ----- | 998 | D97 | -24.0 | | 0.97 |
| 230 | D97 | -26.7 | | -0.17 | 1006 | D97 | -24 | | 0.97 |
| 238 | D97 | < - 24 | | ----- | 1011 | D97 | -27 | | -0.30 |
| 240 | D97 | -24 | | 0.97 | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | IP15 | -27 | | -0.30 |
| 252 | | ----- | | ----- | 1059 | ISO3016 | -24 | | 0.97 |
| 253 | D97 | -27 | | -0.30 | 1067 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 312 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 323 | D97 | -24 | | 0.97 | 1121 | IP15 | -27 | | -0.30 |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | ISO3016 | -24.7 | | 0.67 |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | D97 | -27 | | -0.30 | 1161 | D97 | -27 | | -0.30 |
| 338 | | ----- | | ----- | 1167 | ISO3016 | -27 | | -0.30 |
| 340 | | ----- | | ----- | 1171 | ISO3016 | -24.0 | | 0.97 |
| 343 | D97 | -27 | | -0.30 | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D97 | -27 | | -0.30 |
| 350 | | ----- | | ----- | 1227 | D97 | -24 | | 0.97 |
| 353 | IP15 | -27 | | -0.30 | 1229 | | ----- | | ----- |
| 356 | D97 | -27 | | -0.30 | 1259 | D97 | -27 | | -0.30 |
| 360 | D97 | -27 | | -0.30 | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | D97 | -24 | | 0.97 |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | D97 | -24 | | 0.97 | 1379 | | ----- | | ----- |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1395 | D97 | -24 | | 0.97 |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO3016 | -21 | | 2.24 |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | D97 | -24.0 | | 0.97 | 1431 | | ----- | | ----- |
| 507 | D97 | -27 | | -0.30 | 1457 | D97 | -24 | | 0.97 |
| 511 | | ----- | | ----- | 1459 | ISO3016 | -27 | | -0.30 |
| 541 | D97 | <-21 | | ----- | 1498 | D97 | -27 | | -0.30 |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | D97 | -27.0 | | -0.30 | 1521 | ISO3016 | -27 | | -0.30 |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | D97 | -24 | | 0.97 | 1564 | | ----- | | ----- |
| 604 | D97 | -30 | | -1.57 | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D97 | -27 | | -0.30 |
| 608 | D97 | -30 | | -1.57 | 1616 | D97 | -24 | | 0.97 |
| 631 | D97 | -27 | | -0.30 | 1629 | | ----- | | ----- |
| 657 | D97 | -27 | | -0.30 | 1634 | | ----- | | ----- |
| 671 | D97 | -27 | | -0.30 | 1635 | | ----- | | ----- |
| 732 | D97 | -27 | | -0.30 | 1643 | | ----- | | ----- |
| 759 | D97 | -24 | | 0.97 | 1654 | | ----- | | ----- |
| 781 | D97 | -24 | | 0.97 | 1677 | D97 | -30 | | -1.57 |
| 823 | D97 | -27 | | -0.30 | 1709 | | ----- | | ----- |
| 824 | ISO3016 | -24 | | 0.97 | 1710 | ISO3016 | -27 | | -0.30 |

| | | | |
|---|---|---|---|
| 1720 | | ----- | ----- |
| 1724 | D97 | -27 | -0.30 |
| 1730 | D97 | -27.0 | -0.30 |
| 1776 | | ----- | ----- |
| 1792 | D97 | -27 | -0.30 |
| 1807 | D97 | < -24 | ----- |
| 1810 | | ----- | ----- |
| 1811 | | ----- | ----- |
| 1833 | | ----- | ----- |
| 1842 | D97 | -24 | 0.97 |
| 1849 | | ----- | ----- |
| 1872 | | ----- | ----- |
| 1884 | D97 | -33 | -2.85 |
| 1896 | ISO3016 | -27 | -0.30 |
| 1906 | | ----- | ----- |
| 1938 | | ----- | ----- |
| 1944 | D97 | -27 | -0.30 |
| 1948 | | ----- | ----- |
| 1951 | | ----- | ----- |
| 2129 | D97 | -24 | 0.97 |
| 7012 | D97 | -27 | -0.30 |

| | |
|---|---|
| normality | OK |
| n | 81 |
| outliers | 0 |
| mean (n) | -26.29 |
| st.dev. (n) | 2.108 |
| R(calc.) | 5.90 |
| R(D97:12) | 6.60 |



## Determination of Pour Point (Automated) on sample #14175; result in °C

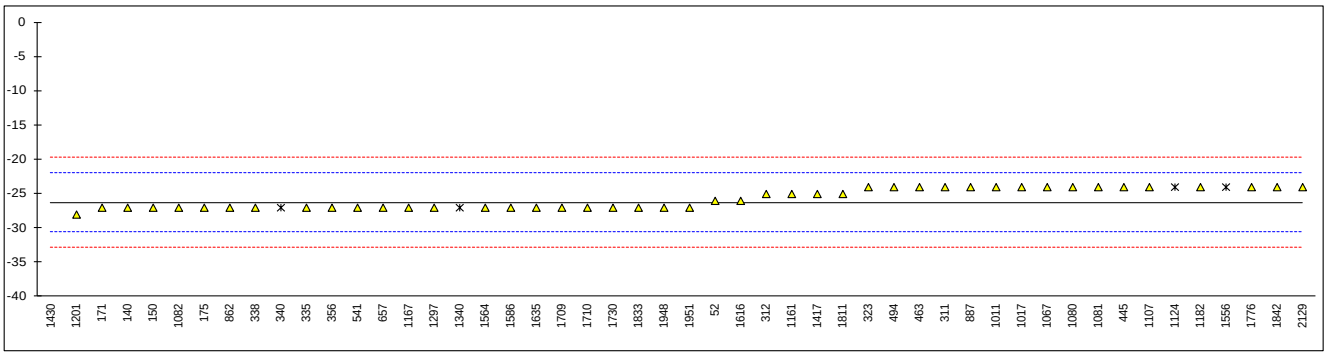
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D5949 | -26.0 | | -0.12 | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | | ----- | | ----- |
| 92 | | ----- | | ----- | 862 | D5950 | -27 | | -0.58 |
| 120 | | ----- | | ----- | 863 | | ----- | | ----- |
| 132 | | ----- | | ----- | 873 | | ----- | | ----- |
| 140 | D5949 | -27 | | -0.58 | 874 | | ----- | | ----- |
| 150 | D5950 | -27 | | -0.58 | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | -24 | | 0.80 |
| 159 | | ----- | | ----- | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | | ----- | | ----- |
| 171 | D5950 | -27.0 | | -0.58 | 951 | | ----- | | ----- |
| 175 | D5950 | -27 | | -0.58 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | | ----- | | ----- |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | | ----- | | ----- |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | D6892 | -24 | | 0.80 |
| 240 | | ----- | | ----- | 1017 | D5950 | -24 | | 0.80 |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1067 | D5950 | -24.0 | | 0.80 |
| 254 | | ----- | | ----- | 1080 | D6749 | -24 | | 0.80 |
| 256 | | ----- | | ----- | 1081 | D5950 | -24 | | 0.80 |
| 258 | | ----- | | ----- | 1082 | D5950 | -27 | | -0.58 |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | D5950 | -24 | | 0.80 | 1107 | D5950 | -24 | | 0.80 |
| 312 | D5950 | -25 | | 0.34 | 1109 | | ----- | | ----- |
| 323 | D5950 | -24 | | 0.80 | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | ISO3016 | -24 | ex | 0.80 |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | D5950 | -27 | | -0.58 | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | D6749 | -25 | | 0.34 |
| 338 | INH-105 | -27 | | -0.58 | 1167 | D6749 | -27 | | -0.58 |
| 340 | ISO3016 | -27.0 | ex | -0.58 | 1171 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1182 | D5949 | -24 | | 0.80 |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D5950 | -28 | | -1.04 |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | | ----- | | ----- | 1229 | | ----- | | ----- |
| 356 | D5950 | -27 | | -0.58 | 1259 | | ----- | | ----- |
| 360 | | ----- | | ----- | 1297 | D5950 | -27 | | -0.58 |
| 430 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 431 | | ----- | | ----- | 1340 | ISO3016 | -27 | ex | -0.58 |
| 445 | D5950 | -24 | | 0.80 | 1379 | | ----- | | ----- |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | D6892 | -24.0 | | 0.80 | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | D5950 | -25 | | 0.34 |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | D6892 | -24 | | 0.80 | 1430 | D5950 | -51 | R(0.01) | -11.60 |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | | ----- | | ----- | 1457 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 541 | D5950 | -27 | | -0.58 | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO6016 | -24 | ex | 0.80 |
| 603 | | ----- | | ----- | 1564 | D5950 | -27 | | -0.58 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D5950 | -27 | | -0.58 |
| 608 | | ----- | | ----- | 1616 | D6749 | -26 | | -0.12 |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | D5950 | -27 | | -0.58 | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | D5950 | -27 | | -0.58 |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | | ----- | | ----- | 1677 | | ----- | | ----- |
| 823 | | ----- | | ----- | 1709 | D5950 | -27 | | -0.58 |
| 824 | | ----- | | ----- | 1710 | D5950 | -27 | | -0.58 |

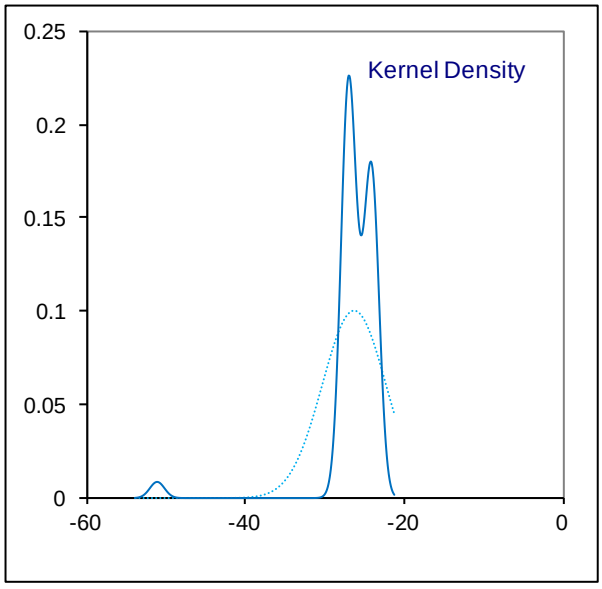
| | | | | |
|---|---|---|---|---|
| 1720 | | ----- | | ----- |
| 1724 | | ----- | | ----- |
| 1730 | D5950 | -27.0 | | -0.58 |
| 1776 | D5950 | -24 | C | 0.80 |
| 1792 | | ----- | | ----- |
| 1807 | | ----- | | ----- |
| 1810 | | ----- | | ----- |
| 1811 | D5950 | -25 | | 0.34 |
| 1833 | D5950 | -27 | | -0.58 |
| 1842 | D5950 | -24 | | 0.80 |
| 1849 | | ----- | | ----- |

| | | | | |
|---|---|---|---|---|
| 1872 | | ----- | | ----- |
| 1884 | | ----- | | ----- |
| 1896 | | ----- | | ----- |
| 1906 | | ----- | | ----- |
| 1938 | | ----- | | ----- |
| 1944 | | ----- | | ----- |
| 1948 | D5950 | -27 | | -0.58 |
| 1951 | D5950 | -27 | | -0.58 |
| 2129 | D5950 | -24 | | 0.80 |
| 7012 | | ----- | | ----- |

| | | |
|---|---|---|
| normality | OK | |
| n | 45 | |
| outliers | 1 | + 4 excl. |
| mean (n) | -25.73 | |
| st.dev. (n) | 1.437 | |
| R(calc.) | 4.02 | |
| R(D5950:14) | 6.10 | |

Lab 340: result excluded, used test method is not an automated test method
Lab 1124: result excluded, used test method is not an automated test method
Lab 1340: result excluded, used test method is not an automated test method
Lab 1556: result excluded, used test method is not an automated test method
Lab 1776: First reported 924



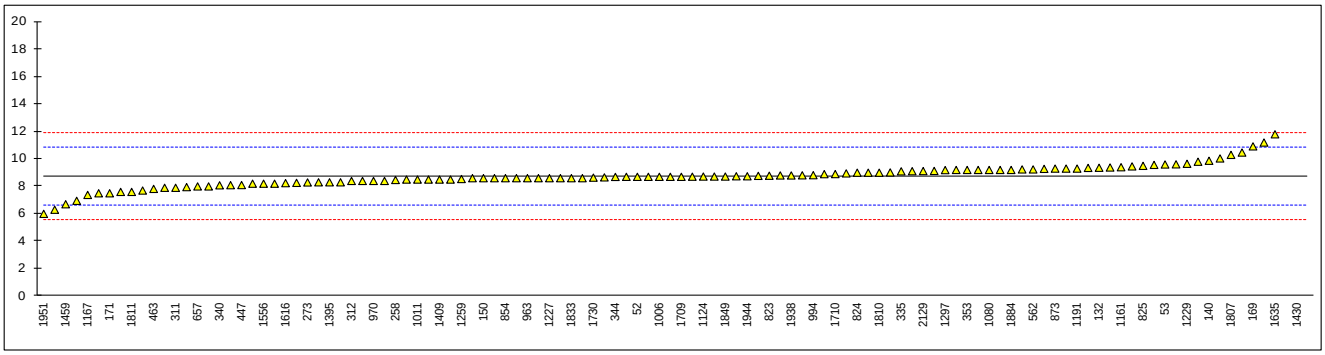
## Determination of Sulphur Content on sample #14175; result in mg/kg

