# Results of Proficiency Test
# Fuel Oil
# June 2018

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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# 1 INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies (iis) organizes a proficiency test for Fuel Oil every year and twice per year since 2016. During the annual proficiency testing program of 2017/2018, it was decided to continue twice per year with the round robin for the analyses of Fuel Oil in accordance with the latest applicable version of the specifications ISO 8217 and ASTM D396.
In this round robin with regular Fuel Oil 151 laboratories in 59 different countries registered for participation. In the round robin for Metals in Fuel Oil 98 laboratories in 48 different countries registered for participation. See appendix 2 for the number of participants per country for both rounds. In this report, the test results of the June 2018 interlaboratory study on Fuel Oil are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

# 2 SET-UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. Depending on the registration it was decided to send one bottle of 1L Fuel Oil (labelled #18105) and/or one bottle of 0.1L Fuel Oil (labelled #18106) specifically prepared for metal determinations.
Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

## 2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). This PT falls under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the reported data is encouraged and customer's satisfaction is measured on regular basis by means of 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 March 2017 (iis-protocol, version 3.4). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

## 2.3 CONFIDENTIALITY STATEMENT

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

## 2.4 SAMPLES

Approximately 200 litre Fuel Oil was obtained from a supplier in Germany. After heating to 60°C and homogenisation of this batch 188 amber glass bottles of 1L were filled and labelled #18105. The homogeneity of these subsamples was checked by determination of Density at 15°C in accordance with ISO12185 on 12 stratified randomly selected samples.

| | Density at 15°C in kg/m$^3$ |
|---|---|
| Sample #18105-1 | 987.0 |
| Sample #18105-2 | 987.1 |
| Sample #18105-3 | 987.0 |
| Sample #18105-4 | 987.0 |
| Sample #18105-5 | 987.1 |
| Sample #18105-6 | 987.0 |
| Sample #18105-7 | 987.0 |
| Sample #18105-8 | 987.0 |
| Sample #18105-9 | 986.9 |
| Sample #18105-10 | 986.9 |
| Sample #18105-11 | 987.0 |
| Sample #18105-12 | 987.0 |

Table 1: homogeneity test results of subsamples #18105

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

| | Density at 15°C in kg/m$^3$ |
|---|---|
| r (observed) | 0.17 |
| reference test method | ISO12185:96 |
| 0.3 * R (ref. test method) | 0.45 |

Table 2: evaluation of the repeatability of test results of subsamples #18105

The calculated repeatability for Density was in agreement with 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples of #18105 was assumed.

For sample #18106 another batch of Fuel Oil obtained from a local supplier was used.
After homogenisation 128 plastic PE bottles of 0.1L were filled and labelled #18106.
The homogeneity of the subsamples was checked by determination of Nickel and Vanadium in accordance with IP501 on 7 stratified randomly selected samples.

| | Nickel in mg/kg | Vanadium in mg/kg |
|---|---|---|
| Sample #18106-1 | 39 | 112 |
| Sample #18106-2 | 37 | 109 |
| Sample #18106-3 | 37 | 107 |
| Sample #18106-4 | 36 | 111 |
| Sample #18106-5 | 36 | 112 |
| Sample #18106-6 | 38 | 118 |
| Sample #18106-7 | 39 | 118 |

Table 3: homogeneity test results of subsamples #18106

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

| | Nickel in mg/kg | Vanadium in mg/kg |
|---|---|---|
| r (observed) | 3.6 | 11.8 |
| reference test method | IP470:05 | IP470:05 |
| 0.3 * R (ref. test method) | 5.1 | 10.4 |

Table 4: evaluation of the repeatabilities of subsamples #18106

The calculated repeatability for Nickel was in agreement with 0.3 times the reproducibility of the reference test method and the calculated repeatability for Vanadium was close to 3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples of #18106 was assumed.

Depending on the registration of the participant; one bottle of 1L Fuel Oil, labelled #18105 and/or one bottle of 0.1L Fuel Oil, labelled #18106 were sent to the participating laboratories on May 30, 2018. An SDS was added to the sample package.

### 2.5 STABILITY OF THE SAMPLES

The stability of Fuel Oil, packed in the amber glass and PE bottles was checked. The material has been found sufficiently stable for the period of the proficiency test.

### 2.6 ANALYSES

The participants were requested to determine the following parameters:

On sample #18105: Acid Number (total), API Gravity, Ash Content, Asphaltenes, Calculated Carbon Aromaticity Index (CCAI), Carbon Residue – Micro Method, Conradson Carbon Residue, Density at 15°C, Flash Point PMcc, Heat of Combustion (Gross and Net), Kinematic Viscosity (at 50°C and 100°C), Viscosity Stabinger (at 50°C and 100°C), Nitrogen, Pour Point (Lower, Upper and Automated), Sediment by Extraction, Total Sediment (Hot filtration, Accelerated and Potential), Total Sulphur, Water by Distillation, Water and Sediment, Distillation (IBP, 5% - 50% recovered and FBP) and Total Carbon, Hydrogen and Nitrogen (CHN-analyzer).

On sample #18106: Aluminium, Silicon, Sum of Aluminium and Silicon, Iron, Nickel, Sodium, Vanadium, Calcium, Zinc and Phosphorus content.

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

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

## 3 RESULTS

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

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment. Shortly after the deadline, the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalysis). Additional or corrected test results are used for data analysis and original test results are placed under 'Remarks' in the test result tables in appendix 1. Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

### 3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report ‘iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation’ of March 2017 (iis-protocol, version 3.4).
For the statistical evaluation, the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as ‘<…’ or ‘>…’ were not used in the statistical evaluation.

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

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

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

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

### 3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test results are plotted. The corresponding laboratory numbers are on the X-axis.
The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also, a normal Gauss curve was projected over the Kernel Density Graph for reference.

### 3.3 Z-SCORES

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

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

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

The z-scores were calculated according to:

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

The z(target) scores are listed in the result tables of appendix 1.

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

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

## 4 EVALUATION

In this proficiency test several problems were encountered with the dispatch of the samples. Four participants did not report any test results for sample #18105 and five participants reported the test results after the final reporting date. Eighteen participants did not report any test results for sample #18106 and six participants reported the test results after the final reporting date. Not all laboratories were able to report all analyses requested.
Finally, 149 participants reported in total 2631 numerical test results. Observed were 88 statistically outlying test results, which is 3.3 %. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

### 4.1 EVALUATION PER SAMPLE AND PER TEST

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

In the iis PT reports, ASTM test methods are referred to with a number (e.g. D1298) and an added designation for the year that the test method was adopted or revised (e.g. D1298:12b). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D1298:12b(2017)). In the test results tables of appendix 1 only the test method number and year of adoption or revision (e.g. D1298:12b) are used.

**Sample #18105:**

Acid Number: This determination was problematic depending on used requirements of the type of end point and titration volume. Six statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D664-A:17a mode BEP at both titration volumes (60mL and 125mL) but in agreement with inflection point at both titration volumes.

API Gravity: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D1298:12b(2017).

Ash Content: This determination was problematic at an ash content of 0.02 %M/M. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with requirements of ISO6245:01 and ASTM D482:13.
When evaluated separately over method ISO6245:01 and ASTM D482:13 the calculated reproducibility after rejection of the statistical outliers was still not in agreement for both methods.

Asphaltenes: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of IP143:04.

Calculated Carbon Aromaticity Index: This determination was not problematic. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO8217:17.

Carbon Residue Micro Method: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO10370:14.

Conradson Carbon Residue: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of ASTM D189:06(2014).

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

Flash Point PMcc: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO2719-B:16.

HOC Gross: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D240:17.

HOC Net: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D240:17.

Kin. Visc. at 50°C: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3104:94.

Kin. Visc. at 100°C: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ISO3104:94.

Vis Stab.at 50°C: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D7042:16e3.

Vis Stab.at 100°C: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D7042:16e3.

Nitrogen: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D5762:18. When the test results of ASTM D5762 volumetric and gravimetric test methods were evaluated separately, the calculated reproducibility over the volumetric test results was much smaller than the calculated reproducibility over the gravimetric test results. The calculated reproducibility over the volumetric test results is in agreement with the requirements of ASTM D5762:18.

Pour Point Lower: This determination was not problematic. No statistical outliers were observed, but one test result was excluded. The calculated reproducibility after rejection of the suspect data is in full agreement with the requirements of ISO3016:94.

Pour Point Upper: This determination was problematic. One statistical outlier was observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with ISO3016:94. Rounding to 3 degrees acc. ISO3016:94 may (partly) explain the large variation.

Pour Point Automated: This determination was problematic. No statistical outliers were observed but two test results were excluded. However, the calculated reproducibility after rejection of the suspect data is not in agreement with ASTM D5950:14.
The large variation may (partly) be explained by possible problems with the detector sensitivity or by not following the test method properly (see Note 8 in ASTM D5950:14).

Sediment by Extraction: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ASTM D473:07e1(2017).

Sediment (Hot Filtration): This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of IP375:11.

Total Sediment (Accelerated): This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with IP390:11. IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870.

Total Sediment (Potential): This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with IP390:11. IP390:11 is identical to ISO10307-2:09 and technically equivalent to ASTM D4870.

Total Sulphur: This determination may be problematic dependent on the requirements of the test method used. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ISO 8754:03, but not with the more strict requirements of ASTM D4294:16e1.

Water by Distillation: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ISO3733:99 or ASTM D95:13e1.

Water and Sediment: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D1796:11(2016).

Vacuum Distillation: This determination may be problematic for 5%, 10% and 50% recovered and FBP. In total six statistical outliers were observed and five other test results were excluded. However, the calculated reproducibility after rejection of the suspect data is in agreement for IBP, 20%, 30% and 40% recovered with the requirements of ASTM D1160:18. The calculated reproducibilities for 5%, 10% and 50% recovered and FBP are not in agreement with the requirements of ASTM D1160:18.

CHN-Analyzer: This determination was not problematic for Carbon, Hydrogen and Nitrogen. In total one statistical outlier was observed. The calculated reproducibilities after rejection of the statistical outlier are in agreement with the requirements of ASTM D5291-ABC:16.

**Sample #18106:**

Aluminum: This determination was problematic. Six statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the reproducibility of IP470:05 and IP501:05.

Silicon: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the reproducibility of IP470:05 and with the more strict requirements of IP501:05.

Total Al/Si: This determination was problematic. Two statistical outliers were observed and five other test results were excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the reproducibility of IP470:05 and with the more strict requirements of IP501:05.

Iron: This determination may not be problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the reproducibility of IP470:05 but not in agreement with the more strict requirements of IP501:05.

Nickel: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the reproducibilities of IP470:05 and IP501:05.

Sodium: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the reproducibility of IP470:05 and with the more strict requirements of IP501:05.

Vanadium: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the reproducibilities of IP470:05 and IP501:05.

Calcium: This determination was problematic. Two statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of IP470:05 and with the more strict requirements of IP501:05.

Zinc: This determination was problematic. Four statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the reproducibilities of IP470:05 or IP501:05.

Phosphorus: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the reproducibility of IP500:03 or IP501:05.

Finally, it should be noted that proper attention for homogenization is crucial for a material such as Fuel Oil. Due to the nature of the material it is very susceptible to problems when not handled correctly. Practically most test methods for the determination of metals in Fuel Oil have similar statements regarding homogenization. Recommended is the use of a quality control fuel oil with known amounts of metals like Al, Fe, Si and V. This control standard may be of use to detect deviations in metals with respect to the preparation steps.

### 4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of participating laboratories. The average results, calculated reproducibilities and reproducibilities derived from literature reference test methods (in casu ASTM and IP reference test methods), are compared in the next tables:

| Parameters | unit | n | average | 2.8 * sd | R (lit) |
|---|---|---|---|---|---|
| Acid Number (Total) | mg KOH/g | 72 | 0.20 | 0.11 | 0.09 |
| API Gravity | | 75 | 11.7 | 0.3 | 0.5 |
| Ash Content | %M/M | 100 | 0.020 | 0.008 | 0.005 |
| Asphaltenes | %M/M | 56 | 3.27 | 1.13 | 0.65 |
| Calc. Carbon Aromaticity Index | | 52 | 851.3 | 1.2 | 2.4 |
| Carbon Residue, Micro Method | %M/M | 88 | 9.66 | 0.82 | 1.11 |
| Conradson Carbon Residue | %M/M | 32 | 10.00 | 1.53 | 1.60 |
| Density at 15°C | kg/m$^3$ | 123 | 987.3 | 1.3 | 1.5 |
| Flash Point PMcc | °C | 118 | 121.7 | 7.4 | 6 |
| Heat of Combustion, Gross | MJ/kg | 58 | 42.99 | 0.37 | 0.40 |
| Heat of Combustion, Net | MJ/kg | 47 | 40.68 | 0.41 | 0.40 |
| Kinematic Viscosity at 50°C | mm$^2$/s | 113 | 286.5 | 16.1 | 21.2 |
| Kinematic Viscosity at 100°C | mm$^2$/s | 85 | 27.1 | 1.1 | 1.4 |
| Viscosity Stabinger at 50°C | mm$^2$/s | 12 | 287.5 | 11.4 | 29.6 |
| Viscosity Stabinger at 100°C | mm$^2$/s | 12 | 27.0 | 0.7 | 1.9 |
| Nitrogen | mg/kg | 28 | 2999 | 1044 | 798 |
| Pour Point, Lower | °C | 47 | 4.2 | 7.0 | 6.6 |
| Pour Point, Upper | °C | 87 | 6.7 | 8.4 | 6.6 |
| Pour Point (automated), Δ3°C | °C | 28 | 3.4 | 11.4 | 6.1 |
| Sediment by Extraction | %M/M | 75 | 0.016 | 0.021 | 0.037 |
| Total Sediment (Hot Filtration) | %M/M | 52 | 0.014 | 0.012 | 0.035 |
| Total Sediment (Accelerated) | %M/M | 54 | 0.014 | 0.011 | 0.034 |
| Total Sediment (Potential) | %M/M | 54 | 0.014 | 0.013 | 0.034 |
| Total Sulphur | %M/M | 130 | 0.95 | 0.08 | 0.09 |
| Water by Distillation | %V/V | 74 | 0.04 | 0.09 | 0.2 |
| Water and Sediment | %V/V | 39 | 0.05 | 0.07 | 0.1 |
| Distillation at 10mmHg calculated to 760 mmHg | | | | | |
| Initial Boiling Point | °C | 15 | 214.0 | 35.4 | 49 |
| 5% recovered | °C | 16 | 273.6 | 28.6 | 24.2 |
| 10% recovered | °C | 17 | 317.6 | 23.0 | 20.1 |
| 20% recovered | °C | 17 | 371.6 | 14.0 | 17.1 |
| 30% recovered | °C | 17 | 406.6 | 12.7 | 15.8 |
| 40% recovered | °C | 17 | 445.1 | 11.8 | 17.4 |
| 50% recovered | °C | 16 | 498.8 | 25.5 | 18.5 |
| Final Boiling Point | °C | 12 | 520.6 | 40.7 | 27 |
| CHN analyser | | | | | |
| Total Carbon | %M/M | 22 | 87.8 | 2.1 | 2.5 |
| Total Hydrogen | %M/M | 22 | 10.6 | 0.5 | 0.8 |
| Total Nitrogen | %M/M | 18 | 0.34 | 0.16 | 0.45 |

Table 5: comparison of the observed and target reproducibilities of the sample #18105

| Parameters | unit | n | average | 2.8 * sd | R (lit) |
|---|---|---|---|---|---|
| Aluminium as Al | mg/kg | 61 | 4.5 | 2.8 | 2.2 |
| Silicon as Si | mg/kg | 60 | 6.8 | 6.6 | 5.0 |
| Total Aluminium + Silicon | mg/kg | 53 | 11.2 | 7.0 | 5.5 |
| Iron as Fe | mg/kg | 69 | 37.3 | 16.1 | 16.5 |
| Nickel as Ni | mg/kg | 73 | 35.5 | 20.0 | 16.6 |
| Sodium as Na | mg/kg | 76 | 17.5 | 8.6 | 7.3 |
| Vanadium as V | mg/kg | 74 | 121.4 | 23.0 | 35.9 |
| Calcium as Ca | mg/kg | 68 | 4.6 | 4.7 | 4.1 |
| Zinc as Zn | mg/kg | 56 | 1.33 | 1.3 | 0.7 |
| Phosphorus as P | mg/kg | 36 | 0.6 | 1.0 | 0.9 |

Table 6: comparison of the observed and target reproducibilities of the sample #18106

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

### 4.3 COMPARISON OF THE PROFICIENCY TEST OF JUNE 2018 WITH PREVIOUS PTS

| | June 2018 | December 2017 | June 2017 | December 2016 | January 2016 |
|---|---|---|---|---|---|
| Number of reporting labs | 149 | 143 | 169 | 83 | 226 |
| Number of test results | 2631 | 3081 | 3119 | 1936 | 4787 |
| Statistical outliers | 88 | 133 | 102 | 72 | 115 |
| Percentage outliers | 3.3% | 4.3% | 3.3% | 3.7% | 2.4% |

Table 7: comparison with previous proficiency tests

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

| Determination | June 2018 | December 2017 | June 2017 | December 2016 | January 2016 |
|---|---|---|---|---|---|
| Acid Number (Total) | - | ++ | + | ++ | + |
| API Gravity | + | ++ | ++ | ++ | ++ |
| Ash Content | - | -- | -- | -- | - |
| Asphaltenes | - | +/- | - | -- | +/- |
| Calc. Carbon Aromaticity Index | ++ | + | + | + | + |
| Carbon Residue, Micro Method | + | + | +/- | + | + |
| Conradson Carbon Residue | +/- | + | + | +/- | + |
| Density at 15°C | + | +/- | +/- | + | +/- |
| Flash Point PMcc | - | - | +/- | +/- | - |
| Heat of Combustion Gross | +/- | +/- | + | ++ | - |
| Heat of Combustion Net | +/- | +/- | + | ++ | - |
| Kinematic Viscosity at 50°C | + | + | +/- | ++ | + |
| Kinematic Viscosity at 100°C | + | - | + | - | +/- |
| Viscosity Stabinger at 50°C | ++ | ++ | + | + | n.e. |
| Viscosity Stabinger at 100°C | ++ | ++ | ++ | ++ | n.e. |
| Nitrogen | - | - | - | - | - |

| Determination | June 2018 | December 2017 | June 2017 | December 2016 | January 2016 |
|---|---|---|---|---|---|
| Pour Point Lower | +/- | - | - | - | - |
| Pour Point Upper | - | - | - | - | - |
| Pour Point (automated), Δ3°C | - | - | - | -- | - |
| Sediment by Extraction | + | + | + | ++ | ++ |
| Total Sediment (Hot Filtration) | ++ | ++ | ++ | ++ | ++ |
| Total Sediment (Accelerated) | ++ | ++ | ++ | ++ | ++ |
| Total Sediment (Potential) | ++ | ++ | ++ | ++ | ++ |
| Total Sulphur | +/- | +/- | + | +/- | + |
| Water by Distillation | ++ | ++ | ++ | ++ | ++ |
| Water and Sediment | + | + | +/- | ++ | + |
| Distillation at 10mmHg to AET | +/- | + | +/- | - | +/- |
| Total Carbon | + | + | + | + | + |
| Total Hydrogen | + | + | + | + | + |
| Total Nitrogen | ++ | - | ++ | +/- | - |
| Aluminium as Al | - | + | +/- | n.e. | n.e. |
| Silicon as Si | - | + | + | n.e. | n.e. |
| Total Aluminium + Silicon | - | + | +/- | n.e. | n.e. |
| Iron as Fe | +/- | ++ | + | + | + |
| Nickel as Ni | - | + | ++ | + | + |
| Sodium as Na | - | + | + | +/- | +/- |
| Vanadium as V | + | ++ | ++ | + | + |
| Calcium as Ca | - | +/- | + | +/- | - |
| Zinc as Zn | - | +/- | + | + | - |
| Phosphorus as P | +/- | - | + | + | + |

Table 8: comparison determinations against the reference test methods

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

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

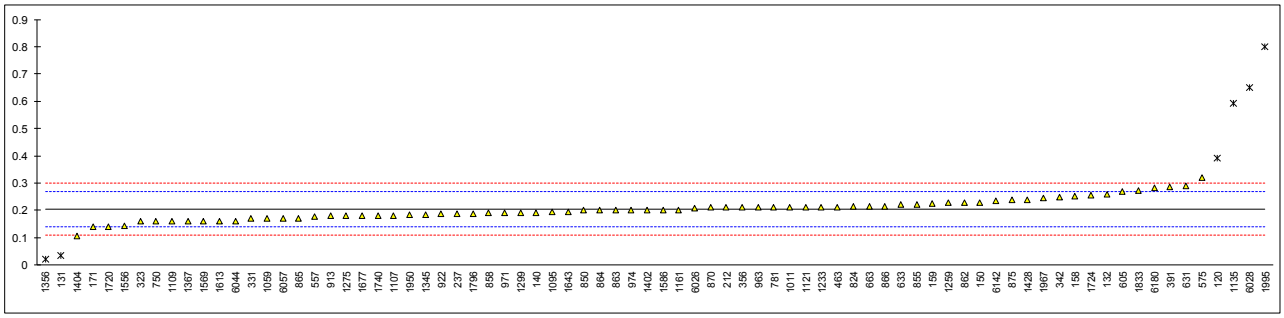
**APPENDIX 1**

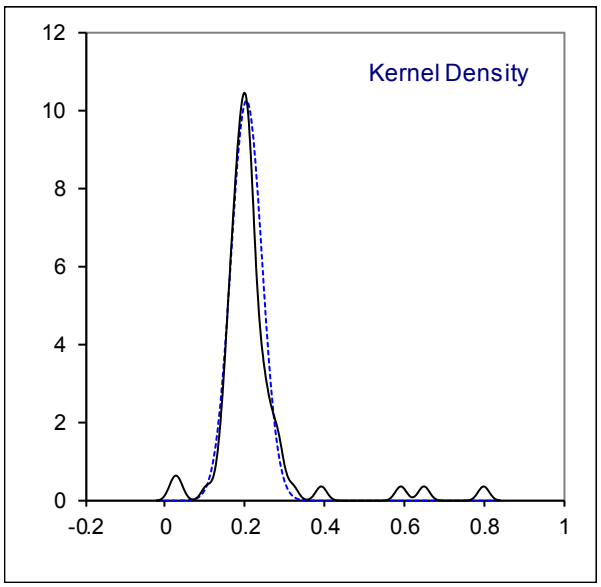
Determination of Acid Number (Total) on sample #18105; results in mg KOH/g

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | | ----- | | ----- | 913 | D664-A | 0.18 | | -0.75 |
| 92 | | ----- | | ----- | 922 | D664-A | 0.189 | | -0.47 |
| 120 | D664-A | 0.392 | R(1) | 5.85 | 962 | | ----- | | ----- |
| 131 | D664-A | 0.034 | R(1) | -5.30 | 963 | D664-A | 0.21 | | 0.18 |
| 132 | D664-A | 0.26 | | 1.74 | 971 | ISO6619 | 0.19 | | -0.44 |
| 140 | D664-B | 0.1905 | | -0.43 | 974 | D664-A | 0.20 | | -0.13 |
| 150 | D664-A | 0.23 | | 0.80 | 982 | | ----- | | ----- |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | D664-A | 0.251 | | 1.46 | 1011 | D664-A | 0.210 | | 0.18 |
| 159 | D664-A | 0.225 | | 0.65 | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | ISO6619 | 0.17 | | -1.07 |
| 169 | | ----- | | ----- | 1095 | D664-A | 0.193 | | -0.35 |
| 171 | D664-A | 0.14 | | -2.00 | 1107 | D664-A | 0.181 | | -0.72 |
| 175 | | ----- | | ----- | 1109 | D664-A | 0.16 | | -1.38 |
| 194 | | ----- | | ----- | 1121 | D664-A | 0.21 | | 0.18 |
| 212 | D664-A | 0.21 | | 0.18 | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D664-A | 0.592 | R(1) | 12.09 |
| 225 | | ----- | | ----- | 1161 | D664-A | 0.202 | | -0.07 |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | D664-A | 0.189 | | -0.47 | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | D664-A | 0.21 | | 0.18 |
| 253 | | ----- | | ----- | 1259 | D664-A | 0.228 | | 0.74 |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP177 | 0.18 | | -0.75 |
| 323 | D664-A | 0.16 | | -1.38 | 1299 | D664-B | 0.19 | | -0.44 |
| 331 | D664Mod. | 0.17 | | -1.07 | 1345 | D664-A | 0.185 | | -0.60 |
| 333 | | ----- | | ----- | 1356 | D664-A | 0.02 | R(1) | -5.74 |
| 334 | | ----- | | ----- | 1367 | D664-A | 0.16 | | -1.38 |
| 337 | | ----- | | ----- | 1402 | IP177 | 0.20 | | -0.13 |
| 339 | | ----- | | ----- | 1404 | D664-A | 0.105 | | -3.09 |
| 342 | D664-A | 0.25 | | 1.43 | 1428 | D664-A | 0.24 | | 1.12 |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | D664-A | 0.21 | | 0.18 | 1556 | D664-A | 0.145 | | -1.84 |
| 371 | | ----- | | ----- | 1569 | D664-A | 0.16 | | -1.38 |
| 391 | D664-A | 0.287 | | 2.58 | 1586 | D664-A | 0.20 | | -0.13 |
| 398 | | ----- | | ----- | 1613 | D664-A | 0.16 | | -1.38 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D664-A | 0.196 | | -0.25 |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D664-A | 0.213 | | 0.27 | 1677 | D664-A | 0.18 | | -0.75 |
| 511 | | ----- | | ----- | 1720 | D664-A | 0.14 | | -2.00 |
| 529 | | ----- | | ----- | 1724 | D664-A | 0.257 | | 1.65 |
| 541 | | ----- | | ----- | 1728 | | ----- | | ----- |
| 557 | D664-A | 0.17873 | | -0.79 | 1740 | D664-A | 0.18 | | -0.75 |
| 562 | | ----- | | ----- | 1796 | D664-A | 0.1892 | | -0.47 |
| 575 | D664-A | 0.32 | | 3.61 | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | D664-A | 0.27 | | 2.05 | 1833 | D664-A | 0.274 | | 2.18 |
| 631 | D664-A | 0.289 | | 2.64 | 1849 | | ----- | | ----- |
| 633 | D664-A | 0.22 | | 0.49 | 1906 | | ----- | | ----- |
| 663 | D664-A | 0.215 | | 0.34 | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | D664-A | 0.16 | | -1.38 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | D664-A | 0.183 | | -0.66 |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | D664-A | 0.21 | | 0.18 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | D664-A | 0.247 | | 1.33 |
| 824 | D664-A | 0.214 | | 0.31 | 1995 | D664-A | 0.8 | C,R(1) | 18.57 |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | D664-A | 0.20 | | -0.13 | 6026 | D664-A | 0.2084 | | 0.13 |
| 851 | | ----- | | ----- | 6028 | D664-A | 0.65 | C,R(1) | 13.89 |
| 855 | D664-A | 0.22 | | 0.49 | 6039 | | ----- | | ----- |
| 858 | D664-A | 0.19 | | -0.44 | 6044 | D664-A | 0.162 | | -1.31 |
| 862 | D664-A | 0.23 | | 0.80 | 6054 | | ----- | | ----- |
| 863 | D664-A | 0.20 | | -0.13 | 6057 | D664-A | 0.17 | | -1.07 |
| 864 | D664-A | 0.2 | | -0.13 | 6075 | | ----- | | ----- |
| 865 | D664-A | 0.172 | | -1.00 | 6092 | | ----- | | ----- |
| 866 | D664-A | 0.215 | | 0.34 | 6142 | D664-A | 0.235 | | 0.96 |
| 870 | D664-A | 0.21 | | 0.18 | 6180 | D664-A | 0.282 | | 2.43 |
| 875 | D664-A | 0.24 | | 1.12 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 72 |
| outliers | 6 |
| mean (n) | 0.2042 |
| st.dev. (n) | 0.03892 |
| R(calc.) | 0.1090 |
| st.dev.(D664-A:17a BEP-125mL) | 0.03209 |
| R(D664-A:17a BEP-125mL) | 0.0898 |
| Compare | |
| R(D664-A:17a Inflection-125mL) | 0.1698 |
| R(D664-A:17a BEP-60mL) | 0.0958 |
| R(D664-A:17a Inflection-60mL) | 0.1093 |

Lab 1995 first reported 0.4
Lab 6028 first reported 0.4



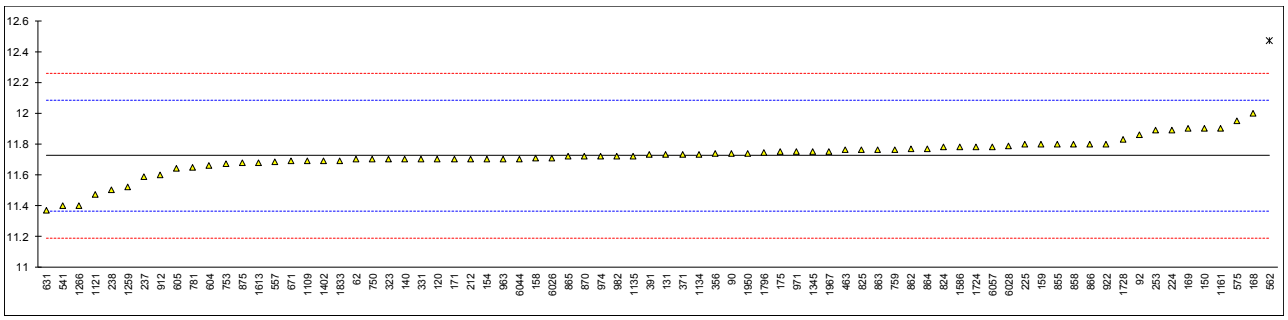


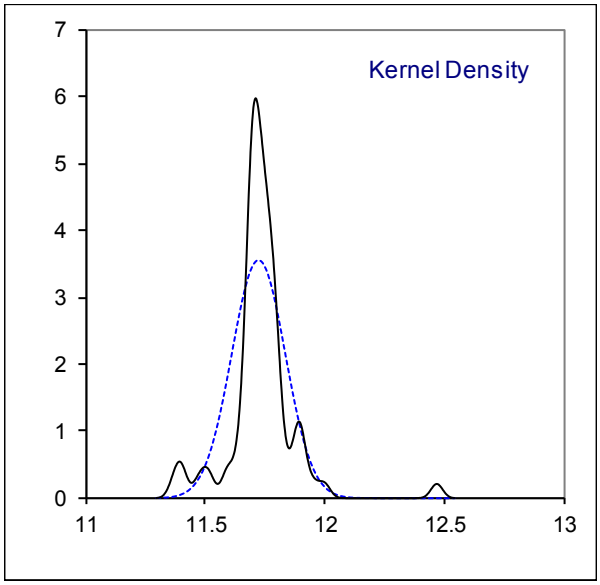
# Determination of API Gravity on sample #18105

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | D4052 | 11.7 | | -0.13 | 912 | D287 | 11.60 | | -0.69 |
| 90 | D4052 | 11.74 | | 0.09 | 913 | | ----- | | ----- |
| 92 | D4052 | 11.86 | | 0.76 | 922 | D1298 | 11.8 | | 0.43 |
| 120 | ISO12185 | 11.7 | | -0.13 | 962 | | ----- | | ----- |
| 131 | D4052 | 11.73 | | 0.03 | 963 | ISO12185 | 11.7 | | -0.13 |
| 132 | | ----- | | ----- | 971 | ISO12185 | 11.75 | | 0.15 |
| 140 | D4052 | 11.7 | | -0.13 | 974 | D4052 | 11.72 | | -0.02 |
| 150 | D287 | 11.9 | | 0.99 | 982 | D1298 | 11.72 | | -0.02 |
| 154 | D4052 | 11.7 | | -0.13 | 1006 | | ----- | | ----- |
| 158 | D4052 | 11.71 | | -0.08 | 1011 | | ----- | | ----- |
| 159 | D4052 | 11.8 | | 0.43 | 1019 | | ----- | | ----- |
| 168 | D287 | 12.0 | | 1.55 | 1059 | | ----- | | ----- |
| 169 | D1298 | 11.9 | | 0.99 | 1095 | | ----- | | ----- |
| 171 | D4052 | 11.7 | | -0.13 | 1107 | | ----- | | ----- |
| 175 | D4052 | 11.75 | | 0.15 | 1109 | D287 | 11.69 | | -0.19 |
| 194 | | ----- | | ----- | 1121 | D4052 | 11.47 | | -1.42 |
| 212 | ISO12185 | 11.7 | C | -0.13 | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | D4052 | 11.73 | | 0.03 |
| 224 | D1298 | 11.89 | C | 0.93 | 1135 | D1298 | 11.72 | | -0.02 |
| 225 | D4052 | 11.8 | | 0.43 | 1161 | D1298 | 11.9 | | 0.99 |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | D1298 | 11.59 | | -0.75 | 1177 | | ----- | | ----- |
| 238 | D4052 | 11.5 | | -1.25 | 1233 | | ----- | | ----- |
| 253 | D4052 | 11.89 | | 0.93 | 1259 | Calculation | 11.52 | | -1.14 |
| 254 | | ----- | | ----- | 1266 | D1298 | 11.4 | | -1.81 |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | D1298 | 11.70 | | -0.13 | 1299 | | ----- | | ----- |
| 331 | ISO12185 | 11.7 | | -0.13 | 1345 | D4052 | 11.75 | | 0.15 |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | D4052 | 11.69 | | -0.19 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | D4052 | 11.74 | | 0.09 | 1556 | | ----- | | ----- |
| 371 | D1298 | 11.73 | | 0.03 | 1569 | | ----- | | ----- |
| 391 | ISO12185 | 11.73 | | 0.03 | 1586 | D1298 | 11.78 | | 0.31 |
| 398 | | ----- | | ----- | 1613 | D4052 | 11.68 | | -0.25 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D1298 | 11.76 | | 0.20 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | D4052 | 11.78 | | 0.31 |
| 541 | D4052 | 11.40 | | -1.81 | 1728 | D287 | 11.832 | | 0.61 |
| 557 | D4052 | 11.68666 | | -0.21 | 1740 | | ----- | | ----- |
| 562 | D1298 | 12.4714 | R(0.01) | 4.19 | 1796 | D1250 | 11.742 | | 0.10 |
| 575 | D1298 | 11.95 | | 1.27 | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | D4052 | 11.66 | | -0.36 | 1832 | | ----- | | ----- |
| 605 | D4052 | 11.64 | | -0.47 | 1833 | ISO12185 | 11.69 | | -0.19 |
| 631 | D1298 | 11.37 | | -1.98 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | D287 | 11.69 | | -0.19 | 1937 | | ----- | | ----- |
| 750 | D1298 | 11.7 | | -0.13 | 1938 | | ----- | | ----- |
| 753 | ISO12185 | 11.67 | | -0.30 | 1950 | D1298 | 11.74 | | 0.09 |
| 759 | D1298 | 11.765 | | 0.23 | 1956 | | ----- | | ----- |
| 781 | ISO12185 | 11.65 | | -0.41 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | D1298 | 11.75 | | 0.15 |
| 824 | D4052 | 11.78 | | 0.31 | 1995 | | ----- | | ----- |
| 825 | D4052 | 11.76 | | 0.20 | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | D1298 | 11.71 | | -0.08 |
| 851 | | ----- | | ----- | 6028 | D1298 | 11.79 | | 0.37 |
| 855 | D1298 | 11.80 | | 0.43 | 6039 | | ----- | | ----- |
| 858 | D1298 | 11.8 | | 0.43 | 6044 | D1298 | 11.70 | | -0.13 |
| 862 | ISO12185 | 11.77 | | 0.26 | 6054 | | ----- | | ----- |
| 863 | ISO12185 | 11.76 | | 0.20 | 6057 | D1298 | 11.78 | | 0.31 |
| 864 | ISO12185 | 11.77 | | 0.26 | 6075 | | ----- | | ----- |
| 865 | D1250 | 11.72 | | -0.02 | 6092 | | ----- | | ----- |
| 866 | D1298 | 11.8 | | 0.43 | 6142 | | ----- | | ----- |
| 870 | D1298 | 11.72 | | -0.02 | 6180 | | ----- | | ----- |
| 875 | D1298 | 11.68 | | -0.25 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | not OK |
| n | 75 |
| outliers | 1 |
| mean (n) | 11.724 |
| st.dev. (n) | 0.1122 |
| R(calc.) | 0.314 |
| st.dev.(D1298:12b) | 0.1786 |
| R(D1298:12b) | 0.5 |

