

**Results of Proficiency Test  
Gasoil (Diesel - EN spec.)  
March 2017**

**Organised by:** Institute for Interlaboratory Studies  
Spijkenisse, the Netherlands

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## 1 INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies organizes proficiency tests for Gasoil. During the annual proficiency testing program of 2016/2017, it was decided to continue the proficiency test for the analysis of Gasoil/automotive diesel in accordance with the latest applicable version of EN590 specification.

In this interlaboratory study, 180 laboratories from 57 different countries registered for participation. See appendix 3 for the number of participants per country. In this report, the results of the 2017 Gasoil proficiency test are presented and discussed. This report is also electronically available through the iis website [www.iisnl.com](http://www.iisnl.com).

## 2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were sub contracted to an ISO/IEC 17025 accredited laboratory.

For the regular round robin it was decided to use two identical samples of Gasoil, 1\*1L Gasoil and 1\*0.5L Gasoil, both labelled #17025. For the Cetane Number round, 4\*1L Gasoil labelled #17026 was used. For Total Contamination, it was decided to use one bottle of 1L (85% filled with regular gasoil), labelled #17027 and for Oxidation Stability a gasoil sample of 1\*0.5 L labelled #17028 was used. 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 sending out questionnaires.

### 2.2 PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4), which can be downloaded from the iis website <http://www.iisnl.com>.

## 2.3 CONFIDENTIALITY STATEMENT

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

## 2.4 SAMPLES

### Preparation of samples for PT on regular low sulphur summer Gasoil (EN)

The 400 litre low sulphur Gasoil (automotive diesel) was purchased from the local market. After homogenization, the material was subsequently divided over 200 amber glass bottles of 1L and 200 amber glass bottles of 500 mL with inner and outer caps, both labelled #17025. The homogeneity of the 1L and 500 mL subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples.

	Density at 15°C in kg/m <sup>3</sup>
sample #17025-1	834.06
sample #17025-2	834.04
sample #17025-3	834.04
sample #17025-4	834.02
sample #17025-5	834.02
sample #17025-6	834.02
sample #17025-7	834.02
sample #17025-8	834.02
sample #17025-9	834.02
sample #17025-10	834.01

Table 1: homogeneity test results of subsamples #17025

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

	Density at 15°C in kg/m <sup>3</sup>
r (sample #17025)	0.04
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 2: evaluation of the repeatability of the subsamples #17025

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #17025 was assumed.

Preparation of samples for PT on Cetane Number in Gasoil

Another batch of 400 litre was purchased from the local market, homogenized and subsequently divided over 260 amber glass bottles of 1L with inner and outer caps, all labelled #17026. The homogeneity of the 1L subsamples was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples.

	Density at 15°C in kg/m <sup>3</sup>
sample #17026-1	833.76
sample #17026-2	833.76
sample #17026-3	833.74
sample #17026-4	833.75
sample #17026-5	833.73
sample #17026-6	833.75
sample #17026-7	833.74
sample #17026-8	833.72
sample #17026-9	833.75
sample #17026-10	833.70

Table 3: homogeneity test results of subsamples #17026

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

	Density at 15°C in kg/m <sup>3</sup>
r (sample #17026)	0.05
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 4: evaluation of the repeatability of the subsamples #17026

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #17026 was assumed.

Preparation of samples for PT on Total Contamination in Gasoil

For Total Contamination, approx. 200 litre was purchased from the local market. Out of this batch, 129 amber glass bottles of 1L with inner and outer caps were filled up to approx. 850 ml and subsequently labelled #17027. Each of the 129 filled bottles was spiked with 1 ml of a freshly prepared and ultrasonically homogenized 12 g/kg Arizona Dust in oil suspension. The addition was checked by weighing each bottle before and after the addition of the spike.

Preparation of samples for PT on Oxidation Stability in Gasoil

For Oxidation Stability, approx. 140 litre was made available from the same batch as sample #17026. This batch was homogenized and subsequently divided over 80 amber glass bottles of 0.5L with inner and outer caps, all labelled #17028.

The homogeneity of the 0.5L subsamples was checked by the determination of Density in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m <sup>3</sup>
sample #17028-1	833.78
sample #17028-2	833.75
sample #17028-3	833.74
sample #17028-4	833.73
sample #17028-5	833.73
sample #17028-6	833.74
sample #17028-7	833.74
sample #17028-8	833.71

Table 5: homogeneity test results of subsamples #17028

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

	Density at 15°C in kg/m <sup>3</sup>
r (sample #17028)	0.06
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 6: evaluation of the repeatability of the subsamples #17028

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #17028 was assumed.

Depending on the registration, two bottles of regular Gasoil (1\*1 L and 1\*0.5 L both labelled #17025) and/or four bottles of Gasoil (1\*1L labelled #17026) for Cetane Number only and/or one bottle of Gasoil for Total Contamination only (1\*1 L labelled #17027) and/or one bottle of Gasoil for Oxidation Stability (1\*0.5L labelled #17028) were sent to the participating laboratories on February 22, 2017. An SDS was added to the sample package.