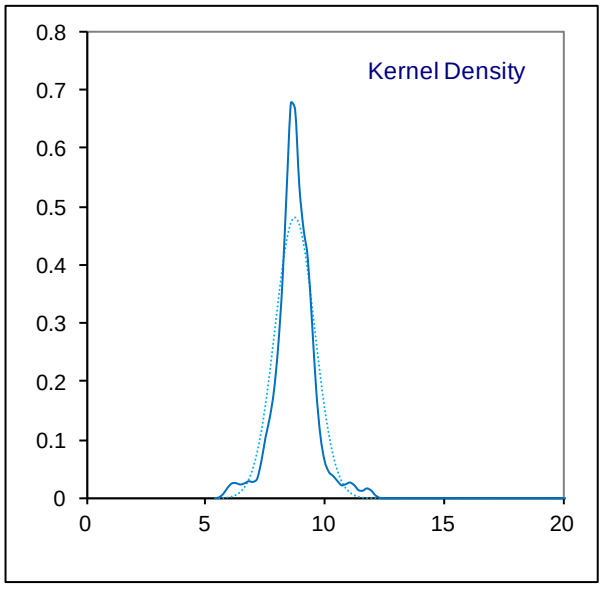
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D5453 | 8.7 | | -0.03 | 825 | D5453 | 9.5 | | 0.73 |
| 53 | D5453 | 9.6 | | 0.82 | 854 | D5453 | 8.6 | | -0.13 |
| 92 | D5453 | 7.5 | | -1.17 | 862 | D5453 | 9.3 | | 0.54 |
| 120 | D5453 | 11.2 | | 2.34 | 863 | D5453 | 9.24 | | 0.48 |
| 132 | D5453 | 9.36 | | 0.60 | 873 | ISO20846 | 9.3 | | 0.54 |
| 140 | D5453 | 9.87 | | 1.08 | 874 | D5453 | 8.70 | | -0.03 |
| 150 | D5453 | 8.6 | | -0.13 | 875 | D5453 | 8.895 | | 0.15 |
| 158 | D5453 | 7.6 | | -1.08 | 887 | | ----- | | ----- |
| 159 | D5453 | 9.2 | | 0.44 | 902 | | ----- | | ----- |
| 169 | D5453 | 10.92 | | 2.08 | 922 | D5453 | 6.95 | | -1.70 |
| 171 | D5453 | 7.5 | | -1.17 | 951 | D4294 | <17 | | ----- |
| 175 | D5453 | 8.7 | | -0.03 | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D5453 | 8.6 | | -0.13 |
| 193 | | ----- | | ----- | 970 | D5453 | 8.40 | | -0.32 |
| 194 | | ----- | | ----- | 971 | D5453 | 9.611 | | 0.83 |
| 212 | | ----- | | ----- | 974 | | ----- | | ----- |
| 217 | D5453 | 8.26 | | -0.45 | 994 | D5453 | 8.82 | | 0.08 |
| 221 | | ----- | | ----- | 995 | D5453 | 8.81 | | 0.07 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | D5453 | 8.7 | | -0.03 |
| 238 | | ----- | | ----- | 1011 | ISO20846 | 8.5 | | -0.22 |
| 240 | | ----- | | ----- | 1017 | ISO20846 | 9.46 | | 0.69 |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | ISO20846 | 8.4 | | -0.32 |
| 253 | | ----- | | ----- | 1067 | D5453 | 8.7 | | -0.03 |
| 254 | | ----- | | ----- | 1080 | D5453 | 9.2 | | 0.44 |
| 256 | D4294 | <17 | | ----- | 1081 | ISO20846 | 8.8 | | 0.06 |
| 258 | D5453 | 8.47 | | -0.25 | 1082 | | ----- | | ----- |
| 273 | D5453 | 8.29 | | -0.42 | 1095 | | ----- | | ----- |
| 311 | D5453 | 7.9 | | -0.79 | 1107 | D5453 | 8.3 | | -0.41 |
| 312 | D5453 | 8.4 | | -0.32 | 1109 | D7039 | 8.6 | | -0.13 |
| 323 | D5453 | 8.4 | | -0.32 | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | EN20846 | 8.72 | | -0.01 |
| 334 | D5453 | 8.6 | | -0.13 | 1134 | | ----- | | ----- |
| 335 | ISO20846 | 9.1 | | 0.35 | 1146 | D4294 | 40 | R(0.01) | 29.72 |
| 336 | ISO20846 | 8.5 | | -0.22 | 1159 | | ----- | | ----- |
| 337 | D5453 | 7.9 | | -0.79 | 1161 | ISO20846 | 9.4 | | 0.63 |
| 338 | ISO20846 | 8.66 | | -0.07 | 1167 | ISO20846 | 7.38 | | -1.29 |
| 340 | D5453 | 8.08 | | -0.62 | 1171 | ISO20846 | 9.35 | | 0.59 |
| 343 | ISO20846 | 9.38 | | 0.61 | 1182 | ISO20846 | 8.5 | | -0.22 |
| 344 | D5453 | 8.693 | | -0.04 | 1191 | ISO20846 | 9.3 | | 0.54 |
| 349 | | ----- | | ----- | 1201 | D5453 | 9.28 | | 0.52 |
| 350 | | ----- | | ----- | 1227 | D5453 | 8.6 | | -0.13 |
| 353 | IP531 | 9.2 | | 0.44 | 1229 | ISO20846 | 9.65 | | 0.87 |
| 356 | ISO20846 | 9.20 | | 0.44 | 1259 | D5453 | 8.54 | | -0.18 |
| 360 | D5453 | 9.13 | | 0.38 | 1297 | D5453 | 9.19 | | 0.43 |
| 430 | | ----- | | ----- | 1299 | ISO20884 | 6.3 | | -2.31 |
| 431 | | ----- | | ----- | 1340 | ISO20846 | 8.95 | | 0.21 |
| 445 | D5453 | 9.02 | | 0.27 | 1379 | | ----- | | ----- |
| 447 | D5453 | 8.1 | | -0.60 | 1382 | SH/T0689 | 9.11 | | 0.36 |
| 463 | D5453 | 7.82 | | -0.87 | 1395 | D5453 | 8.3 | | -0.41 |
| 485 | | ----- | | ----- | 1409 | ISO20846 | 8.5 | | -0.22 |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | ISO20846 | 8.2 | | -0.51 |
| 494 | D5453 | 8.6 | | -0.13 | 1430 | In house | 50 | R(0.01) | 39.23 |
| 496 | D5453 | 7.95 | | -0.75 | 1431 | D7220 | 8.5 | | -0.22 |
| 507 | | ----- | | ----- | 1457 | D5453 | 8.74 | | 0.01 |
| 511 | D5453 | 10.47 | | 1.65 | 1459 | in house | 6.7 | | -1.93 |
| 541 | | ----- | | ----- | 1498 | D5453 | 7.7 | | -0.98 |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | D5453 | 9.24 | | 0.48 | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO20884 | 8.2 | | -0.51 |
| 603 | | ----- | | ----- | 1564 | ISO8754 | 9.8 | | 1.01 |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | D5453 | 9.2 | | 0.44 |
| 608 | | ----- | | ----- | 1616 | D5453 | 8.24 | | -0.47 |
| 631 | D5453 | 9.57 | | 0.79 | 1629 | | ----- | | ----- |
| 657 | D5453 | 8.0 | | -0.70 | 1634 | ISO20846 | 9.0 | | 0.25 |
| 671 | D5453 | 8.60 | | -0.13 | 1635 | D5453 | 11.8 | | 2.91 |
| 732 | D4294 | <100 | | ----- | 1643 | | ----- | | ----- |
| 759 | D4294 | 8 | | -0.70 | 1654 | | ----- | | ----- |
| 781 | D5453 | 8.77 | | 0.03 | 1677 | D5453 | 8.72 | | -0.01 |
| 823 | D5453 | 8.78 | | 0.04 | 1709 | D5453 | 8.7 | | -0.03 |
| 824 | D5453 | 9.0 | | 0.25 | 1710 | ISO20846 | 8.9 | | 0.16 |

| | | | |
|---|---|---|---|
| 1720 | D5453 | 8.71 | -0.02 |
| 1724 | D5453 | 8.6 | -0.13 |
| 1730 | ISO20846 | 8.64 | -0.09 |
| 1776 | ISO20846 | 8.2 | -0.51 |
| 1792 | D7220 | 8.3 | -0.41 |
| 1807 | D5453 | 10.3 | 1.49 |
| 1810 | D5453 | 9.0 | 0.25 |
| 1811 | D5453 | 7.6 | -1.08 |
| 1833 | D5453 | 8.6 | -0.13 |
| 1842 | D5453 | 8.6 | -0.13 |
| 1849 | ISO20846 | 8.72 | -0.01 |

| | | | | |
|---|---|---|---|---|
| 1872 | ISO20884 | 8.09 | | -0.61 |
| 1884 | D5453 | 9.2 | | 0.44 |
| 1896 | | ----- | | ----- |
| 1906 | | ----- | | ----- |
| 1938 | ISO20846 | 8.8 | | 0.06 |
| 1944 | D5453 | 8.74 | | 0.01 |
| 1948 | D5453 | 10.04 | | 1.24 |
| 1951 | D5453 | 6.0 | | -2.60 |
| 2129 | D5453 | 9.12 | | 0.37 |
| 7012 | D4294 | 42 | R(0.01) | 31.63 |

| | |
|---|---|
| normality | not OK |
| n | 113 |
| outliers | 3 |
| mean (n) | 8.734 |
| st.dev. (n) | 0.8317 |
| R(calc.) | 2.329 |
| R(D5453:12) | 2.945 |