Lab 212 first reported 13.4
Lab 224 first reported 12.21



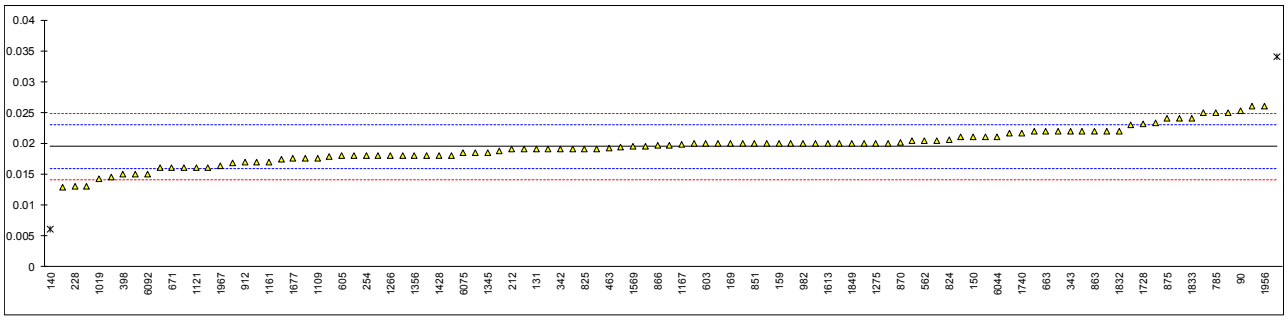



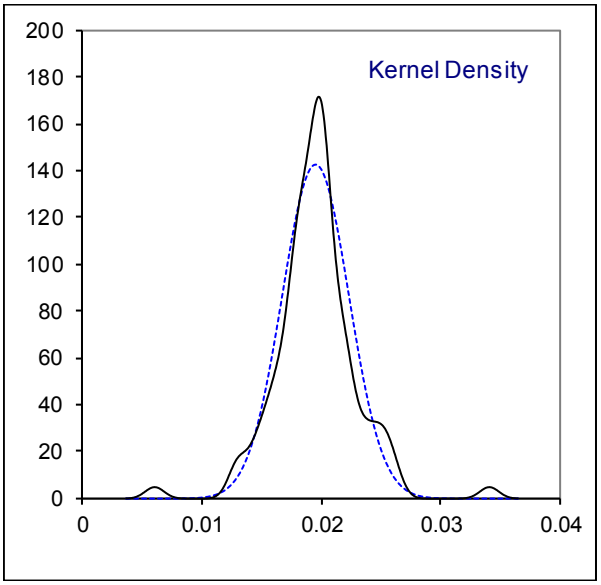
# Determination of Ash Content on sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D482 | 0.0169 | | -1.43 |
| 90 | D482 | 0.0253 | | 3.27 | 913 | | ----- | | ----- |
| 92 | D482 | 0.017 | | -1.38 | 922 | D482 | 0.0205 | | 0.58 |
| 120 | ISO6245 | 0.020 | | 0.30 | 962 | | ----- | | ----- |
| 131 | D482 | 0.019 | | -0.26 | 963 | ISO6245 | 0.021 | | 0.86 |
| 132 | ISO6245 | 0.022 | | 1.42 | 971 | ISO6245 | 0.0204 | | 0.53 |
| 140 | ISO6245 | 0.006 | R(0.01) | -7.54 | 974 | D482 | 0.020 | | 0.30 |
| 150 | D482 | 0.021 | C | 0.86 | 982 | D482 | 0.020 | | 0.30 |
| 154 | D482 | 0.019 | | -0.26 | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | D482 | 0.020 | | 0.30 | 1019 | ISO6245 | 0.0142 | | -2.95 |
| 168 | D482 | 0.016 | | -1.94 | 1059 | ISO6245 | 0.015 | | -2.50 |
| 169 | D482 | 0.0200 | | 0.30 | 1095 | ISO6245 | 0.018 | | -0.82 |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D482 | 0.0176 | | -1.04 |
| 194 | D482 | 0.020 | | 0.30 | 1121 | ISO6245 | 0.016 | | -1.94 |
| 212 | ISO6245 | 0.019 | | -0.26 | 1126 | | ----- | | ----- |
| 221 | D482 | 0.020 | | 0.30 | 1134 | IP4 | 0.0168 | | -1.49 |
| 224 | D482 | 0.025 | | 3.10 | 1135 | ISO6245 | 0.0216 | | 1.20 |
| 225 | D482 | 0.024 | | 2.54 | 1161 | ISO6245 | 0.017 | | -1.38 |
| 228 | D482 | 0.01296 | C | -3.64 | 1167 | ISO6245 | 0.01984 | | 0.21 |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | ISO6245 | 0.034 | R(0.01) | 8.14 |
| 253 | | ----- | | ----- | 1259 | ISO6245 | 0.01844 | | -0.57 |
| 254 | D482 | 0.018 | | -0.82 | 1266 | ISO6245 | 0.018 | | -0.82 |
| 273 | D482 | 0.022 | | 1.42 | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP4 | 0.0200057 | | 0.31 |
| 323 | ISO6245 | 0.018 | | -0.82 | 1299 | D482 | 0.018 | | -0.82 |
| 331 | | ----- | | ----- | 1345 | D482 | 0.0185 | | -0.54 |
| 333 | | ----- | | ----- | 1356 | ISO6245 | 0.018 | | -0.82 |
| 334 | | ----- | | ----- | 1367 | IP4 | 0.018 | C | -0.82 |
| 337 | | ----- | | ----- | 1402 | IP4 | 0.020 | | 0.30 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | ISO6245 | 0.019 | | -0.26 | 1428 | ISO6245 | 0.018 | | -0.82 |
| 343 | ISO6245 | 0.022 | | 1.42 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO6245 | 0.019 | | -0.26 | 1556 | ISO6245 | 0.0193 | | -0.09 |
| 371 | D482 | 0.0187 | | -0.43 | 1569 | ISO6245 | 0.0195 | | 0.02 |
| 391 | | ----- | | ----- | 1586 | ISO6245 | 0.016 | | -1.94 |
| 398 | D482 | 0.015 | | -2.50 | 1613 | D482 | 0.020 | | 0.30 |
| 399 | | ----- | | ----- | 1631 | ISO6245 | 0.020 | | 0.30 |
| 440 | | ----- | | ----- | 1643 | D482 | 0.01745 | | -1.13 |
| 444 | | ----- | | ----- | 1650 | ISO6245 | 0.0195 | | 0.02 |
| 463 | ISO6245 | 0.0192 | | -0.15 | 1677 | D482 | 0.0175 | | -1.10 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | W | ----- |
| 541 | D482 | 0.0178 | | -0.93 | 1728 | D482 | 0.0232 | | 2.09 |
| 557 | D482 | 0.0129247 | | -3.66 | 1740 | ISO6245 | 0.0217 | | 1.25 |
| 562 | D482 | 0.0205 | | 0.58 | 1796 | ISO6245 | 0.01448 | | -2.79 |
| 575 | | ----- | | ----- | 1807 | ISO6245 | 0.0260 | | 3.66 |
| 603 | D482 | 0.020 | | 0.30 | 1811 | ISO6245 | 0.013 | | -3.62 |
| 604 | | ----- | | ----- | 1832 | ISO6245 | 0.0220 | | 1.42 |
| 605 | D482 | 0.018 | | -0.82 | 1833 | ISO6245 | 0.024 | | 2.54 |
| 631 | D482 | 0.0219 | | 1.37 | 1849 | ISO6245 | 0.02 | C | 0.30 |
| 633 | D482 | 0.0233 | | 2.15 | 1906 | | ----- | | ----- |
| 663 | D482 | 0.0219 | | 1.37 | 1936 | | ----- | | ----- |
| 671 | D482 | 0.016 | | -1.94 | 1937 | | ----- | | ----- |
| 750 | D482 | 0.021 | | 0.86 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | ISO6245 | 0.018 | | -0.82 |
| 759 | | ----- | | ----- | 1956 | ISO6245 | 0.026 | C | 3.66 |
| 781 | ISO6245 | 0.023 | | 1.98 | 1964 | | ----- | | ----- |
| 785 | ISO6245 | 0.025 | | 3.10 | 1967 | D482 | 0.0163 | | -1.77 |
| 824 | ISO6245 | 0.02055 | | 0.61 | 1995 | D482 | 0.02 | | 0.30 |
| 825 | D482 | 0.019 | | -0.26 | 6016 | | ----- | | ----- |
| 850 | ISO6245 | 0.020 | | 0.30 | 6026 | D482 | 0.0175 | | -1.10 |
| 851 | ISO6245 | 0.020 | C | 0.30 | 6028 | | ----- | | ----- |
| 855 | D482 | 0.019 | | -0.26 | 6039 | | ----- | | ----- |
| 858 | D482 | 0.019 | | -0.26 | 6044 | ISO6245 | 0.021 | | 0.86 |
| 862 | D482 | 0.0197 | | 0.13 | 6054 | D482 | 0.020049 | | 0.33 |
| 863 | D482 | 0.022 | | 1.42 | 6057 | ISO6245 | 0.025 | | 3.10 |
| 864 | D482 | 0.016 | | -1.94 | 6075 | ISO6245 | 0.0184 | | -0.59 |
| 865 | D482 | 0.022 | | 1.42 | 6092 | ISO6245 | 0.015 | | -2.50 |
| 866 | ISO6245 | 0.0196 | | 0.08 | 6142 | | ----- | | ----- |
| 870 | D482 | 0.0201 | | 0.36 | 6180 | | ----- | | ----- |
| 875 | D482 | 0.024 | | 2.54 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | | Only ISO6245 results: | Only D482 results: |
|---|---|---|---|
| normality | OK | OK | OK |
| n | 100 | 45 | 51 |
| outliers | 2 | 2 | 0 |
| mean (n) | 0.0195 | 0.0196 | 0.0194 |
| st.dev. (n) | 0.00280 | 0.00300 | 0.00271 |
| R(calc.) | 0.0078 | 0.0084 | 0.0076 |
| st.dev.(ISO6245:01) | 0.00179 | 0.00179 | 0.00179 |
| R(ISO6245:01) | 0.005 | 0.005 | 0.005 |
| Compare | | | |
| R(D482:13) | 0.005 | | |

Lab 150 first reported 0.012
Lab 228 first reported 0.029
Lab 851 first reported 0.012
Lab 1367 first reported 0.031
Lab 1724 first reported 0.028
Lab 1849 first reported 0.03
Lab 1956 first reported 0.008



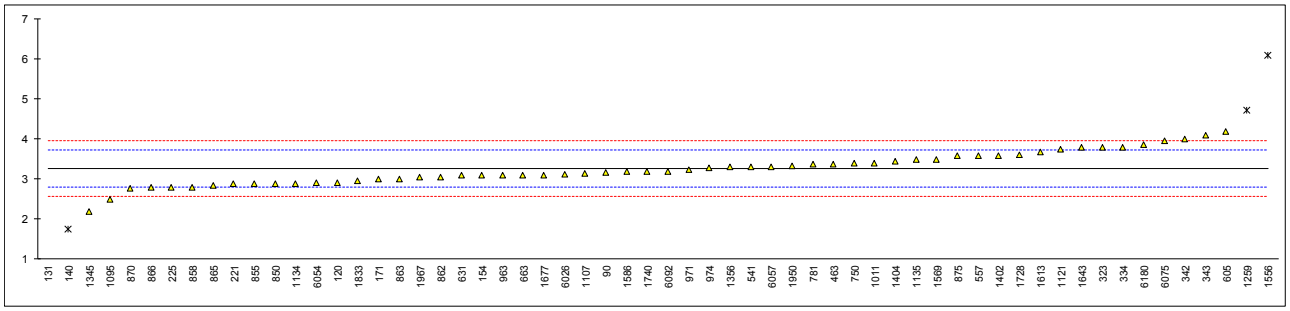



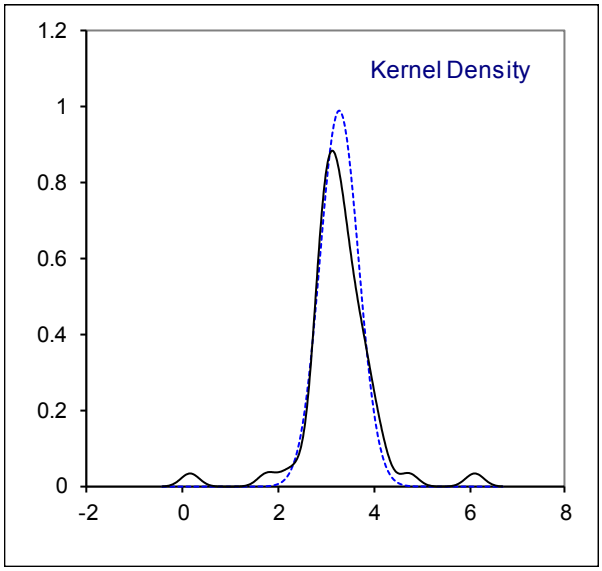
# Determination of Asphaltenes on sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | IP143 | 3.16 | | -0.45 | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | | ----- | | ----- |
| 120 | D6560 | 2.923 | | -1.47 | 962 | | ----- | | ----- |
| 131 | D6560 | 0.145 | R(0.01) | -13.38 | 963 | IP143 | 3.10 | | -0.71 |
| 132 | | ----- | | ----- | 971 | IP143 | 3.24 | | -0.11 |
| 140 | IP143 | 1.755 | R(0.05) | -6.47 | 974 | IP143 | 3.28 | | 0.06 |
| 150 | | ----- | | ----- | 982 | | ----- | | ----- |
| 154 | D6560 | 3.1 | | -0.71 | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | IP143 | 3.4 | | 0.58 |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | IP143 | 2.5 | | -3.28 |
| 171 | IP143 | 3.0 | | -1.14 | 1107 | IP143 | 3.14 | | -0.54 |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | IP143 | 3.75 | | 2.08 |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | D6560 | 2.9 | | -1.56 | 1134 | IP143 | 2.900 | | -1.56 |
| 224 | | ----- | | ----- | 1135 | IP143 | 3.5 | | 1.01 |
| 225 | D6560 | 2.8 | | -1.99 | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | IP143 | 4.72 | R(0.05) | 6.24 |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP143 | 4.3.02 | | ----- |
| 323 | IP143 | 3.8 | | 2.29 | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | IP143 | 2.19 | | -4.61 |
| 333 | | ----- | | ----- | 1356 | D6560 | 3.3 | | 0.15 |
| 334 | IP143 | 3.8 | C | 2.29 | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | IP143 | 3.6 | | 1.44 |
| 339 | | ----- | | ----- | 1404 | | 3.45 | | 0.79 |
| 342 | IP143 | 4.011 | | 3.20 | 1428 | | ----- | | ----- |
| 343 | IP143 | 4.1 | C | 3.58 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | IP143 | 6.1 | R(0.01) | 12.16 |
| 371 | | ----- | | ----- | 1569 | IP143 | 3.5 | | 1.01 |
| 391 | | ----- | | ----- | 1586 | IP143 | 3.2 | | -0.28 |
| 398 | | ----- | | ----- | 1613 | IP143 | 3.67 | | 1.74 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D6560 | 3.798 | | 2.29 |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | IP143 | 3.38 | | 0.49 | 1677 | IP143 | 3.1056 | | -0.68 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | IP143 | 3.32 | | 0.24 | 1728 | D6560 | 3.62 | | 1.52 |
| 557 | IP143 | 3.5875926 | | 1.38 | 1740 | IP143 | 3.2 | | -0.28 |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | IP143 | 4.2 | | 4.01 | 1833 | IP143 | 2.96 | | -1.31 |
| 631 | IP143 | 3.0914 | | -0.74 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | IP143 | 3.10 | | -0.71 | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | IP143 | 3.4 | | 0.58 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | IP143 | 3.34 | | 0.32 |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | IP143 | 3.37 | | 0.45 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | IP143 | 3.045 | | -0.94 |
| 824 | | ----- | | ----- | 1995 | | ----- | | ----- |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | IP143 | 2.90 | | -1.56 | 6026 | IP143 | 3.1187 | | -0.63 |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | IP143 | 2.9 | | -1.56 | 6039 | | ----- | | ----- |
| 858 | IP143 | 2.8 | | -1.99 | 6044 | | ----- | | ----- |
| 862 | IP143 | 3.05 | | -0.92 | 6054 | D6560 | 2.90343479 | | -1.55 |
| 863 | IP143 | 3.0 | | -1.14 | 6057 | IP143 | 3.320 | | 0.24 |
| 864 | | ----- | | ----- | 6075 | | 3.95 | | 2.94 |
| 865 | IP143 | 2.84 | | -1.82 | 6092 | IP143 | 3.2 | | -0.28 |
| 866 | IP143 | 2.80 | | -1.99 | 6142 | | ----- | | ----- |
| 870 | IP143 | 2.782 | | -2.07 | 6180 | IP143 | 3.86 | | 2.55 |
| 875 | IP143 | 3.58 | | 1.35 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 56 |
| outliers | 4 |
| mean (n) | 3.265 |
| st.dev. (n) | 0.4040 |
| R(calc.) | 1.131 |
| st.dev.(IP143:04) | 0.2332 |
| R(IP143:04) | 0.653 |

Lab 334 first reported 4.8
Lab 343 first reported 4.668



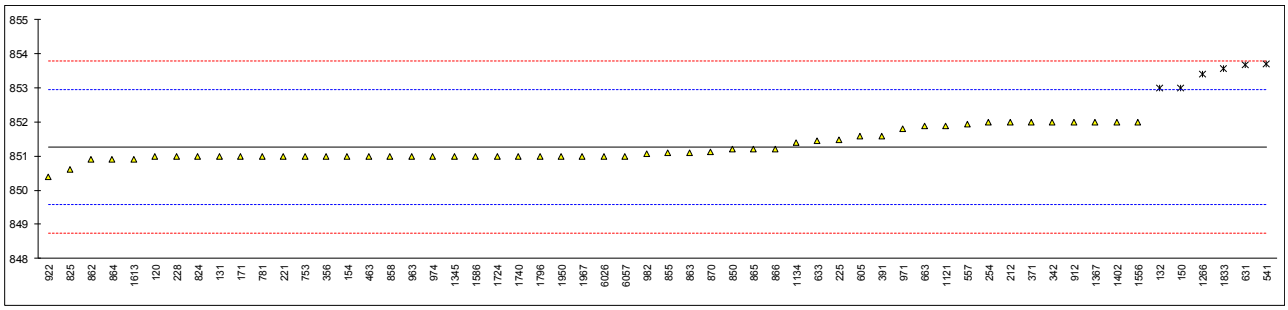



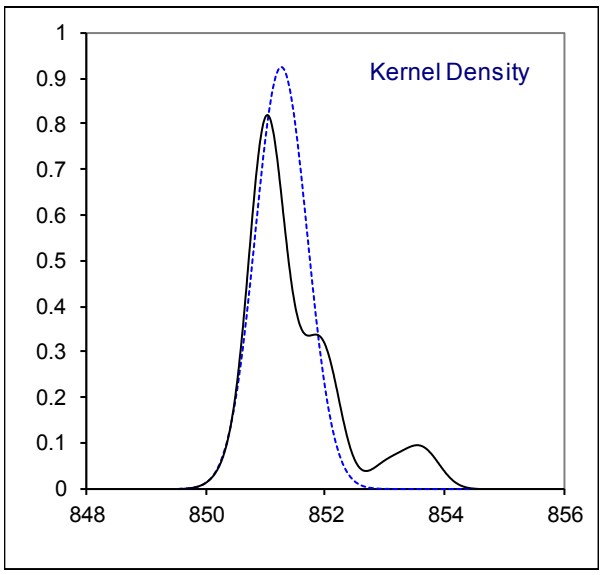
# Determination of Calculated Carbon Aromaticity Index on sample #18105

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | ISO8217 | 852 | | 0.88 |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | ISO8217 | 850.4 | | -1.03 |
| 120 | ISO8217 | 851 | | -0.32 | 962 | | ----- | | ----- |
| 131 | ISO8217 | 851 | | -0.32 | 963 | ISO8217 | 851 | | -0.32 |
| 132 | ISO8217 | 853 | R(0.05) | 2.07 | 971 | ISO8217 | 851.8 | | 0.64 |
| 140 | | ----- | | ----- | 974 | ISO8217 | 851 | | -0.32 |
| 150 | ISO8217 | 853 | R(0.05) | 2.07 | 982 | ISO8217 | 851.073 | | -0.23 |
| 154 | ISO8217 | 851 | | -0.32 | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | ISO8217 | 851 | | -0.32 | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | ISO8217 | 851.9 | | 0.76 |
| 212 | ISO8217 | 852 | | 0.88 | 1126 | | ----- | | ----- |
| 221 | ISO8217 | 851 | | -0.32 | 1134 | ISO8217 | 851.4 | | 0.16 |
| 224 | | ----- | | ----- | 1135 | | ----- | | ----- |
| 225 | ISO8217 | 851.487 | | 0.26 | 1161 | | ----- | | ----- |
| 228 | ISO8217 | 851 | | -0.32 | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | ISO8217 | 852 | | 0.88 | 1266 | ISO8217 | 853.4 | R(0.05) | 2.54 |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | ISO8217 | 851 | | -0.32 |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | ISO8217 | 852 | | 0.88 |
| 337 | | ----- | | ----- | 1402 | ISO8217 | 852 | | 0.88 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | ISO8217 | 852 | | 0.88 | 1428 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO8217 | 851 | | -0.32 | 1556 | ISO8217 | 852 | | 0.88 |
| 371 | ISO8217 | 852 | | 0.88 | 1569 | | ----- | | ----- |
| 391 | ISO8217 | 851.6 | | 0.40 | 1586 | ISO8217 | 851.0 | | -0.32 |
| 398 | | ----- | | ----- | 1613 | ISO8217 | 850.9 | | -0.43 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | ISO8217 | 851.0 | | -0.32 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | ISO8217 | 851.0 | | -0.32 |
| 541 | ISO8217 | 853.7 | E,R(0.05) | 2.90 | 1728 | | ----- | | ----- |
| 557 | ISO8217 | 851.9310 | | 0.79 | 1740 | ISO8217 | 851 | | -0.32 |
| 562 | | ----- | | ----- | 1796 | ISO8217 | 851 | | -0.32 |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | ISO8217 | 851.6 | | 0.40 | 1833 | ISO8217 | 853.56 | R(0.05) | 2.73 |
| 631 | ISO8217 | 853.67 | R(0.05) | 2.87 | 1849 | | ----- | | ----- |
| 633 | ISO8217 | 851.46 | | 0.23 | 1906 | | ----- | | ----- |
| 663 | ISO8217 | 851.9 | | 0.76 | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | ISO8217 | 851 | | -0.32 | 1950 | ISO8217 | 851 | | -0.32 |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | ISO8217 | 851 | | -0.32 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | ISO8217 | 851 | | -0.32 |
| 824 | ISO8217 | 851 | | -0.32 | 1995 | | ----- | | ----- |
| 825 | ISO8217 | 850.6 | | -0.79 | 6016 | | ----- | | ----- |
| 850 | ISO8217 | 851.2 | | -0.08 | 6026 | ISO8217 | 851 | | -0.32 |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | ISO8217 | 851.1 | | -0.20 | 6039 | | ----- | | ----- |
| 858 | ISO8217 | 851 | | -0.32 | 6044 | | ----- | | ----- |
| 862 | ISO8217 | 850.9 | | -0.43 | 6054 | | ----- | | ----- |
| 863 | ISO8217 | 851.1 | | -0.20 | 6057 | ISO8217 | 851 | | -0.32 |
| 864 | ISO8217 | 850.9 | | -0.43 | 6075 | | ----- | | ----- |
| 865 | ISO8217 | 851.2 | | -0.08 | 6092 | | ----- | | ----- |
| 866 | ISO8217 | 851.2 | | -0.08 | 6142 | | ----- | | ----- |
| 870 | ISO8217 | 851.12 | | -0.17 | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 52 |
| outliers | 6 |
| mean (n) | 851.265 |
| st.dev. (n) | 0.4320 |
| R(calc.) | 1.210 |
| st.dev.(ISO8217:17) | 0.8393 |
| R(ISO8217:17) | 2.35 |

Lab 541 probably a calc. error, iis calculated 851.35



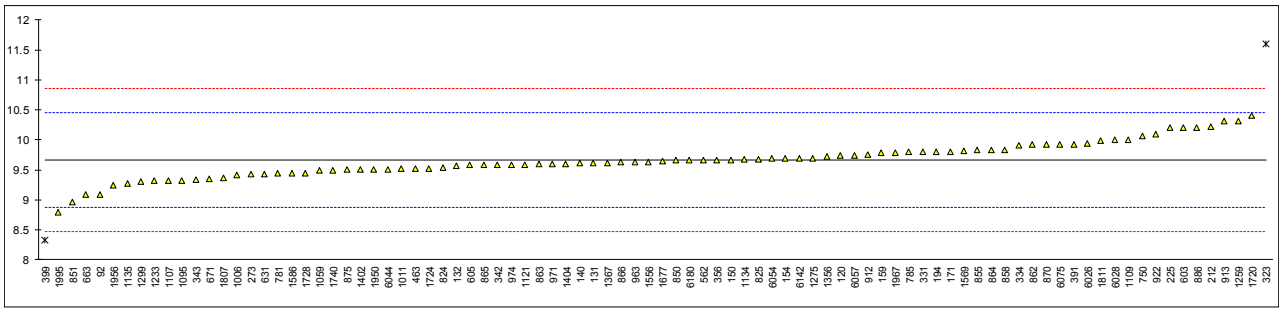



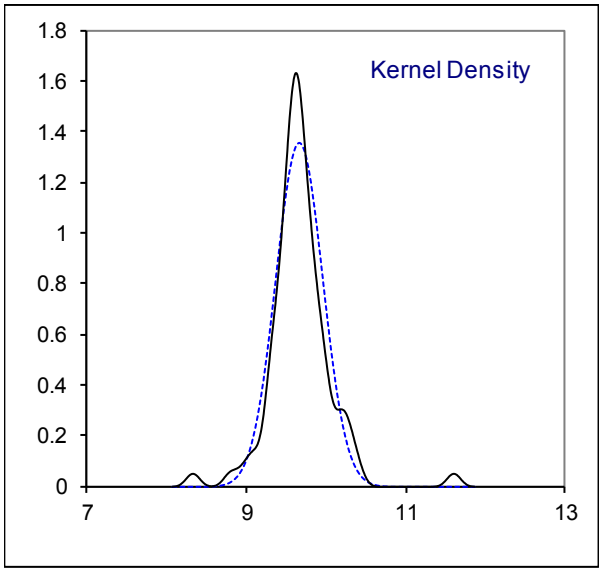
# Determination of Carbon Residue - micro method on sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | ISO10370 | 9.755 | | 0.23 |
| 90 | | ----- | | ----- | 913 | D4530 | 10.31 | | 1.63 |
| 92 | D4530 | 9.09 | | -1.44 | 922 | D4530 | 10.1 | | 1.10 |
| 120 | ISO10370 | 9.74 | | 0.19 | 962 | | ----- | | ----- |
| 131 | D4530 | 9.61 | | -0.13 | 963 | ISO10370 | 9.64 | | -0.06 |
| 132 | ISO10370 | 9.57 | | -0.23 | 971 | ISO10370 | 9.60 | | -0.16 |
| 140 | ISO10370 | 9.61 | | -0.13 | 974 | D4530 | 9.59 | | -0.18 |
| 150 | D4530 | 9.67 | | 0.02 | 982 | | ----- | | ----- |
| 154 | D4530 | 9.70 | | 0.09 | 1006 | D4530 | 9.42 | | -0.61 |
| 158 | | ----- | | ----- | 1011 | ISO10370 | 9.52 | | -0.36 |
| 159 | D4530 | 9.78 | | 0.29 | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | ISO10370 | 9.49 | | -0.44 |
| 169 | | ----- | | ----- | 1095 | ISO10370 | 9.33 | | -0.84 |
| 171 | ISO10370 | 9.81 | | 0.37 | 1107 | D4530 | 9.32 | | -0.86 |
| 175 | | ----- | | ----- | 1109 | D4530 | 10.01 | | 0.87 |
| 194 | D4530 | 9.81 | | 0.37 | 1121 | ISO10370 | 9.59 | | -0.18 |
| 212 | ISO10370 | 10.22 | | 1.40 | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | D4530 | 9.673 | | 0.03 |
| 224 | | ----- | | ----- | 1135 | ISO10370 | 9.27 | | -0.99 |
| 225 | D4530 | 10.2 | | 1.35 | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | ISO10370 | 9.315 | | -0.88 |
| 253 | | ----- | | ----- | 1259 | ISO10370 | 10.313 | | 1.64 |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | D4530 | 9.43 | | -0.59 | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP398 | 9.7007 | | 0.10 |
| 323 | ISO10370 | 11.6 | R(0.01) | 4.88 | 1299 | D4530 | 9.30 | | -0.91 |
| 331 | ISO10370 | 9.8 | | 0.35 | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | ISO10370 | 9.73 | | 0.17 |
| 334 | ISO10370 | 9.91 | | 0.62 | 1367 | ISO10370 | 9.61 | | -0.13 |
| 337 | | ----- | | ----- | 1402 | IP398 | 9.51 | | -0.39 |
| 339 | | ----- | | ----- | 1404 | ISO10370 | 9.60 | | -0.16 |
| 342 | ISO10370 | 9.59 | | -0.18 | 1428 | | ----- | | ----- |
| 343 | ISO10370 | 9.34 | | -0.81 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO10370 | 9.67 | | 0.02 | 1556 | ISO10370 | 9.64 | | -0.06 |
| 371 | | ----- | | ----- | 1569 | ISO10370 | 9.82 | | 0.40 |
| 391 | ISO10370 | 9.93 | | 0.67 | 1586 | ISO10370 | 9.45 | | -0.54 |
| 398 | | ----- | | ----- | 1613 | | ----- | W | ----- |
| 399 | D4530 | 8.33 | R(0.01) | -3.36 | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | ISO10370 | 9.523 | | -0.35 | 1677 | D4530 | 9.646 | | -0.04 |
| 511 | | ----- | | ----- | 1720 | D4530 | 10.4 | C | 1.86 |
| 529 | | ----- | | ----- | 1724 | D4530 | 9.53 | | -0.33 |
| 541 | | ----- | | ----- | 1728 | D4530 | 9.45 | | -0.54 |
| 557 | | ----- | | ----- | 1740 | ISO10370 | 9.50 | | -0.41 |
| 562 | D4530 | 9.67 | | 0.02 | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | ISO10370 | 9.37 | | -0.74 |
| 603 | D4530 | 10.2 | | 1.35 | 1811 | ISO10370 | 9.99 | | 0.82 |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | D4530 | 9.58 | | -0.21 | 1833 | | ----- | | ----- |
| 631 | D4530 | 9.436 | | -0.57 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | D4530 | 9.086 | | -1.45 | 1936 | | ----- | | ----- |
| 671 | D4530 | 9.35 | | -0.79 | 1937 | | ----- | | ----- |
| 750 | ISO10370 | 10.06 | | 1.00 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | ISO10370 | 9.51 | | -0.39 |
| 759 | | ----- | | ----- | 1956 | ISO10370 | 9.24 | | -1.07 |
| 781 | ISO10370 | 9.44 | | -0.56 | 1964 | | ----- | | ----- |
| 785 | ISO10370 | 9.80 | | 0.35 | 1967 | D4530 | 9.794 | | 0.33 |
| 824 | ISO10370 | 9.54 | | -0.31 | 1995 | D4530 | 8.8 | | -2.17 |
| 825 | D4530 | 9.68 | | 0.04 | 6016 | | ----- | | ----- |
| 850 | ISO10370 | 9.660 | | -0.01 | 6026 | D4530 | 9.9433 | | 0.71 |
| 851 | ISO10370 | 8.96 | | -1.77 | 6028 | ISO10370 | 10 | C | 0.85 |
| 855 | ISO10370 | 9.83 | | 0.42 | 6039 | | ----- | | ----- |
| 858 | D4530 | 9.84 | | 0.45 | 6044 | ISO10370 | 9.51 | | -0.39 |
| 862 | D4530 | 9.92 | | 0.65 | 6054 | D4530 | 9.69 | | 0.07 |
| 863 | D4530 | 9.60 | | -0.16 | 6057 | ISO10370 | 9.74 | | 0.19 |
| 864 | D4530 | 9.83 | | 0.42 | 6075 | ISO10370 | 9.927 | | 0.66 |
| 865 | D4530 | 9.58 | | -0.21 | 6092 | | ----- | | ----- |
| 866 | ISO10370 | 9.63 | | -0.08 | 6142 | ISO10370 | 9.70 | | 0.09 |
| 870 | D4530 | 9.922 | | 0.65 | 6180 | ISO10370 | 9.665 | | 0.01 |
| 875 | D4530 | 9.51 | | -0.39 | 6192 | | ----- | | ----- |
| 886 | D4530 | 10.2 | | 1.35 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 88 |
| outliers | 2 |
| mean (n) | 9.6629 |
| st.dev. (n) | 0.29379 |
| R(calc.) | 0.8226 |
| st.dev.(ISO10370:14) | 0.39712 |
| R(ISO10370:14) | 1.1119 |

Lab 1613 first reported 6.85
Lab 1720 first reported 11.64
Lab 6028 first reported 13.7



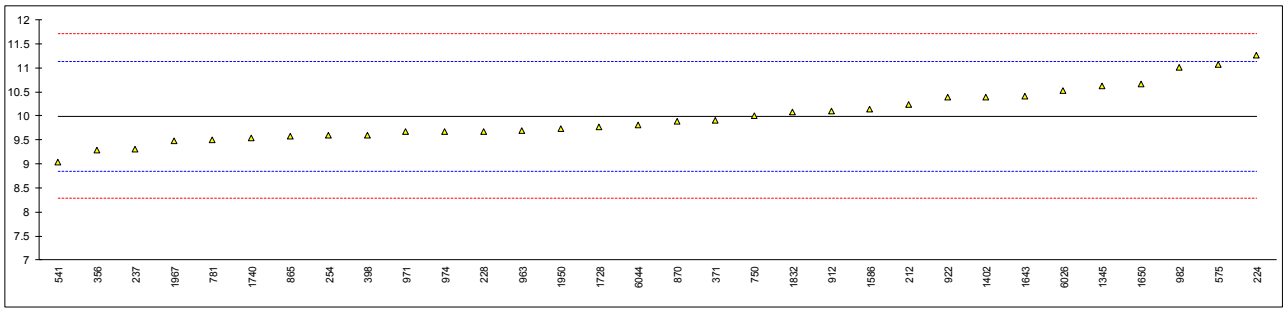



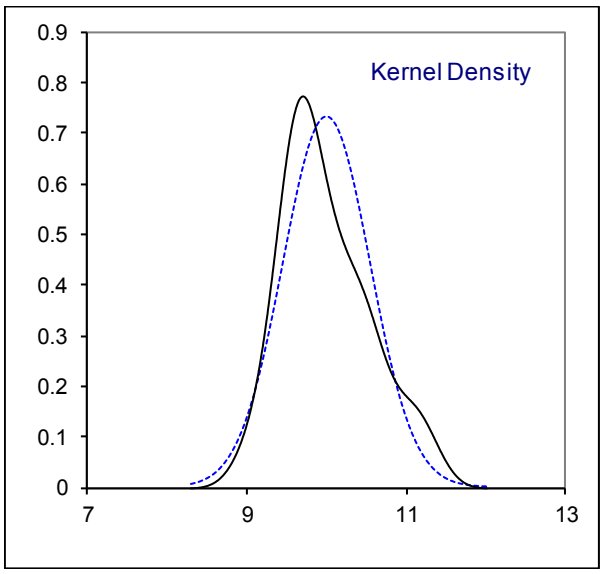
# Determination of Conradson Carbon Residue on sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D189 | 10.11 | | 0.20 |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | D189 | 10.4 | | 0.71 |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | D189 | 9.70 | | -0.52 |
| 132 | | ----- | | ----- | 971 | ISO6615 | 9.68 | | -0.55 |
| 140 | | ----- | | ----- | 974 | D189 | 9.68 | | -0.55 |
| 150 | | ----- | | ----- | 982 | D189 | 11.02 | | 1.79 |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | D189 | 10.25 | | 0.44 | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | D189 | 11.27 | | 2.23 | 1135 | | ----- | | ----- |
| 225 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 228 | D189 | 9.685 | | -0.54 | 1167 | | ----- | | ----- |
| 237 | D189 | 9.314 | | -1.19 | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | D189 | 9.6 | | -0.69 | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | D189 | 10.63 | | 1.11 |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | IP13 | 10.4 | | 0.71 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | D189 | 9.3 | | -1.22 | 1556 | | ----- | | ----- |
| 371 | D189 | 9.91 | | -0.15 | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | ISO6615 | 10.14 | | 0.25 |
| 398 | D4530 | 9.60 | | -0.69 | 1613 | | ----- | W | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D189 | 10.42 | | 0.74 |
| 444 | | ----- | | ----- | 1650 | D189 | 10.676 | | 1.19 |
| 463 | | ----- | | ----- | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | D189 | 9.034 | | -1.68 | 1728 | D189 | 9.77 | | -0.40 |
| 557 | | ----- | | ----- | 1740 | D189 | 9.55 | | -0.78 |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | D189 | 11.08 | C | 1.90 | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | ISO6615 | 10.090 | | 0.16 |
| 605 | | ----- | | ----- | 1833 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | D189 | 10.00 | | 0.01 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | D189 | 9.73 | | -0.47 |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | D189 | 9.51 | | -0.85 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | D189 | 9.495 | | -0.88 |
| 824 | | ----- | | ----- | 1995 | | ----- | | ----- |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | D189 | 10.5379 | | 0.95 |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | | ----- | | ----- | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | D189 | 9.81 | | -0.33 |
| 862 | | ----- | | ----- | 6054 | | ----- | | ----- |
| 863 | | ----- | | ----- | 6057 | | ----- | | ----- |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | ISO6615 | 9.59 | | -0.71 | 6092 | | ----- | | ----- |
| 866 | | ----- | | ----- | 6142 | | ----- | | ----- |
| 870 | D189 | 9.894 | | -0.18 | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 32 |
| outliers | 0 |
| mean (n) | 9.9961 |
| st.dev. (n) | 0.54524 |
| R(calc.) | 1.5267 |
| st.dev.(D189:06) | 0.57192 |
| R(D189:06) | 1.6014 |

Lab 575 first reported 11.92
Lab 1613 first reported 7.35



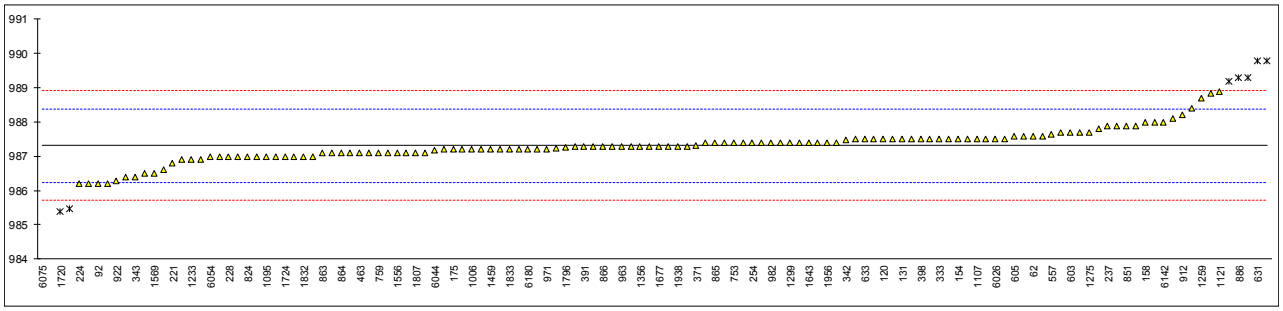



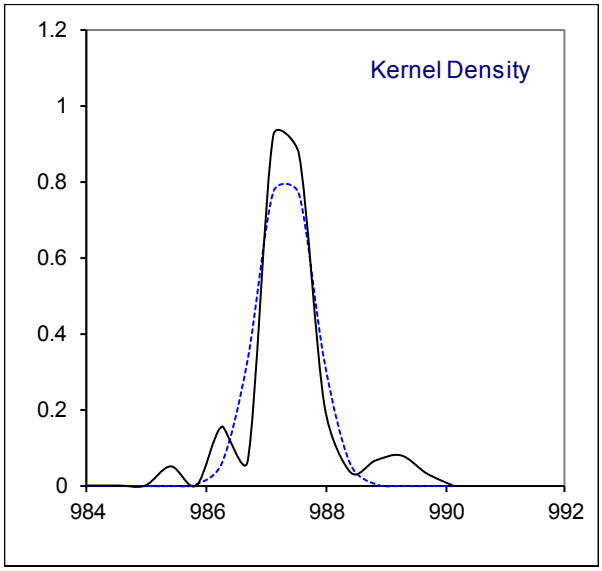
# Determination of Density at 15°C on sample #18105; results in kg/m$^3$