## 2.5 STABILITY OF THE SAMPLES

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

## 2.6 ANALYSIS

The participants were asked to determine on the sample #17025: Acid Number (Total), Ash, Calculated Cetane Index, Cloud Point, Cold Filter Plugging Point (CFPP), Carbon Residue on 10% residue, Copper Corrosion, Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250°C and 350°C), FAME, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR, Manganese, Nitrogen, Polycyclic-, Mono-, Di-, Tri+- and Total-Aromatic Hydrocarbons, Pour Point (manual and automated), Sulphur and Water.

The participants were asked to determine on the sample #17026: Cetane Number, Derived Cetane Number/Ignition Delay/Air temperature (EN15195) and Derived Cetane Number/Ignition Delay/Combustion Delay/Chamber Wall Temperature (D7668).

On sample #17027, the participants were requested to determine Total Contamination only.

The participants were asked to determine on the sample #17028: Oxidation Stability (EN15751) and/or Oxidation Stability (ISO12205) – Filterable Insolubles (A), Adherent Insolubles (B) and Total Insolubles (A+B).

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 results, but report as much significant figures as possible. It was also requested not to report 'less than' results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluations.

To get comparable 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/](http://www.kpmd.co.uk/sgs-iis/). The participating laboratories are also requested to confirm the sample receipt on this data entry portal. The letter of instructions can also be downloaded from the iis website [www.iisnl.com](http://www.iisnl.com).

### 3 RESULTS

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

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

#### 3.1 STATISTICS

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of 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 and/or Grubbs' and/or Rosner's outlier tests. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

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

### 3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are 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 standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms. Also a normal Gauss curve was projected over the Kernel Density Graph for reference.

### 3.3 Z-SCORES

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

The target standard deviation was calculated from the literature reproducibility by division with 2.8.



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

The z-scores were calculated in accordance with:

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

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

Absolute values for  $z < 2$  are very common and absolute values for  $z > 3$  are very rare.

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 interlaboratory study, no major problems were encountered with the dispatch of the samples.

For sample #17025, three participants reported test results after the final reporting date and seven participants did not report any test results at all.

For sample #17026, three participants did not report any test results and all other participants reported before the final reporting date.

For sample #17027, one participant reported test results after the final reporting date and fifteen participants did not report any test results at all.

For sample #17028, one participant reported test results after the final reporting date and eight participants did not report any test results at all.

Finally, 174 participants reported 3737 numerical test results in total. Observed were 101 outlying test results, which is 2.7%. In proficiency studies, outlier percentages of 3%-7.5% are quite normal.

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

### 4.1 EVALUATION PER TEST

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

In the iis PT reports, ASTM methods are referred to with a number (e.g. D4737) and an added designation for the year that the method was adopted or revised (e.g. D4737:10). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D4737:10(2016)). In the results tables of Appendix 1 only the method number and year of adoption or revision e.g. D4737:10 will be used.

### **Sample #17025 – Gasoil main round**

Acid Number, Total: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D974:14e2. One should keep in mind that ASTM D974 and D664, may or may not give the same test results (see note 2 in ASTM D664 and note 3 in ASTM D974).

Ash: This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO6245:01.

Cetane Index: Three participants reported test results according ASTM D976, a test method that leads to test results that are not equivalent with ISO4264/ASTM D4737 results. Therefore, these test results were excluded from the statistical evaluation. For the other results, apparently almost all participants used the same calculation method: procedure A of ISO4264:07 / IP380:14 / ASTM D4737:10(2016).  
The calculated reproducibility of the group is larger in comparison with the reproducibility as found in last year's round: 1.02 vs 0.82.  
Eight participants probably made a calculation error.

Cloud Point: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of EN23015:94.

CFPP: 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 EN116:15.

CR on 10% res.: This determination was problematic at this low level of carbon residue. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with ISO10370:14.

Copper Corrosion: This determination was not problematic. One-hundred twenty-five participants reported a test result and agreed on a result of 1.

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

- Distillation: The automated method was performed by 85% of the participants. This determination was not problematic. In total fourteen statistical outliers were observed. Three test results of two labs were excluded for the other test results showed two or more outliers. All calculated reproducibilities are in agreement with the requirements of ISO3405:11-automated mode. However, for the manual mode only the calculated reproducibilities for 10%, 50%, 90% recovered, volume at 250°C and 350°C are in agreement with the requirements of ISO3405:11.
- FAME: This determination was problematic. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with EN14078:14 (range B).
- Flash Point: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO2719:02.
- Kin. visc. 40°C: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ISO3104:94.
- Lubricity: This determination was problematic. No statistical outliers were observed. Eleven test results were excluded, as the reported test method (ASTM D6079 and D7688) uses a deviating calculation procedure and the test result therefore is not equivalent with a test result of ISO12156. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ISO12156:16.
- Manganese: This determination may be problematic at the low concentration of 0.7 mg Mn/L. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers was not at all in agreement with the requirements of EN16576:14. Since the amount of Manganese found in the sample is close to the lower limit of the method, no z-scores were calculated.
- Nitrogen: This determination was very problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with ASTM D4629:12.
- Poly-Aromatics: This determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements EN12916:16. One participant probably made a calculation error, as the reported test result deviates from the sum of the reported test results for Di- and Tri+-Aromatic Hydrocarbons.