## Determination of Water Content on sample #14175; result in mg/kg

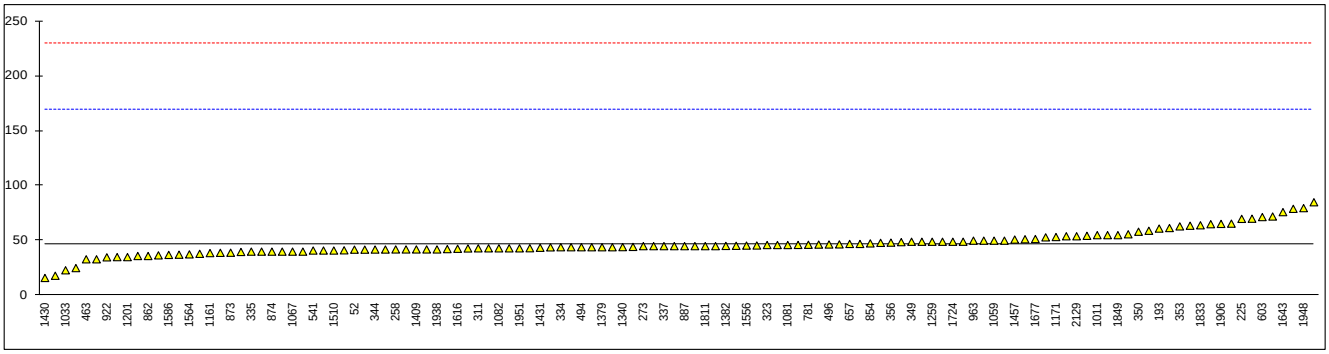
| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D6304 | 41.8 | | -0.09 | 825 | | ----- | | ----- |
| 53 | | ----- | | ----- | 854 | D6304-A | 47.5 | | 0.01 |
| 92 | E203 | 85 | | 0.62 | 862 | D6304-A | 36.0 | | -0.18 |
| 120 | D6304 | 79 | C | 0.52 | 863 | D6304-C | 40 | | -0.12 |
| 132 | D6304-A | 39.7 | | -0.12 | 873 | D6304 | 39 | | -0.13 |
| 140 | D6304 | 36.6 | | -0.17 | 874 | D6304 | 40.0 | | -0.12 |
| 150 | D6304-C | 59 | | 0.20 | 875 | | ----- | | ----- |
| 158 | D6304 | 61.5 | | 0.24 | 887 | D6304-A | 45 | | -0.03 |
| 159 | | ----- | | ----- | 902 | D6304-A | 65.5 | | 0.30 |
| 169 | | ----- | | ----- | 922 | D6304 | 34.8 | | -0.20 |
| 171 | D6304-A | 43.0 | | -0.07 | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | D6304 | 70 | | 0.38 |
| 186 | | ----- | | ----- | 963 | D6304-A | 50 | | 0.05 |
| 193 | D6304 | 61 | | 0.23 | 970 | D6304 | 40 | | -0.12 |
| 194 | | ----- | | ----- | 971 | D6304 | 43.89 | | -0.05 |
| 212 | | ----- | | ----- | 974 | D6304-A | 48 | | 0.02 |
| 217 | D6304 | 55.8 | | 0.14 | 994 | D6304-A | 49.03 | | 0.03 |
| 221 | | ----- | | ----- | 995 | D6304 | 46.4 | | -0.01 |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | D6304-A | 69.85 | | 0.37 | 997 | D6304 | 44 | | -0.05 |
| 228 | | ----- | | ----- | 998 | D6304 | 45 | | -0.03 |
| 230 | D95 | <500 | | ----- | 1006 | D6304-A | 65 | | 0.29 |
| 238 | | ----- | | ----- | 1011 | ISO12937 | 55 | | 0.13 |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | D95 | <500 | | ----- | 1033 | IP438 | 23 | | -0.40 |
| 252 | | ----- | | ----- | 1059 | ISO12937 | 50 | | 0.05 |
| 253 | | ----- | | ----- | 1067 | ISO12937 | 40 | | -0.12 |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | D6304 | 36 | | -0.18 | 1081 | ISO12937 | 46 | | -0.02 |
| 258 | D6304 | 42 | | -0.08 | 1082 | ISO12937 | 43 | | -0.07 |
| 273 | D6304 | 45 | | -0.03 | 1095 | | ----- | | ----- |
| 311 | D6304-A | 43 | | -0.07 | 1107 | D6304 | 43 | | -0.07 |
| 312 | ISO12937 | 49 | | 0.03 | 1109 | D6304-C | 44.3 | | -0.05 |
| 323 | D6304-A | 46 | | -0.02 | 1121 | IP438 | 42 | | -0.08 |
| 332 | ISO12937 | 45.6 | | -0.02 | 1124 | ISO12937 | 41.91 | | -0.09 |
| 334 | D6304-A | 44 | | -0.05 | 1134 | | ----- | | ----- |
| 335 | ISO12937 | 40 | | -0.12 | 1146 | D6304-C | 18 | | -0.48 |
| 336 | ISO12937 | 50 | | 0.05 | 1159 | | ----- | | ----- |
| 337 | ISO12937 | 45 | | -0.03 | 1161 | ISO12937 | 38.672 | | -0.14 |
| 338 | D6304 | 51.29 | | 0.07 | 1167 | ISO12937 | 46.6 | | -0.01 |
| 340 | D6304-A | 42.9 | | -0.07 | 1171 | ISO12937 | 53.30 | | 0.10 |
| 343 | ISO12937 | 46 | | -0.02 | 1182 | | ----- | | ----- |
| 344 | ISO12937 | 41.9 | | -0.09 | 1191 | ISO12937 | 35 | | -0.20 |
| 349 | D6304 | 49 | | 0.03 | 1201 | ISO12937 | 35 | | -0.20 |
| 350 | ISO12937 | 58.13 | | 0.18 | 1227 | D6304 | 41.8 | | -0.09 |
| 353 | IP439 | 63 | | 0.26 | 1229 | ISO12937 | 48.65 | | 0.03 |
| 356 | D6304-A | 48.2 | | 0.02 | 1259 | ISO12937 | 49 | | 0.03 |
| 360 | D6304-A | 43.1 | | -0.07 | 1297 | D6304 | 42.3 | | -0.08 |
| 430 | | ----- | | ----- | 1299 | ISO12937 | 50 | | 0.05 |
| 431 | | ----- | | ----- | 1340 | ISO12937 | 44.113 | | -0.05 |
| 445 | D6304 | 38.9 | | -0.13 | 1379 | D6304 | 44 | | -0.05 |
| 447 | IP438 | 44 | | -0.05 | 1382 | ISO12937 | 45.2 | | -0.03 |
| 463 | D6304 | 33 | | -0.23 | 1395 | D6304 | 63.6 | | 0.27 |
| 485 | D6304-A | 41.0 | | -0.10 | 1409 | ISO12937 | 42 | | -0.08 |
| 491 | | ----- | | ----- | 1417 | D6304-A | 55 | | 0.13 |
| 493 | | ----- | | ----- | 1428 | ISO12937 | 54 | | 0.11 |
| 494 | D6304-A | 44 | | -0.05 | 1430 | D6304-A | 16 | | -0.51 |
| 496 | D6304-A | 46.5 | | -0.01 | 1431 | D6304-A | 43.51 | | -0.06 |
| 507 | | ----- | | ----- | 1457 | ISO12937 | 51 | | 0.06 |
| 511 | | ----- | | ----- | 1459 | ISO12937 | 33 | | -0.23 |
| 541 | D6304-A | 41 | | -0.10 | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | D6304 | 41 | | -0.10 |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | ISO12937 | 45.5 | | -0.03 |
| 603 | D6304 | 71.5 | | 0.40 | 1564 | ISO12937 | 37.5 | | -0.16 |
| 604 | | ----- | | ----- | 1575 | D6304 | 54.4 | | 0.12 |
| 607 | D95 | <500 | | ----- | 1586 | D6304-A | 37 | | -0.17 |
| 608 | | ----- | | ----- | 1616 | UOP481 | 42.6 | | -0.07 |
| 631 | D6304-B | 53 | | 0.10 | 1629 | | ----- | | ----- |
| 657 | D6304-A | 47 | | 0.00 | 1634 | D6304 | 44 | | -0.05 |
| 671 | | ----- | | ----- | 1635 | D6304 | 49.0 | | 0.03 |
| 732 | | ----- | | ----- | 1643 | ISO6296 | 76 | C | 0.48 |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D6304 | 46.23 | | -0.01 | 1677 | D6304-A | 51.5 | | 0.07 |
| 823 | D6304 | 45.3 | | -0.03 | 1709 | | ----- | | ----- |
| 824 | D6304-A | 45 | | -0.03 | 1710 | ISO12937 | 37.2 | | -0.16 |

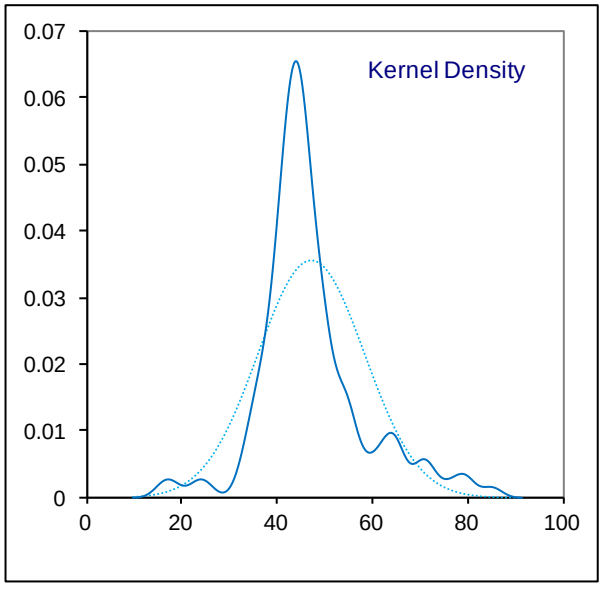
| | | | |
|---|---|---|---|
| 1720 | | ----- | ----- |
| 1724 | ISO12937 | 49 | 0.03 |
| 1730 | ISO12937 | 72 | 0.41 |
| 1776 | ISO12937 | 25 | -0.36 |
| 1792 | ISO12937 | 42 | -0.08 |
| 1807 | ISO12937 | 47 | 0.00 |
| 1810 | D6304-A | 45 | -0.03 |
| 1811 | ISO12937 | 45 | -0.03 |
| 1833 | D6304-A | 64 | 0.28 |
| 1842 | D6304 | 45 | -0.03 |
| 1849 | ISO12937 | 55 | 0.13 |

| | | | | |
|---|---|---|---|---|
| 1872 | ISO12937 | 41.2 | C | -0.10 |
| 1884 | D6304 | 40 | | -0.12 |
| 1896 | ISO12937 | 46.1 | | -0.02 |
| 1906 | D6304 | 65.27 | | 0.30 |
| 1938 | ISO12937 | 42 | | -0.08 |
| 1944 | D6304-A | 38 | | -0.15 |
| 1948 | D6304 | 79.65 | | 0.54 |
| 1951 | D6304 | 43 | | -0.07 |
| 2129 | IP438 | 54.0 | | 0.11 |
| 7012 | D95 | <1000 | | ----- |

| | |
|---|---|
| normality | not OK |
| n | 124 |
| outliers | 0 |
| mean (n) | 47.09 |
| st.dev. (n) | 11.183 |
| R(calc.) | 31.31 |
| R(D6304:07) | 170.38 |

Lab 120: First reported 147
Lab 1643: First reported 0.0076
Lab 1872: First reported 0.00293



# Determination of Water and sediment (D2709) on sample #14175; result in %V/V

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | D2709 | 0 | | ----- | 825 | D2709 | 0.00 | | ----- |
| 53 | | ----- | | ----- | 854 | D2709 | <0.005 | | ----- |
| 92 | D2709 | 0 | | ----- | 862 | D2709 | 0 | | ----- |
| 120 | D2709 | <0.005 | | ----- | 863 | D2709 | <0.005 | | ----- |
| 132 | D2709 | 0 | | ----- | 873 | | ----- | | ----- |
| 140 | | ----- | | ----- | 874 | D2709 | <0.005 | | ----- |
| 150 | D2709 | <0.005 | | ----- | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | | ----- | | ----- | 902 | | ----- | | ----- |
| 169 | | ----- | | ----- | 922 | | ----- | | ----- |
| 171 | D2709 | 0.0000 | | ----- | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | D2709 | 0.005 | | ----- |
| 193 | D2709 | <0.005 | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | D2709 | 0.005 | | ----- |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | | ----- | | ----- |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | D2709 | 0.0 | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1067 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 312 | | ----- | | ----- | 1109 | D2709 | 0 | | ----- |
| 323 | D2709 | 0 | | ----- | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 338 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 340 | D2709 | <0.0025 | | ----- | 1171 | | ----- | | ----- |
| 343 | D2709 | <0.005 | | ----- | 1182 | | ----- | | ----- |
| 344 | D2709 | <0.05 | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | D2709 | 0 | | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | | ----- | | ----- | 1229 | | ----- | | ----- |
| 356 | D2709 | <0.05 | | ----- | 1259 | | ----- | | ----- |
| 360 | D2709 | < 0.005 | | ----- | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | D2709 | 0 | | ----- | 1379 | | ----- | | ----- |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | D2709 | <0.005 | | ----- | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | D2709 | 0.00 | | ----- | 1457 | D2709 | 0 | | ----- |
| 511 | D2709 | <0.005 | | ----- | 1459 | | ----- | | ----- |
| 541 | D2709 | <0.05 | | ----- | 1498 | D2709 | 0 | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | D2709 | 0.000 | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | D2709 | <0.05 | | ----- |
| 607 | | ----- | | ----- | 1586 | D2709 | 0.05 | False positive? | ----- |
| 608 | | ----- | | ----- | 1616 | | ----- | | ----- |
| 631 | D2709 | 0 | | ----- | 1629 | | ----- | | ----- |
| 657 | D2709 | 0 | | ----- | 1634 | | ----- | | ----- |
| 671 | D2709 | <0.01 | | ----- | 1635 | | ----- | | ----- |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D2709 | 0.000 | | ----- | 1677 | | ----- | | ----- |
| 823 | D2709 | 0 | | ----- | 1709 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1710 | | ----- | | ----- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | | ----- | ----- |
| 1724 | | ----- | ----- | 1884 | | ----- | ----- |
| 1730 | | ----- | ----- | 1896 | D2709 | 0 | ----- |
| 1776 | | ----- | ----- | 1906 | | ----- | ----- |
| 1792 | D2709 | 0.005 | ----- | 1938 | | ----- | ----- |
| 1807 | | ----- | ----- | 1944 | D2709 | 0.005 | ----- |
| 1810 | | ----- | ----- | 1948 | | ----- | ----- |
| 1811 | | ----- | ----- | 1951 | | ----- | ----- |
| 1833 | | ----- | ----- | 2129 | | ----- | ----- |
| 1842 | | ----- | ----- | 7012 | | ----- | ----- |
| 1849 | | ----- | ----- | | | | |

| | |
|---|---|
| normality | not OK |
| n | 25 |
| outliers | 0 |
| mean (n) | <0.05 |
| st.dev. (n) | n.a. |
| R(calc.) | n.a. |
| R(D2709:96e1) | n.a. |