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | D4052 | 987.6 | | 0.53 | 912 | D1298 | 988.2 | | 1.65 |
| 90 | D4052 | 987.5 | | 0.34 | 913 | D1298 | 987.2 | | -0.22 |
| 92 | D4052 | 986.2 | | -2.08 | 922 | D1298 | 986.3 | | -1.90 |
| 120 | ISO12185 | 987.5 | | 0.34 | 962 | | ----- | | ----- |
| 131 | D4052 | 987.5 | | 0.34 | 963 | ISO12185 | 987.3 | | -0.03 |
| 132 | D4052 | 989.2 | R(0.05) | 3.52 | 971 | ISO12185 | 987.21 | | -0.20 |
| 140 | D4052 | 987.0 | | -0.59 | 974 | D4052 | 987.4 | | 0.16 |
| 150 | | ----- | | ----- | 982 | D1298 | 987.4 | | 0.16 |
| 154 | D4052 | 987.5 | | 0.34 | 1006 | D1298 | 987.2 | C | -0.22 |
| 158 | D4052 | 988.0 | C | 1.28 | 1011 | ISO12185 | 988.0 | | 1.28 |
| 159 | D4052 | 987.1 | | -0.40 | 1019 | ISO3838 | 988.84 | | 2.84 |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | ISO12185 | 987.0 | | -0.59 |
| 171 | ISO12185 | 987.0 | | -0.59 | 1107 | D4052 | 987.5 | | 0.34 |
| 175 | D4052 | 987.2 | | -0.22 | 1109 | D4052 | 987.3 | | -0.03 |
| 194 | D4052 | 988.1 | | 1.46 | 1121 | ISO12185 | 988.9 | | 2.96 |
| 212 | ISO12185 | 987.9 | | 1.09 | 1126 | ISO12185 | 987.51 | | 0.36 |
| 221 | D4052 | 986.8 | | -0.96 | 1134 | D4052 | 987.25 | | -0.12 |
| 224 | D1298 | 986.2 | C | -2.08 | 1135 | ISO12185 | 987.4 | | 0.16 |
| 225 | D4052 | 987.0 | | -0.59 | 1161 | ISO12185 | 986.2 | | -2.08 |
| 228 | D1298 | 987.0 | | -0.59 | 1167 | ISO12185 | 987.7 | | 0.72 |
| 237 | D4052 | 987.9 | | 1.09 | 1177 | | ----- | | ----- |
| 238 | D4052 | 989.30 | C,R(0.05) | 3.70 | 1233 | ISO12185 | 986.9 | | -0.78 |
| 253 | D4052 | 986.2 | | -2.08 | 1259 | ISO12185 | 988.7 | | 2.58 |
| 254 | D1298 | 987.4 | | 0.16 | 1266 | ISO3675 | 989.8 | R(0.01) | 4.64 |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | ISO12185 | 987.4 | | 0.16 | 1275 | IP365 | 987.7 | | 0.72 |
| 323 | ISO12185 | 987.5 | | 0.34 | 1299 | D4052 | 987.4 | | 0.16 |
| 331 | ISO12185 | 987.5 | | 0.34 | 1345 | ISO12185 | 987.2 | | -0.22 |
| 333 | ISO12185 | 987.5 | | 0.34 | 1356 | ISO12185 | 987.3 | C | -0.03 |
| 334 | ISO12185 | 987.5 | | 0.34 | 1367 | IP365 | 987.1 | | -0.40 |
| 337 | ISO12185 | 987.7 | | 0.72 | 1402 | IP365 | 987.6 | | 0.53 |
| 339 | | ----- | | ----- | 1404 | ISO12185 | 987.4 | | 0.16 |
| 342 | D4052 | 987.49 | | 0.32 | 1428 | ISO12185 | 986.5 | C | -1.52 |
| 343 | D4052 | 986.4 | | -1.71 | 1459 | ISO12185 | 987.2 | | -0.22 |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO12185 | 987.3 | | -0.03 | 1556 | ISO12185 | 987.1 | | -0.40 |
| 371 | D4052 | 987.33 | | 0.02 | 1569 | ISO12185 | 986.5 | | -1.52 |
| 391 | ISO12185 | 987.3 | | -0.03 | 1586 | ISO12185 | 987.0 | | -0.59 |
| 398 | ISO12185 | 987.5 | | 0.34 | 1613 | D4052 | 987.3 | | -0.03 |
| 399 | D7042 | 986.4 | | -1.71 | 1631 | ISO12185 | 987.2 | | -0.22 |
| 440 | D4052 | 986.9 | | -0.78 | 1643 | D4052 | 987.4 | | 0.16 |
| 444 | | ----- | | ----- | 1650 | ISO12185 | 987.1 | | -0.40 |
| 463 | ISO12185 | 987.10 | | -0.40 | 1677 | D4052 | 987.3 | | -0.03 |
| 511 | | ----- | | ----- | 1720 | D4052 | 985.4 | C,R(0.05) | -3.58 |
| 529 | | ----- | | ----- | 1724 | D4052 | 987.0 | | -0.59 |
| 541 | ISO12185 | 987.2 | C | -0.22 | 1728 | D4052 | 986.62 | | -1.30 |
| 557 | D4052 | 987.6533 | | 0.63 | 1740 | D4052 | 987.0 | | -0.59 |
| 562 | D1298 | 982.3 | R(0.01) | -9.36 | 1796 | ISO12185 | 987.27 | | -0.09 |
| 575 | | ----- | | ----- | 1807 | ISO3675 | 987.1 | | -0.40 |
| 603 | D1298 | 987.7 | | 0.72 | 1811 | ISO12185 | 987.5 | | 0.34 |
| 604 | D4052 | 988.4 | | 2.02 | 1832 | ISO12185 | 987.0 | | -0.59 |
| 605 | D4052 | 987.6 | | 0.53 | 1833 | ISO12185 | 987.2 | | -0.22 |
| 631 | D1298 | 989.78 | R(0.01) | 4.60 | 1849 | ISO12185 | 987.1 | | -0.40 |
| 633 | D1298 | 987.50 | | 0.34 | 1906 | | ----- | | ----- |
| 663 | D4052 | 987.9 | | 1.09 | 1936 | ISO12185 | 987.3 | | -0.03 |
| 671 | D1298 | 987.5 | | 0.34 | 1937 | ISO12185 | 987.4 | | 0.16 |
| 750 | ISO12185 | 987.5 | | 0.34 | 1938 | ISO12185 | 987.3 | | -0.03 |
| 753 | ISO12185 | 987.4 | | 0.16 | 1950 | ISO12185 | 987.3 | | -0.03 |
| 759 | D1298 | 987.1 | | -0.40 | 1956 | ISO3675 | 987.4 | | 0.16 |
| 781 | ISO12185 | 987.5 | | 0.34 | 1964 | | ----- | | ----- |
| 785 | D1298 | 987.8 | | 0.90 | 1967 | D1298 | 987.2 | | -0.22 |
| 824 | ISO12185 | 987.0 | | -0.59 | 1995 | D4052 | 985.48 | R(0.05) | -3.43 |
| 825 | ISO12185 | 987.1 | | -0.40 | 6016 | | ----- | | ----- |
| 850 | ISO3675 | 987.3 | | -0.03 | 6026 | D1298 | 987.5 | | 0.34 |
| 851 | ISO12185 | 987.9 | | 1.09 | 6028 | ISO12185 | 986.9 | | -0.78 |
| 855 | ISO12185 | 987.29 | | -0.05 | 6039 | | ----- | | ----- |
| 858 | ISO12185 | 987.4 | | 0.16 | 6044 | ISO12185 | 987.19 | | -0.24 |
| 862 | ISO12185 | 987.1 | | -0.40 | 6054 | D4052 | 986.999 | | -0.59 |
| 863 | ISO12185 | 987.1 | | -0.40 | 6057 | ISO12185 | 987.0 | | -0.59 |
| 864 | ISO12185 | 987.1 | | -0.40 | 6075 | ISO12185 | 881.2 | R(0.01) | -198.08 |
| 865 | D1298 | 987.4 | | 0.16 | 6092 | ISO12185 | 987.4 | | 0.16 |
| 866 | D1298 | 987.3 | | -0.03 | 6142 | ISO12185 | 988.0 | | 1.28 |
| 870 | D1298 | 987.4 | | 0.16 | 6180 | ISO12185 | 987.2 | | -0.22 |
| 875 | D1298 | 987.6 | | 0.53 | 6192 | ISO3675 | 987.2 | | -0.22 |
| 886 | D4052 | 989.3 | R(0.05) | 3.70 | | | | | |

| | |
|---|---|
| normality | not OK |
| n | 123 |
| outliers | 9 |
| mean (n) | 987.317 |
| st.dev. (n) | 0.4643 |
| R(calc.) | 1.300 |
| st.dev.(ISO12185:96) | 0.5357 |
| R(ISO12185:96) | 1.5 |

Lab 158 reported 0.988 kg/m$^3$
Lab 224 first reported 983.96
Lab 238 first reported 989.03
Lab 541 first reported 989.5
Lab 1006 first reported 0.9872 kg/m$^3$
Lab 1356 reported 0.9873 kg/m$^3$
Lab 1428 first reported 989.1
Lab 1720 first reported 985.7



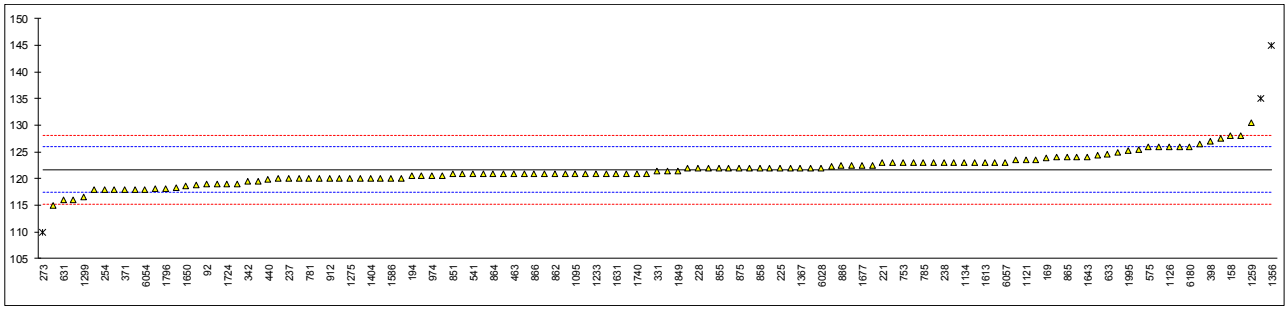



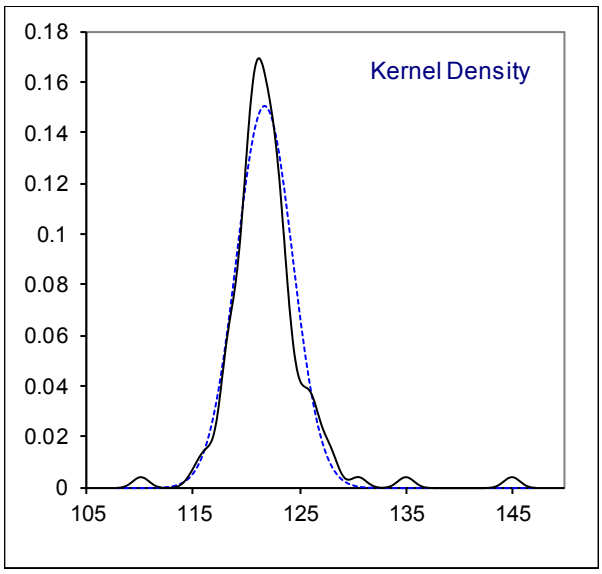
# Determination of Flash Point PMcc on sample #18105; results in °C

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D93-B | 120 | | -0.78 |
| 90 | D93-B | >110 | | ----- | 913 | D93-B | 122 | | 0.15 |
| 92 | D93-B | 119.0 | | -1.25 | 922 | D93-B | 123 | | 0.62 |
| 120 | ISO2719-B | >110 | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | ISO2719-B | 121.5 | | -0.08 |
| 132 | ISO2719-A | 121.0 | | -0.31 | 971 | ISO2719-B | 120.5 | | -0.55 |
| 140 | | ----- | | ----- | 974 | D93-B | 120.5 | | -0.55 |
| 150 | D93-A | >110.0 | | ----- | 982 | D93-B | 116.1 | | -2.60 |
| 154 | D93-B | 123.0 | | 0.62 | 1006 | D93-B | 122.5 | | 0.39 |
| 158 | D93-B | 128.0 | | 2.95 | 1011 | | ----- | | ----- |
| 159 | D93-B | >110 | | ----- | 1019 | | ----- | | ----- |
| 168 | D93-B | 118 | | -1.71 | 1059 | ISO2719-B | 121.0 | | -0.31 |
| 169 | D93-B | 123.9 | | 1.04 | 1095 | D93-B | 121.0 | | -0.31 |
| 171 | ISO2719-A | 126.5 | | 2.25 | 1107 | D93-B | 121.0 | | -0.31 |
| 175 | D93-B | 120 | | -0.78 | 1109 | D93-B | >100 | | ----- |
| 194 | D93-B | 120.5 | | -0.55 | 1121 | ISO2719-B | 123.5 | | 0.85 |
| 212 | ISO2719-B | 122.0 | | 0.15 | 1126 | ISO2719-A | 126 | | 2.02 |
| 221 | D93-B | 123 | | 0.62 | 1134 | D93-B | 123.0 | | 0.62 |
| 224 | D93-B | 118.2 | | -1.62 | 1135 | ISO2719-B | 123.0 | | 0.62 |
| 225 | D93-B | 122.0 | | 0.15 | 1161 | | ----- | | ----- |
| 228 | D93-B | 122 | | 0.15 | 1167 | ISO2719-B | 125.5 | | 1.79 |
| 237 | D93-B | 120.0 | | -0.78 | 1177 | | ----- | | ----- |
| 238 | D93-B | 123 | | 0.62 | 1233 | ISO2719-A | 121 | | -0.31 |
| 253 | D93-B | 120 | | -0.78 | 1259 | ISO2719-A | 130.5 | | 4.12 |
| 254 | D93-B | 118 | | -1.71 | 1266 | ISO2719-B | 120.0 | | -0.78 |
| 273 | D93-B | 110 | R(0.01) | -5.45 | 1269 | D93-B | 119.5 | | -1.01 |
| 313 | ISO2719-B | 122.0 | | 0.15 | 1275 | IP34-B | 120.0 | | -0.78 |
| 323 | ISO2719-B | 119.0 | | -1.25 | 1299 | D93-B | 116.5 | C | -2.41 |
| 331 | D93-B | 121.5 | | -0.08 | 1345 | D93-B | 120.0 | | -0.78 |
| 333 | ISO2719-B | 122.0 | | 0.15 | 1356 | | 145 | R(0.01) | 10.89 |
| 334 | ISO2719-B | 121.0 | | -0.31 | 1367 | D93-B | 122 | | 0.15 |
| 337 | | ----- | | ----- | 1402 | IP34-B | 121.0 | | -0.31 |
| 339 | | ----- | | ----- | 1404 | ISO2719-A | 120.0 | | -0.78 |
| 342 | ISO2719-B | 119.5 | | -1.01 | 1428 | ISO2719-B | 127.5 | | 2.72 |
| 343 | D93-B | 124 | | 1.09 | 1459 | ISO2719-A | 120.0 | | -0.78 |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO2719-B | 126.0 | | 2.02 | 1556 | ISO2719-B | 123.5 | | 0.85 |
| 371 | D93-B | 118.0 | | -1.71 | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | ISO2719-A | 120.0 | | -0.78 |
| 398 | ISO2719-B | 127 | C | 2.49 | 1613 | D93-B | 123.0 | | 0.62 |
| 399 | D93-B | 135.0 | R(0.01) | 6.22 | 1631 | ISO2719-A | 121 | | -0.31 |
| 440 | IP34-B | 119.9 | C | -0.83 | 1643 | D93-B | 124.1 | | 1.13 |
| 444 | | ----- | | ----- | 1650 | ISO2719-A | 118.7 | | -1.39 |
| 463 | D93-B | 121.0 | | -0.31 | 1677 | D93-B | 122.5 | | 0.39 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | D93-B | 119 | | -1.25 |
| 541 | D93-B | 121.00 | | -0.31 | 1728 | D93-B | 121 | | -0.31 |
| 557 | D93-B | 123.5 | | 0.85 | 1740 | ISO2719-B | 121 | | -0.31 |
| 562 | D93-B | 118.8 | | -1.34 | 1796 | D93-B | 118.2 | | -1.62 |
| 575 | D93-B | 126 | C | 2.02 | 1807 | ISO2719-A | 122.0 | | 0.15 |
| 603 | D93-B | 121 | | -0.31 | 1811 | ISO2719-A | 124.5 | | 1.32 |
| 604 | D93-B | 122 | | 0.15 | 1832 | ISO2719-B | 121.0 | C | -0.31 |
| 605 | D93-B | 118.0 | | -1.71 | 1833 | ISO2719-A | 119 | | -1.25 |
| 631 | D93-B | 116.0 | | -2.65 | 1849 | ISO2719-B | 121.5 | | -0.08 |
| 633 | D93-B | 124.6 | | 1.37 | 1906 | | ----- | | ----- |
| 663 | D93-B | 118.35 | | -1.55 | 1936 | | ----- | | ----- |
| 671 | D93-B | >110.0 | | ----- | 1937 | ISO2719-B | 123 | | 0.62 |
| 750 | D93-B | 121.0 | | -0.31 | 1938 | | ----- | | ----- |
| 753 | D93-B | 123.0 | | 0.62 | 1950 | ISO2719-B | 122.3 | | 0.29 |
| 759 | ISO2719-B | 123.0 | | 0.62 | 1956 | ISO2719-A | 125 | | 1.55 |
| 781 | ISO2719-B | 120.0 | | -0.78 | 1964 | | ----- | | ----- |
| 785 | ISO2719-B | 123.0 | | 0.62 | 1967 | D93-B | 122.5 | | 0.39 |
| 824 | ISO2719-B | 118.0 | | -1.71 | 1995 | D93-A | 125.2 | | 1.65 |
| 825 | D93-B | 120.0 | | -0.78 | 6016 | | ----- | | ----- |
| 850 | ISO2719-B | 123.0 | | 0.62 | 6026 | D93-B | 120.0 | | -0.78 |
| 851 | ISO2719-B | 121.0 | | -0.31 | 6028 | ISO2719-A | 122.0 | | 0.15 |
| 855 | D93-B | 122 | | 0.15 | 6039 | | ----- | | ----- |
| 858 | D93-B | 122.0 | | 0.15 | 6044 | ISO2719-A | 128 | | 2.95 |
| 862 | D93-B | 121.0 | | -0.31 | 6054 | D93-B | 118.0 | | -1.71 |
| 863 | D93-B | 121.0 | | -0.31 | 6057 | ISO2719-B | 123.0 | | 0.62 |
| 864 | D93-B | 121.0 | | -0.31 | 6075 | ISO2719-A | 126.0 | | 2.02 |
| 865 | D93-B | 124 | | 1.09 | 6092 | D93-B | 115 | | -3.11 |
| 866 | ISO2719-B | 121.0 | | -0.31 | 6142 | ISO2719-B | 120.5 | | -0.55 |
| 870 | D93-A | 122 | | 0.15 | 6180 | ISO2719-A | 126.0 | | 2.02 |
| 875 | D93-B | 122.0 | | 0.15 | 6192 | ISO2719-A | 124 | | 1.09 |
| 886 | D93-A | 122.5 | | 0.39 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 118 |
| outliers | 3 |
| mean (n) | 121.672 |
| st.dev. (n) | 2.6417 |
| R(calc.) | 7.397 |
| st.dev.(ISO2719-B:16) | 2.1429 |
| R(ISO2719-B:16) | 6 |

Lab 398 first reported 137
Lab 440 first reported 113.8
Lab 575 first reported 110
Lab 1299 first reported 106.5
Lab 1832 first reported 114.0



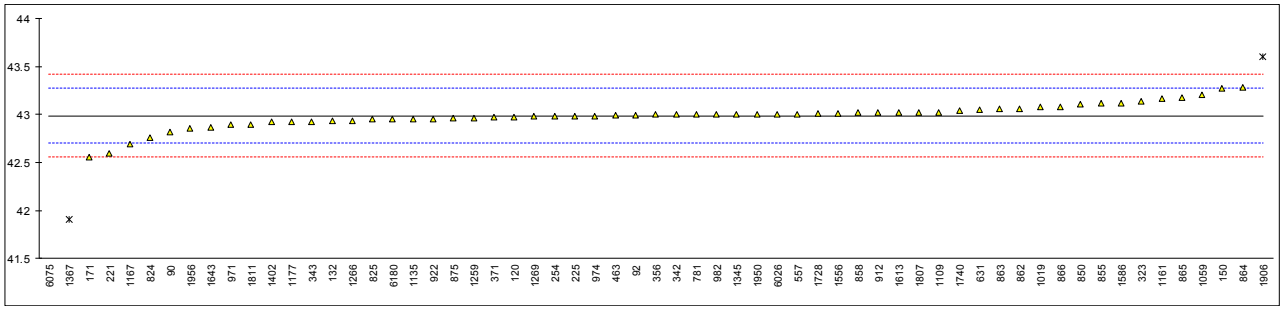



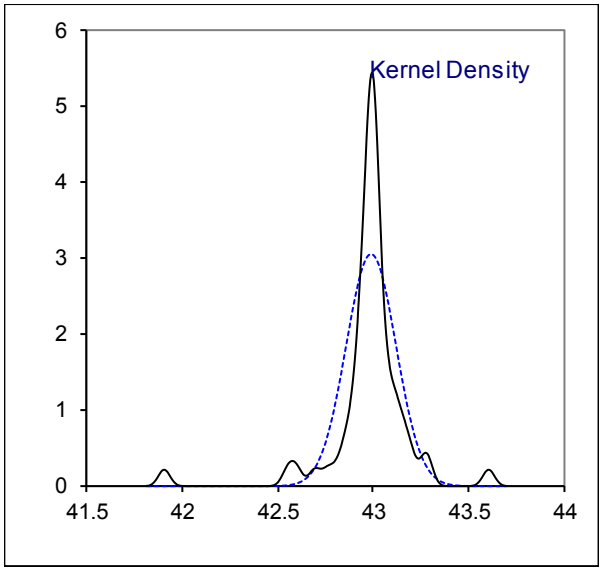
# Determination of Heat of Combustion Gross on sample #18105; results in MJ/kg

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | 43.02 | | 0.21 |
| 90 | D240 | 42.823 | | -1.17 | 913 | | ----- | | ----- |
| 92 | D240 | 42.998 | | 0.06 | 922 | D240 | 42.9612 | | -0.20 |
| 120 | D4868 | 42.98 | | -0.07 | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | | ----- | | ----- |
| 132 | | 42.940 | | -0.35 | 971 | D240 | 42.90 | | -0.63 |
| 140 | | ----- | | ----- | 974 | D4868 | 42.99 | | 0.00 |
| 150 | D240 | 43.273 | C | 1.98 | 982 | D4868 | 43 | | 0.07 |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | D240 | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | D4809 | 43.078 | | 0.62 |
| 168 | | ----- | | ----- | 1059 | D240 | 43.208 | | 1.53 |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | D240 | 42.555 | | -3.05 | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D4868 | 43.028 | | 0.27 |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | D4868 | 42.60 | | -2.73 | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D240 | 42.955 | | -0.25 |
| 225 | | 42.99 | | 0.00 | 1161 | D240 | 43.170 | | 1.26 |
| 228 | | ----- | | ----- | 1167 | DIN51900-2 | 42.695 | | -2.07 |
| 237 | | ----- | | ----- | 1177 | DIN51900-1/2 | 42.928 | | -0.43 |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | D4868 | 42.97 | | -0.14 |
| 254 | D4868 | 42.988 | | -0.01 | 1266 | | 42.94 | | -0.35 |
| 273 | | ----- | | ----- | 1269 | DIN51900-3 | 42.983 | | -0.05 |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | D240 | 43.140 | | 1.05 | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | | 43.00 | | 0.07 |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | 41.906 | C,R(0.01) | -7.59 |
| 337 | | ----- | | ----- | 1402 | D240 | 42.925 | | -0.46 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | D4868 | 43.000 | C | 0.07 | 1428 | | ----- | | ----- |
| 343 | | 42.932 | | -0.41 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | D4868 | 43.00 | | 0.07 | 1556 | D4868 | 43.011 | | 0.15 |
| 371 | D4868 | 42.977 | | -0.09 | 1569 | D240 | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | D240 | 43.121 | | 0.92 |
| 398 | | ----- | | ----- | 1613 | D240 | 43.020 | | 0.21 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D240 | 42.865 | | -0.88 |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D4868 | 42.996 | | 0.04 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1728 | D4868 | 43.01094 | | 0.15 |
| 557 | | 43.0001 | | 0.07 | 1740 | D240 | 43.040 | | 0.35 |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | 43.027 | | 0.26 |
| 603 | | ----- | | ----- | 1811 | | 42.90 | | -0.63 |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | | ----- | | ----- |
| 631 | D240 | 43.0514 | | 0.43 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | D4809 | 43.606 | R(0.01) | 4.31 |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | D4868 | 43.00 | | 0.07 |
| 759 | | ----- | | ----- | 1956 | | 42.864 | C | -0.88 |
| 781 | D4868 | 43.00 | | 0.07 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | | ----- | | ----- |
| 824 | D240 | 42.765 | | -1.58 | 1995 | | ----- | | ----- |
| 825 | | 42.9545 | | -0.25 | 6016 | | ----- | | ----- |
| 850 | GB/T384 | 43.114 | | 0.87 | 6026 | D4868 | 43.000 | | 0.07 |
| 851 | | ----- | | ----- | 6028 | D240 | ----- | | ----- |
| 855 | | 43.118 | C | 0.90 | 6039 | | ----- | | ----- |
| 858 | D4868 | 43.02 | | 0.21 | 6044 | | ----- | | ----- |
| 862 | D240 | 43.065 | | 0.52 | 6054 | | ----- | | ----- |
| 863 | D240 | 43.065 | | 0.52 | 6057 | | ----- | | ----- |
| 864 | D4868 | 43.286 | | 2.07 | 6075 | D4868 | 10.802 | R(0.01) | -225.32 |
| 865 | D240 | 43.175 | | 1.29 | 6092 | | ----- | | ----- |
| 866 | D240 | 43.084 | | 0.66 | 6142 | | ----- | | ----- |
| 870 | | ----- | | ----- | 6180 | | 42.9546 | | -0.25 |
| 875 | D4868 | 42.97 | | -0.14 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | not OK |
| n | 58 |
| outliers | 3 |
| mean (n) | 42.9901 |
| st.dev. (n) | 0.13054 |
| R(calc.) | 0.3655 |
| st.dev.(D240:17) | 0.14286 |
| R(D240:17) | 0.40 |

Lab 150 first reported 45.273
Lab 342 first reported 43000
Lab 855 first reported 40.663
Lab 1367 first reported 41906.15
Lab 1956 first reported 42.364



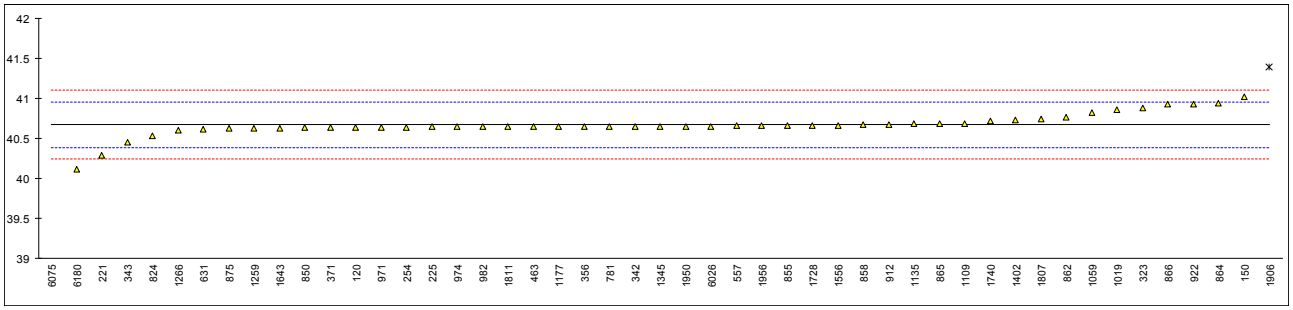



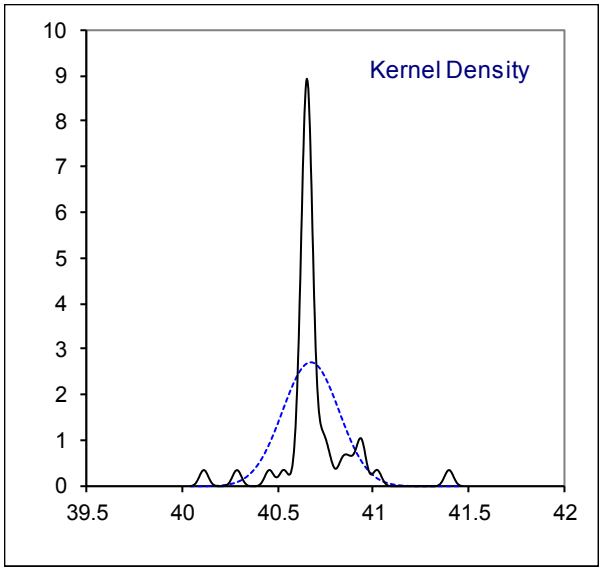
# Determination of Heat of Combustion Net on sample #18105; results in MJ/kg

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | 40.68 | | 0.03 |
| 90 | D240 | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | D240 | ----- | | ----- | 922 | D240 | 40.9355 | | 1.82 |
| 120 | D4868 | 40.64 | | -0.25 | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | | ----- | | ----- |
| 132 | | ----- | | ----- | 971 | D240 | 40.64 | | -0.25 |
| 140 | | ----- | | ----- | 974 | D4868 | 40.65 | | -0.18 |
| 150 | D240 | 41.021 | | 2.42 | 982 | D4868 | 40.65 | | -0.18 |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | D240 | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | D4809 | 40.859 | | 1.28 |
| 168 | | ----- | | ----- | 1059 | D240 | 40.833 | | 1.10 |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | D240 | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D4868 | 40.687 | | 0.08 |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | D4868 | 40.29 | | -2.70 | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D240 | 40.684 | | 0.06 |
| 225 | | 40.65 | | -0.18 | 1161 | D240 | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | DIN51900-2 | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | DIN51900-1/2 | 40.657 | | -0.13 |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | D4868 | 40.63 | | -0.32 |
| 254 | D4868 | 40.648 | | -0.19 | 1266 | | 40.61 | | -0.46 |
| 273 | | ----- | | ----- | 1269 | DIN51900-3 | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | D240 | 40.890 | | 1.50 | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | | 40.66 | | -0.11 |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | D240 | 40.735 | | 0.42 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | D4868 | 40.660 | C | -0.11 | 1428 | | ----- | | ----- |
| 343 | | 40.459 | | -1.52 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | D4868 | 40.66 | | -0.11 | 1556 | D4868 | 40.671 | | -0.03 |
| 371 | D4868 | 40.638 | | -0.26 | 1569 | D240 | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | D240 | ----- | | ----- |
| 398 | | ----- | | ----- | 1613 | D240 | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D240 | 40.637 | | -0.27 |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D4868 | 40.655 | | -0.14 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1728 | D4868 | 40.6683 | | -0.05 |
| 557 | | 40.6615 | | -0.10 | 1740 | D240 | 40.725 | | 0.35 |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | 40.751 | | 0.53 |
| 603 | | ----- | | ----- | 1811 | | 40.65 | | -0.18 |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | | ----- | | ----- |
| 631 | D4868 | 40.6200 | | -0.39 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | D4809 | 41.397 | R(0.01) | 5.05 |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | D4868 | 40.66 | | -0.11 |
| 759 | | ----- | | ----- | 1956 | | 40.662 | | -0.09 |
| 781 | D4868 | 40.66 | | -0.11 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | | ----- | | ----- |
| 824 | D240 | 40.534 | | -0.99 | 1995 | | ----- | | ----- |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | GB/T384 | 40.638 | | -0.26 | 6026 | D4868 | 40.660 | | -0.11 |
| 851 | | ----- | | ----- | 6028 | D240 | ----- | | ----- |
| 855 | GB/T384 | 40.663 | C | -0.09 | 6039 | | ----- | | ----- |
| 858 | D4868 | 40.68 | | 0.03 | 6044 | | ----- | | ----- |
| 862 | D240 | 40.775 | | 0.70 | 6054 | | ----- | | ----- |
| 863 | D240 | ----- | | ----- | 6057 | | ----- | | ----- |
| 864 | D4868 | 40.949 | | 1.91 | 6075 | D4868 | 10.441 | R(0.01) | -211.64 |
| 865 | D240 | 40.685 | | 0.07 | 6092 | | ----- | | ----- |
| 866 | ISO8217 | 40.93 | | 1.78 | 6142 | | ----- | | ----- |
| 870 | | ----- | | ----- | 6180 | | 40.117 | | -3.91 |
| 875 | D4868 | 40.63 | | -0.32 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | not OK |
| n | 47 |
| outliers | 2 |
| mean (n) | 40.6755 |
| st.dev. (n) | 0.14780 |
| R(calc.) | 0.4138 |
| st.dev.(D240:17) | 0.14286 |
| R(D240:17) | 0.40 |

Lab 342 first reported 40660
Lab 855 first reported 43.118



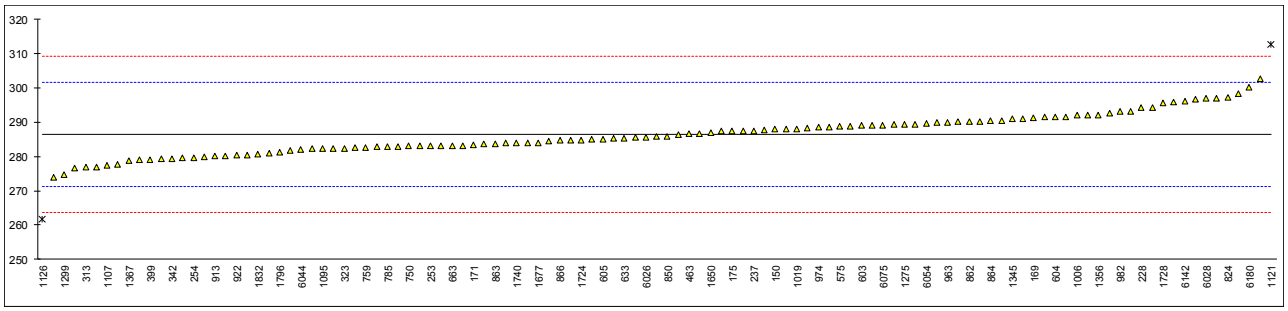



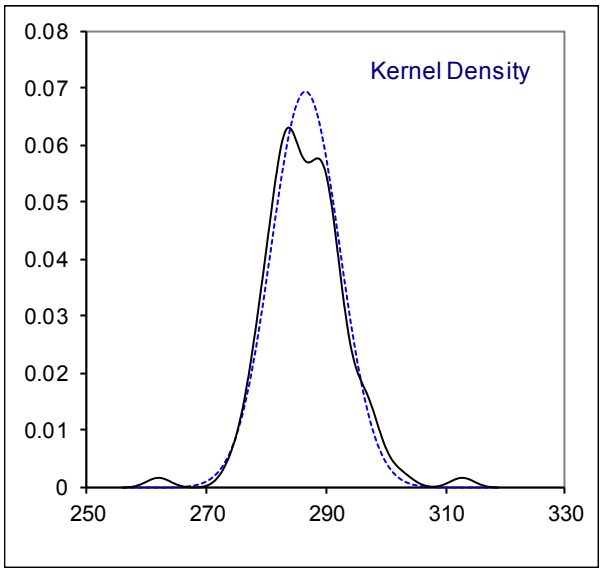
# Determination of Kinematic Viscosity at 50°C on sample #18105; results in mm²/s