Mono-Aromatics: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements EN12916:16.

Di-Aromatics: This determination was not problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements EN12916:16.

Tri<sup>+</sup>-Aromatics: This determination was problematic for a number of participants. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements EN12916:16.

Total Aromatics: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements EN12916:16. Two laboratories probably made a calculation error, as the reported test result deviates from the sum of the reported test results for Mono-, Di- and Tri+-Aromatic Hydrocarbons.

Pour Point manual: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO3016:94.

Pour Point automated: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ASTM D5950:14.

Sulphur: 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 ISO20846:11.

Water: This determination was not problematic. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO12937:00.

### **Sample #17026 – Gasoil Cetane Number**

Cetane Number: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility is in good agreement with the requirements of ISO5165:98.

DCN (EN15195): This determination was not problematic. For Derived Cetane Number and Ignition Delay in total two statistical outliers were observed. However, both calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of EN15195:14.

DCN (D7668): This determination was not problematic. One statistical outlier was observed and the test results of lab 1810 were excluded, because the reported DCN was not the same as is calculated from the reported Ignition Delay and Combustion Delay. For Derived Cetane Number the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of D7668:14a. The calculated reproducibilities of both Ignition Delay and Combustion Delay are not in agreement with D7668:14a.

### **Sample #17027 – Gasoil Total Contamination**

Total Contamination: This determination was problematic. The samples were spiked with 14.9 mg/kg Arizona Dust. Therefore, the minimal concentration to be found was known. The laboratories should be able to find at least 8.3 mg/kg [14.9 mg/kg<sub>(added amount)</sub> – 6.6 mg/kg<sub>(R EN12662)</sub>]. Two laboratories reported a lower amount than 8.3 mg/kg. The test results of these laboratories were rejected prior to data analysis. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN12662:14.

### **Sample #17028 – Gasoil Oxidation Stability**

Induction Period (EN15751): This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with EN15751:14.

Filterable Insol. A (ISO12205): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO12205:95(2012).

Adherent Insol. B (ISO12205): This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO12205:95(2012).

Total Insol. A+B (ISO12205): This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with ISO12205:95(2012).

## 4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameters	unit	n	average	2.8 * sd	R (lit)
Acid Number, Total	mgKOH/g	83	0.028	0.026	0.04
Ash	%M/M	67	0.0008	0.0011	0.005
Cetane index, four variables		123	54.93	1.02	n.a.
Cloud Point	°C	134	-3.4	2.4	4
Cold Filter Plugging Point	°C	135	-13.8	3.2	3.8
Carbon Residue on 10% res.	%M/M	75	0.016	0.023	0.016
Copper Corrosion (3hrs at 50°C)		125	1	n.a.	n.a.
Density at 15 °C	kg/m <sup>3</sup>	156	834.02	0.26	0.5
IBP	°C	149	168.7	8.4	9.3
10% recovery	°C	148	211.1	4.8	4.6
50% recovery	°C	150	278.3	2.7	3.0
90% recovery	°C	149	337.2	3.8	5.1
95% recovery	°C	151	352.4	6.6	9.0
FBP	°C	151	362.5	5.8	7.1
Volume at 250°C	%V/V	147	29.8	2.1	2.7
Volume at 350°C	%V/V	147	94.5	1.7	2.7
FAME	%V/V	92	5.56	0.58	0.40
Flash Point PMcc	°C	158	62.0	3.6	4.4
Kinematic Viscosity at 40°C	mm <sup>2</sup> /s	149	2.901	0.033	0.032
Lubricity by HFRR	µm	79	234	103	90
Manganese	mg/L	33	0.66	0.50	(0.17)*
Nitrogen	mg/kg	52	40.7	15.2	5.5
Poly-Aromatics	%M/M	69	2.28	0.77	0.89
Mono-Aromatics	%M/M	68	18.80	2.52	2.36
Di-Aromatics	%M/M	65	2.05	0.53	0.66
Tri <sup>+</sup> -Aromatics	%M/M	58	0.22	0.32	0.57
Total Aromatics	%M/M	65	21.22	3.10	4.74
Pour Point, manual	°C	91	-13.9	5.1	6.4
Pour Point, automated	°C	48	-12.8	3.8	6.1
Sulphur	mg/kg	143	7.9	2.2	2.0
Water	mg/kg	140	57.4	23.5	52.1