# Determination of Water and sediment (D1796) on sample #14175; result in %V/V

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | | ----- | | ----- | 825 | D1796 | 0.00 | | ----- |
| 53 | | ----- | | ----- | 854 | | ----- | | ----- |
| 92 | D1796 | 0 | | ----- | 862 | D1796 | 0.00 | | ----- |
| 120 | D1796 | <0.05 | | ----- | 863 | | ----- | | ----- |
| 132 | ISO3734 | 0.00 | | ----- | 873 | | ----- | | ----- |
| 140 | D1796 | 0.0 | | ----- | 874 | D1796 | <0.05 | | ----- |
| 150 | | ----- | | ----- | 875 | | ----- | | ----- |
| 158 | | ----- | | ----- | 887 | | ----- | | ----- |
| 159 | | ----- | | ----- | 902 | | ----- | | ----- |
| 169 | D1796 | 0.000 | | ----- | 922 | D1796 | <0.05 | | ----- |
| 171 | D1796 | 0.0000 | | ----- | 951 | | ----- | | ----- |
| 175 | | ----- | | ----- | 962 | | ----- | | ----- |
| 186 | | ----- | | ----- | 963 | | ----- | | ----- |
| 193 | | ----- | | ----- | 970 | | ----- | | ----- |
| 194 | | ----- | | ----- | 971 | | ----- | | ----- |
| 212 | | ----- | | ----- | 974 | D1796 | 0.00 | | ----- |
| 217 | | ----- | | ----- | 994 | | ----- | | ----- |
| 221 | | ----- | | ----- | 995 | | ----- | | ----- |
| 224 | | ----- | | ----- | 996 | | ----- | | ----- |
| 225 | | ----- | | ----- | 997 | | ----- | | ----- |
| 228 | | ----- | | ----- | 998 | | ----- | | ----- |
| 230 | | ----- | | ----- | 1006 | D1796 | <0.05 | | ----- |
| 238 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 240 | | ----- | | ----- | 1017 | | ----- | | ----- |
| 242 | | ----- | | ----- | 1033 | | ----- | | ----- |
| 252 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1067 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1080 | | ----- | | ----- |
| 256 | | ----- | | ----- | 1081 | | ----- | | ----- |
| 258 | | ----- | | ----- | 1082 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 311 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 312 | | ----- | | ----- | 1109 | D1796 | 0.00 | | ----- |
| 323 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 332 | | ----- | | ----- | 1124 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 335 | | ----- | | ----- | 1146 | | ----- | | ----- |
| 336 | | ----- | | ----- | 1159 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 338 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 340 | | ----- | | ----- | 1171 | | ----- | | ----- |
| 343 | D1796 | 0.0 | | ----- | 1182 | | ----- | | ----- |
| 344 | | ----- | | ----- | 1191 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1201 | | ----- | | ----- |
| 350 | | ----- | | ----- | 1227 | | ----- | | ----- |
| 353 | | ----- | | ----- | 1229 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 360 | D1796 | < 0.005 | | ----- | 1297 | | ----- | | ----- |
| 430 | | ----- | | ----- | 1299 | D1796 | 0.01 | | ----- |
| 431 | | ----- | | ----- | 1340 | | ----- | | ----- |
| 445 | | ----- | | ----- | 1379 | | ----- | | ----- |
| 447 | | ----- | | ----- | 1382 | | ----- | | ----- |
| 463 | D1796 | 0.00 | | ----- | 1395 | | ----- | | ----- |
| 485 | | ----- | | ----- | 1409 | | ----- | | ----- |
| 491 | | ----- | | ----- | 1417 | | ----- | | ----- |
| 493 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 494 | | ----- | | ----- | 1430 | | ----- | | ----- |
| 496 | | ----- | | ----- | 1431 | | ----- | | ----- |
| 507 | D1796 | 0 | | ----- | 1457 | | ----- | | ----- |
| 511 | D1796 | <0.05 | | ----- | 1459 | | ----- | | ----- |
| 541 | D1796 | <0.1 | | ----- | 1498 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1521 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1564 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1575 | | ----- | | ----- |
| 607 | | ----- | | ----- | 1586 | | ----- | | ----- |
| 608 | | ----- | | ----- | 1616 | D1796 | 0.025 | | ----- |
| 631 | | ----- | | ----- | 1629 | | ----- | | ----- |
| 657 | D1796 | 0.00 | | ----- | 1634 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1635 | | ----- | | ----- |
| 732 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1654 | | ----- | | ----- |
| 781 | D1796 | 0.00 | | ----- | 1677 | | ----- | | ----- |
| 823 | D1796 | 0 | | ----- | 1709 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1710 | | ----- | | ----- |

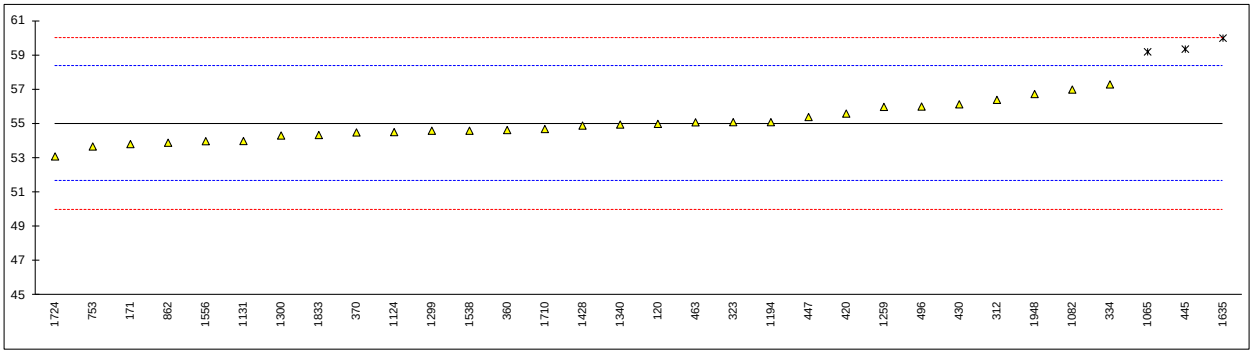
| | | | | | | |
|---|---|---|---|---|---|---|
| 1720 | | ----- | ----- | 1872 | ----- | ----- |
| 1724 | | ----- | ----- | 1884 | ----- | ----- |
| 1730 | D1796 | 0.01 | ----- | 1896 | ----- | ----- |
| 1776 | | ----- | ----- | 1906 | ----- | ----- |
| 1792 | D1796 | 0 | ----- | 1938 | ----- | ----- |
| 1807 | | ----- | ----- | 1944 | ----- | ----- |
| 1810 | | ----- | ----- | 1948 | ----- | ----- |
| 1811 | | ----- | ----- | 1951 | ----- | ----- |
| 1833 | | ----- | ----- | 2129 | ----- | ----- |
| 1842 | | ----- | ----- | 7012 | ----- | ----- |
| 1849 | | ----- | ----- | | | |

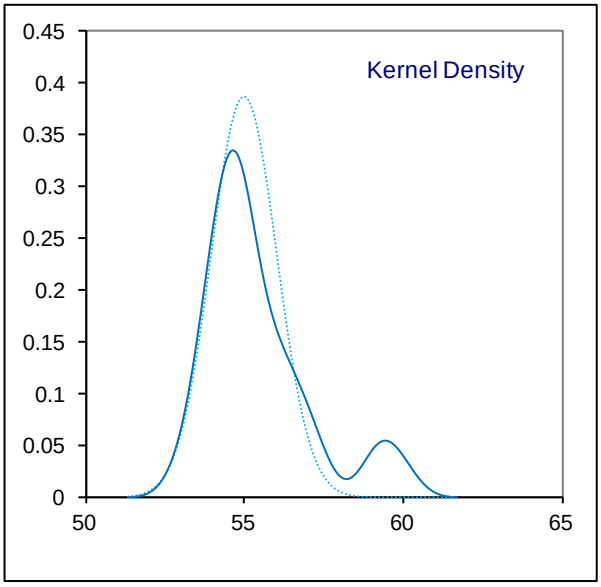
| | |
|---|---|
| normality | not OK |
| n | 19 |
| outliers | 0 |
| mean (n) | <0.05 |
| st.dev. (n) | n.a. |
| R(calc.) | n.a. |
| R(D1796:11e1) | n.a. |

# Determination of Cetane Number (ASTM D613) of sample #14176

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 120 | D613 | 55.0 | | -0.01 | |
| 171 | D613 | 53.82 | | -0.72 | |
| 311 | | ----- | | ----- | |
| 312 | D613 | 56.4 | | 0.83 | |
| 323 | D613 | 55.1 | | 0.05 | |
| 334 | D613 | 57.3 | | 1.37 | |
| 343 | | ----- | | ----- | |
| 356 | | ----- | | ----- | |
| 360 | D613 | 54.64 | | -0.22 | |
| 370 | D613 | 54.5 | | -0.31 | |
| 420 | ISO5165 | 55.6 | | 0.35 | |
| 430 | D613 | 56.14 | | 0.67 | |
| 445 | D613 | 59.36 | R(0.05) | 2.60 | |
| 447 | D613 | 55.4 | | 0.23 | |
| 463 | D613 | 55.09 | | 0.04 | |
| 496 | D613 | 56.01 | | 0.60 | |
| 753 | D613 | 53.68 | | -0.80 | |
| 862 | D613 | 53.9 | | -0.67 | |
| 963 | | ----- | | ----- | |
| 1059 | | ----- | | ----- | |
| 1065 | D613 | 59.2 | R(0.05) | 2.51 | |
| 1067 | | ----- | | ----- | |
| 1080 | | ----- | | ----- | |
| 1081 | | ----- | | ----- | |
| 1082 | ISO5165 | 57.0 | | 1.19 | |
| 1095 | | ----- | | ----- | |
| 1107 | | ----- | | ----- | |
| 1124 | ISO5165 | 54.52 | | -0.30 | |
| 1131 | ISO5165 | 54.0 | | -0.61 | |
| 1134 | | ----- | | ----- | |
| 1161 | | ----- | | ----- | |
| 1167 | | ----- | | ----- | |
| 1191 | | ----- | | ----- | |
| 1194 | D613 | 55.1 | | 0.05 | |
| 1201 | | ----- | | ----- | |
| 1229 | | ----- | | ----- | |
| 1259 | ISO5165 | 55.99 | | 0.58 | |
| 1299 | D613 | 54.6 | | -0.25 | |
| 1300 | ISO5165 | 54.32 | | -0.42 | |
| 1340 | ISO5165 | 54.96 | | -0.03 | |
| 1395 | | ----- | | ----- | |
| 1428 | D613 | 54.9 | | -0.07 | |
| 1457 | | ----- | | ----- | |
| 1538 | ISO5165 | 54.6 | | -0.25 | |
| 1556 | ISO5165 | 53.99 | | -0.61 | |
| 1616 | | ----- | | ----- | |
| 1635 | D613 | 60.0 | R(0.05) | 2.98 | |
| 1710 | ISO5165 | 54.7 | | -0.19 | |
| 1724 | D613 | 53.1 | | -1.15 | |
| 1776 | | ----- | | ----- | |
| 1807 | | ----- | | ----- | |
| 1809 | | ----- | | ----- | |
| 1810 | | ----- | | ----- | |
| 1833 | D613 | 54.35 | | -0.40 | |
| 1896 | | ----- | | ----- | |
| 1948 | D613 | 56.74 | | 1.03 | |
| 1951 | | ----- | | ----- | |

| | |
|---|---|
| normality | OK |
| n | 29 |
| outliers | 3 |
| mean (n) | 55.016 |
| st.dev. (n) | 1.0353 |
| R(calc.) | 2.899 |
| R(D613:13) | 4.677 |

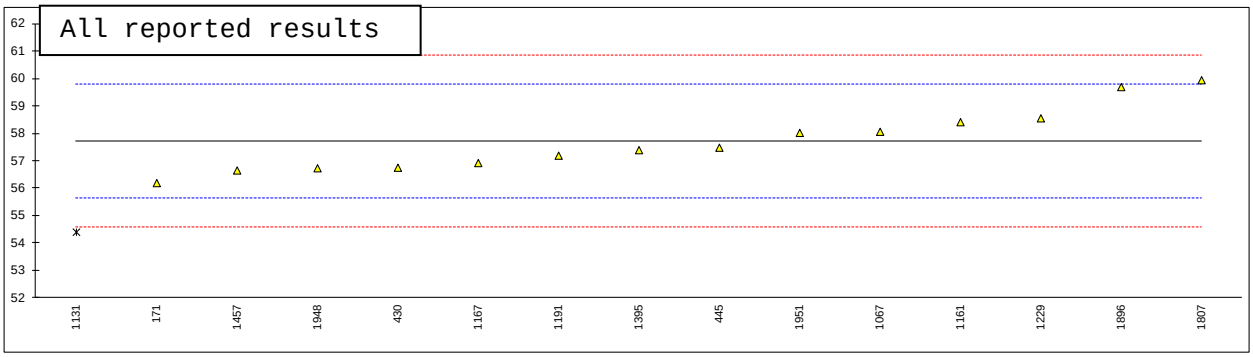

61
59
57
55
53
51
49
47
45
1724
753
171
862
1556
1131
1300
1833
370
1124
1299
1538
360
1710
1428
1340
120
463
323
1194
447
420
1259
496
430
312
1948
1082
334
1065
445
1635