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | D445 | 291.1 | | 0.61 | 912 | D445 | 292.2 | | 0.76 |
| 90 | D445 | 289.13 | | 0.35 | 913 | D445 | 280.1 | | -0.84 |
| 92 | D445 | 289.423 | | 0.39 | 922 | D445 | 280.5 | | -0.79 |
| 120 | ISO3104 | 281.9 | | -0.60 | 962 | | ----- | | ----- |
| 131 | D445 | 290.2 | | 0.49 | 963 | ISO3104 | 290.1 | | 0.48 |
| 132 | ISO3104 | 276.8 | | -1.28 | 971 | ISO3104 | 280.5 | | -0.79 |
| 140 | D445 | 285.3 | | -0.15 | 974 | D445 | 288.5 | | 0.27 |
| 150 | D445 | 288.0 | | 0.20 | 982 | D445 | 293.1 | | 0.88 |
| 154 | D445 | 285.5 | | -0.13 | 1006 | D445 | 292.0 | | 0.73 |
| 158 | | ----- | | ----- | 1011 | ISO3104 | 288.7 | | 0.30 |
| 159 | D445 | 286.8 | | 0.05 | 1019 | ISO3104 | 288.2 | | 0.23 |
| 168 | D445 | 282.6 | | -0.51 | 1059 | | ----- | | ----- |
| 169 | D445 | 291.1940 | | 0.63 | 1095 | ISO3104 | 282.3 | | -0.55 |
| 171 | ISO3104 | 283.4 | | -0.40 | 1107 | ISO3104 | 277.6 | | -1.17 |
| 175 | D445 | 287.48 | | 0.14 | 1109 | D445 | 287.60 | | 0.15 |
| 194 | D445 | 283.9 | | -0.34 | 1121 | ISO3104 | 312.7 | R(0.01) | 3.47 |
| 212 | ISO3104 | 286.4 | | -0.01 | 1126 | ISO3104 | 261.87 | R(0.01) | -3.25 |
| 221 | D445 | 293.2 | | 0.89 | 1134 | IP71 | 282.4535 | | -0.53 |
| 224 | | ----- | | ----- | 1135 | ISO3104 | 297.1 | | 1.41 |
| 225 | D445 | 285.1 | | -0.18 | 1161 | ISO3104 | 292.7 | | 0.83 |
| 228 | D445 | 294.18 | | 1.02 | 1167 | | ----- | | ----- |
| 237 | D445 | 287.62 | | 0.15 | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | ISO3104 | 290.6 | | 0.55 |
| 253 | D445 | 283.10 | | -0.44 | 1259 | ISO3104 | 283.1 | | -0.44 |
| 254 | D445 | 279.65 | | -0.90 | 1266 | ISO3104 | 296.0 | | 1.26 |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | ISO3104 | 276.9 | | -1.26 | 1275 | IP71 | 289.401 | | 0.39 |
| 323 | ISO3104 | 282.5 | | -0.52 | 1299 | D445 | 274.9 | | -1.53 |
| 331 | ISO3104 | 288.2 | | 0.23 | 1345 | D445 | 290.99 | | 0.60 |
| 333 | ISO3104 | 284.7 | | -0.23 | 1356 | ISO3104 | 292.230 | | 0.76 |
| 334 | ISO3104 | 282.8 | | -0.48 | 1367 | IP71 | 278.9 | | -1.00 |
| 337 | | ----- | | ----- | 1402 | IP71 | 279.8 | | -0.88 |
| 339 | | ----- | | ----- | 1404 | ISO3104 | 287.45 | | 0.13 |
| 342 | ISO3104 | 279.4 | | -0.93 | 1428 | ISO3104 | 289.4 | | 0.39 |
| 343 | ISO3104 | 279.0 | | -0.98 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO3104 | 283.1 | | -0.44 | 1556 | ISO3104 | 273.88 | | -1.66 |
| 371 | D445 | 279.29 | | -0.95 | 1569 | | ----- | | ----- |
| 391 | ISO3104 | 277 | | -1.25 | 1586 | ISO3104 | 283.8 | | -0.35 |
| 398 | | ----- | | ----- | 1613 | D445 | 294.38 | | 1.05 |
| 399 | D445 | 279.12 | | -0.97 | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D445 | 281.07 | | -0.71 |
| 444 | | ----- | | ----- | 1650 | ISO3104 | 287.11 | | 0.09 |
| 463 | ISO3104 | 286.73 | | 0.04 | 1677 | D445 | 283.94 | | -0.33 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | D445 | 284.7 | | -0.23 |
| 541 | D445 | 280.32 | | -0.81 | 1728 | D445 | 295.60 | | 1.21 |
| 557 | D445 | 277.685578 | | -1.16 | 1740 | ISO3104 | 283.9 | | -0.34 |
| 562 | | ----- | | ----- | 1796 | ISO3104 | 281.39 | | -0.67 |
| 575 | D445 | 288.905 | | 0.32 | 1807 | | ----- | | ----- |
| 603 | D445 | 289.1 | | 0.35 | 1811 | | ----- | | ----- |
| 604 | D445 | 291.64 | | 0.69 | 1832 | ISO3104 | 280.679 | | -0.76 |
| 605 | D445 | 285.2 | | -0.17 | 1833 | | ----- | | ----- |
| 631 | D445 | 287.82 | | 0.18 | 1849 | | ----- | | ----- |
| 633 | D445 | 285.41 | | -0.14 | 1906 | | ----- | | ----- |
| 663 | D445 | 283.17 | | -0.43 | 1936 | | ----- | | ----- |
| 671 | D445 | 296.74 | | 1.36 | 1937 | | ----- | | ----- |
| 750 | ISO3104 | 283.1 | | -0.44 | 1938 | | ----- | | ----- |
| 753 | D445 | 282.3 | | -0.55 | 1950 | ISO3104 | 285.8 | | -0.09 |
| 759 | ISO3104 | 282.7 | | -0.50 | 1956 | ISO3104 | 302.8 | | 2.16 |
| 781 | ISO3104 | 284.5 | | -0.26 | 1964 | | ----- | | ----- |
| 785 | ISO3104 | 282.8 | | -0.48 | 1967 | D445 | 283.29 | | -0.42 |
| 824 | ISO3104 | 297.2 | | 1.42 | 1995 | | ----- | | ----- |
| 825 | D445 | 298.51 | | 1.59 | 6016 | | ----- | | ----- |
| 850 | ISO3104 | 286.00 | | -0.06 | 6026 | D445 | 285.7464 | | -0.09 |
| 851 | ISO3104 | 288.3 | | 0.24 | 6028 | ISO3104 | 297.0 | C | 1.39 |
| 855 | D445 | 290.3 | | 0.51 | 6039 | | ----- | | ----- |
| 858 | D445 | 291.6 | | 0.68 | 6044 | ISO3104 | 282.05 | | -0.58 |
| 862 | D445 | 290.26 | | 0.50 | 6054 | D445 | 289.62 | | 0.42 |
| 863 | D445 | 283.83 | | -0.35 | 6057 | ISO3104 | 279.6 | | -0.91 |
| 864 | D445 | 290.6 | | 0.55 | 6075 | ISO3104 | 289.2 | | 0.36 |
| 865 | D445 | 289.9 | | 0.46 | 6092 | D445 | 283.92 | | -0.33 |
| 866 | ISO3104 | 284.68 | | -0.23 | 6142 | ISO3104 | 296.1738 | | 1.28 |
| 870 | D445 | 291.7 | | 0.69 | 6180 | ISO3104 | 300.26 | | 1.82 |
| 875 | D445 | 282.9 | | -0.47 | 6192 | | ----- | | ----- |
| 886 | D445 | 289 | | 0.34 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 113 |
| outliers | 2 |
| mean (n) | 286.4532 |
| st.dev. (n) | 5.73736 |
| R(calc.) | 16.0646 |
| st.dev.(ISO3104:94) | 7.57055 |
| R(ISO3104:94) | 21.20 |

Lab 6028 first reported 328.8



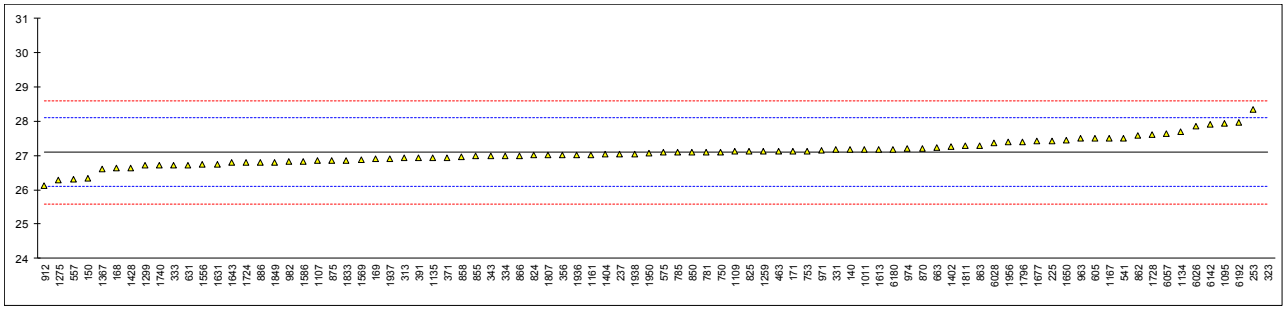



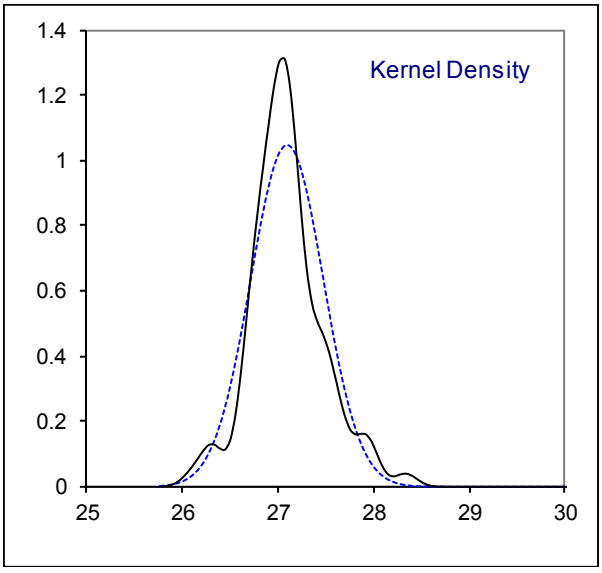
# Determination of Kinematic Viscosity at 100°C on sample #18105; results in mm²/s

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D445 | 26.12 | | -1.95 |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | | ----- | | ----- |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | ISO3104 | 27.51 | | 0.82 |
| 132 | | ----- | | ----- | 971 | ISO3104 | 27.15 | | 0.10 |
| 140 | D445 | 27.17 | | 0.14 | 974 | D445 | 27.20 | | 0.20 |
| 150 | D445 | 26.34 | | -1.51 | 982 | D445 | 26.82 | | -0.56 |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | ISO3104 | 27.18 | | 0.16 |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | D445 | 26.64 | | -0.92 | 1059 | | ----- | | ----- |
| 169 | D445 | 26.905 | | -0.39 | 1095 | ISO3104 | 27.94 | | 1.68 |
| 171 | ISO3104 | 27.14 | | 0.08 | 1107 | ISO3104 | 26.86 | | -0.48 |
| 175 | | ----- | | ----- | 1109 | D445 | 27.115 | | 0.03 |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | IP71 | 27.685 | C | 1.17 |
| 224 | | ----- | | ----- | 1135 | ISO3104 | 26.94 | | -0.32 |
| 225 | D445 | 27.44 | | 0.68 | 1161 | ISO3104 | 27.03 | | -0.14 |
| 228 | | ----- | | ----- | 1167 | ISO3104 | 27.51 | | 0.82 |
| 237 | D445 | 27.05 | | -0.10 | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | D445 | 28.34 | | 2.47 | 1259 | ISO3104 | 27.13 | | 0.06 |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | ISO3104 | 26.94 | | -0.32 | 1275 | IP71 | 26.299 | | -1.60 |
| 323 | ISO3104 | 39.90 | R(0.01) | 25.53 | 1299 | D445 | 26.72 | | -0.76 |
| 331 | ISO3104 | 27.17 | | 0.14 | 1345 | | ----- | | ----- |
| 333 | ISO3104 | 26.73 | | -0.74 | 1356 | | ----- | | ----- |
| 334 | ISO3104 | 26.99 | | -0.22 | 1367 | IP71 | 26.62 | | -0.96 |
| 337 | | ----- | | ----- | 1402 | IP71 | 27.26 | | 0.32 |
| 339 | | ----- | | ----- | 1404 | ISO3104 | 27.04 | | -0.12 |
| 342 | | ----- | | ----- | 1428 | ISO3104 | 26.65 | | -0.90 |
| 343 | ISO3104 | 26.98 | | -0.24 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO3104 | 27.02 | | -0.16 | 1556 | ISO3104 | 26.748 | | -0.70 |
| 371 | D445 | 26.952 | | -0.29 | 1569 | D445 | 26.89 | | -0.42 |
| 391 | ISO3104 | 26.94 | | -0.32 | 1586 | ISO3104 | 26.84 | | -0.52 |
| 398 | | ----- | | ----- | 1613 | D445 | 27.18 | | 0.16 |
| 399 | | ----- | | ----- | 1631 | ISO3104 | 26.759 | | -0.68 |
| 440 | | ----- | | ----- | 1643 | D445 | 26.79 | | -0.62 |
| 444 | | ----- | | ----- | 1650 | ISO3104 | 27.455 | | 0.71 |
| 463 | ISO3104 | 27.135 | | 0.07 | 1677 | D445 | 27.416 | | 0.63 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | D445 | 26.798 | | -0.60 |
| 541 | D445 | 27.515 | | 0.83 | 1728 | D445 | 27.630 | | 1.06 |
| 557 | D445 | 26.3238 | | -1.55 | 1740 | ISO3104 | 26.72 | | -0.76 |
| 562 | | ----- | | ----- | 1796 | ISO3104 | 27.402 | | 0.60 |
| 575 | D445 | 27.09 | | -0.02 | 1807 | ISO3104 | 27.01 | | -0.18 |
| 603 | | ----- | | ----- | 1811 | ISO3104 | 27.29 | | 0.38 |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | D445 | 27.51 | | 0.82 | 1833 | ISO3104 | 26.87 | | -0.46 |
| 631 | D445 | 26.734 | | -0.73 | 1849 | ISO3104 | 26.80 | | -0.60 |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | D445 | 27.239 | | 0.28 | 1936 | ISO3104 | 27.02 | | -0.16 |
| 671 | | ----- | | ----- | 1937 | ISO3104 | 26.91 | | -0.38 |
| 750 | ISO3104 | 27.10 | | 0.00 | 1938 | ISO3104 | 27.059 | | -0.08 |
| 753 | D445 | 27.14 | | 0.08 | 1950 | ISO3104 | 27.07 | | -0.06 |
| 759 | | ----- | | ----- | 1956 | ISO3104 | 27.4 | | 0.60 |
| 781 | ISO3104 | 27.10 | | 0.00 | 1964 | | ----- | | ----- |
| 785 | ISO3104 | 27.09 | | -0.02 | 1967 | | ----- | | ----- |
| 824 | ISO3104 | 27.01 | | -0.18 | 1995 | | ----- | | ----- |
| 825 | D445 | 27.121 | | 0.04 | 6016 | | ----- | | ----- |
| 850 | ISO3104 | 27.094 | | -0.01 | 6026 | D445 | 27.8697 | C | 1.54 |
| 851 | | ----- | | ----- | 6028 | ISO3104 | 27.36 | | 0.52 |
| 855 | D445 | 26.98 | | -0.24 | 6039 | | ----- | | ----- |
| 858 | D445 | 26.97 | | -0.26 | 6044 | | ----- | | ----- |
| 862 | D445 | 27.601 | | 1.00 | 6054 | | ----- | | ----- |
| 863 | D445 | 27.302 | | 0.40 | 6057 | ISO3104 | 27.65 | | 1.10 |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | | ----- | | ----- | 6092 | | ----- | | ----- |
| 866 | ISO3104 | 26.991 | | -0.22 | 6142 | ISO3104 | 27.9161 | | 1.63 |
| 870 | D445 | 27.202 | | 0.20 | 6180 | ISO3104 | 27.181 | | 0.16 |
| 875 | D445 | 26.87 | | -0.46 | 6192 | ISO3104 | 27.98 | | 1.76 |
| 886 | D445 | 26.8 | | -0.60 | | | | | |

| | |
|---|---|
| normality | suspect |
| n | 85 |
| outliers | 1 |
| mean (n) | 27.0995 |
| st.dev. (n) | 0.38004 |
| R(calc.) | 1.0641 |
| st.dev.(ISO3104:94) | 0.50142 |
| R(ISO3104:94) | 1.4040 |

Lab 1134 first reported 29.685
Lab 6026 first reported 28.8697

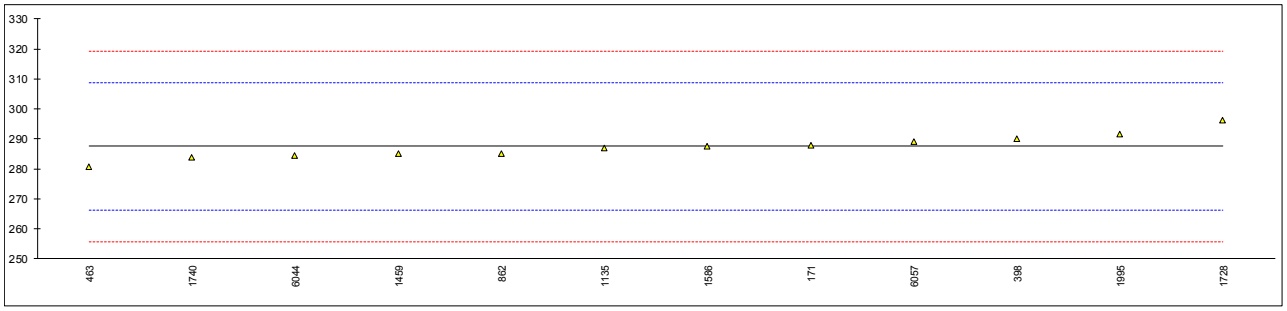


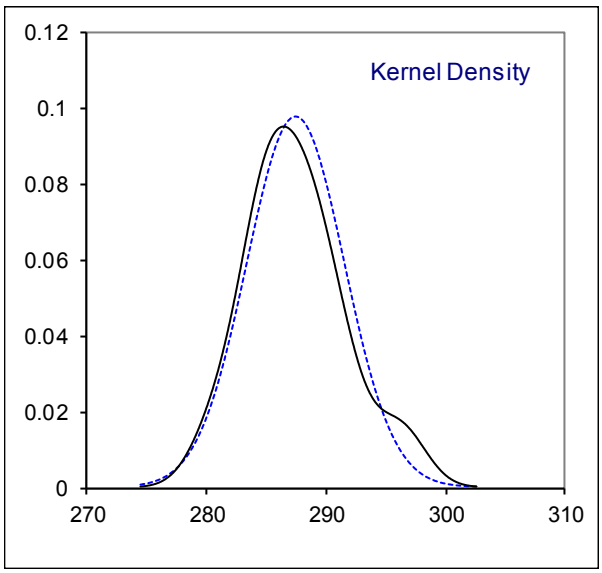



Determination of Viscosity Stabinger at 50°C on sample #18105; results in $mm^2/s$

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | | ----- | | ----- |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | | ----- | | ----- |
| 132 | | ----- | | ----- | 971 | | ----- | | ----- |
| 140 | | ----- | | ----- | 974 | | ----- | | ----- |
| 150 | | ----- | | ----- | 982 | | ----- | | ----- |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | D7042 | 288.0 | | 0.05 | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D7042 | 286.9 | | -0.05 |
| 225 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | | ----- | | ----- |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1459 | D7042 | 285.09 | | -0.23 |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 371 | | ----- | | ----- | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | D7042 | 287.7 | | 0.02 |
| 398 | D7042 | 290.2 | | 0.26 | 1613 | | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D7042 | 280.85 | | -0.63 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1728 | D7042 | 296.24 | | 0.83 |
| 557 | | ----- | | ----- | 1740 | D7042 | 283.8 | | -0.35 |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | | ----- | | ----- | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1995 | D7042 | 291.77 | | 0.41 |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | | ----- | | ----- |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | | ----- | | ----- | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | D7042 | 284.65 | | -0.27 |
| 862 | D7042 | 285.14 | | -0.22 | 6054 | | ----- | | ----- |
| 863 | | ----- | | ----- | 6057 | D7042 | 289.3 | | 0.17 |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | | ----- | | ----- | 6092 | | ----- | | ----- |
| 866 | | ----- | | ----- | 6142 | | ----- | | ----- |
| 870 | | ----- | | ----- | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 12 |
| outliers | 0 |
| mean (n) | 287.4700 |
| st.dev. (n) | 4.08102 |
| R(calc.) | 11.4269 |
| st.dev.(D7042:16e3) | 10.56452 |
| R(D7042:16e3) | 29.5807 |

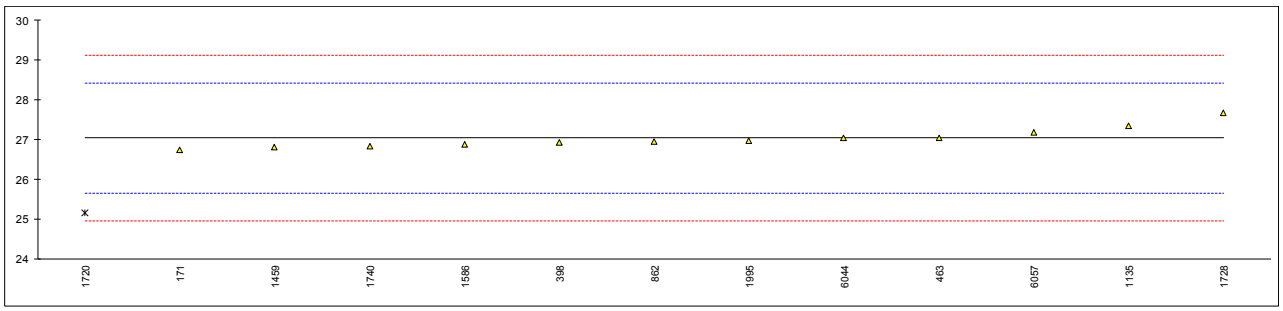


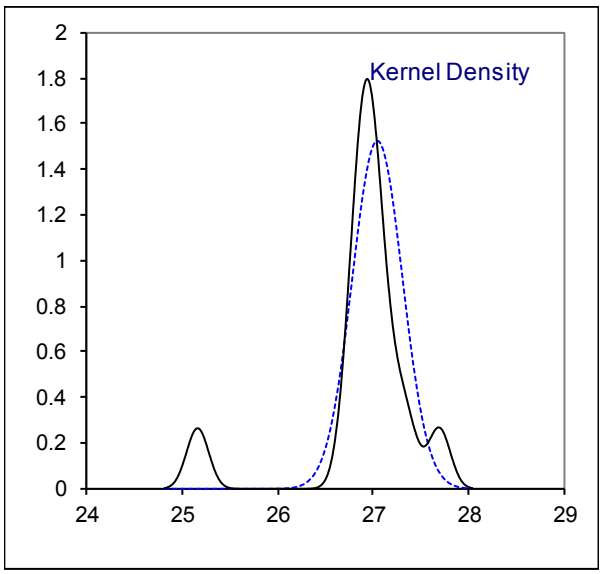



# Determination of Viscosity Stabinger at 100°C on sample #18105; results in $mm^2/s$

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | | ----- | | ----- |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | | ----- | | ----- |
| 132 | | ----- | | ----- | 971 | | ----- | | ----- |
| 140 | | ----- | | ----- | 974 | | ----- | | ----- |
| 150 | | ----- | | ----- | 982 | | ----- | | ----- |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | D7042 | 26.74 | | -0.44 | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D7042 | 27.35 | | 0.44 |
| 225 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | | ----- | | ----- |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1459 | D7042 | 26.83 | | -0.31 |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 371 | | ----- | | ----- | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | D7042 | 26.90 | | -0.21 |
| 398 | D7042 | 26.94 | | -0.15 | 1613 | | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D7042 | 27.065 | | 0.03 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | D7042 | 25.17 | D(0.01) | -2.70 |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1728 | D7042 | 27.689 | | 0.93 |
| 557 | | ----- | | ----- | 1740 | D7042 | 26.85 | | -0.28 |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | | ----- | | ----- | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1995 | D7042 | 26.981 | | -0.09 |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | | ----- | | ----- |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | | ----- | | ----- | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | D7042 | 27.05 | | 0.01 |
| 862 | D7042 | 26.950 | | -0.14 | 6054 | | ----- | | ----- |
| 863 | | ----- | | ----- | 6057 | D7042 | 27.19 | | 0.21 |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | | ----- | | ----- | 6092 | | ----- | | ----- |
| 866 | | ----- | | ----- | 6142 | | ----- | | ----- |
| 870 | | ----- | | ----- | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | not OK |
| n | 12 |
| outliers | 1 |
| mean (n) | 27.0446 |
| st.dev. (n) | 0.26140 |
| R(calc.) | 0.7319 |
| st.dev.(D7042:16e3) | 0.69408 |
| R(D7042:16e3) | 1.9434 |

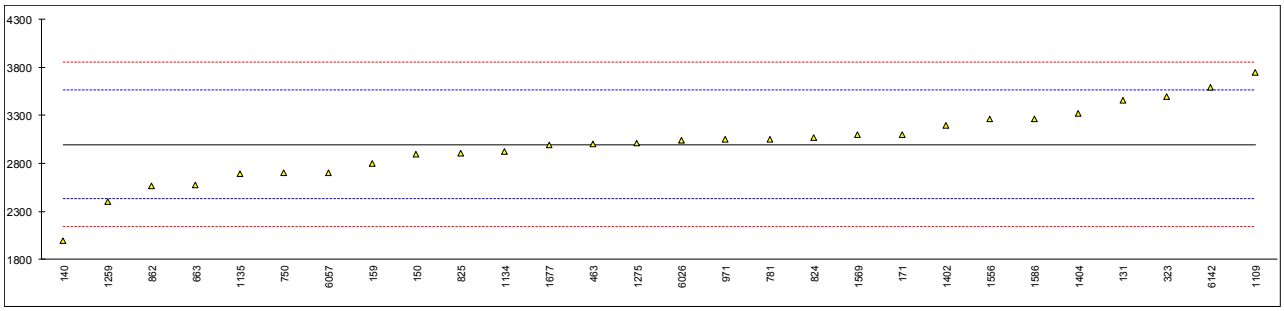


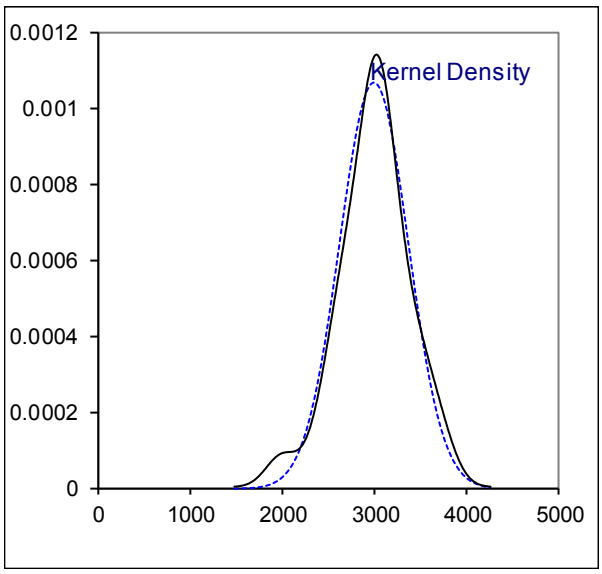



# Determination of Nitrogen on sample #18105; results in mg/kg

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | | ----- | | ----- |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | D4629 | 3459.33 | | 1.62 | 963 | | ----- | | ----- |
| 132 | | ----- | | ----- | 971 | D5762 Gravimetric | 3049 | | 0.18 |
| 140 | D5762 Gravimetric | 2000 | | -3.51 | 974 | | ----- | | ----- |
| 150 | D5762 Volumetric | 2900 | | -0.35 | 982 | | ----- | | ----- |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | D4629 | 2800 | | -0.70 | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | D5762 Volumetric | 3100 | | 0.36 | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D4629 | 3747 | | 2.63 |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | D5762 Gravimetric | 2923.704 | | -0.26 |
| 224 | | ----- | | ----- | 1135 | D5762 Volumetric | 2690.4 | | -1.08 |
| 225 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | D4629 | 2400 | | -2.10 |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | In house | 3013 | | 0.05 |
| 323 | D5762 Gravimetric | 3500 | | 1.76 | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | D5762 Volumetric | 3200 | | 0.71 |
| 339 | | ----- | | ----- | 1404 | D5762 Volumetric | 3325 | | 1.15 |
| 342 | | ----- | | ----- | 1428 | | ----- | | ----- |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | D5762 Volumetric | 3262 | | 0.92 |
| 371 | | ----- | | ----- | 1569 | D4629 | 3098 | | 0.35 |
| 391 | | ----- | | ----- | 1586 | D5762 Volumetric | 3267 | | 0.94 |
| 398 | | ----- | | ----- | 1613 | | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | D5762 Gravimetric | 3005 | | 0.02 | 1677 | D4629 | 2995 | | -0.01 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1728 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1740 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | D5762 Gravimetric | 2580 | | -1.47 | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | D5762 Gravimetric | 2700 | | -1.05 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | D3228 | 3057 | | 0.20 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | | ----- | | ----- |
| 824 | D5762 Gravimetric | 3070 | | 0.25 | 1995 | | ----- | | ----- |
| 825 | D5762 Gravimetric | 2910 | | -0.31 | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | D5762 Volumetric | 3039.65 | | 0.14 |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | | ----- | | ----- | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | | ----- | | ----- |
| 862 | D5762 Gravimetric | 2570 | | -1.50 | 6054 | | ----- | | ----- |
| 863 | | ----- | | ----- | 6057 | D5762 Gravimetric | 2703 | | -1.04 |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | | ----- | | ----- | 6092 | | ----- | | ----- |
| 866 | | ----- | | ----- | 6142 | D5762 Gravimetric | 3600 | | 2.11 |
| 870 | | ----- | | ----- | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | | D5762 Volumetric only | D5762 Gravimetric only |
|---|---|---|---|
| normality | OK | | |
| n | 28 | 8 | 12 |
| outliers | 0 | 0 | 0 |
| mean (n) | 2998.72 | 3098.01 | 2884.23 |
| st.dev. (n) | 372.963 | 215.851 | 427.457 |
| R(calc.) | 1044.30 | 604.38 | 1196.88 |
| st.dev.(D5762:18) | 284.878 | 284.878 | 284.878 |
| R(D5762:18) | 797.66 | 824.07 | 767.20 |



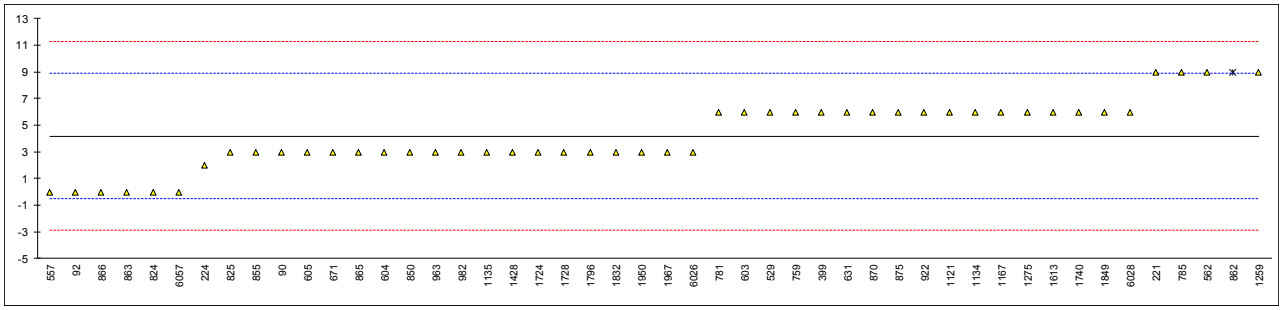



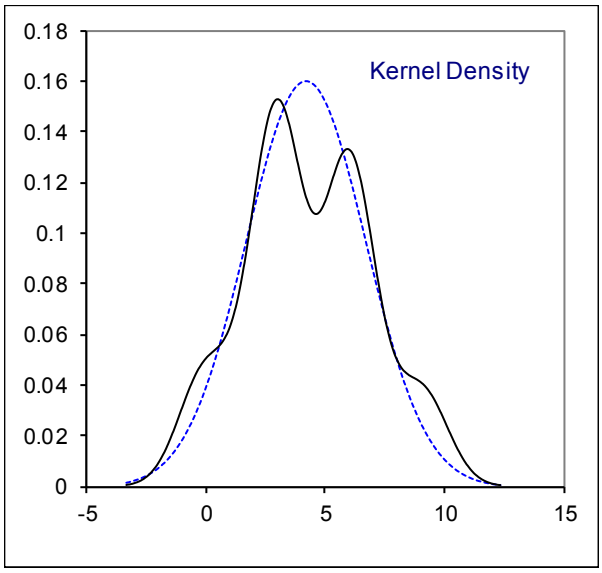
## Determination of Pour Point (Lower) on sample #18105; results in °C

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | D97 | 3 | | -0.51 | 913 | | ----- | | ----- |
| 92 | D97 | 0 | | -1.78 | 922 | D97 | 6 | | 0.77 |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | ISO3016 | 3 | | -0.51 |
| 132 | | ----- | | ----- | 971 | | ----- | | ----- |
| 140 | | ----- | | ----- | 974 | | ----- | | ----- |
| 150 | | ----- | | ----- | 982 | D97 | 3 | | -0.51 |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | ISO3016 | 6 | | 0.77 |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | D97 | 9 | | 2.04 | 1134 | D97 | 6 | | 0.77 |
| 224 | D97 | 2.0 | | -0.93 | 1135 | ISO3016 | 3 | | -0.51 |
| 225 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | ISO3016 | 6 | | 0.77 |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | ISO3016 | 9 | | 2.04 |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP15 | 6.0 | | 0.77 |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | | ----- | | ----- |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | ISO3016 | 3 | | -0.51 |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 371 | | ----- | | ----- | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | | ----- | | ----- |
| 398 | | ----- | | ----- | 1613 | D97 | 6.0 | | 0.77 |
| 399 | D97 | 6 | | 0.77 | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | D97 | 6 | | 0.77 | 1724 | D97 | 3 | | -0.51 |
| 541 | | ----- | | ----- | 1728 | D97 | 3 | | -0.51 |
| 557 | D97 | 0 | | -1.78 | 1740 | ISO3016 | 6 | | 0.77 |
| 562 | D97 | 9 | | 2.04 | 1796 | ISO3016 | 3 | | -0.51 |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | D97 | 6 | | 0.77 | 1811 | | ----- | | ----- |
| 604 | D97 | 3 | | -0.51 | 1832 | ISO3016 | 3 | | -0.51 |
| 605 | D97 | 3 | | -0.51 | 1833 | | ----- | | ----- |
| 631 | D97 | 6 | | 0.77 | 1849 | ISO3016 | 6 | | 0.77 |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | D97 | 3 | | -0.51 | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | ISO3016 | 3 | | -0.51 |
| 759 | ISO3016 | 6 | | 0.77 | 1956 | | ----- | | ----- |
| 781 | ISO3016 | 6 | | 0.77 | 1964 | | ----- | | ----- |
| 785 | ISO3016 | 9 | | 2.04 | 1967 | D97 | 3 | | -0.51 |
| 824 | ISO3016 | 0 | | -1.78 | 1995 | | ----- | | ----- |
| 825 | D97 | 3 | | -0.51 | 6016 | | ----- | | ----- |
| 850 | ISO3016 | 3 | | -0.51 | 6026 | D97 | 3 | | -0.51 |
| 851 | | ----- | | ----- | 6028 | D97 | 6 | | 0.77 |
| 855 | ISO3016 | 3 | | -0.51 | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | | ----- | | ----- |
| 862 | D97 | 9 | ex | 2.04 | 6054 | | ----- | | ----- |
| 863 | D97 | 0 | | -1.78 | 6057 | ISO3016 | 0 | | -1.78 |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | D97 | 3 | | -0.51 | 6092 | | ----- | | ----- |
| 866 | ISO3016 | 0 | | -1.78 | 6142 | | ----- | | ----- |
| 870 | D97 | 6 | | 0.77 | 6180 | | ----- | | ----- |
| 875 | D97 | 6 | | 0.77 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 47 |
| outliers | 0 (+1ex) |
| mean (n) | 4.19 |
| st.dev. (n) | 2.490 |
| R(calc.) | 6.97 |
| st.dev.(ISO3016:94) | 2.354 |
| R(ISO3016:94) | 6.59 |

Lab 862 test result excluded, PP lower> PP upper which is in principle not possible



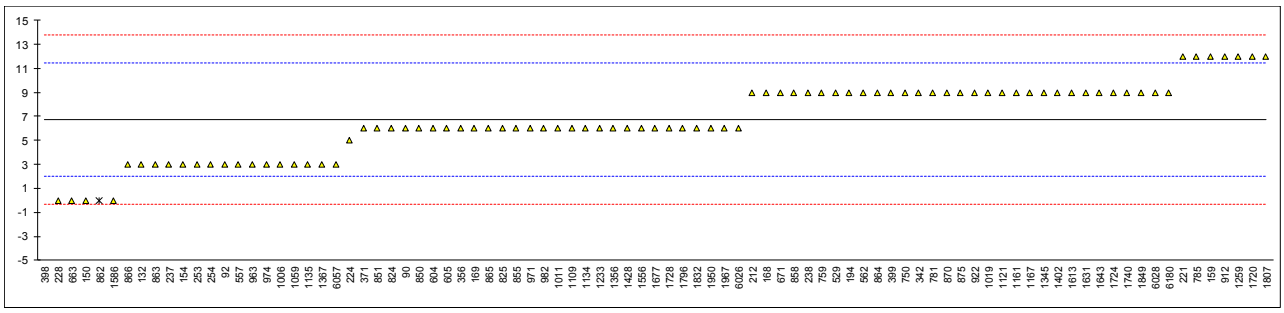



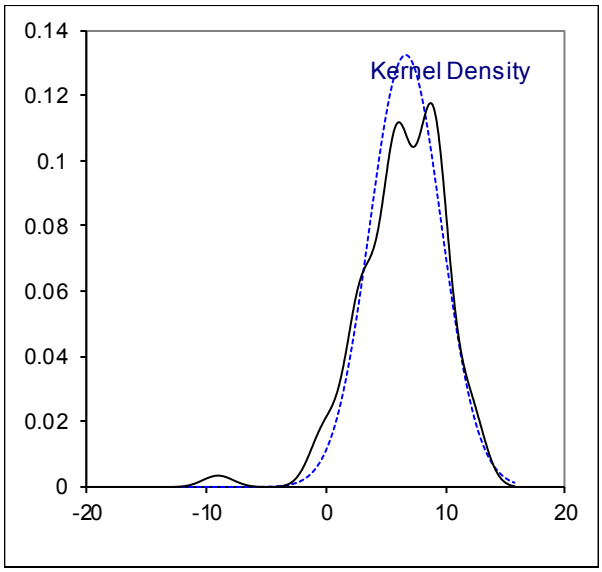
# Determination of Pour Point (Upper) on sample #18105; results in °C

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D97 | 12 | | 2.25 |
| 90 | D97 | 6 | | -0.30 | 913 | | ----- | | ----- |
| 92 | D97 | 3 | | -1.58 | 922 | D97 | 9 | | 0.97 |
| 120 | | ----- | | ----- | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | ISO3016 | 3 | | -1.58 |
| 132 | ISO3016 | 3 | | -1.58 | 971 | ISO3016 | 6 | | -0.30 |
| 140 | | ----- | | ----- | 974 | D97 | 3 | | -1.58 |
| 150 | D97 | 0 | | -2.85 | 982 | D97 | 6 | | -0.30 |
| 154 | D97 | 3 | | -1.58 | 1006 | D97 | 3 | | -1.58 |
| 158 | | ----- | | ----- | 1011 | D97 | 6 | | -0.30 |
| 159 | D97 | 12 | | 2.25 | 1019 | ISO3016 | 9 | | 0.97 |
| 168 | D97 | 9 | | 0.97 | 1059 | ISO3016 | 3 | | -1.58 |
| 169 | D97 | 6 | | -0.30 | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D97 | 6 | | -0.30 |
| 194 | D97 | 9 | | 0.97 | 1121 | ISO3016 | 9 | | 0.97 |
| 212 | ISO3016 | 9 | | 0.97 | 1126 | | ----- | | ----- |
| 221 | D97 | 12 | | 2.25 | 1134 | D97 | 6 | | -0.30 |
| 224 | D97 | 5.0 | | -0.73 | 1135 | ISO3016 | 3 | | -1.58 |
| 225 | | ----- | | ----- | 1161 | ISO3016 | 9 | | 0.97 |
| 228 | D97 | 0 | | -2.85 | 1167 | ISO3016 | 9 | | 0.97 |
| 237 | D97 | 3 | | -1.58 | 1177 | | ----- | | ----- |
| 238 | D97 | 9 | | 0.97 | 1233 | ISO3016 | 6 | | -0.30 |
| 253 | D97 | 3 | | -1.58 | 1259 | ISO3016 | 12 | | 2.25 |
| 254 | D97 | 3 | | -1.58 | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | D97 | 9 | | 0.97 |
| 333 | | ----- | | ----- | 1356 | ISO3016 | 6 | | -0.30 |
| 334 | | ----- | | ----- | 1367 | ISO3016 | 3 | | -1.58 |
| 337 | | ----- | | ----- | 1402 | D97 | 9 | | 0.97 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | ISO3016 | 9 | C | 0.97 | 1428 | ISO3016 | 6 | | -0.30 |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO3016 | 6 | | -0.30 | 1556 | ISO3016 | 6 | | -0.30 |
| 371 | D97 | 6 | | -0.30 | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | ISO3016 | 0 | | -2.85 |
| 398 | ISO3016 | -9 | R(0.01) | -6.68 | 1613 | D97 | 9.0 | | 0.97 |
| 399 | D97 | 9 | | 0.97 | 1631 | ISO3016 | 9 | | 0.97 |
| 440 | | ----- | | ----- | 1643 | D97 | 9 | | 0.97 |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1677 | D97 | 6 | | -0.30 |
| 511 | | ----- | | ----- | 1720 | D97 | 12 | | 2.25 |
| 529 | D97 | 9 | | 0.97 | 1724 | D97 | 9 | | 0.97 |
| 541 | | ----- | | ----- | 1728 | D97 | 6 | | -0.30 |
| 557 | D97 | 3 | | -1.58 | 1740 | ISO3016 | 9 | | 0.97 |
| 562 | D97 | 9 | | 0.97 | 1796 | ISO3016 | 6 | | -0.30 |
| 575 | | ----- | | ----- | 1807 | D97 | 12 | | 2.25 |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | D97 | 6 | | -0.30 | 1832 | ISO3016 | 6 | | -0.30 |
| 605 | D97 | 6 | | -0.30 | 1833 | | ----- | | ----- |
| 631 | | ----- | | ----- | 1849 | ISO3016 | 9 | | 0.97 |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | D97 | 0 | | -2.85 | 1936 | | ----- | | ----- |
| 671 | D97 | 9 | | 0.97 | 1937 | | ----- | | ----- |
| 750 | D97 | 9 | | 0.97 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | ISO3016 | 6 | | -0.30 |
| 759 | ISO3016 | 9 | | 0.97 | 1956 | | ----- | | ----- |
| 781 | ISO3016 | 9 | | 0.97 | 1964 | | ----- | | ----- |
| 785 | ISO3016 | 12 | | 2.25 | 1967 | D97 | 6 | | -0.30 |
| 824 | ISO3016 | 6 | | -0.30 | 1995 | | ----- | | ----- |
| 825 | D97 | 6 | | -0.30 | 6016 | | ----- | | ----- |
| 850 | ISO3016 | 6 | | -0.30 | 6026 | D97 | 6 | | -0.30 |
| 851 | ISO3016 | 6 | | -0.30 | 6028 | D97 | 9 | | 0.97 |
| 855 | D97 | 6 | | -0.30 | 6039 | | ----- | | ----- |
| 858 | D97 | 9 | | 0.97 | 6044 | | ----- | | ----- |
| 862 | D97 | 0 | ex | -2.85 | 6054 | | ----- | | ----- |
| 863 | D97 | 3 | | -1.58 | 6057 | ISO3016 | 3 | | -1.58 |
| 864 | D97 | 9 | | 0.97 | 6075 | | ----- | | ----- |
| 865 | D97 | 6 | | -0.30 | 6092 | | ----- | | ----- |
| 866 | ISO3016 | 3 | | -1.58 | 6142 | | ----- | | ----- |
| 870 | D97 | 9 | | 0.97 | 6180 | ISO3016 | 9 | | 0.97 |
| 875 | D97 | 9 | | 0.97 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 87 |
| outliers | 1 (+1ex) |
| mean (n) | 6.71 |
| st.dev. (n) | 3.004 |
| R(calc.) | 8.41 |
| st.dev.(ISO3016:94) | 2.354 |
| R(ISO3016:94) | 6.59 |