Table 7: reproducibilities of tests on sample #17025

\*) Result between brackets is near of below the detection limit

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		41	56.4	2.7	4.8
DCN (EN15195)		9	57.5	2.0	2.8
Ignition Delay (EN15195)	ms	8	3.5	0.1	0.2
DCN (D7668)		10	57.3	1.7	1.7
Ignition Delay (D7668)	ms	11	2.7	0.2	0.1
Combustion Delay (D7668)	ms	11	4.2	0.1	0.1

Table 8: reproducibilities of tests on Gasoil #17026

Parameters	unit	n	average	2.8 * sd	R (lit)
Total Contamination	mg/kg	83	15.4	9.7	6.6

Table 9: reproducibilities of tests on Gasoil #17027

Parameters	unit	n	average	2.8 * sd	R (lit)
Oxidation Stability (EN15751)	hrs	19	50.8	16.4	10.0
Oxidation Stability (ISO12205):					
Filterable Insolubles (A)	g/m <sup>3</sup>	44	1.06	2.91	3.81
Adherent Insolubles (B)	g/m <sup>3</sup>	41	1.35	3.39	3.81
Total Insolubles (A+B)	g/m <sup>3</sup>	51	2.68	5.26	7.63

Table 10: reproducibilities of tests on Gasoil #17028

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

#### 4.3 COMPARISON OF THE INTERLABORATORY STUDY OF MARCH 2017 WITH PREVIOUS PTS.

	<i>March 2017</i>	<i>March 2016</i>	<i>March 2015</i>	<i>March 2014</i>	<i>March 2013</i>
Number of reporting labs	174	161	169	162	132
Number of results reported	3737	4203	3186	3191	2572
Statistical outliers	101	121	90	90	75
Percentage outliers	2.7%	2.9%	2.8%	2.8%	2.9%

Table 11: comparison with previous proficiency tests

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

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

	<i>March 2017</i>	<i>March 2016</i>	<i>March 2015</i>	<i>March 2014</i>	<i>March 2013</i>
Acid Number, Total	+	+	++	++	++
Ash	++	++	++	++	++
Cloud Point	+	++	++	++	++
Cold Filter Plugging Point	+	-	+	+	-
CR 10% residue	-	--	-	--	--
Density at 15°C	++	+	++	++	+
Distillation	+	+	++	++	++
FAME	-	-	--	--	-
Flash Point PMcc	+	+	+	++	++
Kinematic Viscosity at 40°C	+/-	+/-	+	+/-	+/-
Lubricity by HFRR	-	+/-	--	--	--
Manganese	n.e.	-	n.e.	n.e.	n.e.
Nitrogen	--	-	--	--	-
Poly-Aromatics	+	-	+	+/-	+/-
Mono-, Di-, Tri <sup>+</sup> -Aromatics	+	+	++	-	-
Total Aromatics	+	++	n.e.	n.e.	n.e.
Pour Point	+	+	+/-	++	++
Sulphur	+/-	+/-	+/-	--	-
Water	++	++	++	++	++
Cetane Number	+	n.e.	n.e.	n.e.	n.e.
DCN (EN15195)	+	n.e.	n.e.	n.e.	n.e.
Ignition Delay (EN15195)	+	n.e.	n.e.	n.e.	n.e.
DCN (D7668)	+/-	n.e.	n.e.	n.e.	n.e.
Ignition Delay (D7668)	-	n.e.	n.e.	n.e.	n.e.
Combustion Delay (D7668)	-	n.e.	n.e.	n.e.	n.e.
Total Contamination	-	+	--	--	--
Oxidation Stability (EN15751)	-	--	--	n.e.	n.e.
Oxidation Stability					
Filterable Insolubles (A)	+	n.e.	n.e.	n.e.	n.e.
Adherent Insolubles (B)	+	n.e.	n.e.	n.e.	n.e.
Total Insolubles (A+B)	+	n.e.	n.e.	n.e.	n.e.