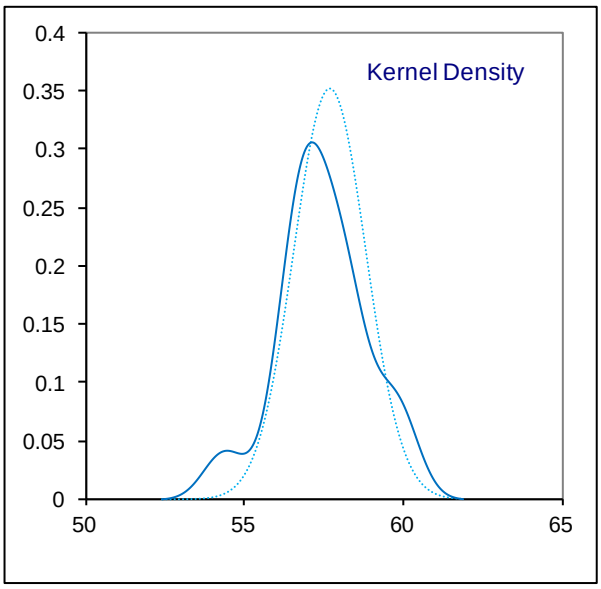

Kernel Density
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
50
55
60
65

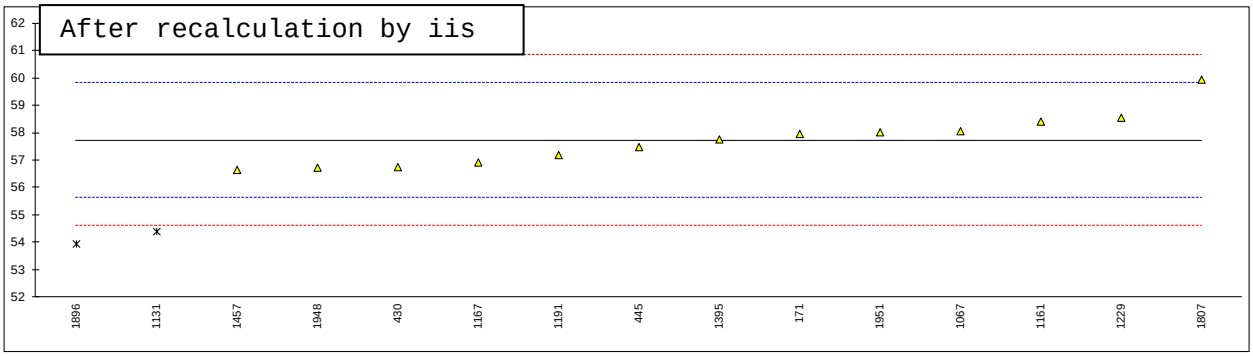
# Determination of Derived Cetane Number (D6890) of sample #14176

| lab | method | value | mark | z(targ) | Ignition delay | | Air Temp. | Remarks |
|---|---|---|---|---|---|---|---|---|
| 120 | | ----- | | ----- | ----- | | ----- | |
| 171 | D7170 | 56.2 | C,E | -1.46 | 2.95 | C,G(0.01) | 544.4 | First reported 53.2, 3.14 |
| 311 | | ----- | | ----- | ----- | | ----- | |
| 312 | | ----- | | ----- | ----- | | ----- | |
| 323 | | ----- | | ----- | ----- | | ----- | |
| 334 | | ----- | | ----- | ----- | | ----- | |
| 343 | | ----- | | ----- | ----- | | ----- | |
| 356 | | ----- | | ----- | ----- | | ----- | |
| 360 | | ----- | | ----- | ----- | | ----- | |
| 370 | | ----- | | ----- | ----- | | ----- | |
| 420 | | ----- | | ----- | ----- | | ----- | |
| 430 | D6890 | 56.76 | | -0.92 | 3.568 | | 522.4 | |
| 445 | D6890 | 57.49 | | -0.22 | 3.519 | | 579.0 | |
| 447 | | ----- | | ----- | ----- | | ----- | |
| 463 | | ----- | | ----- | ----- | | ----- | |
| 496 | | ----- | | ----- | ----- | | ----- | |
| 753 | | ----- | | ----- | ----- | | ----- | |
| 862 | | ----- | | ----- | ----- | | ----- | |
| 963 | | ----- | | ----- | ----- | | ----- | |
| 1059 | | ----- | | ----- | ----- | | ----- | |
| 1065 | | ----- | | ----- | ----- | | ----- | |
| 1067 | D6890 | 58.07 | | 0.33 | 3.4805 | | 582.5 | |
| 1080 | | ----- | | ----- | ----- | | ----- | |
| 1081 | | ----- | | ----- | ----- | | ----- | |
| 1082 | | ----- | | ----- | ----- | | ----- | |
| 1095 | | ----- | | ----- | ----- | | ----- | |
| 1107 | | ----- | | ----- | ----- | | ----- | |
| 1124 | | ----- | | ----- | ----- | | ----- | |
| 1131 | EN15195 | 54.41 | G(0.05) | -3.18 | 3.736 | | 585.5 | |
| 1134 | | ----- | | ----- | ----- | | ----- | |
| 1161 | D6890 | 58.42 | | 0.67 | 3.458 | | 585.2 | |
| 1167 | D6890 | 56.93 | | -0.76 | ----- | | ----- | |
| 1191 | D6890 | 57.2 | | -0.50 | 3.541 | | 570 | |
| 1194 | | ----- | | ----- | ----- | | ----- | |
| 1201 | | ----- | | ----- | ----- | | ----- | |
| 1229 | D6890 | 58.56 | | 0.80 | 3.449 | | 547.5 | |
| 1259 | | ----- | | ----- | ----- | | ----- | |
| 1299 | | ----- | | ----- | ----- | | ----- | |
| 1300 | | ----- | | ----- | ----- | | ----- | |
| 1340 | | ----- | | ----- | ----- | | ----- | |
| 1395 | D6890 | 57.4 | E | -0.31 | 3.5 | | 591.1 | |
| 1428 | | ----- | | ----- | ----- | | ----- | |
| 1457 | D6890 | 56.66 | | -1.02 | 3.574 | | 548.5 | |
| 1538 | | ----- | | ----- | ----- | | ----- | |
| 1556 | | ----- | | ----- | ----- | | ----- | |
| 1616 | | ----- | | ----- | ----- | | ----- | |
| 1635 | | ----- | | ----- | ----- | | ----- | |
| 1710 | | ----- | | ----- | ----- | | ----- | |
| 1724 | | ----- | | ----- | ----- | | ----- | |
| 1776 | | ----- | | ----- | ----- | | ----- | |
| 1807 | EN15195 | 59.95 | | 2.14 | ----- | | ----- | |
| 1809 | | ----- | | ----- | ----- | | ----- | |
| 1810 | | ----- | | ----- | ----- | | ----- | |
| 1833 | | ----- | | ----- | ----- | | ----- | |
| 1896 | D6890 | 59.7 | E | 1.90 | 3.77 | | ----- | |
| 1948 | D6890 | 56.74 | | -0.94 | 3.569 | | 583.6 | |
| 1951 | D6890 | 58.03 | | 0.30 | 3.483 | | 578.4 | |
| | | | | | | | | DCN after recalculation by iis |
| | normality | OK | | | not OK | | | suspect |
| | n | 14 | | | 12 | | | 13 |
| | outliers | 1 | | | 1 | | | 2 |
| | mean (n) | 57.72 | | | 3.55 | | | 57.73 |
| | st.dev. (n) | 1.133 | | | 0.103 | | | 0.931 |
| | R(calc.) | 3.17 | | | 0.29 | | | 2.61 |
| | R(D6890:13be1) | 2.92 | | | 0.19 | | | 2.91 |

Recalculated values by iis
Lab 171: 57.97
Lab 1395: 57.77
Lab 1896: 53.96


All reported results
62
61
60
59
58
57
56
55
54
53
52
1131
171
1457
1948
430
1167
1191
1395
445
1951
1067
1161
1229
1896
1807

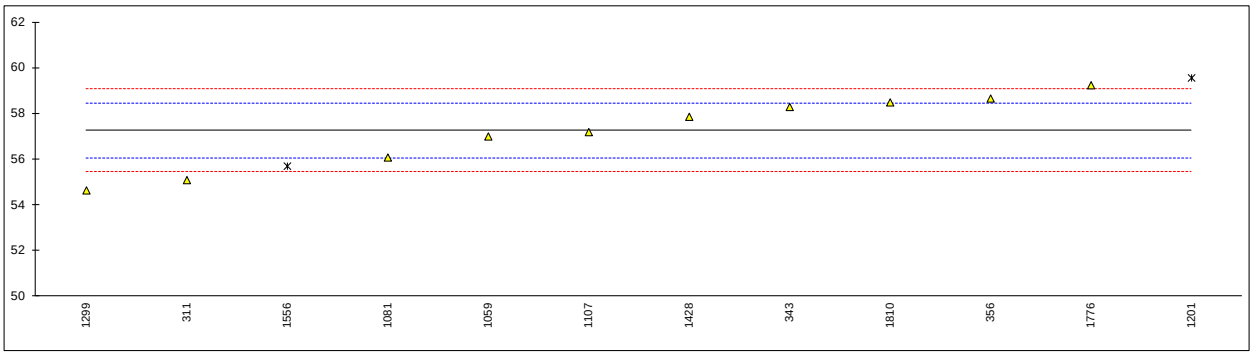

Kernel Density
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
50
55
60
65

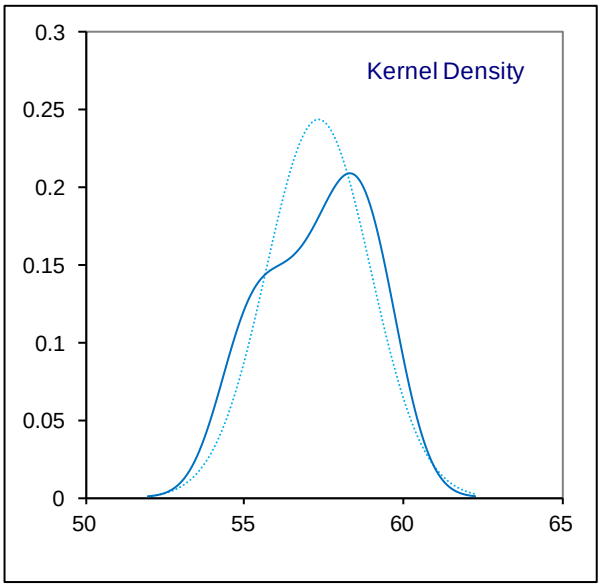

After recalculation by iis
62
61
60
59
58
57
56
55
54
53
52
1896
1131
1457
1948
430
1167
1191
445
1395
171
1951
1067
1161
1229
1807

## Determination of Derived Cetane Number (D7668) of sample #14176

| lab | method | value | mark | z(targ) | Ignition delay | | Air Temp. | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 120 | | ----- | | ----- | ----- | | ----- | | |
| 171 | | ----- | | ----- | ----- | | ----- | | |
| 311 | D7668 | 55.1 | | -3.61 | 2.7969 | | 589.09 | | |
| 312 | | ----- | | ----- | ----- | | ----- | | |
| 323 | | ----- | | ----- | ----- | | ----- | | |
| 334 | | ----- | | ----- | ----- | | ----- | | |
| 343 | D7668 | 58.3 | | 1.73 | 2.61 | | 595.05 | | |
| 356 | D7668 | 58.67 | | 2.34 | 2.725 | | 611.16 | | |
| 360 | | ----- | | ----- | ----- | | ----- | | |
| 370 | | ----- | | ----- | ----- | | ----- | | |
| 420 | | ----- | | ----- | ----- | | ----- | | |
| 430 | | ----- | | ----- | ----- | | ----- | | |
| 445 | | ----- | | ----- | ----- | | ----- | | |
| 447 | | ----- | | ----- | ----- | | ----- | | |
| 463 | | ----- | | ----- | ----- | | ----- | | |
| 496 | | ----- | | ----- | ----- | | ----- | | |
| 753 | | ----- | | ----- | ----- | | ----- | | |
| 862 | | ----- | | ----- | ----- | | ----- | | |
| 963 | | ----- | | ----- | ----- | | ----- | | |
| 1059 | D7668 | 57.01 | | -0.42 | 2.7618 | | 603.17 | | |
| 1065 | | ----- | | ----- | ----- | | ----- | | |
| 1067 | | ----- | | ----- | ----- | | ----- | | |
| 1080 | | ----- | | ----- | ----- | | ----- | | |
| 1081 | D7668 | 56.09 | | -1.96 | 2.7936 | | ----- | | |
| 1082 | | ----- | | ----- | ----- | | ----- | | |
| 1095 | | ----- | | ----- | ----- | | ----- | | |
| 1107 | D7668 | 57.2 | | -0.11 | 2.71 | | ----- | | |
| 1124 | | ----- | | ----- | ----- | | ----- | | |
| 1131 | | ----- | | ----- | ----- | | ----- | | |
| 1134 | | ----- | | ----- | ----- | | ----- | | |
| 1161 | | ----- | | ----- | ----- | | ----- | | |
| 1167 | | ----- | | ----- | ----- | | ----- | | |
| 1191 | | ----- | | ----- | ----- | | ----- | | |
| 1194 | | ----- | | ----- | ----- | | ----- | | |
| 1201 | D7668 | 59.57 | ex | 3.85 | 2.87 | ex | 555.2 | | Air temp out of range (560 – 640ºC) |
| 1229 | | ----- | | ----- | ----- | | ----- | | |
| 1259 | | ----- | | ----- | ----- | | ----- | | |
| 1299 | D7668 | 54.65 | | -4.36 | ----- | | ----- | | |
| 1300 | | ----- | | ----- | ----- | | ----- | | |
| 1340 | | ----- | | ----- | ----- | | ----- | | |
| 1395 | | ----- | | ----- | ----- | | ----- | | |
| 1428 | D7668 | 57.87 | | 1.01 | 2.7465 | | 595.9 | | |
| 1457 | | ----- | | ----- | ----- | | ----- | | |
| 1538 | | ----- | | ----- | ----- | | ----- | | |
| 1556 | D7668 | 55.71 | C, ex | -2.59 | 2.1651 | C, G(0.01) | 19.6 | ex | First reported 56.06, 2.6397 |
| 1616 | | ----- | | ----- | ----- | | ----- | | |
| 1635 | | ----- | | ----- | ----- | | ----- | | |
| 1710 | | ----- | | ----- | ----- | | ----- | | |
| 1724 | | ----- | | ----- | ----- | | ----- | | |
| 1776 | D7668 | 59.25 | | 3.31 | 2.76 | | ----- | | |
| 1807 | | ----- | | ----- | ----- | | ----- | | |
| 1809 | | ----- | | ----- | ----- | | ----- | | |
| 1810 | | 58.5 | | 2.06 | 2.73 | | 600 | | |
| 1833 | | ----- | | ----- | ----- | | ----- | | |
| 1896 | | ----- | | ----- | ----- | | ----- | | |
| 1948 | | ----- | | ----- | ----- | | ----- | | |
| 1951 | | ----- | | ----- | ----- | | ----- | | |
| | normality | OK | | | not OK | | | | |
| | n | 10 + 2 excl | | | 9 + 1 excl. | | | | |
| | outliers | 0 | | | 1 | | | | |
| | mean (n) | 57.26 | | | 2.74 | | | | |
| | st.dev. (n) | 1.558 | | | 0.056 | | | | |
| | R(calc.) | 4.36 | | | 0.16 | | | | |
| | R(D7668:14a) | 1.68 | | | 0.12 | | | | |

Lab 1556: result DCN was excluded, as ignition delay was a statistical outlier and Air Temperature was out of range.