Lab 342 first reported -3
Lab 862 test result excluded, PP lower> PP upper which is in principle not possible



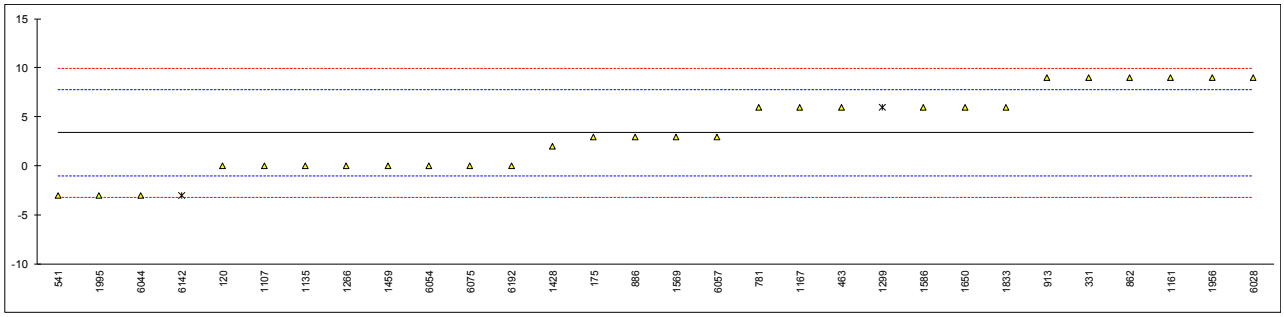



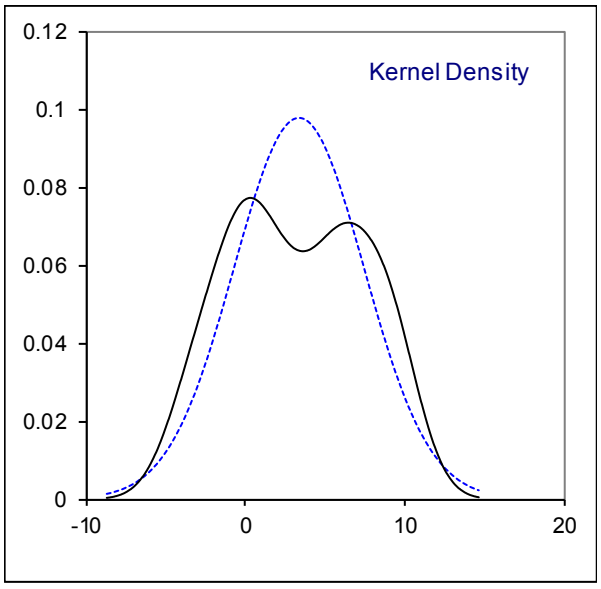
Determination of Pour Point (Automated), 3°C interval on sample #18105; results in °C

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | | ----- | | ----- | 913 | D6749 | 9 | | 2.57 |
| 92 | | ----- | | ----- | 922 | | ----- | | ----- |
| 120 | D5950 | 0 | | -1.56 | 962 | | ----- | | ----- |
| 131 | | ----- | | ----- | 963 | | ----- | | ----- |
| 132 | | ----- | | ----- | 971 | | ----- | | ----- |
| 140 | | ----- | | ----- | 974 | | ----- | | ----- |
| 150 | | ----- | | ----- | 982 | | ----- | | ----- |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | D5950 | 0 | | -1.56 |
| 175 | D5950 | 3 | | -0.18 | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D5950 | 0 | | -1.56 |
| 225 | | ----- | | ----- | 1161 | D6749 | 9 | | 2.57 |
| 228 | | ----- | | ----- | 1167 | D6749 | 6 | | 1.20 |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1266 | D5950 | 0.0 | | -1.56 |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | D97 | 6 | ex | 1.20 |
| 331 | D5950 | 9 | | 2.57 | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | | ----- | | ----- |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | D6749 | 2 | | -0.64 |
| 343 | | ----- | | ----- | 1459 | In house | 0.0 | | -1.56 |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 371 | | ----- | | ----- | 1569 | D5950 | 3 | | -0.18 |
| 391 | | ----- | | ----- | 1586 | D5950 | 6 | | 1.20 |
| 398 | | ----- | | ----- | 1613 | | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | D5950 | 6.0 | | 1.20 |
| 463 | D6892 | 6 | | 1.20 | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | D5950 | -3 | | -2.93 | 1728 | | ----- | | ----- |
| 557 | | ----- | | ----- | 1740 | | ----- | | ----- |
| 562 | | ----- | | ----- | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | D5950 | 6 | | 1.20 |
| 631 | | ----- | | ----- | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | | ----- | | ----- | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1956 | | 9 | | 2.57 |
| 781 | D5950 | 6 | | 1.20 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | | ----- | | ----- |
| 824 | | ----- | | ----- | 1995 | D5950 | -3 | | -2.93 |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | | ----- | | ----- |
| 851 | | ----- | | ----- | 6028 | D5950 | 9 | | 2.57 |
| 855 | | ----- | | ----- | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | D6749 | -3 | C | -2.93 |
| 862 | D5950 | 9 | | 2.57 | 6054 | D5950 | 0.0 | | -1.56 |
| 863 | | ----- | | ----- | 6057 | D5950 | 3 | | -0.18 |
| 864 | | ----- | | ----- | 6075 | NF T60-105 | 0 | | -1.56 |
| 865 | | ----- | | ----- | 6092 | | ----- | | ----- |
| 866 | | ----- | | ----- | 6142 | ISO3016 | -3 | ex | -2.93 |
| 870 | | ----- | | ----- | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | D5950 | 0 | | -1.56 |
| 886 | D5950 | 3 | | -0.18 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 28 |
| outliers | 0 (+2ex) |
| mean (n) | 3.39 |
| st.dev. (n) | 4.067 |
| R(calc.) | 11.39 |
| st.dev.(D5950:14) | 2.179 |
| R(D5950:14) | 6.1 |

Lab 6044 first reported -9
Lab 1295 and Lab 6142 test results excluded, manual method



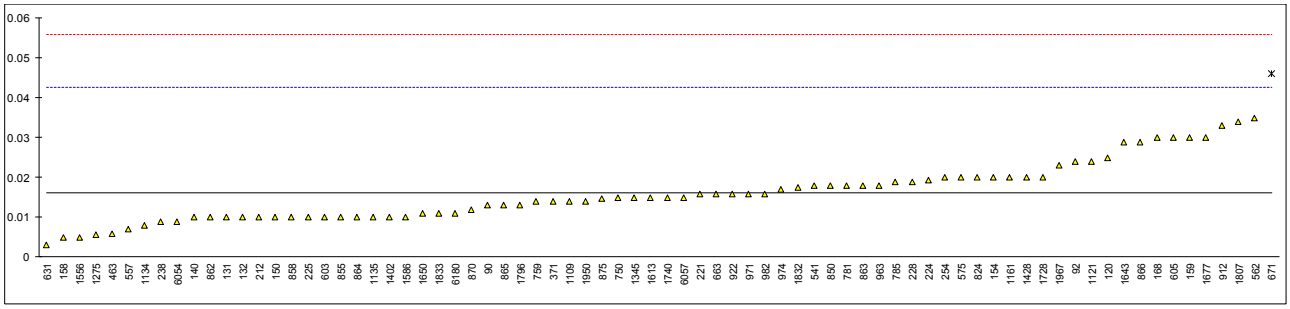



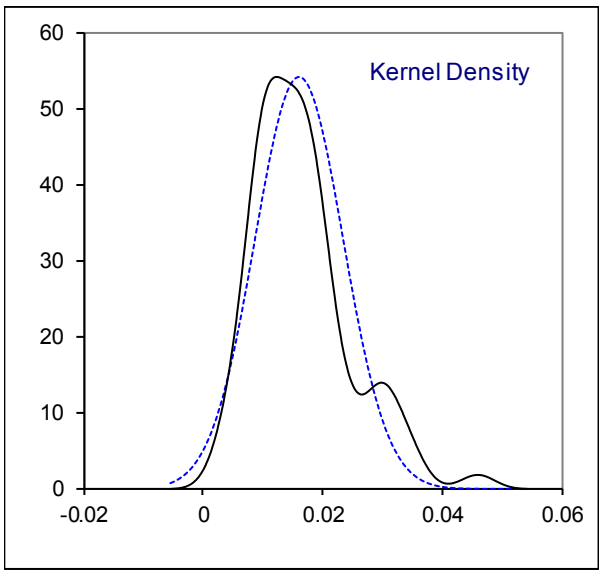
# Determination of Sediment by Extraction on sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D473 | 0.033 | | 1.28 |
| 90 | D473 | 0.013 | | -0.23 | 913 | | ----- | | ----- |
| 92 | D473 | 0.024 | | 0.60 | 922 | D473 | 0.016 | | -0.01 |
| 120 | D473 | 0.025 | | 0.67 | 962 | | ----- | | ----- |
| 131 | D473 | 0.01 | | -0.46 | 963 | D473 | 0.018 | | 0.15 |
| 132 | D473 | 0.01 | | -0.46 | 971 | ISO3735 | 0.016 | | -0.01 |
| 140 | D473 | 0.01 | | -0.46 | 974 | D473 | 0.017 | | 0.07 |
| 150 | D473 | 0.01 | | -0.46 | 982 | D473 | 0.016 | | -0.01 |
| 154 | D473 | 0.02 | | 0.30 | 1006 | | ----- | | ----- |
| 158 | D473 | 0.005 | | -0.84 | 1011 | | ----- | | ----- |
| 159 | D473 | 0.03 | | 1.05 | 1019 | | ----- | | ----- |
| 168 | D473 | 0.03 | | 1.05 | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D473 | 0.014 | | -0.16 |
| 194 | | ----- | | ----- | 1121 | ISO3735 | 0.024 | | 0.60 |
| 212 | D473 | 0.01 | | -0.46 | 1126 | | ----- | | ----- |
| 221 | D473 | 0.016 | | -0.01 | 1134 | IP53 | 0.008 | | -0.61 |
| 224 | D473 | 0.0193 | | 0.24 | 1135 | ISO3735 | 0.01 | | -0.46 |
| 225 | D473 | 0.010 | | -0.46 | 1161 | ISO3735 | 0.02 | | 0.30 |
| 228 | D473 | 0.019 | | 0.22 | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | D473 | 0.009 | | -0.53 | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | D473 | 0.02 | | 0.30 | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP53 | 0.0056 | | -0.79 |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | | ----- | | ----- | 1345 | D473 | 0.015 | | -0.08 |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | IP53 | 0.01 | | -0.46 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | D473 | 0.02 | | 0.30 |
| 343 | | ----- | | ----- | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | ISO3735 | 0.005 | | -0.84 |
| 371 | D473 | 0.014 | | -0.16 | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | ISO3735 | 0.01 | | -0.46 |
| 398 | | ----- | | ----- | 1613 | D473 | 0.015 | | -0.08 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | D473 | 0.02897 | | 0.97 |
| 444 | | ----- | | ----- | 1650 | D473 | 0.011 | | -0.38 |
| 463 | D473 | 0.006 | | -0.76 | 1677 | D473 | 0.0301 | | 1.06 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | D473 | 0.018 | | 0.15 | 1728 | D473 | 0.020 | | 0.30 |
| 557 | D473 | 0.00695908 | | -0.69 | 1740 | ISO3735 | 0.015 | | -0.08 |
| 562 | D473 | 0.035 | | 1.43 | 1796 | D473 | 0.013 | | -0.23 |
| 575 | D473 | 0.020 | | 0.30 | 1807 | D473 | 0.034 | | 1.35 |
| 603 | D473 | 0.01 | | -0.46 | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | ISO3735 | 0.0176 | | 0.12 |
| 605 | D473 | 0.03 | | 1.05 | 1833 | ISO3735 | 0.011 | | -0.38 |
| 631 | D473 | 0.003 | | -0.99 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | D473 | 0.016 | | -0.01 | 1936 | | ----- | | ----- |
| 671 | D473 | 0.046 | C,R(0.05) | 2.26 | 1937 | | ----- | | ----- |
| 750 | D473 | 0.015 | | -0.08 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | D473 | 0.014 | | -0.16 |
| 759 | D473 | 0.014 | | -0.16 | 1956 | | ----- | | ----- |
| 781 | D473 | 0.018 | | 0.15 | 1964 | | ----- | | ----- |
| 785 | D473 | 0.019 | | 0.22 | 1967 | D473 | 0.0231 | | 0.53 |
| 824 | D473 | 0.02 | | 0.30 | 1995 | | ----- | | ----- |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | D473 | 0.018 | | 0.15 | 6026 | | ----- | | ----- |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | D473 | 0.01 | | -0.46 | 6039 | | ----- | | ----- |
| 858 | D473 | 0.01 | | -0.46 | 6044 | | ----- | | ----- |
| 862 | D473 | 0.010 | | -0.46 | 6054 | D473 | 0.009 | | -0.53 |
| 863 | D473 | 0.018 | | 0.15 | 6057 | D473 | 0.015 | | -0.08 |
| 864 | D473 | 0.01 | | -0.46 | 6075 | | ----- | | ----- |
| 865 | D473 | 0.013 | | -0.23 | 6092 | | ----- | | ----- |
| 866 | D473 | 0.029 | | 0.98 | 6142 | | ----- | | ----- |
| 870 | D473 | 0.012 | | -0.31 | 6180 | D473 | 0.011 | | -0.38 |
| 875 | D473 | 0.0148 | | -0.10 | 6192 | | ----- | | ----- |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 75 |
| outliers | 1 |
| mean (n) | 0.0161 |
| st.dev. (n) | 0.00738 |
| R(calc.) | 0.0207 |
| st.dev.(D473:07e1) | 0.01325 |
| R(D473:07e1) | 0.0371 |

Lab 671 first reported 0.072

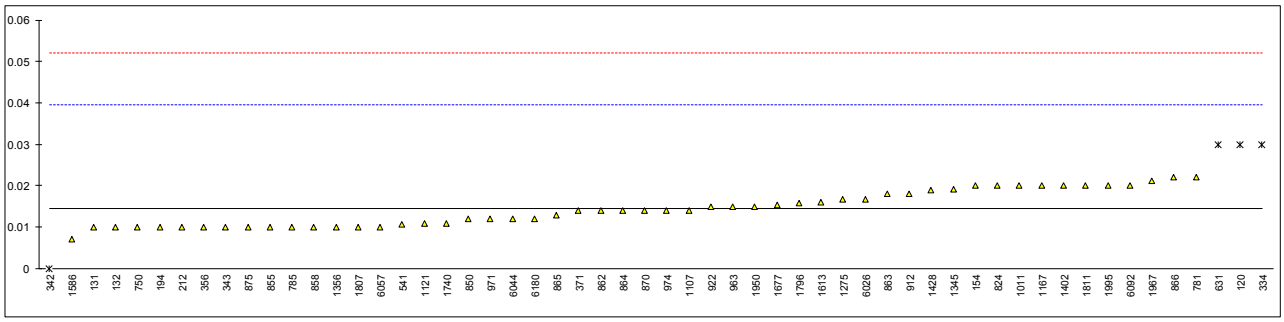


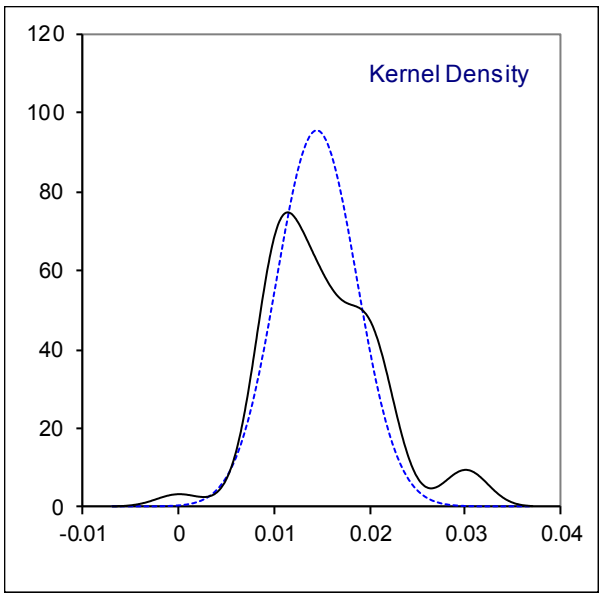



# Determination of Total Sediment (Hot filtration) of sample #18105; results in %M/M

| lab | method | value | mark | z(targ) |
|---|---|---|---|---|
| 62 | | ----- | | ----- |
| 90 | | ----- | | ----- |
| 92 | | ----- | | ----- |
| 120 | D4870 | 0.03 | R(0.05) | 1.24 |
| 131 | D4870 | 0.01 | | -0.35 |
| 132 | ISO10307-1 | 0.01 | | -0.35 |
| 140 | IP375 | <0.01 | | ----- |
| 150 | | ----- | | ----- |
| 154 | D4870 | 0.02 | | 0.44 |
| 158 | | ----- | | ----- |
| 159 | | ----- | | ----- |
| 168 | | ----- | | ----- |
| 169 | | ----- | | ----- |
| 171 | | ----- | | ----- |
| 175 | | ----- | | ----- |
| 194 | ISO10307-1 | 0.01 | | -0.35 |
| 212 | ISO10307-1 | 0.01 | | -0.35 |
| 221 | | ----- | | ----- |
| 224 | | ----- | | ----- |
| 225 | | ----- | | ----- |
| 228 | | ----- | | ----- |
| 237 | | ----- | | ----- |
| 238 | | ----- | | ----- |
| 253 | | ----- | | ----- |
| 254 | | ----- | | ----- |
| 273 | | ----- | | ----- |
| 313 | | ----- | | ----- |
| 323 | | ----- | | ----- |
| 331 | | ----- | | ----- |
| 333 | | ----- | | ----- |
| 334 | IP375 | 0.03 | R(0.05) | 1.24 |
| 337 | | ----- | | ----- |
| 339 | | ----- | | ----- |
| 342 | ISO10307-1 | 0.00 | R(0.05) | -1.14 |
| 343 | ISO10307-1 | 0.01 | | -0.35 |
| 349 | | ----- | | ----- |
| 356 | IP375 | 0.01 | | -0.35 |
| 371 | ISO10307-1 | 0.014 | | -0.03 |
| 391 | | ----- | | ----- |
| 398 | | ----- | | ----- |
| 399 | | ----- | | ----- |
| 440 | | ----- | | ----- |
| 444 | | ----- | | ----- |
| 463 | | ----- | | ----- |
| 511 | | ----- | | ----- |
| 529 | | ----- | | ----- |
| 541 | D4870 | 0.0106 | | -0.30 |
| 557 | | ----- | | ----- |
| 562 | | ----- | | ----- |
| 575 | | ----- | | ----- |
| 603 | | ----- | | ----- |
| 604 | | ----- | | ----- |
| 605 | | ----- | | ----- |
| 631 | D4870 | 0.0299 | R(0.05) | 1.23 |
| 633 | | ----- | | ----- |
| 663 | | ----- | | ----- |
| 671 | | ----- | | ----- |
| 750 | IP375 | 0.01 | | -0.35 |
| 753 | | ----- | | ----- |
| 759 | | ----- | | ----- |
| 781 | IP375 | 0.022 | | 0.60 |
| 785 | IP375 | 0.01 | | -0.35 |
| 824 | ISO10307-1 | 0.02 | | 0.44 |
| 825 | | ----- | | ----- |
| 850 | ISO10307-1 | 0.012 | | -0.19 |
| 851 | ISO10307-1 | <0.01 | | ----- |
| 855 | D4870 | 0.01 | | -0.35 |
| 858 | D4870 | 0.01 | | -0.35 |
| 862 | ISO10307-1 | 0.014 | | -0.03 |
| 863 | D4870 | 0.018 | | 0.28 |
| 864 | D4870 | 0.014 | | -0.03 |
| 865 | D4870 | 0.013 | | -0.11 |
| 866 | ISO10307-1 | 0.022 | | 0.60 |
| 870 | IP375 | 0.014 | | -0.03 |
| 875 | IP375 | 0.01 | | -0.35 |
| 886 | | ----- | | ----- |
| 912 | D4870 | 0.018 | | 0.28 |
| 913 | | ----- | | ----- |
| 922 | ISO10307-1 | 0.015 | | 0.05 |
| 962 | | ----- | | ----- |
| 963 | IP375 | 0.015 | | 0.05 |
| 971 | ISO10307-1 | 0.012 | | -0.19 |
| 974 | IP375 | 0.014 | | -0.03 |
| 982 | | ----- | | ----- |
| 1006 | | ----- | | ----- |
| 1011 | ISO10307-1 | 0.02 | | 0.44 |
| 1019 | | ----- | | ----- |
| 1059 | | ----- | | ----- |
| 1095 | | ----- | | ----- |
| 1107 | IP375 | 0.014 | | -0.03 |
| 1109 | | ----- | | ----- |
| 1121 | IP375 | 0.011 | | -0.27 |
| 1126 | | ----- | | ----- |
| 1134 | | ----- | | ----- |
| 1135 | ISO10307-1 | <0.01 | | ----- |
| 1161 | | ----- | | ----- |
| 1167 | ISO10307-1 | 0.02 | | 0.44 |
| 1177 | | ----- | | ----- |
| 1233 | | ----- | | ----- |
| 1259 | | ----- | | ----- |
| 1266 | | ----- | | ----- |
| 1269 | | ----- | | ----- |
| 1275 | IP375 | 0.0167 | | 0.18 |
| 1299 | ISO10307-1 | <0.01 | | ----- |
| 1345 | IP375 | 0.0191 | | 0.37 |
| 1356 | ISO10307-1 | 0.01 | | -0.35 |
| 1367 | IP375 | <0.01 | | ----- |
| 1402 | IP375 | 0.02 | | 0.44 |
| 1404 | | ----- | | ----- |
| 1428 | ISO10307-1 | 0.019 | | 0.36 |
| 1459 | | ----- | | ----- |
| 1510 | | ----- | | ----- |
| 1556 | | ----- | | ----- |
| 1569 | | ----- | | ----- |
| 1586 | ISO10307-1 | 0.007 | | -0.59 |
| 1613 | IP375 | 0.016 | | 0.13 |
| 1631 | | ----- | | ----- |
| 1643 | | ----- | | ----- |
| 1650 | | ----- | | ----- |
| 1677 | IP375 | 0.0154 | | 0.08 |
| 1720 | | ----- | | ----- |
| 1724 | | ----- | | ----- |
| 1728 | | ----- | | ----- |
| 1740 | ISO10307-1 | 0.011 | | -0.27 |
| 1796 | ISO10307-1 | 0.01575 | | 0.11 |
| 1807 | D4870 | 0.01 | | -0.35 |
| 1811 | IP375 | 0.02 | | 0.44 |
| 1832 | | ----- | | ----- |
| 1833 | | ----- | | ----- |
| 1849 | | ----- | | ----- |
| 1906 | | ----- | | ----- |
| 1936 | | ----- | | ----- |
| 1937 | | ----- | | ----- |
| 1938 | | ----- | | ----- |
| 1950 | IP375 | 0.015 | | 0.05 |
| 1956 | | ----- | | ----- |
| 1964 | | ----- | | ----- |
| 1967 | IP375 | 0.0212 | | 0.54 |
| 1995 | IP375 | 0.02 | | 0.44 |
| 6016 | | ----- | | ----- |
| 6026 | IP375 | 0.0167 | | 0.18 |
| 6028 | | ----- | | ----- |
| 6039 | | ----- | | ----- |
| 6044 | ISO10307-1 | 0.012 | | -0.19 |
| 6054 | | ----- | | ----- |
| 6057 | ISO10307-1 | 0.01 | | -0.35 |
| 6075 | | ----- | | ----- |
| 6092 | IP375 | 0.02 | | 0.44 |
| 6142 | | ----- | | ----- |
| 6180 | IP375 | 0.012 | | -0.19 |
| 6192 | | ----- | | ----- |

| | |
|---|---|
| normality | OK |
| n | 52 |
| outliers | 4 |
| mean (n) | 0.0144 |
| st.dev. (n) | 0.00417 |
| R(calc.) | 0.0117 |
| st.dev.(IP375:11) | 0.01261 |
| R(IP375:11) | 0.0353 |

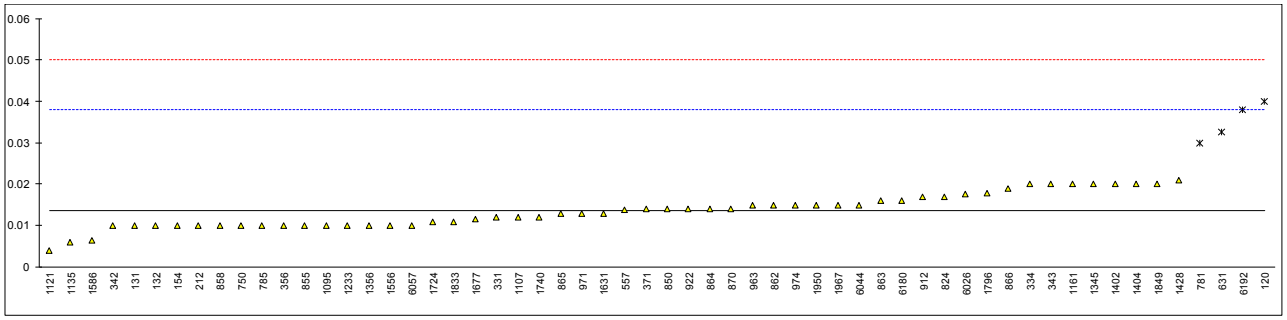


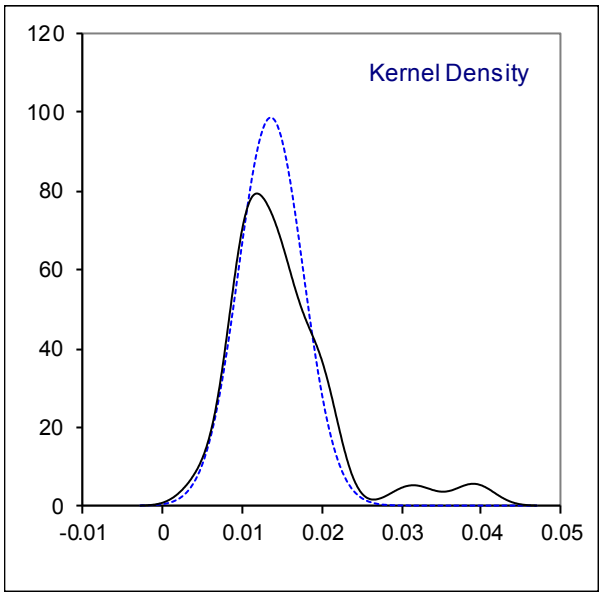



# Determination of Total Sediment (Accelerated) of sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D4870 | 0.017 | | 0.28 |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | ISO10307-2 | 0.014 | | 0.04 |
| 120 | D4870 | 0.04 | R(0.01) | 2.17 | 962 | | ----- | | ----- |
| 131 | D4870 | 0.01 | | -0.29 | 963 | IP390 | 0.015 | | 0.12 |
| 132 | ISO10307-2 | 0.01 | | -0.29 | 971 | ISO10307-2 | 0.013 | | -0.04 |
| 140 | | ----- | | ----- | 974 | IP390 | 0.015 | | 0.12 |
| 150 | | ----- | | ----- | 982 | | ----- | | ----- |
| 154 | D4870 | 0.01 | | -0.29 | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | ISO10307-2 | 0.01 | | -0.29 |
| 171 | | ----- | | ----- | 1107 | IP390 | 0.012 | | -0.12 |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | IP390 | 0.004 | | -0.78 |
| 212 | ISO10307-2 | 0.01 | | -0.29 | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | ISO10307-2 | 0.006 | | -0.62 |
| 225 | | ----- | | ----- | 1161 | ISO10307-2 | 0.02 | | 0.53 |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | ISO10307-2 | 0.01 | | -0.29 |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | | ----- | | ----- |
| 331 | ISO10307-2 | 0.012 | | -0.12 | 1345 | ISO10307-2 | 0.020 | | 0.53 |
| 333 | | ----- | | ----- | 1356 | ISO10307-2 | 0.01 | | -0.29 |
| 334 | IP390 | 0.02 | | 0.53 | 1367 | IP390 | <0.01 | | ----- |
| 337 | | ----- | | ----- | 1402 | IP390 | 0.02 | | 0.53 |
| 339 | | ----- | | ----- | 1404 | ISO10307-2 | 0.02 | | 0.53 |
| 342 | ISO10307-2 | 0.01 | | -0.29 | 1428 | ISO10307-2 | 0.021 | | 0.61 |
| 343 | IP390 | 0.02 | | 0.53 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | IP390 | 0.01 | | -0.29 | 1556 | ISO10307-2 | 0.01 | | -0.29 |
| 371 | ISO10307-2 | 0.014 | | 0.04 | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | ISO10307-2 | 0.0065 | | -0.58 |
| 398 | | ----- | | ----- | 1613 | | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | ISO10307-2 | 0.013 | | -0.04 |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1677 | IP390 | 0.0115 | | -0.17 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | IP390 | 0.011 | | -0.21 |
| 541 | | ----- | | ----- | 1728 | | ----- | | ----- |
| 557 | D4870 | 0.0139071 | | 0.03 | 1740 | ISO10307-2 | 0.012 | | -0.12 |
| 562 | | ----- | | ----- | 1796 | ISO10307-2 | 0.01775 | | 0.35 |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | ISO10307-2 | 0.011 | | -0.21 |
| 631 | D4870 | 0.0326 | R(0.01) | 1.56 | 1849 | ISO10307-2 | 0.02 | | 0.53 |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | IP390 | 0.01 | | -0.29 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | IP390 | 0.015 | | 0.12 |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | IP390 | 0.030 | R(0.05) | 1.35 | 1964 | | ----- | | ----- |
| 785 | IP390 | 0.01 | | -0.29 | 1967 | IP390 | 0.0150 | | 0.12 |
| 824 | ISO10307-2 | 0.017 | | 0.28 | 1995 | | ----- | | ----- |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | ISO10307-2 | 0.014 | | 0.04 | 6026 | IP390 | 0.0176 | | 0.33 |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | D4870 | 0.01 | | -0.29 | 6039 | | ----- | | ----- |
| 858 | D4870 | 0.01 | | -0.29 | 6044 | ISO10307-2 | 0.015 | | 0.12 |
| 862 | ISO10307-2 | 0.015 | | 0.12 | 6054 | | ----- | | ----- |
| 863 | D4870 | 0.016 | | 0.20 | 6057 | ISO10307-2 | 0.01 | | -0.29 |
| 864 | D4870 | 0.014 | | 0.04 | 6075 | | ----- | | ----- |
| 865 | IP390 | 0.013 | | -0.04 | 6092 | | ----- | | ----- |
| 866 | ISO10307-2 | 0.019 | | 0.45 | 6142 | | ----- | | ----- |
| 870 | IP390 | 0.014 | | 0.04 | 6180 | IP390 | 0.016 | | 0.20 |
| 875 | | ----- | | ----- | 6192 | ISO10307-2 | 0.038 | R(0.01) | 2.00 |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 54 |
| outliers | 4 |
| mean (n) | 0.0135 |
| st.dev. (n) | 0.00406 |
| R(calc.) | 0.0114 |
| st.dev.(IP390:11) | 0.01221 |
| R(IP390:11) | 0.0342 |

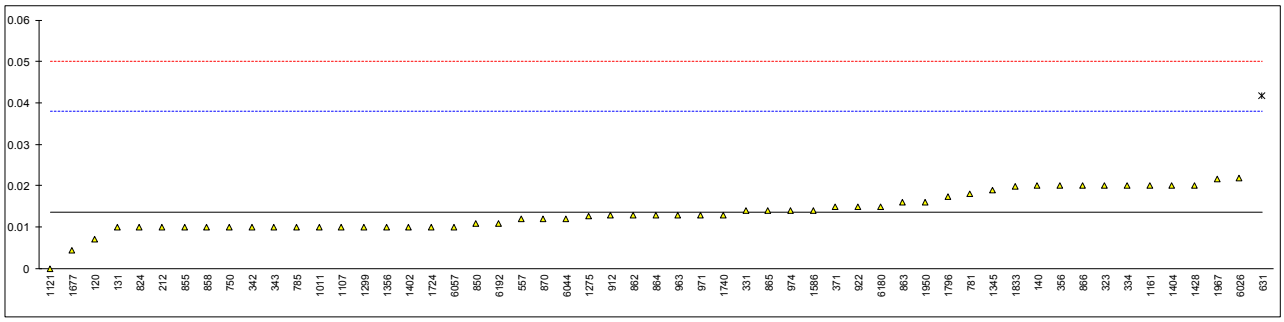


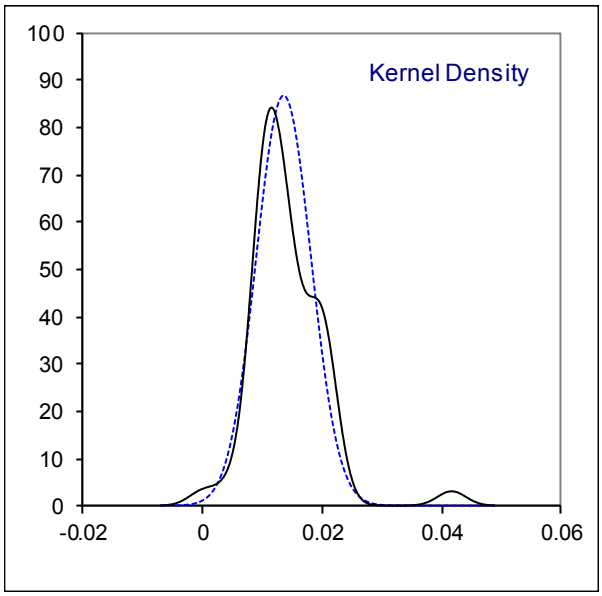



# Determination of Total Sediment (Potential) of sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D4870 | 0.013 | | -0.04 |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | | ----- | | ----- | 922 | ISO10307-2 | 0.015 | | 0.12 |
| 120 | D4870 | 0.007 | | -0.53 | 962 | | ----- | | ----- |
| 131 | D4870 | 0.01 | | -0.29 | 963 | IP390 | 0.013 | | -0.04 |
| 132 | | ----- | | ----- | 971 | ISO10307-2 | 0.013 | | -0.04 |
| 140 | IP390 | 0.02 | | 0.53 | 974 | IP390 | 0.014 | | 0.04 |
| 150 | | ----- | | ----- | 982 | | ----- | | ----- |
| 154 | | ----- | | ----- | 1006 | | ----- | | ----- |
| 158 | | ----- | | ----- | 1011 | ISO10307-2 | 0.01 | | -0.29 |
| 159 | | ----- | | ----- | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | | ----- | | ----- |
| 169 | | ----- | | ----- | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | IP390 | 0.010 | | -0.29 |
| 175 | | ----- | | ----- | 1109 | | ----- | | ----- |
| 194 | | ----- | | ----- | 1121 | IP390 | 0.000 | | -1.11 |
| 212 | ISO10307-2 | 0.01 | | -0.29 | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | ISO10307-2 | <0.01 | | ----- |
| 225 | | ----- | | ----- | 1161 | ISO10307-2 | 0.02 | | 0.53 |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | | ----- | | ----- |
| 254 | | ----- | | ----- | 1266 | | ----- | | ----- |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | IP390 | 0.0127 | | -0.07 |
| 323 | IP390 | 0.02 | | 0.53 | 1299 | ISO10307-2 | 0.01 | | -0.29 |
| 331 | ISO10307-2 | 0.014 | | 0.04 | 1345 | ISO10307-2 | 0.019 | | 0.45 |
| 333 | | ----- | | ----- | 1356 | ISO10307-2 | 0.01 | | -0.29 |
| 334 | IP390 | 0.02 | | 0.53 | 1367 | IP390 | <0.01 | | ----- |
| 337 | | ----- | | ----- | 1402 | IP390 | 0.01 | | -0.29 |
| 339 | | ----- | | ----- | 1404 | ISO10307-2 | 0.02 | | 0.53 |
| 342 | ISO10307-2 | 0.01 | | -0.29 | 1428 | ISO10307-2 | 0.020 | | 0.53 |
| 343 | ISO10307-2 | 0.01 | | -0.29 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | IP390 | 0.02 | | 0.53 | 1556 | | ----- | | ----- |
| 371 | IP390 | 0.015 | | 0.12 | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | ISO10307-2 | 0.014 | | 0.04 |
| 398 | | ----- | | ----- | 1613 | | ----- | | ----- |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | | ----- | | ----- |
| 463 | | ----- | | ----- | 1677 | IP390 | 0.0045 | | -0.74 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | IP390 | 0.01 | | -0.29 |
| 541 | | ----- | | ----- | 1728 | | ----- | | ----- |
| 557 | D4870 | 0.0119541 | | -0.13 | 1740 | ISO10307-2 | 0.013 | | -0.04 |
| 562 | | ----- | | ----- | 1796 | ISO10307-2 | 0.01743 | | 0.32 |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | | ----- | | ----- | 1833 | ISO10307-2 | 0.0198 | | 0.51 |
| 631 | D4870 | 0.0418 | R(0.01) | 2.31 | 1849 | | ----- | | ----- |
| 633 | | ----- | | ----- | 1906 | | ----- | | ----- |
| 663 | | ----- | | ----- | 1936 | | ----- | | ----- |
| 671 | | ----- | | ----- | 1937 | | ----- | | ----- |
| 750 | IP390 | 0.01 | | -0.29 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | IP390 | 0.016 | | 0.20 |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | IP390 | 0.018 | | 0.37 | 1964 | | ----- | | ----- |
| 785 | IP390 | 0.01 | | -0.29 | 1967 | IP390 | 0.0216 | | 0.66 |
| 824 | ISO10307-2 | 0.01 | | -0.29 | 1995 | | ----- | | ----- |
| 825 | | ----- | | ----- | 6016 | | ----- | | ----- |
| 850 | ISO10307-2 | 0.011 | | -0.21 | 6026 | IP390 | 0.0219 | | 0.68 |
| 851 | | ----- | | ----- | 6028 | | ----- | | ----- |
| 855 | D4870 | 0.01 | | -0.29 | 6039 | | ----- | | ----- |
| 858 | D4870 | 0.01 | | -0.29 | 6044 | ISO10307-2 | 0.012 | | -0.13 |
| 862 | ISO10307-2 | 0.013 | | -0.04 | 6054 | | ----- | | ----- |
| 863 | D4870 | 0.016 | | 0.20 | 6057 | ISO10307-2 | 0.01 | | -0.29 |
| 864 | D4870 | 0.013 | | -0.04 | 6075 | | ----- | | ----- |
| 865 | ISO10307-2 | 0.014 | | 0.04 | 6092 | | ----- | | ----- |
| 866 | ISO10307-2 | 0.020 | | 0.53 | 6142 | | ----- | | ----- |
| 870 | IP390 | 0.012 | | -0.13 | 6180 | IP390 | 0.015 | | 0.12 |
| 875 | | ----- | | ----- | 6192 | ISO10307-2 | 0.011 | | -0.21 |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 54 |
| outliers | 1 |
| mean (n) | 0.0135 |
| st.dev. (n) | 0.00460 |
| R(calc.) | 0.0129 |
| st.dev.(IP390:11) | 0.01222 |
| R(IP390:11) | 0.0342 |