Table 12: comparison determinations against the standard



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

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

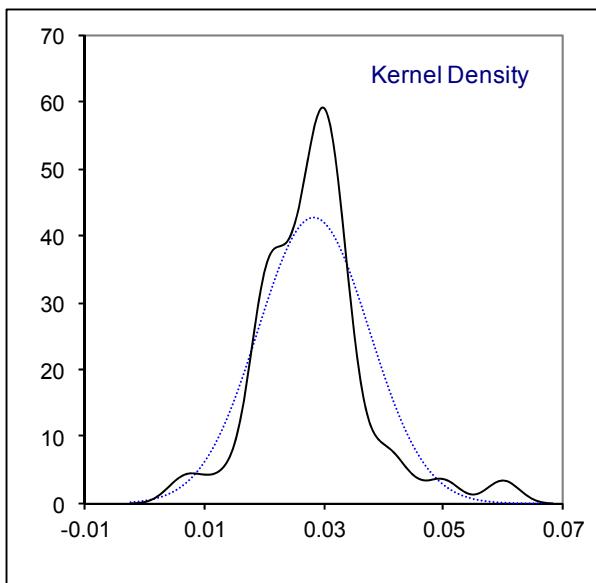
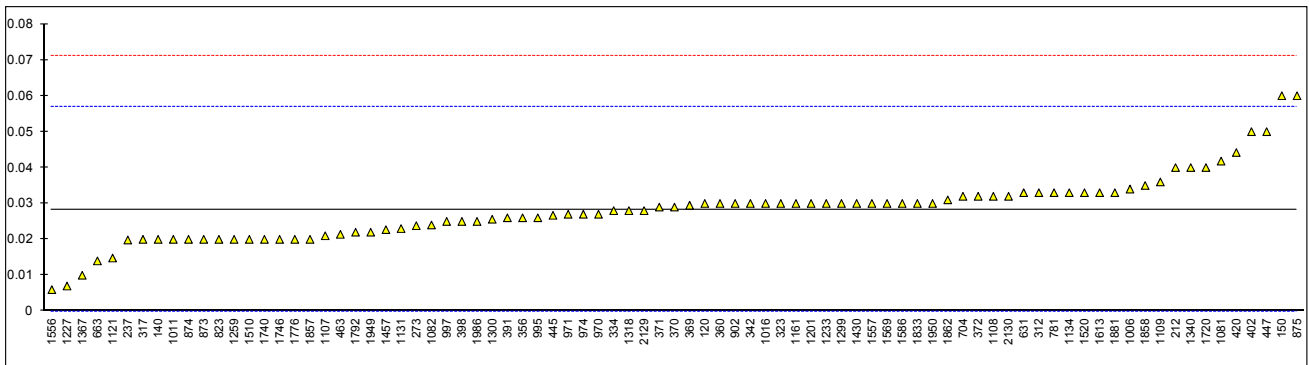
**APPENDIX 1**

Determination of Acid Number, Total (TAN) on sample #17025; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D974	0.03		0.12	1026	D974	<0.03		----
132	D664-A	<0.10		----	1033		----		----
140	D974	0.02		-0.58	1059		----		----
150	D974	0.06		2.22	1081	D664-A	0.0418		0.94
158		----		----	1082	ISO6618	0.024		-0.30
171	D664-A	<0.10		----	1107	D664-A	0.021		-0.51
212	D664-A	0.04		0.82	1108	D664-A	0.032		0.26
237		0.019827		-0.59	1109	D974	0.036		0.54
238		----		----	1121	IP139	0.0148	C	-0.95
273	D974	0.0238		-0.32	1126		----		----
311	D664-A	<0.10		----	1131	D664-A	0.023		-0.37
312	D974	0.033		0.33	1134	D974	0.033		0.33
317	D974	0.02		-0.58	1146		----		----
323	D974	0.03		0.12	1150		----		----
331	In house	<0.05		----	1155		----		----
332		----		----	1161	D664-A	0.03		0.12
333		----		----	1167		----		----
334	D974	0.028		-0.02	1191		----		----
335		----		----	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	D974	0.03		0.12
338		----		----	1205		----		----
342	D664-A	0.03		0.12	1227	D974	0.007		-1.49
343		----		----	1229	ISO6618	<0,01		----
345		----		----	1233	D664-A	0.03		0.12
351		----		----	1237		----		----
353		----		----	1259	D664-A	0.020		-0.58
356	D974	0.026		-0.16	1266		----		----
357	D664-A	< 0,1		----	1272		----		----
360	D974	0.030		0.12	1286		----		----
369	D974	0.0295		0.08	1299	D664-A	0.030		0.12
370	D974	0.029		0.05	1300	D974	0.0256		-0.19
371	D974	0.029		0.05	1316		----		----
372	D974	0.032		0.26	1318	D664-A	0.028		-0.02
381		----		----	1339		----		----
391	D974	0.026		-0.16	1340	D664-A	0.04		0.82
398	D974	0.025		-0.23	1356	D664-A	<0.05		----
399		----		----	1357	D974	<0.10		----
402	D664-A	0.05		1.52	1367	D974	0.01		-1.28
403		----		----	1397		----		----
420	ISO6618	0.0442		1.11	1412		----		----
432		----		----	1430	In house	0.03		0.12
440		----		----	1457	D974	0.0227		-0.39
444		----		----	1459		----		----
445	D974	0.0267		-0.11	1498		----		----
447	D974	0.05		1.52	1510	D974	0.02		-0.58
453	D664-A	<0.05		----	1520	D974	0.033		0.33
463	D974	0.0214		-0.48	1556	D664-A	0.006		-1.56
485		----		----	1557	ISO6618	0.03		0.12
541	D974	<0.05		----	1569	D664-A	0.03		0.12
593		----		----	1586	D664-A	0.03		0.12
631	D974	0.033		0.33	1613	D974	0.033		0.33
663	D664-A	0.014		-1.00	1631		----		----
671		----		----	1634		----		----
704	D974	0.032		0.26	1635		----		----
781	D974	0.033		0.33	1654		----		----
785		----		----	1656		----		----
823	D974	0.02		-0.58	1681		----		----
840		----		----	1684	ISO6618	<0.01		----
842		----		----	1720	D974	0.04		0.82
851		----		----	1724		----		----
873	D974	0.020		-0.58	1730		----		----
874	D664-A	0.02		-0.58	1740	D664-A	0.02		-0.58
875	D664-A	0.060		2.22	1742		----		----
886		----		----	1746	D974	0.02		-0.58
902	D664-A	0.03		0.12	1776	D8045	0.02		-0.58
963		----		----	1792	D664-A	0.022		-0.44
970	D974	0.027		-0.09	1807		----		----
971	D664-A	0.027		-0.09	1810		----		----
974	D974	0.027		-0.09	1811		----		----
995	D974	0.026		-0.16	1832		----		----
997	D974	0.025		-0.23	1833	D664-A	0.03		0.12
1006	D974	0.0340		0.40	1849		----		----
1011	D664	0.02		-0.58	1857	D664-A	0.02		-0.58
1016	ISO6618	0.03		0.12	1858	D664-A	0.035		0.47