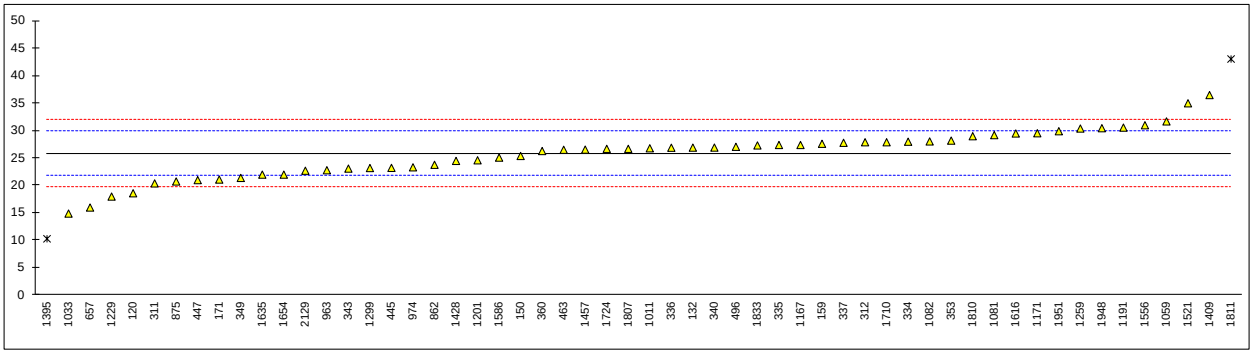

62
60
58
56
54
52
50
1299
311
1556
1081
1059
1107
1428
343
1810
356
1776
1201

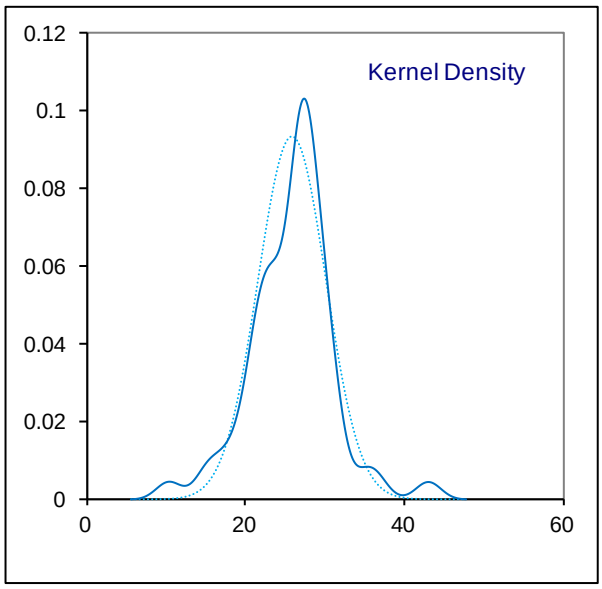

Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
50
55
60
65

## Determination of Total Contamination on sample #14177; result in mg/kg

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 120 | D6217 | 18.6 | | -3.53 | |
| 132 | D6217 | 26.92 | | 0.52 | |
| 150 | D6217 | 25.4 | | -0.22 | |
| 159 | D6217 | 27.62 | | 0.86 | |
| 171 | D6217 | 21.1 | | -2.31 | |
| 311 | D6217 | 20.4 | | -2.65 | |
| 312 | EN12662 | 27.9 | | 1.00 | |
| 323 | EN12662 | <12.0 | | <-6.76 | False negative result? |
| 334 | EN12662 | 28.0 | | 1.05 | |
| 335 | EN12662 | 27.4 | | 0.76 | |
| 336 | EN12662 | 26.9 | | 0.51 | |
| 337 | EN12662 | 27.8 | | 0.95 | |
| 340 | EN12662 | 26.93 | | 0.53 | |
| 343 | EN12662 | 23.1 | | -1.34 | |
| 349 | EN12662 | 21.4 | | -2.17 | |
| 353 | IP440 | 28.198 | | 1.15 | |
| 360 | EN12662 | 26.3 | | 0.22 | |
| 445 | D6217 | 23.23 | | -1.28 | |
| 447 | IP440 | 21.0 | | -2.36 | |
| 463 | EN12662 | 26.53 | | 0.33 | |
| 494 | | ----- | | ----- | |
| 496 | EN12662 | 27.07 | | 0.60 | |
| 657 | D6217 | 16.0 | | -4.80 | |
| 862 | D6217 | 23.79 | | -1.00 | |
| 875 | IP440 | 20.75 | | -2.48 | |
| 963 | D6217 | 22.8 | | -1.48 | |
| 970 | | ----- | | ----- | |
| 974 | D6217 | 23.33 | | -1.23 | |
| 1011 | EN12662 | 26.8 | | 0.46 | |
| 1033 | IP440 | 14.9 | | -5.34 | |
| 1059 | EN12662 | 31.7 | | 2.85 | |
| 1081 | EN12662 | 29.2 | | 1.63 | |
| 1082 | EN12662 | 28.05 | | 1.07 | |
| 1095 | | ----- | | ----- | |
| 1107 | | ----- | | ----- | |
| 1134 | | ----- | | ----- | |
| 1167 | EN12662 | 27.4 | | 0.76 | |
| 1171 | EN12662 | 29.54 | | 1.80 | |
| 1191 | EN12662 | 30.57 | | 2.30 | |
| 1201 | D6217 | 24.61 | | -0.60 | |
| 1229 | EN12662 | 18 | | -3.82 | |
| 1259 | EN12662 | 30.40 | | 2.22 | |
| 1299 | EN12662 | 23.2 | | -1.29 | |
| 1395 | EN12662 | 10.3 | R(0.05) | -7.58 | |
| 1409 | EN12662 | 36.5 | | 5.19 | |
| 1428 | EN12662 | 24.5 | | -0.66 | |
| 1457 | D6217 | 26.56 | | 0.35 | |
| 1510 | | ----- | | ----- | |
| 1521 | EN12662 | 35 | | 4.46 | |
| 1556 | EN12662 | 31.0 | | 2.51 | |
| 1586 | EN12662 | 25.1 | | -0.36 | |
| 1616 | D6217 | 29.5 | | 1.78 | |
| 1635 | D6217 | 22 | | -1.87 | |
| 1654 | EN12662 | 22.0 | | -1.87 | |
| 1710 | EN12662 | 27.9 | | 1.00 | |
| 1724 | EN12662 | 26.7 | | 0.42 | |
| 1807 | EN12662 | 26.7 | | 0.42 | |
| 1810 | D6217 | 29.0 | | 1.54 | |
| 1811 | EN12662 | 43.07 | R(0.05) | 8.39 | |
| 1833 | EN12662 | 27.32 | | 0.72 | |
| 1938 | EN12662 | >30 | | >2.02 | |
| 1948 | D6217 | 30.46 | | 2.25 | |
| 1951 | D6217 | 29.91 | | 1.98 | |
| 2129 | IP440 | 22.71 | | -1.53 | |

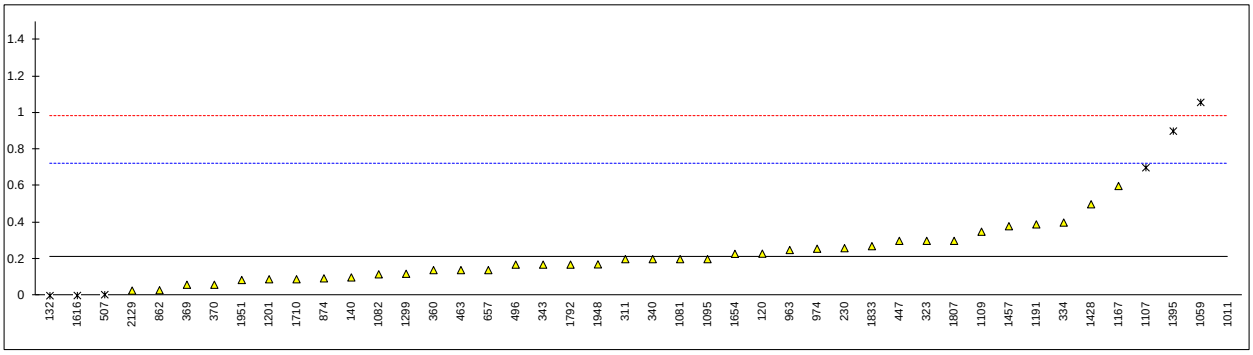
| | | | | Only ASTM D6217 data | Only EN12662 data |
|---|---|---|---|---|---|
| | normality | OK | | OK | suspect |
| | n | 54 | | 23 | 36 |
| | outliers | 2 | Spike | 0 | 2 |
| | mean (n) | 25.85 | 12.1 | 23.86 | 26.51 |
| | st.dev. (n) | 4.278 | | 4.289 | 4.287 |
| | R(calc.) | 11.98 | | 12.01 | 12.00 |
| | R(D6217:11) | 5.74 | | 5.52 | 8.47 |
| | | | | Compare R(EN12662:08) = 7.76 | |

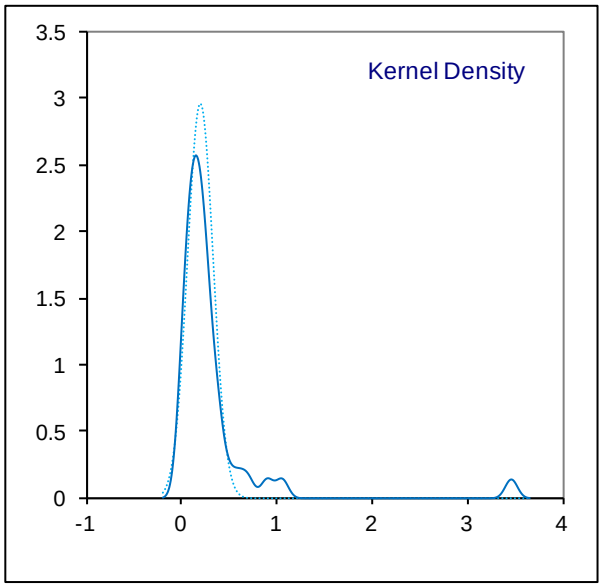

50
45
40
35
30
25
20
15
10
5
0
1395 1033 657 1229 120 311 875 447 171 349 1635 1654 2129 963 343 1299 445 974 862 1428 1201 1586 150 360 463 1457 1724 1807 1011 336 132 340 496 1833 335 1167 159 337 312 1710 334 1082 353 1810 1081 1616 1171 1951 1259 1948 1191 1556 1059 1521 1409 1811