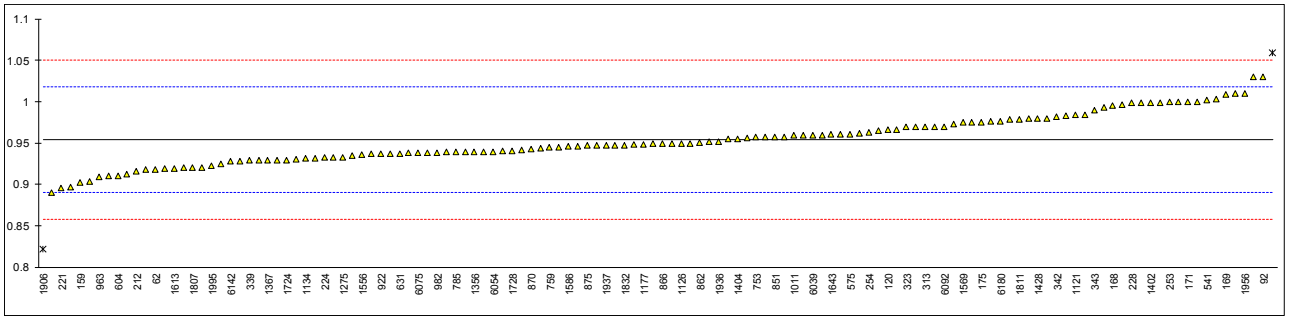



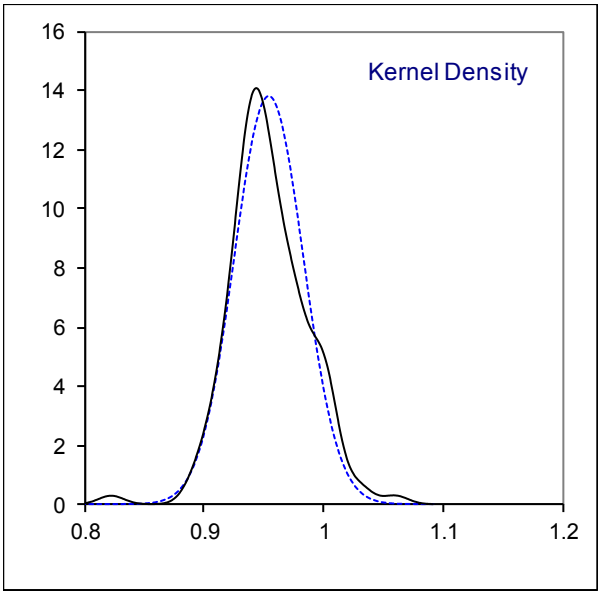
# Determination of Total Sulphur on sample #18105; results in %M/M

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | D4294 | 0.9184 | | -1.11 | 912 | D4294 | 0.904 | | -1.56 |
| 90 | D4294 | 0.9755 | | 0.67 | 913 | | ----- | | ----- |
| 92 | D4294 | 1.03 | | 2.37 | 922 | D4294 | 0.937 | | -0.53 |
| 120 | ISO8754 | 0.966 | | 0.37 | 962 | | ----- | | ----- |
| 131 | D4294 | 0.9995 | | 1.42 | 963 | ISO8754 | 0.9093 | | -1.40 |
| 132 | | ----- | | ----- | 971 | ISO8754 | 0.952 | | -0.06 |
| 140 | D4294 | 0.99354 | | 1.23 | 974 | D4294 | 0.947 | | -0.22 |
| 150 | D4294 | 0.977 | | 0.72 | 982 | D4294 | 0.939 | | -0.47 |
| 154 | D4294 | 0.979 | | 0.78 | 1006 | D2622 | 0.999 | | 1.41 |
| 158 | D4294 | 0.98281 | | 0.90 | 1011 | ISO8754 | 0.96 | | 0.19 |
| 159 | D4294 | 0.903 | | -1.59 | 1019 | D1552 | 0.918 | | -1.12 |
| 168 | D4294 | 0.996 | | 1.31 | 1059 | ISO14596Mod | 0.89 | | -2.00 |
| 169 | D4294 | 1.00889 | | 1.71 | 1095 | ISO8754 | 0.98 | | 0.81 |
| 171 | D4294 | 1.00 | | 1.44 | 1107 | ISO8754 | 0.925 | | -0.91 |
| 175 | D4294 | 0.976 | | 0.69 | 1109 | D4294 | 0.913 | | -1.28 |
| 194 | D4294 | 1.00 | | 1.44 | 1121 | ISO8754 | 0.984 | | 0.94 |
| 212 | ISO8754 | 0.916 | | -1.19 | 1126 | In house | 0.95 | | -0.13 |
| 221 | D4294 | 0.8963 | C | -1.80 | 1134 | IP336 | 0.9314 | | -0.71 |
| 224 | D4294 | 0.933 | | -0.66 | 1135 | ISO8754 | 0.933 | | -0.66 |
| 225 | D4294 | 0.97 | | 0.50 | 1161 | ISO8754 | 0.9419 | | -0.38 |
| 228 | D4294 | 0.999 | | 1.41 | 1167 | ISO8754 | 0.9580 | | 0.12 |
| 237 | D4294 | 0.95 | | -0.13 | 1177 | DIN10304-1 | 0.949 | | -0.16 |
| 238 | D4294 | 0.938 | | -0.50 | 1233 | ISO8754 | 0.91 | | -1.37 |
| 253 | D4294 | 1.0 | | 1.44 | 1259 | ISO8754 | 0.962 | | 0.25 |
| 254 | D4294 | 0.9631 | | 0.28 | 1266 | ISO8754 | 0.97 | | 0.50 |
| 273 | | ----- | | ----- | 1269 | In house | 1.01 | | 1.75 |
| 313 | ISO8754 | 0.97 | | 0.50 | 1275 | IP336 | 0.933 | | -0.66 |
| 323 | ISO8754 | 0.97 | | 0.50 | 1299 | D2622 | 0.94 | | -0.44 |
| 331 | | ----- | | ----- | 1345 | D4294 | 0.945 | | -0.28 |
| 333 | ISO8754 | 0.921 | | -1.03 | 1356 | ISO8754 | 0.940 | | -0.44 |
| 334 | | ----- | | ----- | 1367 | ISO8754 | 0.93 | C | -0.75 |
| 337 | D2622 | 1.03 | | 2.37 | 1402 | IP336 | 0.9990 | | 1.41 |
| 339 | In house | 0.93 | | -0.75 | 1404 | ISO8754 | 0.955 | | 0.03 |
| 342 | D4294 | 0.982 | | 0.87 | 1428 | ISO8754 | 0.98 | | 0.81 |
| 343 | IP336 | 0.99 | | 1.12 | 1459 | ISO8754 | 0.9438 | | -0.32 |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO8754 | 0.93 | | -0.75 | 1556 | ISO8754 | 0.936 | | -0.56 |
| 371 | D4294 | 0.997 | | 1.34 | 1569 | ISO8754 | 0.975 | | 0.66 |
| 391 | ISO8754 | 0.949 | | -0.16 | 1586 | ISO8754 | 0.946 | | -0.25 |
| 398 | ISO8754 | 0.941 | | -0.41 | 1613 | D4294 | 0.919 | | -1.09 |
| 399 | | ----- | | ----- | 1631 | ISO8754 | 0.93 | | -0.75 |
| 440 | | ----- | | ----- | 1643 | D1552 | 0.961 | | 0.22 |
| 444 | | ----- | | ----- | 1650 | ISO8754 | 0.957 | | 0.09 |
| 463 | ISO8754 | 0.935 | | -0.59 | 1677 | D4294 | 0.946 | | -0.25 |
| 511 | | ----- | | ----- | 1720 | D4294 | 0.897 | | -1.78 |
| 529 | | ----- | | ----- | 1724 | IP336 | 0.93 | | -0.75 |
| 541 | D4294 | 1.002 | | 1.50 | 1728 | D4294 | 0.941 | | -0.41 |
| 557 | D4294 | 0.98478 | | 0.96 | 1740 | ISO8754 | 0.95 | | -0.13 |
| 562 | | ----- | | ----- | 1796 | D4294 | 0.9392 | | -0.46 |
| 575 | D4294 | 0.9612 | | 0.22 | 1807 | ISO8754 | 0.92 | | -1.06 |
| 603 | | ----- | | ----- | 1811 | ISO8754 | 0.979 | | 0.78 |
| 604 | D4294 | 0.911 | | -1.34 | 1832 | ISO8754 | 0.948 | | -0.19 |
| 605 | D4294 | 0.931 | | -0.72 | 1833 | ISO8754 | 0.96 | | 0.19 |
| 631 | D4294 | 0.93785 | | -0.50 | 1849 | ISO8754 | 1.00 | | 1.44 |
| 633 | | ----- | | ----- | 1906 | D5623 | 0.822 | R(0.01) | -4.12 |
| 663 | D4294 | 0.9190 | | -1.09 | 1936 | ISO8754 | 0.952 | | -0.06 |
| 671 | D4294 | 1.003 | | 1.53 | 1937 | ISO8754 | 0.947 | | -0.22 |
| 750 | D4294 | 0.932 | | -0.69 | 1938 | ISO8754 | 0.940 | | -0.44 |
| 753 | ISO8754 | 0.957 | | 0.09 | 1950 | ISO8754 | 0.928 | | -0.81 |
| 759 | ISO8754 | 0.945 | | -0.28 | 1956 | ISO8754 | 1.01 | | 1.75 |
| 781 | ISO8754 | 0.920 | | -1.06 | 1964 | | ----- | | ----- |
| 785 | ISO8754 | 0.94 | | -0.44 | 1967 | D4294 | 0.965 | | 0.34 |
| 824 | ISO8754 | 0.967 | | 0.41 | 1995 | D4294 | 0.923 | | -0.97 |
| 825 | D4294 | 0.973 | | 0.59 | 6016 | | ----- | | ----- |
| 850 | D4294 | 0.937 | | -0.53 | 6026 | D4294 | 0.956 | | 0.06 |
| 851 | ISO8754 | 0.9572 | | 0.10 | 6028 | ISO8754 | 0.98 | C | 0.81 |
| 855 | D4294 | 0.948 | | -0.19 | 6039 | ISO8754 | 0.96 | | 0.19 |
| 858 | D4294 | 0.939 | | -0.47 | 6044 | D4294 | 0.961 | | 0.22 |
| 862 | D4294 | 0.951 | | -0.09 | 6054 | D4294 | 0.94 | | -0.44 |
| 863 | D4294 | 0.950 | | -0.13 | 6057 | ISO8754 | 0.96 | | 0.19 |
| 864 | D4294 | 0.937 | | -0.53 | 6075 | ISO8754 | 0.938 | | -0.50 |
| 865 | D4294 | 0.955 | | 0.03 | 6092 | D4294 | 0.97 | | 0.50 |
| 866 | ISO8754 | 0.950 | | -0.13 | 6142 | ISO8754 | 0.9279 | | -0.82 |
| 870 | D4294 | 0.9427 | | -0.35 | 6180 | ISO8754 | 0.977 | | 0.72 |
| 875 | D4294 | 0.947 | | -0.22 | 6192 | ISO8754 | 1.06 | C,R(0.05) | 3.31 |
| 886 | | ----- | | ----- | | | | | |

| | |
|---|---|
| normality | OK |
| n | 130 |
| outliers | 2 |
| mean (n) | 0.9540 |
| st.dev. (n) | 0.02889 |
| R(calc.) | 0.0809 |
| st.dev.(ISO8754:03) | 0.03202 |
| R(ISO8754:03) | 0.0896 |
| Compare | |
| R(D4294:16e1) | 0.0705 |

Lab 221 first reported 2.1897
Lab 1367 first reported 0.093
Lab 6028 first reported 2.1
Lab 6192 first reported 1.36

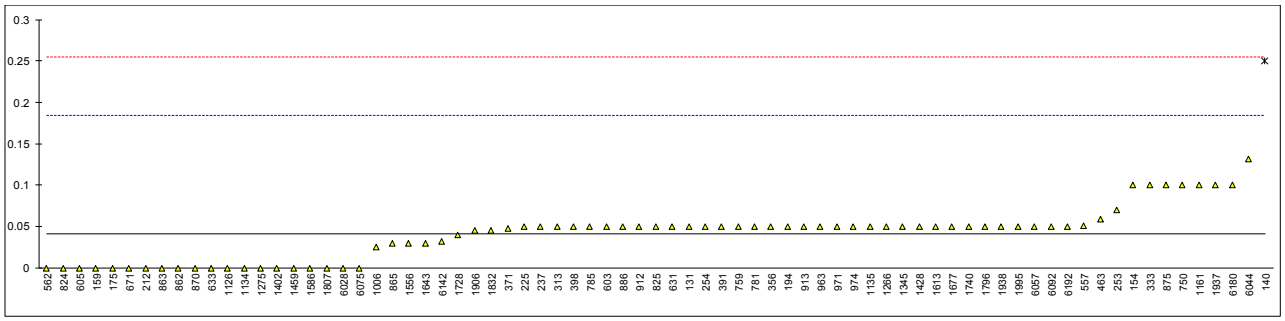


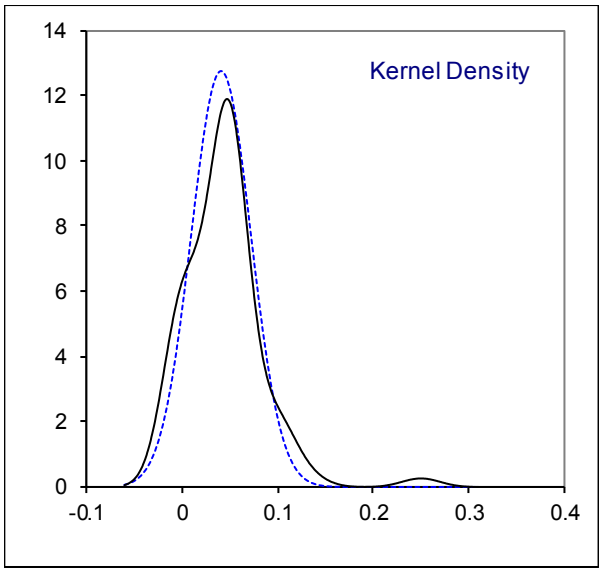



# Determination of Water by distillation on sample #18105; results in %V/V

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | D95 | 0.05 | | 0.13 |
| 90 | D95 | <0.1 | | ----- | 913 | D95 | 0.05 | | 0.13 |
| 92 | D95 | <0.05 | | ----- | 922 | D95 | <0.05 | | ----- |
| 120 | ISO3733 | <0.05 | | ----- | 962 | | ----- | | ----- |
| 131 | D95 | 0.05 | | 0.13 | 963 | ISO3733 | 0.05 | | 0.13 |
| 132 | ISO3733 | <0.025 | | ----- | 971 | ISO3733 | 0.05 | | 0.13 |
| 140 | D95 | 0.25 | R(0.01) | 2.93 | 974 | D95 | 0.05 | | 0.13 |
| 150 | D95 | <0.05 | | ----- | 982 | D95 | <0.05 | | ----- |
| 154 | D95 | 0.1 | | 0.83 | 1006 | D95 | 0.025 | | -0.22 |
| 158 | | ----- | | ----- | 1011 | ISO3733 | <0.10 | | ----- |
| 159 | D95 | 0.0 | | -0.57 | 1019 | ISO3733 | <0,1 | | ----- |
| 168 | | ----- | | ----- | 1059 | ISO3733 | <0,05 | | ----- |
| 169 | | ----- | | ----- | 1095 | D95 | <0.1 | | ----- |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | D95 | 0.0 | | -0.57 | 1109 | D95 | <0.05 | | ----- |
| 194 | D95 | 0.05 | | 0.13 | 1121 | ISO3733 | <0.05 | | ----- |
| 212 | ISO3733 | 0.00 | | -0.57 | 1126 | ISO3733 | 0.00 | | -0.57 |
| 221 | D95 | <0.05 | | ----- | 1134 | IP74 | 0.00 | | -0.57 |
| 224 | | ----- | | ----- | 1135 | ISO3733 | 0.05 | | 0.13 |
| 225 | D95 | 0.05 | | 0.13 | 1161 | EN1428 | 0.1 | | 0.83 |
| 228 | D95 | <0.05 | | ----- | 1167 | EN1428 | <0.1 | | ----- |
| 237 | D95 | 0.05 | | 0.13 | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | D95 | 0.07 | | 0.41 | 1259 | ISO3733 | <0.05 | | ----- |
| 254 | D95 | 0.05 | | 0.13 | 1266 | D95 | 0.05 | | 0.13 |
| 273 | D95 | <0.05 | | ----- | 1269 | | ----- | | ----- |
| 313 | ISO3733 | 0.05 | | 0.13 | 1275 | | 0.00 | | -0.57 |
| 323 | ISO3733 | <0.05 | | ----- | 1299 | D95 | <0.1 | | ----- |
| 331 | D95 | <0.05 | | ----- | 1345 | D95 | 0.05 | | 0.13 |
| 333 | ISO3733 | 0.10 | | 0.83 | 1356 | ISO3733 | <0.05 | | ----- |
| 334 | | ----- | | ----- | 1367 | ISO3733 | <0.05 | | ----- |
| 337 | | ----- | | ----- | 1402 | IP74 | 0.00 | | -0.57 |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | ISO3733 | <0,10 | | ----- | 1428 | D95 | 0.05 | | 0.13 |
| 343 | D95 | <0,1 | | ----- | 1459 | In house | 0 | | -0.57 |
| 349 | D95 | <0,1 | | ----- | 1510 | | ----- | | ----- |
| 356 | ISO3733 | 0.05 | | 0.13 | 1556 | D6304-C | 0.03 | | -0.15 |
| 371 | D95 | 0.048 | | 0.10 | 1569 | D95 | <0.10 | | ----- |
| 391 | ISO3733 | 0.05 | | 0.13 | 1586 | D95 | 0 | | -0.57 |
| 398 | ISO3733 | 0.05 | | 0.13 | 1613 | D95 | 0.05 | | 0.13 |
| 399 | | ----- | | ----- | 1631 | D95 | <0.1 | | ----- |
| 440 | | ----- | | ----- | 1643 | D95 | 0.03 | | -0.15 |
| 444 | | ----- | | ----- | 1650 | D95 | < 0.05 | | ----- |
| 463 | ISO3733 | 0.059 | | 0.25 | 1677 | ISO3733 | 0.05 | | 0.13 |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | D95 | <0,05 | | ----- |
| 541 | D95 | <0.05 | | ----- | 1728 | D95 | 0.04 | | -0.01 |
| 557 | D95 | 0.0506329 | | 0.13 | 1740 | ISO3733 | 0.05 | | 0.13 |
| 562 | D95 | 0.00 | | -0.57 | 1796 | ISO3733 | 0.05 | | 0.13 |
| 575 | D95 | <0.05 | | ----- | 1807 | ISO3733 | 0 | | -0.57 |
| 603 | D95 | 0.05 | | 0.13 | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | ISO3733 | 0.046 | | 0.07 |
| 605 | D95 | 0.00 | | -0.57 | 1833 | D95 | <0.1 | | ----- |
| 631 | D95 | 0.05 | | 0.13 | 1849 | EN1428 | <0,1 | | ----- |
| 633 | D95 | 0 | | -0.57 | 1906 | D6304-C | 0.045 | | 0.06 |
| 663 | D95 | <0.1 | | ----- | 1936 | EN1428 | <0,1 | | ----- |
| 671 | D95 | 0 | | -0.57 | 1937 | EN1428 | 0.1 | | 0.83 |
| 750 | D95 | 0.1 | | 0.83 | 1938 | EN1428 | 0.05 | | 0.13 |
| 753 | | ----- | | ----- | 1950 | ISO3733 | <0.05 | | ----- |
| 759 | D95 | 0.05 | | 0.13 | 1956 | | ----- | | ----- |
| 781 | ISO3733 | 0.05 | | 0.13 | 1964 | | ----- | | ----- |
| 785 | D95 | 0.05 | | 0.13 | 1967 | D95 | <0.05 | | ----- |
| 824 | ISO3733 | 0.00 | | -0.57 | 1995 | D95 | 0.05 | | 0.13 |
| 825 | D95 | 0.05 | | 0.13 | 6016 | | ----- | | ----- |
| 850 | ISO3733 | <0.05 | | ----- | 6026 | D95 | <0.05 | | ----- |
| 851 | ISO3733 | <0.05 | | ----- | 6028 | D95 | 0.0 | | -0.57 |
| 855 | D95 | <0.05 | | ----- | 6039 | | ----- | | ----- |
| 858 | D95 | <0.05 | | ----- | 6044 | D6304-A | 0.132 | | 1.27 |
| 862 | ISO3733 | 0.00 | | -0.57 | 6054 | D95 | <0.05 | | ----- |
| 863 | D95 | 0 | | -0.57 | 6057 | ISO3733 | 0.05 | | 0.13 |
| 864 | D95 | <0.05 | | ----- | 6075 | ISO3733 | 0.00 | | -0.57 |
| 865 | D95 | 0.03 | | -0.15 | 6092 | D95 | 0.05 | | 0.13 |
| 866 | ISO3733 | <0.05 | | ----- | 6142 | D95 | 0.032 | | -0.13 |
| 870 | D95 | 0 | | -0.57 | 6180 | ISO3733 | 0.10 | | 0.83 |
| 875 | D95 | 0.10 | | 0.83 | 6192 | ISO3733 | 0.05 | | 0.13 |
| 886 | D95 | 0.05 | | 0.13 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 74 |
| outliers | 1 |
| mean (n) | 0.0410 |
| st.dev. (n) | 0.03120 |
| R(calc.) | 0.0874 |
| st.dev.(ISO3733:99) | 0.07143 |
| R(ISO3733:99) | 0.2 |
| Compare | |
| R(D95:13e1) | 0.2 |

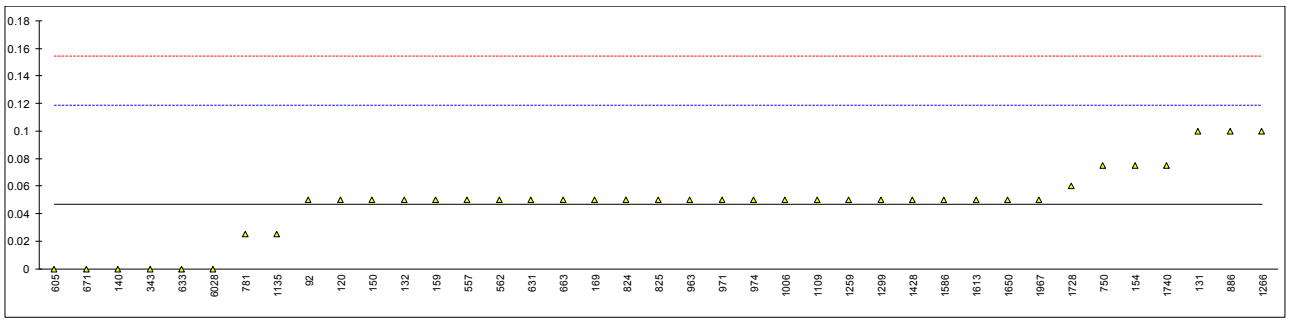


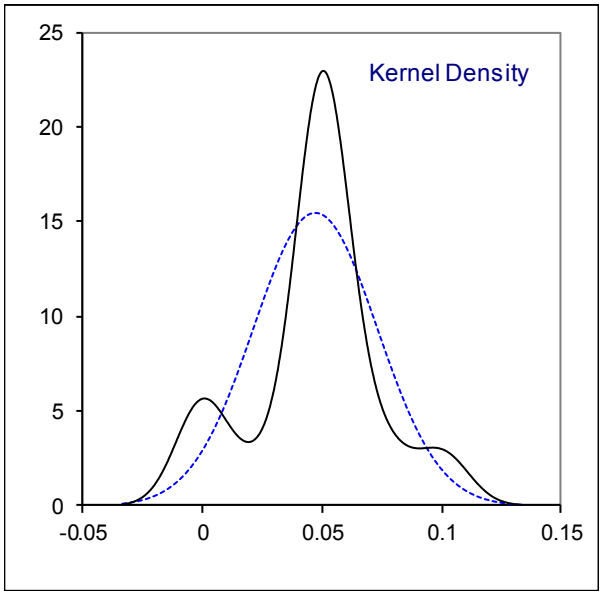



# Determination of Water and Sediment on sample #18105; results in %V/V

| lab | method | value | mark | z(targ) | lab | method | value | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | 912 | | ----- | | ----- |
| 90 | | ----- | | ----- | 913 | | ----- | | ----- |
| 92 | D1796 | 0.05 | | 0.08 | 922 | D1796 | <0.05 | | ----- |
| 120 | D1796 | 0.05 | | 0.08 | 962 | | ----- | | ----- |
| 131 | D1796 | 0.10 | | 1.48 | 963 | D1796 | 0.05 | | 0.08 |
| 132 | D1796 | 0.05 | | 0.08 | 971 | ISO3734 | 0.05 | | 0.08 |
| 140 | D1796 | 0 | | -1.32 | 974 | D1796 | 0.05 | | 0.08 |
| 150 | D1796 | 0.05 | | 0.08 | 982 | | ----- | | ----- |
| 154 | D1796 | 0.075 | | 0.78 | 1006 | D1796 | 0.050 | | 0.08 |
| 158 | | ----- | | ----- | 1011 | | ----- | | ----- |
| 159 | D1796 | 0.050 | | 0.08 | 1019 | | ----- | | ----- |
| 168 | | ----- | | ----- | 1059 | ISO3734 | <0,05 | | ----- |
| 169 | D1796 | 0.050 | | 0.08 | 1095 | | ----- | | ----- |
| 171 | | ----- | | ----- | 1107 | | ----- | | ----- |
| 175 | | ----- | | ----- | 1109 | D1796 | 0.05 | | 0.08 |
| 194 | | ----- | | ----- | 1121 | | ----- | | ----- |
| 212 | | ----- | | ----- | 1126 | | ----- | | ----- |
| 221 | | ----- | | ----- | 1134 | | ----- | | ----- |
| 224 | | ----- | | ----- | 1135 | D1796 | 0.025 | | -0.62 |
| 225 | | ----- | | ----- | 1161 | | ----- | | ----- |
| 228 | | ----- | | ----- | 1167 | | ----- | | ----- |
| 237 | | ----- | | ----- | 1177 | | ----- | | ----- |
| 238 | | ----- | | ----- | 1233 | | ----- | | ----- |
| 253 | | ----- | | ----- | 1259 | ISO3734 | 0.05 | | 0.08 |
| 254 | | ----- | | ----- | 1266 | D1796 | 0.10 | | 1.48 |
| 273 | | ----- | | ----- | 1269 | | ----- | | ----- |
| 313 | | ----- | | ----- | 1275 | | ----- | | ----- |
| 323 | | ----- | | ----- | 1299 | D1796 | 0.05 | | 0.08 |
| 331 | | ----- | | ----- | 1345 | | ----- | | ----- |
| 333 | | ----- | | ----- | 1356 | | ----- | | ----- |
| 334 | | ----- | | ----- | 1367 | | ----- | | ----- |
| 337 | | ----- | | ----- | 1402 | | ----- | | ----- |
| 339 | | ----- | | ----- | 1404 | | ----- | | ----- |
| 342 | | ----- | | ----- | 1428 | D1796 | 0.05 | | 0.08 |
| 343 | D1796 | 0.000 | | -1.32 | 1459 | | ----- | | ----- |
| 349 | | ----- | | ----- | 1510 | | ----- | | ----- |
| 356 | | ----- | | ----- | 1556 | | ----- | | ----- |
| 371 | | ----- | | ----- | 1569 | | ----- | | ----- |
| 391 | | ----- | | ----- | 1586 | D1796 | 0.05 | | 0.08 |
| 398 | | ----- | | ----- | 1613 | D1796 | 0.05 | | 0.08 |
| 399 | | ----- | | ----- | 1631 | | ----- | | ----- |
| 440 | | ----- | | ----- | 1643 | | ----- | | ----- |
| 444 | | ----- | | ----- | 1650 | D1796 | 0.05 | | 0.08 |
| 463 | | ----- | | ----- | 1677 | | ----- | | ----- |
| 511 | | ----- | | ----- | 1720 | | ----- | | ----- |
| 529 | | ----- | | ----- | 1724 | | ----- | | ----- |
| 541 | | ----- | | ----- | 1728 | D1796 | 0.060 | | 0.36 |
| 557 | D1796 | 0.05 | | 0.08 | 1740 | D1796 | 0.075 | | 0.78 |
| 562 | D1796 | 0.05 | | 0.08 | 1796 | | ----- | | ----- |
| 575 | | ----- | | ----- | 1807 | | ----- | | ----- |
| 603 | | ----- | | ----- | 1811 | | ----- | | ----- |
| 604 | | ----- | | ----- | 1832 | | ----- | | ----- |
| 605 | D1796 | 0.00 | | -1.32 | 1833 | | ----- | | ----- |
| 631 | D1796 | 0.05 | | 0.08 | 1849 | | ----- | | ----- |
| 633 | D1796 | 0 | | -1.32 | 1906 | | ----- | | ----- |
| 663 | D1796 | 0.05 | | 0.08 | 1936 | | ----- | | ----- |
| 671 | D1796 | 0 | | -1.32 | 1937 | | ----- | | ----- |
| 750 | D1796 | 0.075 | | 0.78 | 1938 | | ----- | | ----- |
| 753 | | ----- | | ----- | 1950 | | ----- | | ----- |
| 759 | | ----- | | ----- | 1956 | | ----- | | ----- |
| 781 | D1796 | 0.025 | | -0.62 | 1964 | | ----- | | ----- |
| 785 | | ----- | | ----- | 1967 | D1796 | 0.05 | | 0.08 |
| 824 | D1796 | 0.05 | | 0.08 | 1995 | | ----- | | ----- |
| 825 | D1796 | 0.05 | | 0.08 | 6016 | | ----- | | ----- |
| 850 | | ----- | | ----- | 6026 | | ----- | | ----- |
| 851 | | ----- | | ----- | 6028 | | 0.0 | | -1.32 |
| 855 | | ----- | | ----- | 6039 | | ----- | | ----- |
| 858 | | ----- | | ----- | 6044 | | ----- | | ----- |
| 862 | | ----- | | ----- | 6054 | | ----- | | ----- |
| 863 | | ----- | | ----- | 6057 | | ----- | | ----- |
| 864 | | ----- | | ----- | 6075 | | ----- | | ----- |
| 865 | | ----- | | ----- | 6092 | | ----- | | ----- |
| 866 | | ----- | | ----- | 6142 | | ----- | | ----- |
| 870 | | ----- | | ----- | 6180 | | ----- | | ----- |
| 875 | | ----- | | ----- | 6192 | | ----- | | ----- |
| 886 | D1796 | 0.1 | | 1.48 | | | | | |

| | |
|---|---|
| normality | OK |
| n | 39 |
| outliers | 0 |
| mean (n) | 0.0471 |
| st.dev. (n) | 0.02585 |
| R(calc.) | 0.0724 |
| st.dev.(D1796:11) | 0.03571 |
| R(D1796:11) | 0.1 |



Vacuum Distillation according to ASTM D1160 (as AET) on sample #18105, results in °C

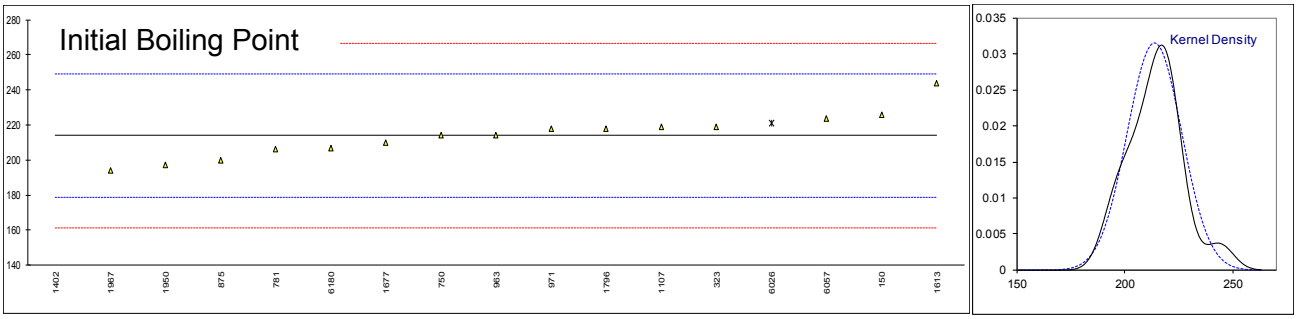
| lab | method | IBP | 5%rec | 10%rec | 20%rec | 30%rec | 40%rec | 50%rec | FBP |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 90 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 92 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 120 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 131 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 132 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 140 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 150 | D1160 | 226 | 265 | 308 | 378 | 402 | 446 | 492 | **588** |
| 154 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 158 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 159 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 168 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 169 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 171 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 175 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 194 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 212 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 221 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 224 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 225 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 228 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 237 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 238 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 253 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 254 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 273 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 313 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 323 | D1160 | 219 | 282 | 320 | 372 | 408 | 448 | 500 | ----- |
| 331 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 333 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 334 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 337 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 339 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 342 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 343 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 349 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 356 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 371 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 391 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 398 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 399 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 440 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 444 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 463 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 511 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 529 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 541 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 557 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 562 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 575 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 603 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 604 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 605 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 631 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 633 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 663 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 671 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 750 | D1160 | 214 | 275 | 320 | 375 | 411 | 447 | 500 | 523 |
| 753 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 759 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 781 | D1160 | 206 | 269 | 314 | 371 | 405 | 441 | 496 | 531 |
| 785 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 824 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 825 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 850 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 851 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 855 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 858 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 862 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 863 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 864 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 865 | D1160 | ----- | ----- | 331.1 | 379.1 | 417.8 | 450.1 | ----- | ----- |
| 866 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 870 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 875 | D1160 | 200 | 266 | 312 | 369 | 405 | 443 | 494 | ----- |
| 886 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 912 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

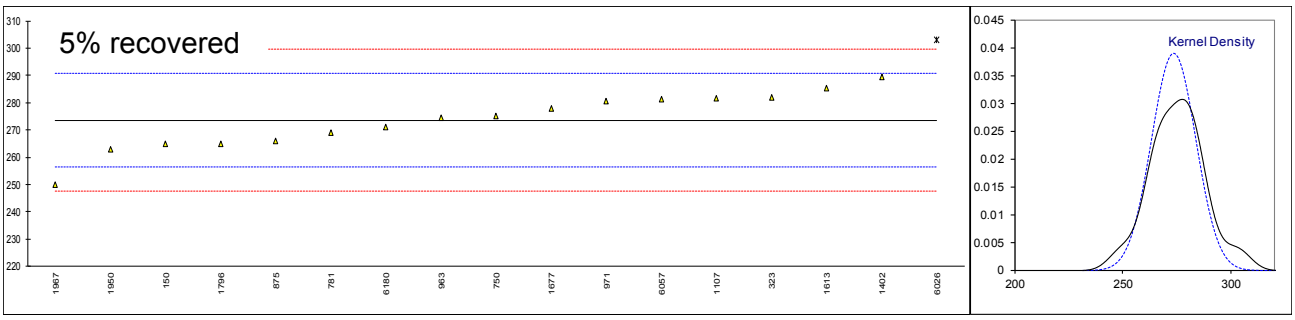
| lab | method | IBP | 5%rec | 10%rec | 20%rec | 30%rec | 40%rec | 50%rec | FBP |
|---|---|---|---|---|---|---|---|---|---|
| 913 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 922 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 962 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 963 | D1160 | 214.4 | 274.4 | 314.9 | 370.1 | 407.0 | 442.1 | 499.1 | 524.5 |
| 971 | D1160 | 218.0 | 280.6 | 319.4 | 374.1 | 410.3 | 449.4 | 502.0 | 526.6 |
| 974 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 982 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1006 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1011 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1019 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1059 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1095 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1107 | | 218.7 | 281.7 | 320.0 | 373.2 | 410.0 | 448.0 | 500.2 | 515.2 |
| 1109 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1121 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1126 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1134 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1135 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1161 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1167 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1177 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1233 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1259 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1266 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1269 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1275 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1299 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1345 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1356 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1367 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1402 | D1160 | **80.1** | 289.5 | 328.6 | 369.9 | 406.6 | 446.5 | 502.3 | 530.8 |
| 1404 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1428 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1459 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1510 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1556 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1569 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1586 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1613 | D1160 | 244.0 | 285.5 | 327.5 | 378.6 | 411.2 | 448.8 | 505.2 | 512.8 |
| 1631 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1643 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1650 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1677 | | 210 | 278 | 319 | 374 | 407 | 445 | 491 | 502 |
| 1720 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1724 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1728 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1740 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1796 | D1160 | 218 | 265 | 323 | 371 C | 404 | 450 | 513 | 517 |
| 1807 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1811 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1832 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1833 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1849 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1906 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1936 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1937 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1938 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1950 | D1160 | 197 | 263 | 304 | 359 | 400 | 436 | 481 | 508 |
| 1956 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1964 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1967 | | 194 | 250 | 302 | 366 | 400 | 438 | 484 | 502 |
| 1995 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6016 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6026 | D1160 | *221* | *303* | *343* C | **392** C | **434** C | **465** C | *516* | *523* |
| 6028 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6039 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6044 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6054 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6057 | | 223.6 | 281.4 | 322.8 | 369.8 | 403.0 | 441.2 | 514.6 | **566.1** |
| 6075 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6092 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6142 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6180 | D1160 | 206.5 | 271.2 | 313.1 | 366.8 | 405.0 | 445.8 | 506.1 | 553.8 |
| 6192 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