1862	D974	0.031	0.19	1995		----	----
1881	D664-A	0.033	0.33	2129	D974	0.028	-0.02
1936		----	----	2130	D974	0.032	0.26
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941		----	----	6018		----	----
1944		----	----	6028		----	----
1949	D974	0.022	-0.44	6034		----	----
1950	D974	0.030	0.12	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986	D664-A	0.025	-0.23				
	normality	not OK					
	n	83					
	outliers	0					
	mean (n)	0.0283					
	st.dev. (n)	0.00931					
	R(calc.)	0.0261					
	R(D974:14e2)	0.04					

Lab 1121 first reported: 0.149



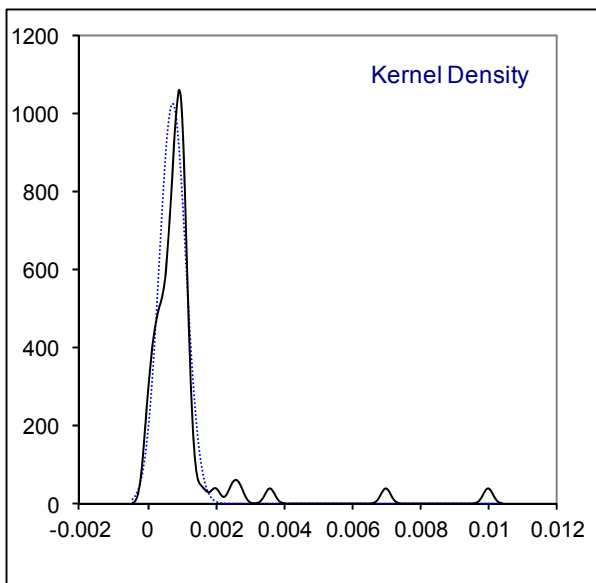
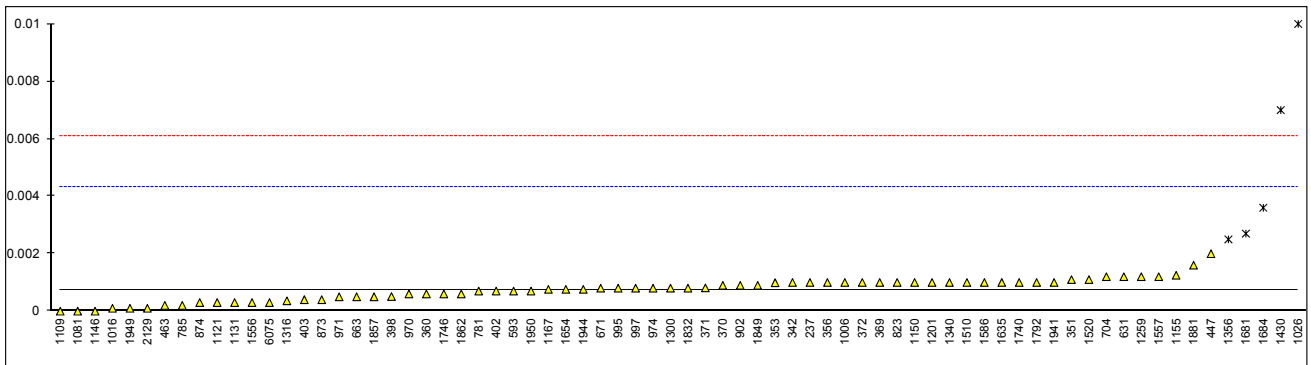
## Determination of Ash on sample #17025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO6245	<0.001		----	1026	ISO6245	0.010	R(0.01)	5.18
132	ISO6245	<0.001		----	1033		----		----
140	ISO6245	<0.001		----	1059	ISO6245	<0,001		----
150	ISO6245	<0.001		----	1081	D482	0.0000		-0.42
158		----		----	1082		----		----
171	D482	<0.001		----	1107		----		----
212	ISO6245	<0.001		----	1108		----		----
237	D482	0.001		0.14	1109	D482	0.000		-0.42
238		----		----	1121	IP4	0.0003		-0.25
273	D482	<0.01		----	1126		----		----
311	ISO6245	<0.001		----	1131	ISO6245	0.0003		-0.25
312		----		----	1134	IP4	<0.001		----
317	ISO6245	<0.001		----	1146	D482	0.0000		-0.42
323	ISO6245	<0.001		----	1150	ISO6245	0.001		0.14
331		----		----	1155	ISO6245	0.00125		0.28
332		----		----	1161	ISO6245	<0,001		----
333		----		----	1167	ISO6245	0.00076		0.01
334	ISO6245	<0.001		----	1191		----		----
335		----		----	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	ISO6245	0.001		0.14
338		----		----	1205		----		----
342	ISO6245	0.001		0.14	1227		----		----
343	ISO6245	<0.001		----	1229		----		----
345	ISO6245	<0.001		----	1233		----		----
351	ISO6245	0.0011		0.20	1237		----		----
353	IP4	0.00099		0.14	1259	ISO6245	0.0012		0.25
356	D482	0.001		0.14	1266		----		----
357	ISO6245	<0,001		----	1272		----		----
360	ISO6245	0.0006		-0.08	1286		----		----