Kernel Density
0.12
0.1
0.08
0.06
0.04
0.02
0
0
20
40
60

## Determination of Oxidation Stability on sample #14178; result in mg/100ml

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 120 | D2274 | 0.23 | | 0.08 | |
| 132 | D2274 | 0.0 | ex | -0.82 | Result excluded, zero is not a real result |
| 140 | D2274 | 0.10 | | -0.43 | |
| 159 | | ----- | | ----- | |
| 171 | | ----- | | ----- | |
| 230 | ISO12205 | 0.26 | | 0.19 | |
| 311 | D2274 | 0.2 | | -0.04 | |
| 312 | D2274 | <0.1 | | ----- | |
| 323 | D2274 | 0.3 | | 0.35 | |
| 334 | D2274 | 0.4 | | 0.74 | |
| 340 | D2274 | 0.2 | | -0.04 | |
| 343 | ISO12205 | 0.17 | | -0.16 | |
| 360 | D2274 | 0.14 | | -0.28 | |
| 369 | D2274 | 0.06 | | -0.59 | |
| 370 | D2274 | 0.06 | | -0.59 | |
| 445 | D2274 | <0.1 | | ----- | |
| 447 | D2274 | 0.3 | | 0.35 | |
| 463 | ISO12205 | 0.14 | | -0.28 | |
| 494 | | ----- | | ----- | |
| 496 | D2274 | 0.17 | | -0.16 | |
| 507 | D2274 | 0.0055 | ex,U | -0.80 | Result excluded, probably unit error? |
| 657 | D2274 | 0.14 | | -0.28 | |
| 862 | D2274 | 0.03 | | -0.70 | |
| 874 | D2274 | 0.095 | | -0.45 | |
| 963 | D2274 | 0.25 | | 0.15 | |
| 974 | D2274 | 0.257 | | 0.18 | |
| 1011 | ISO12205 | 3.46 | R(0.01) | 12.66 | |
| 1033 | | ----- | | ----- | |
| 1059 | D2274 | 1.057 | R(0.01) | 3.30 | |
| 1081 | D2274 | 0.2 | | -0.04 | |
| 1082 | ISO12205 | 0.117 | | -0.37 | |
| 1095 | ISO12205 | 0.2 | | -0.04 | |
| 1107 | D2274 | 0.7 | R(0.05) | 1.91 | |
| 1109 | D2274 | 0.35 | | 0.54 | |
| 1134 | | ----- | | ----- | |
| 1167 | ISO12205 | 0.6 | | 1.52 | |
| 1191 | ISO12205 | 0.39 | | 0.70 | |
| 1201 | D2274 | 0.09 | | -0.47 | |
| 1299 | D2274 | 0.12 | | -0.35 | |
| 1395 | D2274 | 0.9 | R(0.01) | 2.69 | |
| 1428 | ISO12205 | 0.5 | | 1.13 | |
| 1457 | D2274 | 0.38 | | 0.66 | |
| 1510 | | ----- | | ----- | |
| 1556 | | ----- | | ----- | |
| 1616 | D2274 | 0.0009 | ex,U | -0.82 | Result excluded, probably unit error? |
| 1654 | ISO12205 | 0.229 | | 0.07 | |
| 1709 | | ----- | | ----- | |
| 1710 | D2274 | 0.09 | | -0.47 | |
| 1724 | | ----- | W | ----- | Result withdrawn, reported 2.57 |
| 1792 | D2274 | 0.17 | | -0.16 | |
| 1807 | ISO12205 | 0.3 | | 0.35 | |
| 1833 | ISO12205 | 0.271 | C | 0.24 | First reported 1.71 |
| 1948 | D2274 | 0.1714 | | -0.15 | |
| 1951 | D2274 | 0.086 | | -0.49 | |
| 2129 | D2274 | 0.028 | | -0.71 | |
| | normality | not OK | | | |
| | n | 37 | | | |
| | outliers | 4 | + 3 excl. | | |
| | mean (n) | 0.211 | | | |
| | st.dev. (n) | 0.1298 | | | |
| | R(calc.) | 0.363 | | | |
| | R(D2274:10) | 0.718 | | | |


1.4
1.2
1
0.8
0.6
0.4
0.2
0
132
1616
507
2129
862
369
370
1951
1201
1710
874
140
1082
1299
360
463
657
496
343
1792
1948
311
340
1081
1095
1654
120
963
974
230
1833
447
323
1807
1109
1457
1191
334
1428
1167
1107
1395
1059
1011