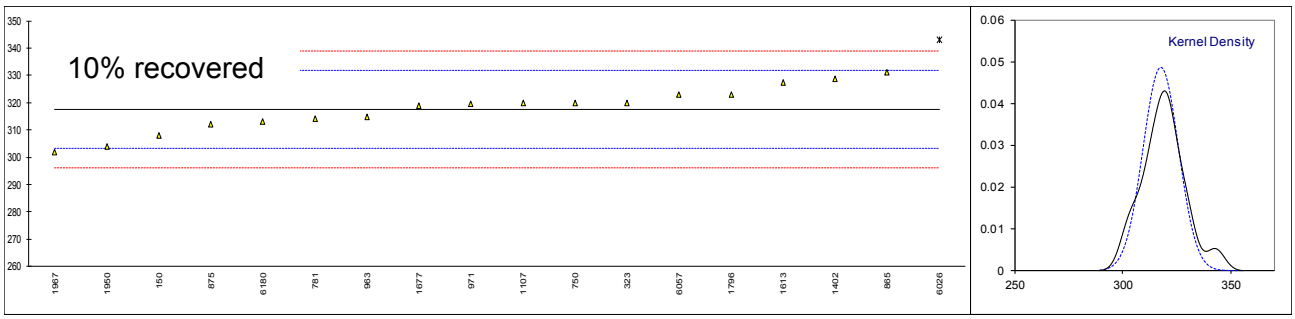
| | IBP | 5%rec | 10%rec | 20%rec | 30%rec | 40%rec | 50%rec | FBP |
|---|---|---|---|---|---|---|---|---|
| Normality | suspect | OK | OK | suspect | OK | OK | OK | suspect |
| n | 15 | 16 | 17 | 17 | 17 | 17 | 16 | 12 |
| outliers | 1(+1ex) | 0(+1ex) | 0(+1ex) | 1 | 1 | 1 | 0(+1ex) | 2+(1ex) |
| mean (n) | 213.95 | 273.58 | 317.61 | 371.56 | 406.64 | 445.05 | 498.78 | 520.56 |
| st.dev. (n) | 12.640 | 10.212 | 8.186 | 5.009 | 4.536 | 4.209 | 9.117 | 14.538 |
| R(calc.) | 35.39 | 28.59 | 22.92 | 14.03 | 12.70 | 11.79 | 25.53 | 40.71 |
| st.dev.(D1160:18) | 17.500 | 8.684 | 7.162 | 6.082 | 5.660 | 6.236 | 6.662 | 9.643 |
| R(D1160:18) | 49 | 24.2 | 20.1 | 17.1 | 15.8 | 17.4 | 18.5 | 27 |

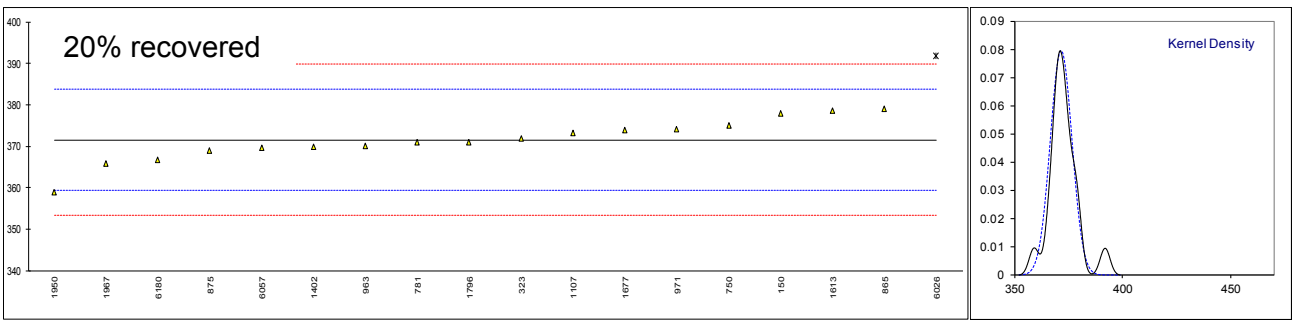
Lab 1796 first reported 351 at 20% recovered
Lab 6026 first reported respectively; 350; 401; 440; 471 for 10%; 20%; 30% and 40% recovered

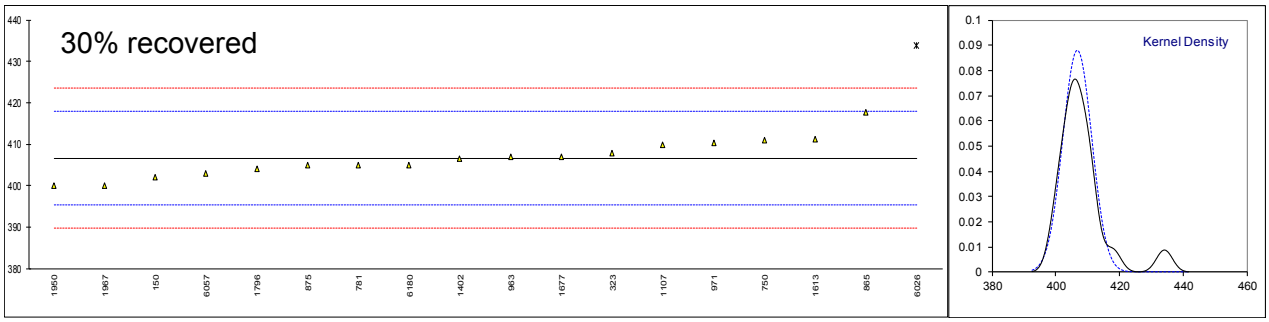
**The reported results underlined and bold are statistical outliers**
*The reported results underlined and italic are excluded (see §4.1) because the other related test results were statistical outliers*

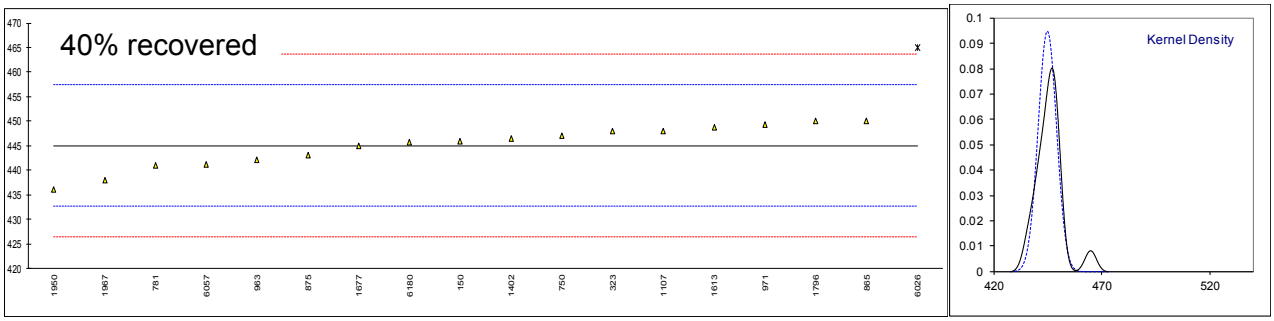


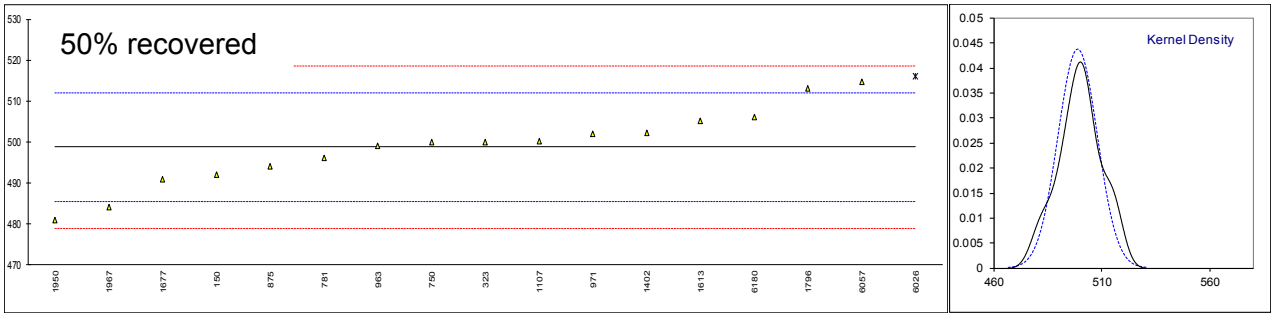



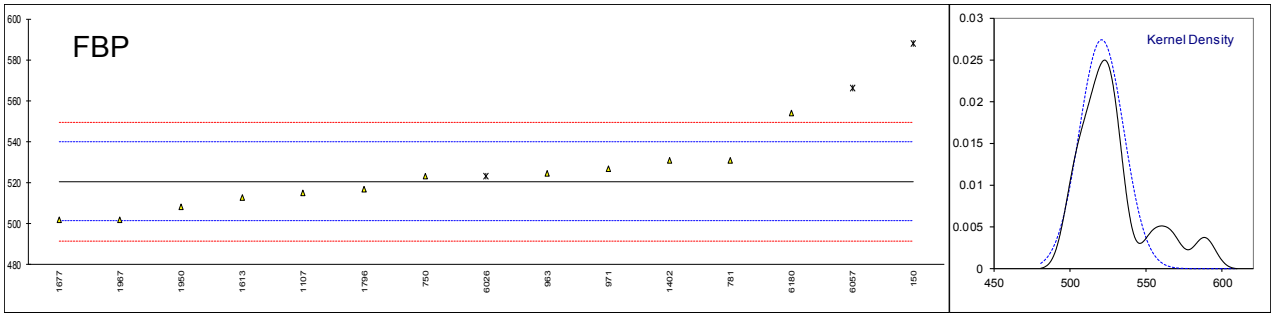




30% recovered
Kernel Density


40% recovered
Kernel Density


50% recovered
Kernel Density


FBP
Kernel Density

# z-scores of Vacuum Distillation according to ASTM D1160 on sample #18105

| lab | method | IBP | 5%rec | 10%rec | 20%rec | 30%rec | 40%rec | 50%rec | FBP |
|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 90 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 92 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 120 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 131 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 132 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 140 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 150 | D1160 | 0.69 | -0.99 | -1.34 | 1.05 | -0.82 | 0.15 | -1.03 | 6.99 |
| 154 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 158 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 159 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 168 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 169 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 171 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 175 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 194 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 212 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 221 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 224 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 225 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 228 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 237 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 238 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 253 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 254 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 273 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 313 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 323 | D1160 | 0.29 | 0.97 | 0.33 | 0.07 | 0.24 | 0.47 | 0.18 | ----- |
| 331 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 333 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 334 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 337 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 339 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 342 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 343 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 349 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 356 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 371 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 391 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 398 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 399 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 440 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 444 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 463 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 511 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 529 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 541 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 557 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 562 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 575 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 603 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 604 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 605 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 631 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 633 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 663 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 671 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 750 | D1160 | 0.00 | 0.16 | 0.33 | 0.56 | 0.77 | 0.31 | 0.18 | 0.25 |
| 753 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 759 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 781 | D1160 | -0.45 | -0.53 | -0.50 | -0.09 | -0.29 | -0.65 | -0.42 | 1.08 |
| 785 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 824 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 825 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 850 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 851 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 855 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 858 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 862 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 863 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 864 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 865 | D1160 | ----- | ----- | 1.88 | 1.23 | 1.97 | 0.81 | ----- | ----- |
| 866 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 870 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 875 | D1160 | -0.80 | -0.88 | -0.78 | -0.42 | -0.29 | -0.33 | -0.72 | ----- |
| 886 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

| lab | method | IBP | 5%rec | 10%rec | 20%rec | 30%rec | 40%rec | 50%rec | FBP |
|---|---|---|---|---|---|---|---|---|---|
| 912 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 913 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 922 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 962 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 963 | D1160 | 0.03 | 0.09 | -0.38 | -0.24 | 0.06 | -0.47 | 0.05 | 0.41 |
| 971 | D1160 | 0.23 | 0.81 | 0.25 | 0.41 | 0.65 | 0.70 | 0.49 | 0.63 |
| 974 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 982 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1006 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1011 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1019 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1059 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1095 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1107 | | 0.27 | 0.94 | 0.33 | 0.27 | 0.59 | 0.47 | 0.21 | -0.56 |
| 1109 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1121 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1126 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1134 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1135 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1161 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1167 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1177 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1233 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1259 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1266 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1269 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1275 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1299 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1345 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1356 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1367 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1402 | D1160 | -7.65 | 1.84 | 1.53 | -0.27 | -0.01 | 0.23 | 0.53 | 1.06 |
| 1404 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1428 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1459 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1510 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1556 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1569 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1586 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1613 | D1160 | 1.72 | 1.38 | 1.38 | 1.15 | 0.81 | 0.60 | 0.97 | -0.80 |
| 1631 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1643 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1650 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1677 | | -0.23 | 0.51 | 0.19 | 0.40 | 0.06 | -0.01 | -1.18 | -1.92 |
| 1720 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1724 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1728 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1740 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1796 | D1160 | 0.23 | -0.99 | 0.75 | -0.09 | -0.47 | 0.79 | 2.15 | -0.37 |
| 1807 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1811 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1832 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1833 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1849 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1906 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1936 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1937 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1938 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1950 | D1160 | -0.97 | -1.22 | -1.90 | -2.05 | -1.17 | -1.45 | -2.69 | -1.30 |
| 1956 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1964 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 1967 | | -1.14 | -2.73 | -2.18 | -0.91 | -1.17 | -1.13 | -2.24 | -1.92 |
| 1995 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6016 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6026 | D1160 | 0.40 | 3.40 | 3.55 | 3.34 | 4.83 | 3.20 | 2.60 | 0.25 |
| 6028 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6039 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6044 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6054 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6057 | | 0.55 | 0.90 | 0.72 | -0.29 | -0.64 | -0.62 | 2.39 | 4.72 |
| 6075 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6092 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6142 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| 6180 | D1160 | -0.43 | -0.28 | -0.63 | -0.78 | -0.29 | 0.12 | 1.11 | 3.45 |
| 6192 | | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |

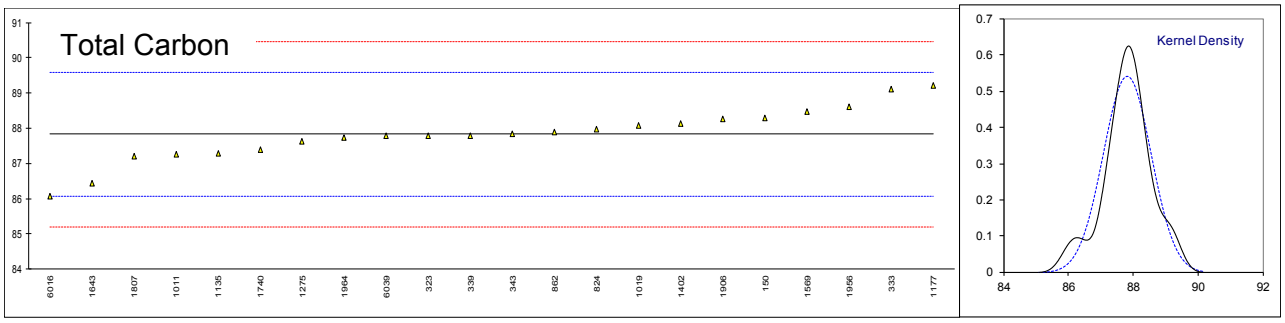
Determination of Total Carbon, Hydrogen and Nitrogen on sample #18105; results in %M/M

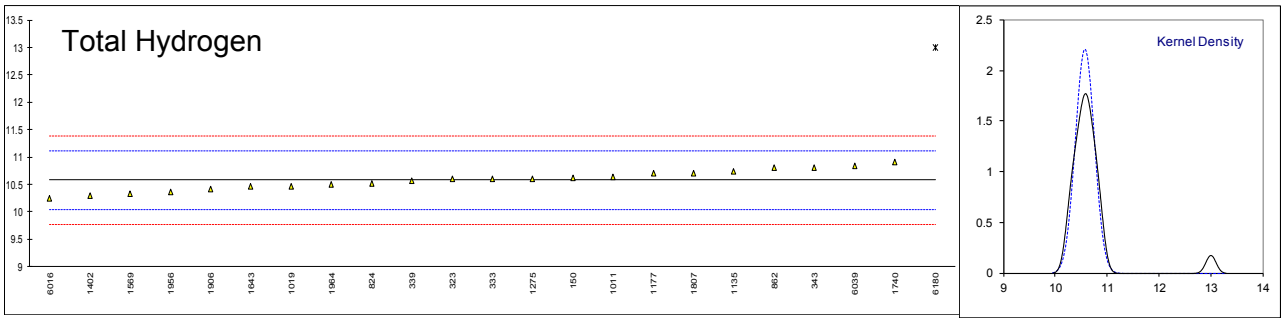
| lab | method | Total C | m | z(targ) | Total H | m | z(targ) | Total N | m | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 90 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 92 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 120 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 131 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 132 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 140 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 150 | D5291 - C | 88.28 | | 0.52 | 10.61 | | 0.13 | <0.75 | | ----- |
| 154 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 158 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 159 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 168 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 169 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 171 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 175 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 194 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 212 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 221 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 224 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 225 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 228 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 237 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 238 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 253 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 254 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 273 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 313 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 323 | D5291 - C | 87.8 | | -0.03 | 10.6 | | 0.09 | 0.3 | | -0.27 |
| 331 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 333 | D5291 - D | 89.1 | | 1.45 | 10.6 | | 0.09 | ----- | | ----- |
| 334 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 337 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 339 | | 87.8 | | -0.03 | 10.56 | | -0.06 | 0.30 | | -0.27 |
| 342 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 343 | D5291 - A | 87.85 | | 0.02 | 10.8 | C | 0.83 | 0.3905 | | 0.30 |
| 349 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 356 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 371 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 391 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 398 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 399 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 440 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 444 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 463 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 511 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 529 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 541 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 557 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 562 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 575 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 603 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 604 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 605 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 631 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 633 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 663 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 671 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 750 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 753 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 759 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 781 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 785 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 824 | D5291 - D | 87.96 | | 0.15 | 10.51 | | -0.25 | ----- | | ----- |
| 825 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 850 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 851 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 855 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 858 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 862 | D5291 - D | 87.9 | | 0.08 | 10.8 | | 0.83 | 0.3 | | -0.27 |
| 863 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 864 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 865 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 866 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 870 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 875 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 886 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |

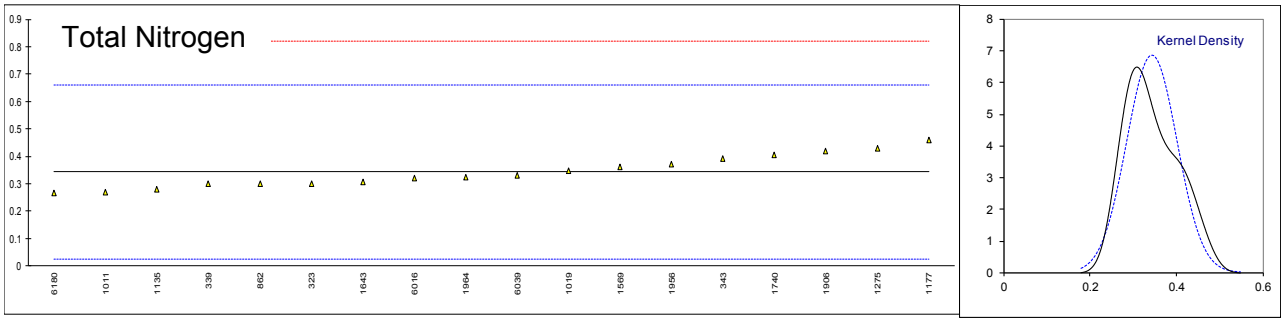
| lab | method | Total C | m | z(targ) | Total H | m | z(targ) | Total N | m | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 912 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 913 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 922 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 962 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 963 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 971 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 974 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 982 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1006 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1011 | D5291 - A | 87.25 | | -0.66 | 10.64 | | 0.24 | 0.27 | | -0.46 |
| 1019 | D5291 - A | 88.08 | | 0.29 | 10.47 | | -0.39 | 0.349 | | 0.03 |
| 1059 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1095 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1107 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1109 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1121 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1126 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1134 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1135 | D5291 - A | 87.29 | | -0.61 | 10.73 | | 0.57 | 0.28 | | -0.40 |
| 1161 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1167 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1177 | D5291 - D | 89.22 | | 1.59 | 10.70 | | 0.46 | 0.461 | | 0.74 |
| 1233 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1259 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1266 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1269 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1275 | D5291 - D | 87.64 | | -0.22 | 10.60 | | 0.09 | 0.43 | | 0.54 |
| 1299 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1345 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1356 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1367 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1402 | D5291 - C | 88.12 | | 0.33 | 10.30 | | -1.03 | ----- | | ----- |
| 1404 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1428 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1459 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1510 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1556 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1569 | D5291 - A | 88.47 | | 0.73 | 10.33 | | -0.92 | 0.36 | | 0.10 |
| 1586 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1613 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1631 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1643 | D5291 - A | 86.438 | | -1.59 | 10.457 | | -0.44 | 0.306 | | -0.24 |
| 1650 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1677 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1720 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1724 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1728 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1740 | D5291 - A | 87.4 | | -0.49 | 10.9 | | 1.21 | 0.406 | | 0.39 |
| 1796 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1807 | D5291 - A | 87.2 | | -0.72 | 10.7 | | 0.46 | <0,75 | | ----- |
| 1811 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1832 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1833 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1849 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1906 | | 88.26 | | 0.49 | 10.41 | | -0.62 | 0.419 | | 0.47 |
| 1936 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1937 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1938 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1950 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1956 | | 88.6 | | 0.88 | 10.37 | | -0.77 | 0.37 | | 0.17 |
| 1964 | | 87.72125 | | -0.12 | 10.49789 | | -0.29 | 0.32333 | | -0.13 |
| 1967 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1995 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6016 | D5291 - A | 86.06 | | -2.02 | 10.25 | | -1.21 | 0.3214 | | -0.14 |
| 6026 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6028 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6039 | D5291 - C | 87.79 | | -0.04 | 10.84 | | 0.98 | 0.33 | | -0.08 |
| 6044 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6054 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6057 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6075 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6092 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6142 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6180 | D5291 - D | ----- | | ----- | 12.998 | R(1) | 9.01 | 0.267 | | -0.48 |
| 6192 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |

| | Total C | Total H | Total N |
|---|---|---|---|
| Normality | OK | OK | OK |
| n | 22 | 22 | 18 |
| outliers | 0 | 1 | 0 |
| mean (n) | 87.8286 | 10.5761 | 0.3435 |
| st.dev. (n) | 0.73793 | 0.18068 | 0.05819 |
| R(calc.) | 2.0662 | 0.5059 | 0.1629 |
| st.dev.(D5291-ABC:16) | 0.87627 | 0.26876 | 0.15914 |
| R(D5291-ABC:16) | 2.4536 | 0.7525 | 0.4456 |

Lab 343 first reported 11.65



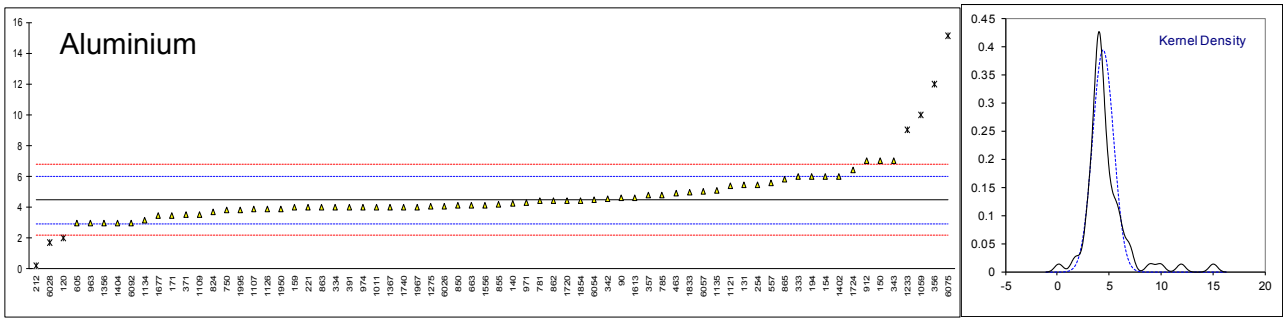
- empty page -

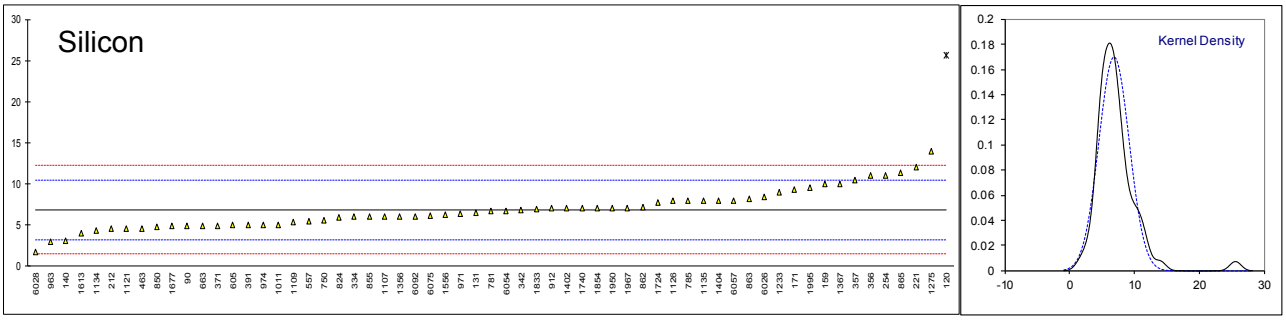
Determination of Aluminium as Al, Silicon as Si and total Al+Si on sample #18106; results in mg/kg

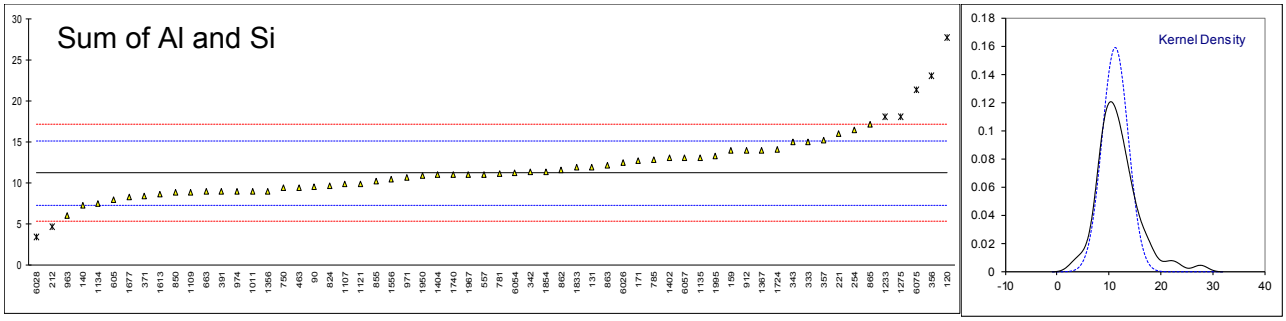
| lab | method | Al | mark | z(targ) | Si | mark | z(targ) | Sum Al+Si | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 90 | D5184 | 4.6 | | 0.17 | 4.9 | | -1.07 | 9.5 | | -0.88 |
| 92 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 120 | IP501 | 1.9925 | ex | -3.22 | 25.64 | R(0.01) | 10.47 | 27.6325 | R(0.01) | 8.40 |
| 131 | IP501 | 5.441 | | 1.26 | 6.462 | | -0.20 | 11.903 | | 0.35 |
| 132 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 140 | IP501 | 4.22 | | -0.33 | 3.06 | | -2.10 | 7.28 | | -2.02 |
| 150 | IP501 | 7 | | 3.29 | <10 | | ----- | <15 | | ----- |
| 154 | IP501 | 6 | | 1.99 | <10 | | ----- | <15 | | ----- |
| 159 | IP501 | 4 | | -0.61 | 10 | C | 1.77 | 14 | C | 1.42 |
| 168 | D5184 | <5 | | ----- | <10 | | ----- | <15 | | ----- |
| 171 | IP501 | 3.47 | | -1.30 | 9.26 | | 1.35 | 12.73 | | 0.77 |
| 175 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 194 | IP470 | 6 | C | 1.99 | ----- | | ----- | ----- | | ----- |
| 212 | IP470 | 0.2 | R(0.01) | -5.56 | 4.5 | | -1.30 | 4.7 | ex | -3.34 |
| 221 | IP470 | 4 | | -0.61 | 12 | | 2.88 | 16 | | 2.44 |
| 225 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 237 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 254 | IP501 | 5.461 | | 1.29 | 11.037 | | 2.34 | 16.50 | | 2.70 |
| 273 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 323 | IP501 | <5 | | ----- | <10 | | ----- | <15 | | ----- |
| 331 | IP501 | <5 | | ----- | <5 | | ----- | <15 | | ----- |
| 333 | IP501 | 6 | | 1.99 | <10 | | ----- | 15 | | 1.93 |
| 334 | IP501 | 4 | | -0.61 | 6 | | -0.46 | ----- | | ----- |
| 342 | IP501 | 4.5649 | | 0.12 | 6.7773 | | -0.03 | 11.3422 | | 0.06 |
| 343 | IP501 | 7 | | 3.29 | <10 | | ----- | 15 | | 1.93 |
| 356 | IP501 | 12 | R(0.01) | 9.80 | 11 | | 2.32 | 23 | ex | 6.03 |
| 357 | IP501 | 4.8 | | 0.43 | 10.4 | | 1.99 | 15.2 | | 2.03 |
| 371 | IP470 | 3.5 | | -1.26 | 4.9 | | -1.07 | 8.4 | | -1.45 |
| 391 | IP501 | 4 | | -0.61 | 5 | | -1.02 | 9 | | -1.14 |
| 398 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 399 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 444 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 463 | IP470 | 4.9 | | 0.56 | 4.55 | | -1.27 | 9.45 | | -0.91 |
| 511 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 529 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 541 | IP470 | <5 | | ----- | <10 | | ----- | <15 | | ----- |
| 557 | IP470 | 5.57200 | | 1.43 | 5.48628 | | -0.75 | 11.05828 | | -0.09 |
| 605 | IP501 | 3 | | -1.91 | 5 | | -1.02 | 8 | | -1.65 |
| 631 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 663 | IP501 | 4.1 | | -0.48 | 4.9 | | -1.07 | 9 | | -1.14 |
| 750 | IP501 | 3.8 | | -0.87 | 5.6 | | -0.68 | 9.4 | | -0.93 |
| 781 | IP501 | 4.4 | | -0.09 | 6.7 | | -0.07 | 11.1 | | -0.06 |
| 785 | IP470 | 4.8 | | 0.43 | 8 | | 0.65 | 12.8 | | 0.81 |
| 824 | IP501 | 3.7 | | -1.00 | 5.9 | | -0.52 | 9.6 | | -0.83 |
| 850 | IP501 | 4.1 | | -0.48 | 4.8 | | -1.13 | 8.9 | | -1.19 |
| 851 | IP501 | <5 | C | ----- | <10 | C | ----- | <15 | C | ----- |
| 855 | IP501 | 4.2 | | -0.35 | 6.0 | | -0.46 | 10.2 | | -0.53 |
| 862 | IP501 | 4.4 | | -0.09 | 7.2 | | 0.21 | 11.6 | | 0.19 |
| 863 | IP501 | 4 | | -0.61 | 8.2 | | 0.76 | 12.2 | | 0.50 |
| 864 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 865 | IP501 | 5.8 | | 1.73 | 11.3 | | 2.49 | 17.1 | | 3.01 |
| 875 | IP501 | <5 | | ----- | <10 | | ----- | <15 | | ----- |
| 912 | IP501 | 7 | | 3.29 | 7 | | 0.09 | 14 | | 1.42 |
| 913 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 922 | IP501 | <5 | | ----- | <10 | | ----- | <15 | | ----- |
| 963 | IP501 | 3 | | -1.91 | 3 | | -2.13 | 6 | | -2.68 |
| 971 | IP501 | 4.3 | | -0.22 | 6.4 | | -0.24 | 10.7 | | -0.27 |
| 974 | IP501 | 4 | | -0.61 | 5 | | -1.02 | 9 | | -1.14 |
| 1011 | ISO10478 | 4 | | -0.61 | 5 | | -1.02 | 9 | | -1.14 |
| 1059 | In house | 10 | R(0.01) | 7.20 | <6 | | ----- | ----- | | ----- |
| 1107 | IP501 | 3.9 | | -0.74 | 6.0 | | -0.46 | 9.9 | | -0.68 |
| 1109 | IP470 | 3.5 | | -1.26 | 5.4 | | -0.80 | 8.9 | | -1.19 |
| 1121 | IP501 | 5.4 | | 1.21 | 4.5 | | -1.30 | 9.9 | | -0.68 |
| 1126 | IP501 | 3.9 | | -0.74 | 7.9 | | 0.60 | ----- | | ----- |
| 1134 | IP501 | 3.18 | | -1.68 | 4.34 | | -1.39 | 7.52 | | -1.90 |
| 1135 | IP501 | 5.1 | | 0.82 | 8.0 | | 0.65 | 13.1 | | 0.96 |
| 1233 | IP501 | 9 | R(0.01) | 5.89 | 9 | | 1.21 | 18 | ex | 3.47 |
| 1259 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1275 | IP501 | 4.0365 | | -0.56 | 13.985 | | 3.98 | 18.0215 | R(0.01) | 3.48 |
| 1299 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1345 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1356 | IP501 | 3 | | -1.91 | 6 | | -0.46 | 9 | | -1.14 |
| 1367 | IP501 | 4 | | -0.61 | 10 | | 1.77 | 14 | | 1.42 |
| 1402 | IP501 | 6 | | 1.99 | 7 | | 0.09 | 13 | | 0.91 |
| 1404 | IP470 | 3 | | -1.91 | 8 | | 0.65 | 11 | | -0.12 |

| lab | method | Al | mark | z(targ) | Si | mark | z(targ) | Sum Al+Si | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1510 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1556 | IP501 | 4.1 | | -0.48 | 6.2 | | -0.35 | 10.4 | | -0.42 |
| 1586 | IP501 | <5 | | ----- | <10 | | ----- | <15 | | ----- |
| 1613 | IP470 | 4.6 | | 0.17 | 4.0 | | -1.58 | 8.6 | | -1.34 |
| 1643 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1677 | IP501 | 3.43 | | -1.35 | 4.89 | | -1.08 | 8.32 | | -1.49 |
| 1720 | D5708 | 4.4 | | -0.09 | ----- | | ----- | ----- | | ----- |
| 1724 | IP501 | 6.4 | | 2.51 | 7.7 | | 0.48 | 14.1 | | 1.47 |
| 1740 | IP501 | 4 | | -0.61 | 7 | | 0.09 | 11 | | -0.12 |
| 1833 | IP501 | 4.95 | | 0.62 | 6.93 | | 0.06 | 11.88 | | 0.33 |
| 1854 | IP501 | 4.4 | | -0.09 | 7.0 | | 0.09 | 11.4 | | 0.09 |
| 1950 | IP470 | 3.9 | | -0.74 | 7 | | 0.09 | 10.9 | | -0.17 |
| 1967 | IP470 | 4 | | -0.61 | 7 | | 0.09 | 11 | | -0.12 |
| 1995 | IP501 | 3.8 | C | -0.87 | 9.5 | | 1.49 | 13.3 | C | 1.06 |
| 6016 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6026 | IP470 | 4.0640 | | -0.53 | 8.464 | | 0.91 | 12.528 | | 0.67 |
| 6028 | D5184 | 1.7 | R(0.01) | -3.60 | 1.7 | | -2.86 | 3.4 | ex | -4.01 |
| 6044 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6054 | IP501 | 4.50675 | | 0.05 | 6.76267 | | -0.04 | 11.26942 | | 0.02 |
| 6057 | IP501 | 5 | | 0.69 | 8 | | 0.65 | 13 | | 0.91 |
| 6075 | In house | 15.1 | R(0.01) | 13.83 | 6.16 | | -0.37 | 21.3 | ex | 5.16 |
| 6092 | IP501 | 3 | | -1.91 | 6 | | -0.46 | ----- | | ----- |
| | | | | | | | | | | |
| normality | | OK | | | OK | | | OK | | |
| n | | 61 | | | 60 | | | 53 | | |
| outliers | | 6 (+1ex) | | | 1 | | | 1 (+5ex) | | |
| mean (n) | | 4.47 | | | 6.83 | | | 11.23 | | |
| st.dev. (n) | | 1.012 | | | 2.346 | | | 2.508 | | |
| R(calc.) | | 2.83 | | | 6.57 | | | 7.02 | | |
| st.dev.(IP470:05) | | 0.769 | | | 1.796 | | | 1.953 | | |
| R(IP470:05) | | 2.15 | | | 5.03 | | | 5.47 | | |
| Compare | | | | | | | | | | |
| R(IP501:05) | | 1.51 | | | 2.27 | | | 2.72 | | |

Lab 120 test results are excluded because of the statistical outliers in the Si and sum Al+Si determination
Lab 159 first reported 14 for Si and 18 for sum Al+Si
Lab 194 first reported 16
Lab 851 first reported 6.564 for Al, 14.13 for Si and 20.694 for sum Al+Si
Lab 1995 first reported 9.7 for Al and 19.2 for sum Al+Si
Labs: 212, 356, 1059, 1233, 6028 and 6075 test results are excluded because of a statistical outlier in the Al determination