369	ISO6245	0.001		0.14	1299	D482	<0.001		----
370	D482	0.0009		0.09	1300	ISO6245	0.0008		0.03
371	ISO6245	0.00081		0.04	1316	D482	0.00036		-0.22
372	ISO6245	0.001		0.14	1318		----		----
381		----		----	1339	ISO6245	< 0.001		----
391		----		----	1340	ISO6245	0.001		0.14
398	ISO6245	0.00051	C	-0.13	1356	ISO6245	0.0025	R(0.01)	0.98
399		----		----	1357	D482	<0.001		----
402	ISO6245	0.0007		-0.03	1367	IP4	<0.001		----
403	ISO6245	0.0004		-0.19	1397	ISO6245	<0,001		----
420	ISO6245	<0,001		----	1412		----		----
432		----		----	1430	D482	0.007	R(0.01)	3.50
440		----		----	1457		----		----
444	D482	<0.001		----	1459		----		----
445	IP4	<0.001		----	1498		----		----
447	IP4	0.002		0.70	1510	IP4	0.001		0.14
453	IP4	<0.001		----	1520	ISO6245	0.0011		0.20
463	ISO6245	0.0002		-0.31	1556	ISO6245	0.0003		-0.25
485		----		----	1557	ISO6245	0.0012		0.25
541	ISO6245	<0.001		----	1569	ISO6245	<0.001		----
593	D482	0.0007		-0.03	1586	D482	0.001		0.14
631	D482	0.0012		0.25	1613	D482	< 0.001		----
663	D482	0.0005		-0.14	1631	ISO6245	<0.001		----
671	D482	0.0007996		0.03	1634		----		----
704	ISO6245	0.0012		0.25	1635	ISO6245	0.001		0.14
781	ISO6245	0.0007		-0.03	1654	ISO6245	0.00076		0.01
785	D482	0.0002		-0.31	1656	ISO6245	<0.01		----
823	ISO6245	0.001		0.14	1681	ISO6245	0.0027	R(0.01)	1.09
840		----		----	1684	ISO6245	0.0036	R(0.01)	1.60
842		----		----	1720		----		----
851	D482	<0.001		----	1724	D482	<0.001		----
873	D482	0.0004		-0.19	1730		----		----
874	D482	0.0003		-0.25	1740	ISO6245	0.0010		0.14
875	D482	<0.001		----	1742		----		----
886		----		----	1746	D482	0.0006		-0.08
902	D482	0.0009		0.09	1776		----		----
963		----		----	1792	D482	0.001		0.14
970	D482	0.0006		-0.08	1807		----		----
971	D482	0.0005		-0.14	1810		----		----
974	ISO6245	0.0008		0.03	1811		----		----
995	ISO6245	0.0008		0.03	1832	ISO6245	0.0008		0.03
997	ISO6245	0.0008		0.03	1833	ISO6245	<0.001		----
1006	D482	0.001		0.14	1849	ISO6245	0.0009		0.09
1011		----		----	1857	ISO6245	0.0005		-0.14
1016	D482	0.0001		-0.36	1858		----		----