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

## APPENDIX 2 z-scores Distillation

| | Automated | | | | | | Manual | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lab | IBP | 10%rec | 50%rec | 90%rec | 95%rec | FBP | IBP | 10%rec | 50%rec | 90%rec | 95%rec | FBP |
| 52 | -0.39 | -1.14 | 0.25 | -1.15 | -0.87 | -1.04 | ----- | ----- | ----- | ----- | ----- | ----- |
| 53 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 92 | 1.29 | 1.16 | -0.31 | -1.44 | -1.22 | -0.76 | ----- | ----- | ----- | ----- | ----- | ----- |
| 120 | -0.93 | -0.96 | -1.16 | -0.25 | -0.07 | -1.83 | ----- | ----- | ----- | ----- | ----- | ----- |
| 132 | -0.36 | 0.31 | -0.50 | -1.10 | -1.15 | -0.92 | ----- | ----- | ----- | ----- | ----- | ----- |
| 140 | 0.06 | 0.80 | -1.73 | -1.27 | -0.42 | -0.80 | ----- | ----- | ----- | ----- | ----- | ----- |
| 150 | -1.36 | -2.48 | -0.50 | 0.25 | 0.51 | -0.29 | ----- | ----- | ----- | ----- | ----- | ----- |
| 158 | -1.36 | 0.19 | -3.33 | -2.00 | -0.55 | -0.96 | ----- | ----- | ----- | ----- | ----- | ----- |
| 159 | 0.84 | 1.77 | 1.01 | 0.54 | 0.15 | 0.58 | ----- | ----- | ----- | ----- | ----- | ----- |
| 169 | -0.12 | -1.08 | -0.78 | 0.09 | 0.31 | 0.26 | ----- | ----- | ----- | ----- | ----- | ----- |
| 171 | -0.51 | 1.71 | 0.16 | 0.14 | 0.06 | -0.57 | ----- | ----- | ----- | ----- | ----- | ----- |
| 175 | 0.99 | -0.11 | 2.33 | 2.56 | 2.07 | 0.81 | ----- | ----- | ----- | ----- | ----- | ----- |
| 186 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 193 | 0.27 | 2.38 | 0.82 | -0.20 | -0.13 | -0.76 | ----- | ----- | ----- | ----- | ----- | ----- |
| 194 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 212 | 0.03 | 1.71 | 0.44 | 2.11 | 2.17 | 0.22 | ----- | ----- | ----- | ----- | ----- | ----- |
| 217 | 0.51 | -0.84 | 0.06 | -0.25 | -0.26 | 0.10 | ----- | ----- | ----- | ----- | ----- | ----- |
| 221 | ----- | ----- | ----- | ----- | ----- | ----- | -1.61 | -1.00 | -0.95 | 0.33 | -4.07 | -1.31 |
| 224 | 0.66 | -1.69 | -0.78 | 0.50 | 0.54 | 0.93 | ----- | ----- | ----- | ----- | ----- | ----- |
| 225 | ----- | ----- | ----- | ----- | ----- | ----- | 0.18 | 0.24 | -0.59 | 0.33 | 1.89 | 0.10 |
| 228 | ----- | ----- | ----- | ----- | ----- | ----- | 1.52 | 1.48 | -0.95 | 0.33 | 0.80 | -0.61 |
| 230 | 0.57 | 0.25 | -0.12 | -0.08 | 0.44 | 1.05 | ----- | ----- | ----- | ----- | ----- | ----- |
| 238 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 240 | ----- | ----- | ----- | ----- | ----- | ----- | -0.27 | -1.63 | -0.23 | 0.33 | 1.89 | -0.61 |
| 242 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 252 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | -1.63 | -0.95 | -0.37 | -0.28 | 0.80 |
| 253 | ----- | ----- | ----- | ----- | ----- | ----- | -1.17 | 0.55 | -0.23 | -0.37 | 1.07 | 0.10 |
| 254 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | -1.63 | -0.23 | -0.37 | 0.80 | 0.80 |
| 256 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | -0.38 | -0.23 | -0.37 | ----- | 0.10 |
| 258 | 1.11 | 0.37 | -0.22 | -0.70 | -1.25 | -1.71 | ----- | ----- | ----- | ----- | ----- | ----- |
| 273 | -0.06 | -0.60 | -0.88 | -0.82 | -0.87 | -1.32 | ----- | ----- | ----- | ----- | ----- | ----- |
| 311 | -0.87 | -1.14 | -1.16 | -0.37 | -0.04 | -0.09 | ----- | ----- | ----- | ----- | ----- | ----- |
| 312 | -0.27 | 0.19 | 0.54 | -0.37 | -0.39 | -1.08 | ----- | ----- | ----- | ----- | ----- | ----- |
| 323 | 0.45 | 1.04 | 0.54 | 0.37 | 0.70 | -0.17 | ----- | ----- | ----- | ----- | ----- | ----- |
| 332 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 334 | 0.99 | 1.04 | 0.54 | -0.48 | -0.48 | 0.06 | ----- | ----- | ----- | ----- | ----- | ----- |
| 335 | 0.87 | -0.78 | -0.22 | 0.14 | 0.35 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 336 | 1.17 | 0.19 | -0.60 | -1.15 | -0.52 | 0.58 | ----- | ----- | ----- | ----- | ----- | ----- |
| 337 | 1.62 | 0.74 | 0.25 | 0.25 | -0.23 | -0.17 | ----- | ----- | ----- | ----- | ----- | ----- |
| 338 | 1.17 | 1.16 | 0.72 | 1.21 | 1.18 | 0.85 | ----- | ----- | ----- | ----- | ----- | ----- |
| 340 | 1.71 | -1.45 | 0.44 | 0.93 | 0.86 | 0.26 | ----- | ----- | ----- | ----- | ----- | ----- |
| 343 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 344 | -0.03 | 0.07 | -0.12 | -0.93 | -1.19 | -0.45 | ----- | ----- | ----- | ----- | ----- | ----- |
| 349 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 350 | ----- | ----- | ----- | ----- | ----- | ----- | -2.58 | -2.98 | -1.10 | -0.52 | 0.41 | 0.64 |
| 353 | -3.91 | -3.21 | -1.63 | 0.42 | 0.31 | 0.66 | ----- | ----- | ----- | ----- | ----- | ----- |
| 356 | 1.17 | 1.89 | 1.48 | 1.04 | 1.11 | 1.56 | ----- | ----- | ----- | ----- | ----- | ----- |
| 360 | -1.17 | -0.17 | -0.69 | -0.08 | -0.20 | -1.28 | ----- | ----- | ----- | ----- | ----- | ----- |
| 430 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 431 | -0.69 | 0.49 | -0.12 | 1.77 | 2.65 | -0.25 | ----- | ----- | ----- | ----- | ----- | ----- |
| 445 | -0.09 | -0.05 | -0.41 | -0.14 | 0.22 | 0.14 | ----- | ----- | ----- | ----- | ----- | ----- |
| 447 | -1.51 | 0.25 | 0.44 | -0.08 | -0.29 | 0.42 | ----- | ----- | ----- | ----- | ----- | ----- |
| 463 | -0.21 | -0.05 | 0.44 | 0.76 | 0.89 | 1.09 | ----- | ----- | ----- | ----- | ----- | ----- |
| 485 | 0.58 | 0.80 | -0.03 | -0.51 | -0.42 | -1.43 | ----- | ----- | ----- | ----- | ----- | ----- |
| 491 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 493 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 494 | -0.69 | -0.78 | -1.07 | -0.87 | -0.64 | 0.14 | ----- | ----- | ----- | ----- | ----- | ----- |
| 496 | -0.27 | -0.72 | -0.88 | -0.59 | -0.36 | 0.38 | ----- | ----- | ----- | ----- | ----- | ----- |
| 507 | ----- | ----- | ----- | ----- | ----- | ----- | 3.05 | 2.35 | 1.59 | 1.38 | -1.63 | -2.37 |
| 511 | ----- | ----- | ----- | ----- | ----- | ----- | 0.85 | -0.07 | -1.68 | -0.72 | 0.53 | -0.61 |
| 541 | 0.93 | 0.19 | 0.25 | -0.03 | -0.26 | 0.58 | ----- | ----- | ----- | ----- | ----- | ----- |
| 557 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 562 | -0.32 | -0.87 | -0.03 | 0.54 | 0.39 | 1.05 | ----- | ----- | ----- | ----- | ----- | ----- |
| 575 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 603 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 604 | 0.96 | 0.74 | 0.63 | 0.99 | 0.67 | -1.28 | ----- | ----- | ----- | ----- | ----- | ----- |
| 607 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 608 | 0.09 | 0.07 | 0.16 | -0.25 | -0.20 | 0.10 | ----- | ----- | ----- | ----- | ----- | ----- |
| 631 | ----- | ----- | ----- | ----- | ----- | ----- | 0.18 | -3.80 | -1.68 | -1.77 | -1.90 | -2.72 |
| 657 | -1.60 | -0.60 | -1.63 | -2.28 | -1.92 | -1.20 | ----- | ----- | ----- | ----- | ----- | ----- |
| 671 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 732 | ----- | ----- | ----- | ----- | ----- | ----- | 0.40 | -0.07 | 0.14 | 1.03 | 1.62 | 1.51 |
| 759 | ----- | ----- | ----- | ----- | ----- | ----- | -1.61 | 1.17 | 0.14 | -0.72 | -0.55 | -0.25 |
| 781 | -0.27 | 1.28 | 0.54 | -0.03 | -0.36 | 0.26 | ----- | ----- | ----- | ----- | ----- | ----- |
| 823 | 0.51 | 0.68 | 0.72 | 0.82 | 0.83 | 0.77 | ----- | ----- | ----- | ----- | ----- | ----- |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 824 | 0.45 | 0.56 | 0.82 | 1.04 | 0.95 | 0.89 | ----- | ----- | ----- | ----- | ----- | ----- |
| 825 | -0.96 | 0.74 | -0.22 | 0.31 | 0.35 | 0.50 | ----- | ----- | ----- | ----- | ----- | ----- |
| 854 | 1.23 | 2.13 | 1.10 | 0.25 | 0.54 | 0.14 | ----- | ----- | ----- | ----- | ----- | ----- |
| 862 | -2.47 | -0.96 | -0.50 | -0.70 | -0.48 | -0.25 | ----- | ----- | ----- | ----- | ----- | ----- |
| 863 | ----- | ----- | ----- | ----- | ----- | ----- | 1.30 | 2.10 | 1.22 | 0.33 | 0.53 | 2.92 |
| 873 | ----- | ----- | ----- | ----- | ----- | ----- | -0.72 | 1.48 | 0.50 | -0.37 | -0.01 | 0.45 |
| 874 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | 1.48 | 0.50 | 0.68 | 1.89 | 0.10 |
| 875 | 0.03 | 1.10 | 0.72 | 0.03 | -0.10 | 0.93 | ----- | ----- | ----- | ----- | ----- | ----- |
| 887 | ----- | ----- | ----- | ----- | ----- | ----- | -0.72 | 0.24 | -0.95 | 0.68 | 0.53 | -0.96 |
| 902 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 922 | ----- | ----- | ----- | ----- | ----- | ----- | -0.22 | -1.56 | -0.88 | -0.23 | -0.71 | 1.65 |
| 951 | ----- | ----- | ----- | ----- | ----- | ----- | 0.91 | 1.23 | 0.89 | 0.67 | -0.02 | -0.27 |
| 962 | ----- | ----- | ----- | ----- | ----- | ----- | -0.27 | 0.24 | 0.50 | 1.03 | -2.72 | 1.51 |
| 963 | 0.30 | 1.28 | 0.44 | -0.31 | -0.61 | 0.10 | ----- | ----- | ----- | ----- | ----- | ----- |
| 970 | ----- | ----- | ----- | ----- | ----- | ----- | -2.06 | 0.24 | 1.22 | -0.37 | -0.28 | -2.02 |
| 971 | 0.39 | -0.60 | 0.16 | 0.93 | -0.07 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 974 | 0.03 | 1.04 | 0.72 | 0.09 | -0.20 | -1.24 | ----- | ----- | ----- | ----- | ----- | ----- |
| 994 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | 0.55 | 0.50 | 1.03 | 1.89 | 1.16 |
| 995 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | 0.55 | 0.50 | 0.68 | 1.89 | 1.51 |
| 996 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 997 | ----- | ----- | ----- | ----- | ----- | ----- | 0.40 | 0.24 | 0.14 | 0.33 | 1.89 | 1.51 |
| 998 | ----- | ----- | ----- | ----- | ----- | ----- | -0.04 | 0.86 | 0.50 | 0.33 | 1.07 | 1.16 |
| 1006 | -0.09 | 0.07 | -0.22 | -0.93 | -1.06 | -1.04 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1011 | -0.18 | 0.80 | 0.35 | 0.31 | 0.25 | 0.73 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1017 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1033 | 1.20 | 1.65 | 2.04 | 0.87 | -0.13 | 0.50 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1059 | -0.12 | -1.08 | -1.92 | -1.89 | -1.41 | -1.20 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1067 | 0.87 | 1.53 | 0.72 | 0.54 | 0.25 | -1.20 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1080 | -2.50 | -1.75 | -0.78 | -0.20 | -0.13 | 0.02 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1081 | -0.24 | 1.04 | 1.20 | 1.77 | 2.07 | 0.73 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1082 | -0.09 | -0.60 | -0.12 | 0.37 | 0.31 | -0.41 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1095 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1107 | 0.69 | 1.28 | -0.12 | -0.59 | -0.39 | -0.41 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1109 | 0.72 | 0.31 | 0.25 | -0.37 | -0.55 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1121 | ----- | ----- | ----- | ----- | ----- | ----- | 0.63 | -1.00 | 1.95 | 2.43 | 1.35 | 2.22 |
| 1124 | 1.11 | 0.43 | 1.57 | 1.72 | 1.18 | -0.72 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1134 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1146 | 0.09 | -0.96 | -1.44 | -1.10 | -1.22 | -0.05 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1159 | ----- | ----- | ----- | ----- | ----- | ----- | 2.43 | 1.58 | 1.18 | 0.47 | 0.86 | -3.19 |
| 1161 | -0.48 | -5.81 | -1.54 | 0.20 | 0.12 | 0.18 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1167 | -1.58 | -2.87 | -0.31 | -0.42 | -0.48 | -0.21 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1171 | ----- | ----- | ----- | ----- | ----- | ----- | -1.60 | -2.23 | -0.92 | -0.87 | -0.30 | -0.04 |
| 1182 | -0.66 | 0.37 | 0.54 | 1.49 | 1.66 | -0.37 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1191 | -0.42 | 0.01 | 0.44 | 1.04 | 0.79 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1201 | -0.84 | -1.08 | -1.16 | -0.59 | -0.32 | -1.28 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1227 | 1.02 | -0.05 | 1.20 | 1.44 | 0.86 | 0.42 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1229 | 0.21 | 0.01 | 0.06 | 0.14 | 0.06 | 0.62 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1259 | -0.51 | -1.08 | -0.97 | -2.00 | -2.34 | 0.46 | -1.61 | 0.86 | -0.95 | -2.12 | -3.26 | 0.45 |
| 1297 | 0.45 | -0.29 | -0.22 | -0.82 | -0.99 | -0.72 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1299 | -1.05 | -1.87 | -1.35 | -0.03 | 0.15 | 0.54 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1340 | 1.35 | 0.25 | 0.82 | 1.16 | 1.78 | 0.34 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1379 | ----- | ----- | ----- | ----- | ----- | ----- | 1.75 | 2.10 | 0.50 | 0.33 | -1.90 | -4.13 |
| 1382 | ----- | ----- | ----- | ----- | ----- | ----- | -1.17 | -1.00 | 0.50 | -0.37 | -0.82 | -0.61 |
| 1395 | 1.11 | 0.92 | 0.06 | -0.08 | -0.45 | 0.18 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1409 | 0.93 | 1.59 | 1.10 | 0.99 | 1.11 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1417 | 0.57 | -1.26 | -0.12 | 0.48 | 0.89 | 0.22 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1428 | -0.03 | -0.84 | -0.22 | -0.59 | -0.52 | 0.06 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1430 | -5.78 | 2.86 | 6.85 | 6.11 | 1.53 | -7.31 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1431 | 0.96 | 1.83 | 1.29 | 0.87 | 1.02 | 1.72 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1457 | -0.15 | -0.35 | -0.41 | -0.53 | -0.42 | 0.81 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1459 | -0.51 | 0.43 | 0.06 | -1.10 | -1.19 | -0.96 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1498 | -0.57 | 0.86 | 1.01 | 0.65 | 0.54 | 0.66 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1510 | -1.11 | -0.96 | -1.92 | -0.93 | -0.58 | -1.43 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1521 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1556 | -1.30 | -1.57 | -1.35 | -0.87 | -0.61 | -0.49 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1564 | -0.93 | 0.49 | -0.60 | -0.82 | -0.52 | -0.41 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1575 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1586 | -0.27 | -1.63 | -1.73 | -0.37 | -0.07 | -0.02 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1616 | ----- | ----- | ----- | ----- | ----- | ----- | -2.51 | -1.63 | -0.95 | -1.07 | -1.36 | 0.10 |
| 1629 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1634 | 0.33 | 0.07 | -0.41 | -0.70 | -0.64 | -0.13 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1635 | ----- | ----- | ----- | ----- | ----- | ----- | 1.08 | -0.38 | -0.95 | -1.77 | -1.36 | 2.22 |
| 1643 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1654 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1677 | -0.39 | 0.13 | 2.52 | 1.44 | 0.70 | 0.66 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1709 | -0.96 | -0.96 | -0.50 | 0.03 | 0.00 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1710 | -0.54 | 0.31 | 0.72 | 0.14 | -0.07 | 0.06 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1720 | 0.81 | 2.01 | 1.86 | 1.77 | 1.72 | 0.97 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1724 | -0.33 | -0.90 | -0.69 | -0.65 | -0.61 | 0.30 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1730 | -0.63 | -0.23 | 2.61 | 0.76 | 0.47 | 0.93 | ----- | ----- | ----- | ----- | ----- | ----- |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1776 | -0.90 | -0.72 | -0.78 | 0.65 | 0.89 | -0.05 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1792 | -0.75 | -0.05 | -0.50 | -0.42 | -0.39 | -1.87 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1807 | 1.47 | -0.42 | -0.31 | 0.25 | 0.09 | 1.05 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1810 | 0.36 | -0.42 | -0.50 | -1.21 | -1.54 | -0.88 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1811 | 0.21 | -0.11 | 0.35 | -0.08 | -0.26 | -0.17 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1833 | 0.39 | -0.54 | -0.60 | -0.37 | -0.45 | 0.46 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1842 | -1.51 | -0.72 | -0.69 | -0.70 | -0.64 | 0.22 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1849 | 0.15 | 0.13 | -0.97 | -0.76 | -1.06 | 0.26 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1872 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1884 | -0.24 | -1.93 | -1.63 | -0.42 | -0.26 | -0.13 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1896 | -0.24 | 1.16 | -0.31 | -1.10 | -1.22 | -1.40 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1906 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1938 | -1.54 | -1.02 | -0.78 | -0.53 | -0.29 | -0.17 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1944 | 0.60 | 0.68 | 2.14 | 0.42 | 0.25 | -0.45 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1948 | 1.50 | 0.13 | -0.60 | 0.03 | 0.67 | 0.54 | ----- | ----- | ----- | ----- | ----- | ----- |
| 1951 | -0.84 | -0.72 | 2.23 | 2.51 | 1.43 | 2.51 | ----- | ----- | ----- | ----- | ----- | ----- |
| 2129 | 1.05 | 0.43 | 0.25 | -0.53 | -0.96 | 1.72 | ----- | ----- | ----- | ----- | ----- | ----- |
| 7012 | ----- | ----- | ----- | ----- | ----- | ----- | -0.27 | 1.48 | 1.95 | -0.37 | 0.26 | -1.31 |
| 1951 | | 0.51 | 0.59 | 0.55 | 0.56 | 0.31 | ----- | ----- | ----- | ----- | ----- | ----- |
| 2129 | | 0.25 | -0.54 | -0.36 | -0.13 | -0.48 | ----- | ----- | ----- | ----- | ----- | ----- |
| 5019 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 7006 | | ----- | ----- | ----- | ----- | 2.75 | ----- | ----- | ----- | ----- | ----- | ----- |

## APPENDIX 3

### Participants per country

1 laboratory in AFGHANISTAN
1 laboratory in ARGENTINA
1 laboratory in AUSTRALIA
2 laboratories in AUSTRIA
1 laboratory in AZERBAIJAN
4 laboratories in BELGIUM
2 laboratories in BOSNIA and HERZEGOVINA
1 laboratory in BRAZIL
1 laboratory in BULGARIA
3 laboratories in CANADA
2 laboratories in CHILE
4 laboratories in CHINA, People's Republic
1 laboratory in COLOMBIA
1 laboratory in CONGO Brazzaville
1 laboratory in COSTA RICA
1 laboratory in COTE D'IVOIRE
2 laboratories in CROATIA
2 laboratories in CZECH REPUBLIC
1 laboratory in DJIBOUTI
1 laboratory in EQUATORIAL GUINEA
1 laboratory in ESTONIA
3 laboratories in FINLAND
8 laboratories in FRANCE
4 laboratories in GEORGIA
4 laboratories in GERMANY
6 laboratories in GREECE
1 laboratory in GUAM
1 laboratory in GUINEA REPUBLIC
1 laboratory in HONG KONG
2 laboratories in HUNGARY
1 laboratory in IRAN, Islamic Republic of
1 laboratory in IRELAND
1 laboratory in KAZAKHSTAN
2 laboratories in KENYA
2 laboratories in LATVIA
1 laboratory in LITHUANIA
4 laboratories in MALAYSIA
2 laboratories in MALTA
1 laboratory in MAURITIUS
1 laboratory in MOROCCO
1 laboratory in MOZAMBIQUE
1 laboratory in MYANMAR
7 laboratories in NETHERLANDS
1 laboratory in NIGERIA
1 laboratory in OMAN
1 laboratory in PAKISTAN
1 laboratory in PANAMA
1 laboratory in PERU
1 laboratory in PHILIPPINES
3 laboratories in POLAND
3 laboratories in PORTUGAL
1 laboratory in QATAR
1 laboratory in ROMANIA
5 laboratories in RUSSIAN FEDERATION
2 laboratories in SAUDI ARABIA
1 laboratory in SENEGAL
2 laboratories in SINGAPORE
1 laboratory in SLOVENIA
1 laboratory in SOUTH AFRICA
3 laboratory in SOUTH KOREA
10 laboratories in SPAIN
2 laboratories in SUDAN
4 laboratories in SWEDEN
3 laboratories in TAIWAN
1 laboratory in TANZANIA
1 laboratory in TOGO
1 laboratory in TRINIDAD & TOBAGO
1 laboratory in TUNISIA
10 laboratories in TURKEY
1 laboratory in TURKMENISTAN
2 laboratories in UNITED ARAB EMIRATES
10 laboratories in UNITED KINGDOM
11 laboratories in UNITED STATES OF AMERICA

**APPENDIX 4**

**Abbreviations**:

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

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