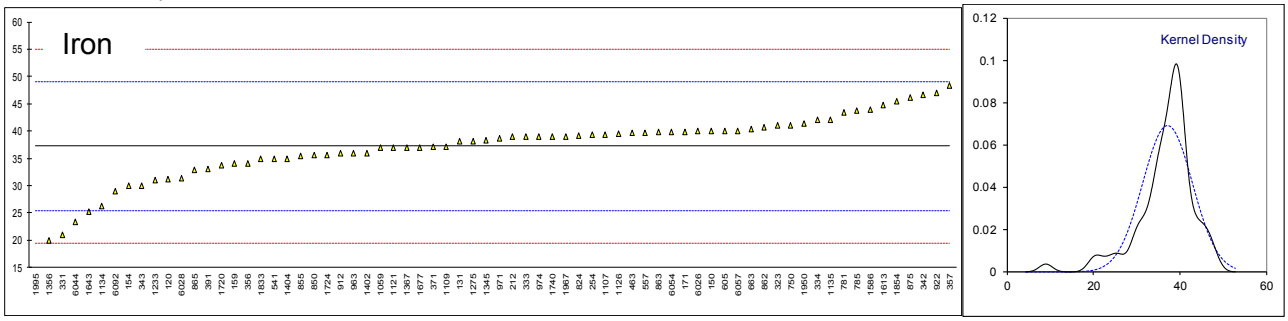



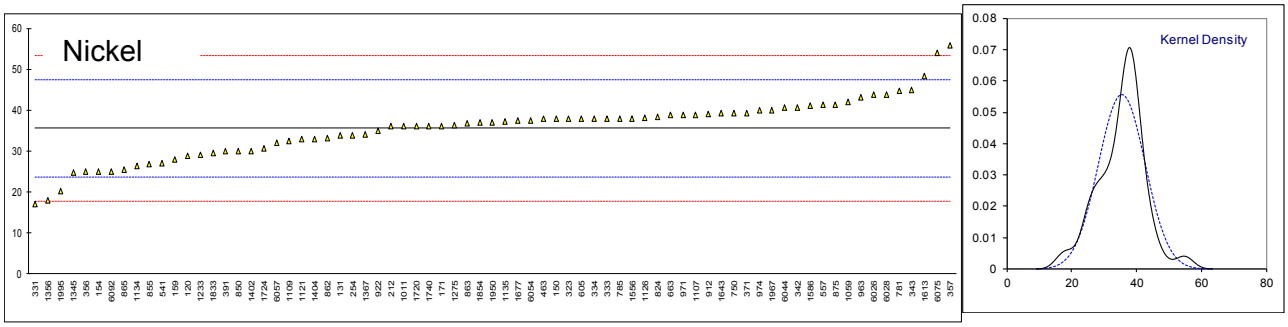
Determination of Iron as Fe, Nickel as Ni, Sodium as Na on sample #18106; results in mg/kg

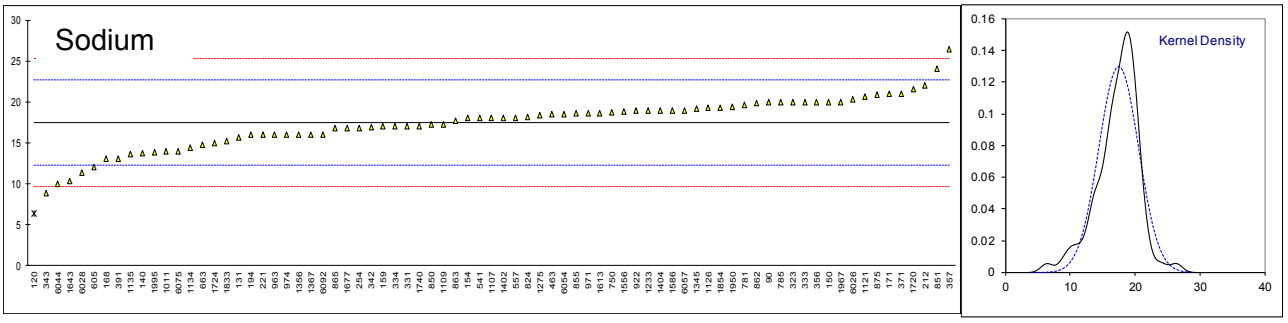
| lab | method | Fe | mark | z(targ) | Ni | mark | z(targ) | Na | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 90 | | ----- | | ----- | ----- | | ----- | 20 | | 0.97 |
| 92 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 120 | IP501 | 31.215 | | -1.02 | 28.93 | | -1.11 | 6.351 | R(0.05) | -4.30 |
| 131 | IP501 | 38.11 | | 0.15 | 33.78 | | -0.30 | 15.64 | | -0.71 |
| 132 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 140 | | ----- | | ----- | ----- | | ----- | 13.75 | | -1.44 |
| 150 | IP501 | 40 | | 0.47 | 38 | | 0.41 | 20 | | 0.97 |
| 154 | IP501 | 30 | | -1.23 | 25 | | -1.78 | 18 | | 0.20 |
| 159 | IP501 | 34 | | -0.55 | 28 | | -1.27 | 17 | | -0.18 |
| 168 | | ----- | | ----- | ----- | | ----- | 13 | | -1.73 |
| 171 | IP501 | 39.9 | | 0.45 | 36.02 | | 0.08 | 20.94 | | 1.34 |
| 175 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 194 | | ----- | | ----- | ----- | | ----- | 16 | | -0.57 |
| 212 | IP470 | 39 | | 0.30 | 36 | | 0.08 | 22 | | 1.75 |
| 221 | | ----- | | ----- | ----- | | ----- | 16 | | -0.57 |
| 225 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 237 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 254 | IP501 | 39.292 | | 0.35 | 33.924 | | -0.27 | 16.807 | | -0.26 |
| 273 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 323 | IP501 | 41 | | 0.63 | 38 | | 0.41 | 20 | | 0.97 |
| 331 | IP501 | 21 | | -2.75 | 17 | | -3.12 | 17 | | -0.18 |
| 333 | IP501 | 39 | | 0.30 | 38 | | 0.41 | 20 | | 0.97 |
| 334 | IP501 | 42 | | 0.80 | 38 | | 0.41 | 17 | | -0.18 |
| 342 | IP501 | 46.6626 | | 1.59 | 40.7075 | | 0.87 | 16.8915 | | -0.23 |
| 343 | D5708 | 30 | | -1.23 | 45 | | 1.59 | 8.89 | C | -3.32 |
| 356 | IP501 | 34 | | -0.55 | 25 | | -1.78 | 20 | | 0.97 |
| 357 | IP501 | 48.3 | | 1.87 | 55.7 | | 3.39 | 26.4 | | 3.44 |
| 371 | IP470 | 37.2 | | -0.01 | 39.3 | | 0.63 | 21.0 | | 1.36 |
| 391 | IP501 | 33 | | -0.72 | 30 | | -0.93 | 13 | | -1.73 |
| 398 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 399 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 444 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 463 | IP470 | 39.7 | | 0.41 | 37.9 | | 0.40 | 18.45 | | 0.38 |
| 511 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 529 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 541 | IP470 | 35 | | -0.38 | 27 | | -1.44 | 18 | | 0.20 |
| 557 | IP470 | 39.7346 | | 0.42 | 41.2629 | | 0.96 | 18.0419 | | 0.22 |
| 605 | IP501 | 40 | | 0.47 | 38 | | 0.41 | 12 | | -2.12 |
| 631 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 663 | IP501 | 40.3 | | 0.52 | 38.7 | | 0.53 | 14.7 | | -1.07 |
| 750 | IP501 | 41.1 | | 0.65 | 39.3 | | 0.63 | 18.7 | | 0.47 |
| 781 | IP501 | 43.5 | | 1.06 | 44.8 | | 1.56 | 19.6 | | 0.82 |
| 785 | IP470 | 43.8 | | 1.11 | 38.0 | | 0.41 | 20.0 | | 0.97 |
| 824 | IP501 | 39.1 | | 0.31 | 38.3 | | 0.46 | 18.2 | | 0.28 |
| 850 | IP501 | 35.6 | | -0.28 | 30.0 | | -0.93 | 17.2 | | -0.11 |
| 851 | | ----- | | ----- | ----- | | ----- | 24 | | 2.52 |
| 855 | IP501 | 35.5 | | -0.30 | 26.8 | | -1.47 | 18.6 | | 0.43 |
| 862 | IP501 | 40.7 | | 0.58 | 33.2 | | -0.39 | 19.9 | | 0.93 |
| 863 | IP501 | 39.8 | | 0.43 | 36.7 | | 0.19 | 17.7 | | 0.09 |
| 864 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 865 | IP501 | 32.9 | | -0.74 | 25.5 | | -1.69 | 16.8 | | -0.26 |
| 875 | IP501 | 46.2 | | 1.51 | 41.3 | | 0.97 | 20.9 | | 1.32 |
| 912 | IP501 | 36 | | -0.21 | 39 | | 0.58 | ----- | | ----- |
| 913 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 922 | IP501 | 47 | | 1.65 | 35 | | -0.09 | 19 | | 0.59 |
| 963 | IP501 | 36 | | -0.21 | 43 | | 1.26 | 16 | | -0.57 |
| 971 | IP501 | 38.6 | | 0.23 | 38.8 | | 0.55 | 18.6 | | 0.43 |
| 974 | IP501 | 39 | | 0.30 | 40 | | 0.75 | 16 | | -0.57 |
| 1011 | | ----- | | ----- | 36 | | 0.08 | 14 | | -1.34 |
| 1059 | In house | 37 | | -0.04 | 42 | | 1.09 | ----- | | ----- |
| 1107 | IP501 | 39.4 | | 0.36 | 38.9 | | 0.57 | 18.0 | | 0.20 |
| 1109 | IP470 | 37.2 | | -0.01 | 32.4 | | -0.53 | 17.2 | | -0.11 |
| 1121 | IP501 | 37 | | -0.04 | 32.8 | | -0.46 | 20.7 | | 1.24 |
| 1126 | IP501 | 39.5 | | 0.38 | 38.1 | | 0.43 | 19.3 | | 0.70 |
| 1134 | IP501 | 26.17 | | -1.88 | 26.24 | | -1.57 | 14.38 | | -1.20 |
| 1135 | IP501 | 42.0 | | 0.80 | 37.3 | | 0.30 | 13.6 | | -1.50 |
| 1233 | IP501 | 31 | | -1.06 | 29 | | -1.10 | 19 | | 0.59 |
| 1259 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1275 | IP501 | 38.23 | | 0.17 | 36.21 | | 0.11 | 18.35 | | 0.34 |
| 1299 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1345 | IP470 | 38.31 | | 0.18 | 24.66 | | -1.83 | 19.12 | | 0.63 |
| 1356 | IP501 | 20 | | -2.92 | 18 | | -2.95 | 16 | | -0.57 |
| 1367 | IP501 | 37 | | -0.04 | 34 | | -0.26 | 16 | | -0.57 |
| 1402 | IP501 | 36 | | -0.21 | 30 | | -0.93 | 18 | | 0.20 |
| 1404 | IP470 | 35 | | -0.38 | 33 | | -0.43 | 19 | | 0.59 |

| lab | method | Fe | mark | z(targ) | Ni | mark | z(targ) | Na | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1510 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1556 | | ----- | | ----- | 38.0 | | 0.41 | 18.8 | | 0.51 |
| 1586 | IP501 | 44 | | 1.14 | 41 | | 0.92 | 19 | | 0.59 |
| 1613 | IP470 | 44.7 | | 1.26 | 48.3 | | 2.15 | 18.6 | | 0.43 |
| 1643 | D5185 | 25.29 | | -2.03 | 39.28 | | 0.63 | 10.34 | | -2.76 |
| 1677 | IP501 | 37.0 | | -0.04 | 37.4 | | 0.31 | 16.8 | | -0.26 |
| 1720 | D5708 | 33.7 | | -0.60 | 36.0 | | 0.08 | 21.6 | C | 1.59 |
| 1724 | IP501 | 35.6 | | -0.28 | 30.6 | | -0.83 | 14.99 | | -0.96 |
| 1740 | IP501 | 39 | | 0.30 | 36 | | 0.08 | 17 | | -0.18 |
| 1833 | IP501 | 34.85 | | -0.41 | 29.57 | | -1.01 | 15.26 | | -0.86 |
| 1854 | IP501 | 45.5 | | 1.40 | 36.9 | | 0.23 | 19.3 | | 0.70 |
| 1950 | IP470 | 41.3 | | 0.69 | 36.9 | | 0.23 | 19.4 | | 0.74 |
| 1967 | IP470 | 39 | | 0.30 | 40 | | 0.75 | 20 | | 0.97 |
| 1995 | IP501 | 9.1 | C,R(0.01) | -4.77 | 20.3 | | -2.57 | 13.8 | | -1.42 |
| 6016 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6026 | IP470 | 39.9399 | | 0.45 | 43.8593 | | 1.40 | 20.2670 | | 1.08 |
| 6028 | D5185 | 31.4 | | -0.99 | 43.9 | | 1.41 | 11.3 | | -2.39 |
| 6044 | IP501 | 23.32 | C | -2.36 | 40.65 | | 0.86 | 10.05 | | -2.87 |
| 6054 | IP501 | 39.8344 | | 0.44 | 37.4956 | | 0.33 | 18.5089 | | 0.40 |
| 6057 | IP501 | 40 | | 0.47 | 32 | | -0.60 | 19 | | 0.59 |
| 6075 | | ----- | | ----- | 53.9 | | 3.09 | 14.0 | | -1.34 |
| 6092 | IP501 | 29 | | -1.40 | 25 | | -1.78 | 16 | | -0.57 |
| | | | | | | | | | | |
| normality | | suspect | | | OK | | | | | |
| n | | 69 | | | 73 | | | 76 | | |
| outliers | | 1 | | | 0 | | | 1 | | |
| mean (n) | | 37.25 | | | 35.54 | | | 17.48 | | |
| st.dev. (n) | | 5.755 | | | 7.158 | | | 3.076 | | |
| R(calc.) | | 16.12 | | | 20.04 | | | 8.61 | | |
| st.dev.(IP470:05) | | 5.906 | | | 5.938 | | | 2.590 | | |
| R(IP470:05) | | 16.54 | | | 16.63 | | | 7.25 | | |
| Compare | | | | | | | | | | |
| R(IP501:05) | | 6.86 | | | 11.98 | | | 5.15 | | |

Lab 343 first reported 7 for Na
Lab 1720 first reported 32.5 for Na
Lab 1995 first reported 20 for Fe
Lab 6044 first reported 19.62 for Fe



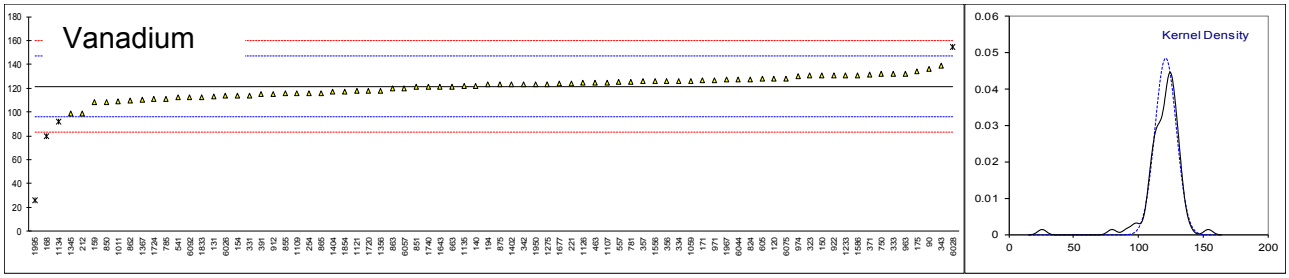



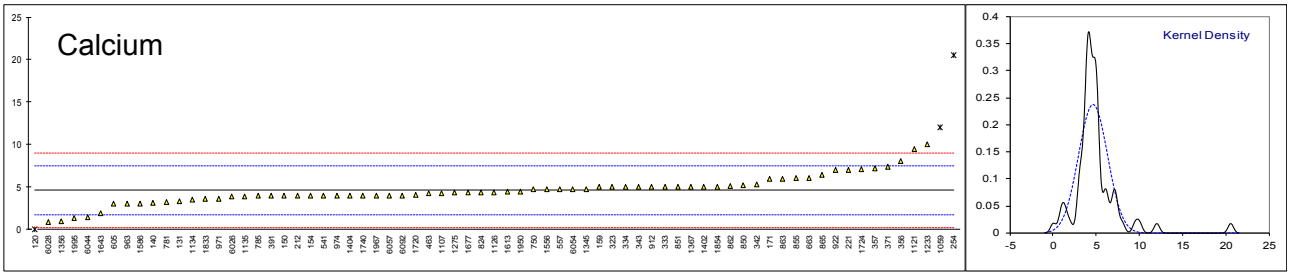
## Determination of Vanadium as V, Calcium as Ca and Zinc as Zn on sample #18106; results in mg/kg

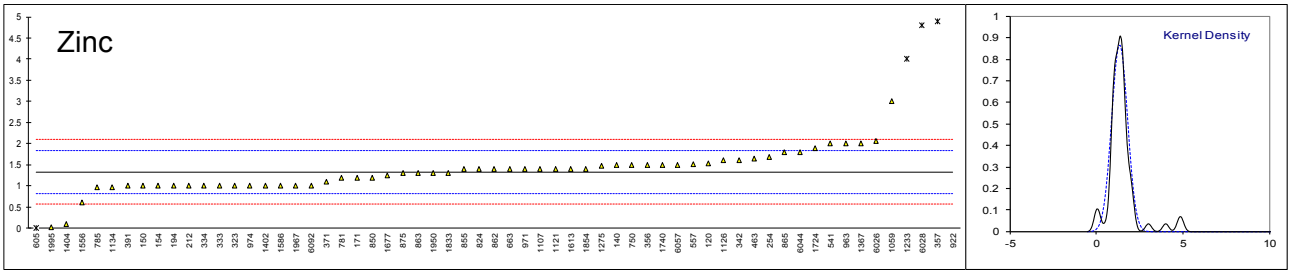
| lab | method | V | mark | z(targ) | Ca | mark | z(targ) | Zn | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 62 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 90 | D5863-B | 136 | | 1.14 | ----- | | ----- | ----- | | ----- |
| 92 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 120 | IP501 | 128.1 | | 0.52 | 0 | ex | -3.17 | 1.5335 | | 0.79 |
| 131 | IP501 | 113.0 | | -0.66 | 3.342 | | -0.87 | ----- | | ----- |
| 132 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 140 | IP501 | 122 | | 0.05 | 3.12 | | -1.02 | 1.49 | | 0.62 |
| 150 | IP501 | 131 | | 0.75 | 4 | | -0.42 | 1 | C | -1.29 |
| 154 | IP501 | 114 | | -0.58 | 4 | | -0.42 | 1 | | -1.29 |
| 159 | IP501 | 108 | | -1.05 | 5 | | 0.27 | ----- | | ----- |
| 168 | D5863-B | 80 | R(0.01) | -3.23 | ----- | | ----- | ----- | | ----- |
| 171 | IP501 | 126.3 | | 0.38 | 5.94 | | 0.91 | 1.2 | | -0.51 |
| 175 | D5863-B | 134 | | 0.98 | ----- | | ----- | ----- | | ----- |
| 194 | IP470 | 123 | | 0.12 | ----- | | ----- | 1 | | -1.29 |
| 212 | IP470 | 99 | | -1.75 | 4 | | -0.42 | 1 | | -1.29 |
| 221 | IP470 | 124 | | 0.20 | 7 | | 1.64 | ----- | | ----- |
| 225 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 237 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 254 | IP501 | 115.617 | | -0.45 | 20.557 | C,R(0.01) | 10.95 | 1.688 | | 1.39 |
| 273 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 323 | IP501 | 131 | | 0.75 | 5 | | 0.27 | 1 | | -1.29 |
| 331 | IP501 | 114 | | -0.58 | <5 | | ----- | <5 | | ----- |
| 333 | IP501 | 132 | | 0.83 | 5 | | 0.27 | 1 | | -1.29 |
| 334 | IP501 | 126 | | 0.36 | 5 | | 0.27 | 1 | | -1.29 |
| 342 | IP501 | 123.2090 | | 0.14 | 5.3425 | | 0.50 | 1.6104 | | 1.09 |
| 343 | D5708 | 139 | | 1.37 | 5 | | 0.27 | <1 | | ----- |
| 356 | IP501 | 126 | | 0.36 | 8 | | 2.33 | 1.5 | | 0.66 |
| 357 | IP501 | 125.6 | | 0.33 | 7.2 | | 1.78 | 4.9 | R(0.01) | 13.90 |
| 371 | IP470 | 131.1 | | 0.76 | 7.4 | | 1.92 | 1.1 | | -0.90 |
| 391 | IP501 | 115 | | -0.50 | 4 | | -0.42 | 1 | | -1.29 |
| 398 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 399 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 444 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 463 | IP470 | 124.8 | | 0.26 | 4.25 | | -0.25 | 1.65 | | 1.24 |
| 511 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 529 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 541 | IP470 | 112 | | -0.73 | 4 | | -0.42 | 2 | | 2.60 |
| 557 | IP470 | 125.298 | | 0.30 | 4.70778 | | 0.07 | 1.5077 | | 0.69 |
| 605 | IP501 | 128 | | 0.51 | 3 | | -1.11 | 0 | ex | -5.19 |
| 631 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 663 | IP501 | 121.4 | | 0.00 | 6.1 | | 1.02 | 1.4 | | 0.27 |
| 750 | IP501 | 132.0 | | 0.83 | 4.7 | | 0.06 | 1.5 | | 0.66 |
| 781 | IP501 | 125.5 | | 0.32 | 3.2 | | -0.97 | 1.2 | | -0.51 |
| 785 | IP470 | 111.3 | | -0.79 | 3.98 | | -0.43 | 0.97 | | -1.41 |
| 824 | IP501 | 127.5 | | 0.47 | 4.4 | | -0.15 | 1.4 | | 0.27 |
| 850 | IP501 | 108.0 | | -1.05 | 5.2 | | 0.40 | 1.2 | | -0.51 |
| 851 | IP501 | 121 | C | -0.03 | 5 | C | 0.27 | <1 | C | ----- |
| 855 | IP501 | 115.6 | | -0.45 | 6.1 | | 1.02 | 1.4 | | 0.27 |
| 862 | IP501 | 109.4 | | -0.94 | 5.1 | | 0.34 | 1.4 | | 0.27 |
| 863 | IP501 | 119.6 | | -0.14 | 6 | | 0.95 | 1.3 | | -0.12 |
| 864 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 865 | IP501 | 115.8 | | -0.44 | 6.4 | | 1.23 | 1.8 | | 1.83 |
| 875 | IP501 | 123 | | 0.12 | ----- | | ----- | 1.3 | | -0.12 |
| 912 | IP501 | 115 | | -0.50 | 5 | | 0.27 | <1 | | ----- |
| 913 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 922 | IP501 | 131 | | 0.75 | 7 | | 1.64 | 22 | C,R(0.01) | 80.50 |
| 963 | IP501 | 132 | | 0.83 | 3 | | -1.11 | 2 | | 2.60 |
| 971 | IP501 | 126.6 | | 0.40 | 3.6 | | -0.70 | 1.4 | | 0.27 |
| 974 | IP501 | 130 | | 0.67 | 4 | | -0.42 | 1 | | -1.29 |
| 1011 | D5863-B | 109 | | -0.97 | ----- | | ----- | ----- | | ----- |
| 1059 | In house | 126 | | 0.36 | 12 | R(0.01) | 5.07 | 3 | | 6.50 |
| 1107 | IP501 | 124.8 | | 0.26 | 4.3 | | -0.21 | 1.4 | | 0.27 |
| 1109 | IP470 | 115.6 | | -0.45 | ----- | | ----- | ----- | | ----- |
| 1121 | IP501 | 117.5 | | -0.30 | 9.5 | | 3.36 | 1.4 | | 0.27 |
| 1126 | IP501 | 124.7 | | 0.26 | 4.4 | | -0.15 | 1.6 | | 1.05 |
| 1134 | IP501 | 91.61 | R(0.05) | -2.32 | 3.49 | | -0.77 | 0.97 | | -1.41 |
| 1135 | IP501 | 121.7 | | 0.02 | 3.9 | | -0.49 | <1 | | ----- |
| 1233 | IP501 | 131 | | 0.75 | 10 | | 3.70 | 4 | R(0.01) | 10.39 |
| 1259 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1275 | IP501 | 123.4 | | 0.16 | 4.326 | | -0.20 | 1.481 | | 0.58 |
| 1299 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1345 | IP470 | 98.50 | | -1.79 | 4.73 | C | 0.08 | ----- | | ----- |
| 1356 | IP501 | 118 | | -0.27 | 1 | | -2.48 | <1 | | ----- |
| 1367 | IP501 | 110 | | -0.89 | 5 | | 0.27 | 2 | | 2.60 |
| 1402 | IP501 | 123 | | 0.12 | 5 | | 0.27 | 1 | | -1.29 |
| 1404 | IP470 | 117 | | -0.34 | 4 | | -0.42 | 0.1 | | -4.80 |

| lab | method | V | mark | z(targ) | Ca | mark | z(targ) | Zn | mark | z(targ) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1510 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 1556 | IP501 | 125.6 | | 0.33 | 4.7 | | 0.06 | 0.6 | | -2.85 |
| 1586 | IP501 | 131 | | 0.75 | 3 | | -1.11 | 1 | | -1.29 |
| 1613 | | ----- | W | ----- | 4.5 | | -0.08 | 1.4 | | 0.27 |
| 1643 | D5185 | 121.2 | | -0.02 | 1.943 | | -1.83 | ----- | | ----- |
| 1677 | IP501 | 123.7 | | 0.18 | 4.36 | | -0.17 | 1.25 | | -0.32 |
| 1720 | D5708 | 117.9 | | -0.27 | 4.1 | C | -0.35 | ----- | | ----- |
| 1724 | IP501 | 111.2 | | -0.80 | 7.06 | | 1.68 | 1.9 | | 2.21 |
| 1740 | IP501 | 121 | | -0.03 | 4 | | -0.42 | 1.5 | | 0.66 |
| 1833 | IP501 | 112.4 | | -0.70 | 3.57 | | -0.72 | 1.31 | | -0.08 |
| 1854 | IP501 | 117.3 | | -0.32 | 5.0 | | 0.27 | 1.4 | | 0.27 |
| 1950 | IP470 | 123.3 | | 0.15 | 4.5 | | -0.08 | 1.3 | | -0.12 |
| 1967 | IP470 | 127 | | 0.44 | 4 | | -0.42 | 1 | | -1.29 |
| 1995 | IP501 | 26 | C,R(0.01) | -7.44 | 1.3 | C | -2.27 | 0.03 | C | -5.07 |
| 6016 | | ----- | | ----- | ----- | | ----- | ----- | | ----- |
| 6026 | IP470 | 113.4852 | | -0.62 | 3.8746 | | -0.51 | 2.0658 | | 2.86 |
| 6028 | D5185 | 154.3 | R(0.05) | 2.56 | 0.85 | | -2.58 | 4.8 | C,R(0.01) | 13.51 |
| 6044 | IP501 | 127 | | 0.44 | 1.4 | | -2.21 | 1.8 | | 1.83 |
| 6054 | | ----- | | ----- | 4.72469 | | 0.08 | ----- | | ----- |
| 6057 | IP501 | 120 | | -0.11 | 4 | | -0.42 | 1.5 | | 0.66 |
| 6075 | D5863-B | 128.1 | | 0.52 | ----- | | ----- | ----- | | ----- |
| 6092 | IP501 | 112 | | -0.73 | 4 | | -0.42 | 1 | | -1.29 |
| | | | | | | | | | | |
| normality | | OK | | | suspect | | | not OK | | |
| n | | 74 | | | 68 | | | 56 | | |
| outliers | | 4 | | | 2 (+1ex) | | | 4 (+1ex) | | |
| mean (n) | | 121.41 | | | 4.61 | | | 1.33 | | |
| st.dev. (n) | | 8.228 | | | 1.680 | | | 0.460 | | |
| R(calc.) | | 23.04 | | | 4.71 | | | 1.29 | | |
| st.dev.(IP470:05) | | 12.829 | | | 1.456 | | | 0.257 | | |
| R(IP470:05) | | 35.92 | | | 4.08 | | | 0.72 | | |
| Compare | | | | | | | | | | |
| R(IP501:05) | | 29.91 | | | 1.74 | | | 0.62 | | |

Lab 150 first reported 5 for Zn
Lab 254 first reported 11.184 for Ca
Lab 851 first reported 22.66 for V, 5.838 for Ca and 0.696 for Zn
Lab 922 first reported 28 for Zn
Lab 1345 first reported 10.73 for Ca
Lab 1613 first reported 202 for V
Lab 1720 first reported 10 for Ca
Lab 1995 first reported 41 for V, 19 for Ca and 15.2 for Zn
Lab 6028 first reported 3.8 for Zn
Labs 120and 605 excluded as zero is not a real test result



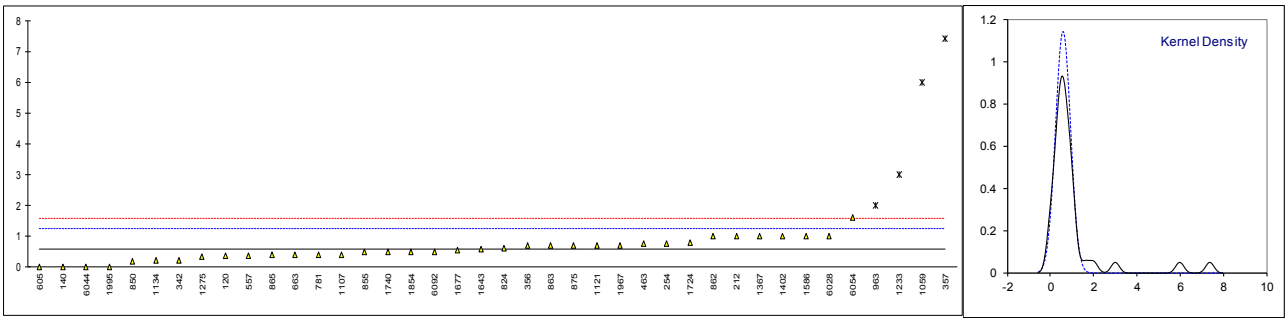



Determination of Phosphorus as P on sample #18106; results in mg/kg

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 62 | | ----- | | ----- | |
| 90 | | ----- | | ----- | |
| 92 | | ----- | | ----- | |
| 120 | IP501 | 0.378 | | -0.58 | |
| 131 | | ----- | | ----- | |
| 132 | | ----- | | ----- | |
| 140 | IP501 | 0 | | -1.70 | |
| 150 | IP501 | <1 | | ----- | |
| 154 | IP501 | <1 | | ----- | |
| 159 | | ----- | | ----- | |
| 168 | | ----- | | ----- | |
| 171 | IP501 | <1 | | ----- | |
| 175 | | ----- | | ----- | |
| 194 | | ----- | | ----- | |
| 212 | IP500 | 1 | | 1.28 | |
| 221 | | ----- | | ----- | |
| 225 | | ----- | | ----- | |
| 237 | | ----- | | ----- | |
| 254 | IP501 | 0.769 | | 0.59 | |
| 273 | | ----- | | ----- | |
| 323 | IP501 | <1 | | ----- | |
| 331 | IP501 | <5 | | ----- | |
| 333 | IP501 | <1 | | ----- | |
| 334 | IP501 | <1 | | ----- | |
| 342 | IP501 | 0.2304 | | -1.02 | |
| 343 | IP501 | <1 | | ----- | |
| 356 | IP501 | 0.7 | | 0.39 | |
| 357 | IP501 | 7.4 | R(0.01) | 20.39 | |
| 371 | | ----- | | ----- | |
| 391 | IP501 | <1 | | ----- | |
| 398 | | ----- | | ----- | |
| 399 | | ----- | | ----- | |
| 444 | | ----- | | ----- | |
| 463 | IP500 | 0.75 | | 0.54 | |
| 511 | | ----- | | ----- | |
| 529 | | ----- | | ----- | |
| 541 | IP501 | <1 | | ----- | |
| 557 | IP501 | 0.381814 | | -0.56 | |
| 605 | IP501 | 0 | | -1.70 | |
| 631 | | ----- | | ----- | |
| 663 | IP501 | 0.4 | | -0.51 | |
| 750 | IP501 | <1 | | ----- | |
| 781 | IP501 | 0.4 | | -0.51 | |
| 785 | | ----- | | ----- | |
| 824 | IP501 | 0.6 | | 0.09 | |
| 850 | IP501 | 0.2 | | -1.11 | |
| 851 | IP501 | <1 | C | ----- | first reported 1.829 |
| 855 | IP501 | 0.5 | | -0.21 | |
| 862 | IP501 | 1.0 | | 1.28 | |
| 863 | IP501 | 0.7 | | 0.39 | |
| 864 | | ----- | | ----- | |
| 865 | IP501 | 0.4 | | -0.51 | |
| 875 | IP501 | 0.7 | | 0.39 | |
| 912 | IP501 | <1 | | ----- | |
| 913 | | ----- | | ----- | |
| 922 | | ----- | | ----- | |
| 963 | IP501 | 2 | R(0.05) | 4.27 | |
| 971 | IP501 | <1 | | ----- | |
| 974 | IP501 | <1 | | ----- | |
| 1011 | | ----- | | ----- | |
| 1059 | In house | 6 | R(0.01) | 16.21 | |
| 1107 | IP501 | 0.4 | | -0.51 | |
| 1109 | | ----- | | ----- | |
| 1121 | IP501 | 0.7 | | 0.39 | |
| 1126 | | ----- | | ----- | |
| 1134 | IP501 | 0.23 | | -1.02 | |
| 1135 | IP501 | <1 | | ----- | |
| 1233 | IP501 | 3 | R(0.01) | 7.25 | |
| 1259 | | ----- | | ----- | |
| 1275 | IP501 | 0.345 | | -0.67 | |
| 1299 | | ----- | | ----- | |
| 1345 | | ----- | | ----- | |
| 1356 | IP501 | <1 | | ----- | |
| 1367 | IP501 | 1 | | 1.28 | |
| 1402 | IP501 | 1 | | 1.28 | |
| 1404 | | ----- | | ----- | |

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 1510 | | ----- | | ----- | |
| 1556 | | ----- | | ----- | |
| 1586 | IP501 | 1 | | 1.28 | |
| 1613 | | ----- | | ----- | |
| 1643 | D5185 | 0.589 | | 0.05 | |
| 1677 | IP501 | 0.56 | | -0.03 | |
| 1720 | | ----- | | ----- | |
| 1724 | IP501 | 0.8 | | 0.68 | |
| 1740 | IP501 | 0.5 | | -0.21 | |
| 1833 | IP501 | <1 | | ----- | |
| 1854 | IP501 | 0.5 | | -0.21 | |
| 1950 | | ----- | | ----- | |
| 1967 | IP501 | 0.7 | | 0.39 | |
| 1995 | IP501 | 0.02 | C | -1.64 | first reported 9.4 |
| 6016 | | ----- | | ----- | |
| 6026 | | ----- | | ----- | |
| 6028 | D5185 | 1.0 | | 1.28 | |
| 6044 | IP501 | 0 | | -1.70 | |
| 6054 | IP501 | 1.59561 | | 3.06 | |
| 6057 | IP501 | <1 | | ----- | |
| 6075 | | ----- | | ----- | |
| 6092 | IP501 | 0.5 | | -0.21 | |
| | | | | | |
| | normality | OK | | | |
| | n | 36 | | | |
| | outliers | 4 | | | |
| | mean (n) | 0.57 | | | |
| | st.dev. (n) | 0.349 | | | |
| | R(calc.) | 0.98 | | | |
| | st.dev.(IP501:05) | 0.335 | | | |
| | R(IP501:05) | 0.94 | | | |
| Compare R(IP500:03) | | 0.97 | | | Range 0.2 – 40 mg/kg |



## APPENDIX 2

## Number of participants per country

**Main round**

1 lab in ARGENTINA
1 lab in AUSTRALIA
5 labs in BELGIUM
1 lab in BRAZIL
3 labs in CANADA
1 lab in CHILE
9 labs in CHINA, People's Republic
1 lab in COLOMBIA
2 labs in COTE D'IVOIRE
1 lab in CROATIA
1 lab in CZECH REPUBLIC
1 lab in DJIBOUTI
1 lab in EGYPT
2 labs in ESTONIA
8 labs in FRANCE
1 lab in GEORGIA
2 labs in GERMANY
4 labs in GREECE
1 lab in GUAM
1 lab in GUINEA REPUBLIC
1 lab in HONG KONG
2 labs in INDIA
1 lab in IRAN, Islamic Republic of
1 lab in IRELAND
3 labs in ITALY
1 lab in JORDAN
1 lab in KAZAKHSTAN
1 lab in KENYA
2 labs in LATVIA
1 lab in MACEDONIA
3 labs in MALAYSIA
2 labs in MALTA
1 lab in MARTINIQUE
1 lab in MEXICO
1 lab in MOROCCO
2 labs in NETHERLANDS
2 labs in NIGERIA
1 lab in PAKISTAN
1 lab in PERU
2 labs in PHILIPPINES
2 labs in PORTUGAL
1 lab in ROMANIA
10 labs in RUSSIAN FEDERATION
2 labs in SAUDI ARABIA
1 lab in SENEGAL
2 labs in SLOVENIA
1 lab in SOUTH AFRICA
2 labs in SOUTH KOREA
8 labs in SPAIN
1 lab in SUDAN
4 labs in SWEDEN
2 labs in TAIWAN
1 lab in THAILAND
1 lab in TOGO
1 lab in TUNISIA
10 labs in TURKEY
2 labs in UNITED ARAB EMIRATES
10 labs in UNITED KINGDOM
13 labs in UNITED STATES OF AMERICA

**Metals in Fuel Oil**

1 lab in ARGENTINA
1 lab in AUSTRALIA
3 labs in BELGIUM
1 lab in BRAZIL
3 labs in CANADA
6 labs in CHINA, People's Republic
2 labs in COTE D'IVOIRE
1 lab in CROATIA
1 lab in EGYPT
1 lab in ESTONIA
1 lab in FINLAND
4 labs in FRANCE
1 lab in GEORGIA
1 lab in GERMANY
3 labs in GREECE
1 lab in HONG KONG
2 labs in INDIA
3 labs in ITALY
1 lab in JORDAN
1 lab in KAZAKHSTAN
1 lab in KENYA
1 lab in LATVIA
1 lab in MALAYSIA
2 labs in MALTA
1 lab in MARTINIQUE
1 lab in MEXICO
1 lab in MOROCCO
1 lab in NETHERLANDS
1 lab in NIGERIA
1 lab in PAKISTAN
1 lab in PERU
1 lab in PHILIPPINES
1 lab in PORTUGAL
7 labs in RUSSIAN FEDERATION
1 lab in SAUDI ARABIA
1 lab in SENEGAL
1 lab in SLOVENIA
1 lab in SOUTH AFRICA
1 lab in SOUTH KOREA
4 labs in SPAIN
1 lab in SUDAN
3 labs in SWEDEN
1 lab in THAILAND
1 lab in TUNISIA
2 labs in TURKEY
2 labs in UNITED ARAB EMIRATES
9 labs in UNITED KINGDOM
11 labs in UNITED STATES OF AMERICA

## APPENDIX 3

### Abbreviations:

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

### Literature: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