1862	ISO6245	0.0006	-0.08	1995		----	----
1881	ISO6245	0.0016	0.48	2129	ISO6245	0.0001	-0.36
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	ISO6245	0.0010	0.14	6018		----	----
1944	ISO6245	0.00076	0.01	6028		----	----
1949	ISO6245	0.0001	-0.36	6034		----	----
1950	ISO6245	0.0007	-0.03	6047		----	----
1953		----	----	6075	ISO6245	0.0003	-0.25
1968	ISO6245	<0,001	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986		----	----				

normality OK  
 n 67  
 outliers 5  
 mean (n) 0.00075  
 st.dev. (n) 0.000390  
 R(calc.) 0.00109  
 R(ISO6245:01) 0.005

Lab 398 first reported: 0.0051



## Determination of Calculated Cetane Index, four variables on sample #17025

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO4264	54.9		----	1026	ISO4264	55.2681		----
132	ISO4264	55.9		----	1033		----		----
140	ISO4264	54.6		----	1059	ISO4264	54.9		----
150	ISO4264	54.6		----	1081		----		----
158		----		----	1082		----		----
171	D4737	55.3		----	1107	D4737	55.4		----
212	ISO4264	54.7		----	1108	ISO4264	54.5		----
237	D4737	54.5		----	1109	D4737	55.0		----
238		----		----	1121	IP380	54.4		----
273		----		----	1126		----		----
311	ISO4264	54.8		----	1131	ISO4264	54.8		----
312		----		----	1134		----		----
317	ISO4264	55.5		----	1146		----		----
323	ISO4264	55.1		----	1150	ISO4264	55.5		----
331		----		----	1155	ISO4264	55.70		----
332		----		----	1161	ISO4264	54.9		----
333		----		----	1167	ISO4264	54.7		----
334		----		----	1191		----		----
335	ISO4264	54.9		----	1194		54.0	C	----
336	ISO4264	55.0		----	1199		----		----
337		----		----	1201	ISO4264	55.0		----
338	ISO4264	55.4		----	1205		----		----
342	ISO4264	55.3		----	1227	D976	54.9	ex	----
343	ISO4264	54.2		----	1229		----		----
345		----		----	1233	D4737	53.9		----
351	ISO4264	54.47		----	1237		----		----
353	IP380	55.06		----	1259	Calculate	55.11		----
356	D4737	55.5		----	1266	ISO4264	55.30		----
357	ISO4264	55.18		----	1272	ISO4264	55.0		----
360	ISO4264	55.14		----	1286		----		----
369	ISO4264	55.25		----	1299	D4737	54.6		----
370	ISO4264	54.58		----	1300	ISO4264	55.6132		----
371	ISO4264	55.0		----	1316	D4737	55.4		----
372	ISO4264	54.9		----	1318	D4737	54.8	C	----
381	ISO4264	54.8		----	1339	ISO4264	55.46	E	----
391	D4737	55.1		----	1340	ISO4264	54.94		----
398	ISO4264	55.3		----	1356	ISO4264	57	C,R(0.01)	----
399		----		----	1357	D4737	54.9		----
402	ISO4264	55.2		----	1367	IP380	55.1		----
403	ISO4264	54.6		----	1397	ISO4264	55.1		----
420	ISO4264	54.8		----	1412		----		----
432		----		----	1430	D4737	54.6		----
440		----		----	1457	ISO4264	54.8		----
444	ISO4264	54.7		----	1459	ISO4264	55.0		----
445	IP380	54.6		----	1498	D976	55.1	ex	----
447	IP380	54.8		----	1510	IP380	55.0		----
453	IP380	55.0		----	1520	ISO4264	54.9		----
463	ISO4264	55.1		----	1556	ISO4264	54.9		----
485	ISO4264	55.30		----	1557	ISO4264	55.1		----
541	D4737	54.90		----	1569	ISO4264	54.6		----
593	D4737	54.09	E	----	1586	D4737	55.2		----
631	D4737	54.579		----	1613	D4737	54.978		----
663	D4737	54.9		----	1631	ISO4264	55.01		----
671		----		----	1634	ISO4264	54.81		----
704	ISO4264	55.0		----	1635	ISO4264	54.06	E	----
781	ISO4264	55.1		----	1654	ISO4264	55.51	C	----
785	D4737	55.1		----	1656	ISO4264	54.8		----
823	D4737	54.7	E	----	1681	ISO4264	54.02		----
840		----		----	1684		----		----
842		----		----	1720	D4737	55.0		----
851	D4737	54.5		----	1724		----		----
873	ISO4264	55.0		----	1730		----		----
874	D4737	55.0		----	1740	ISO4264	54.7		----
875	D4737	55.1		----	1742		----		----
886		----		----	1746	D976	54.9	ex	----
902	ISO4264	54.9		----	1776	ISO4264	54.3		----
963		----		----	1792	D4737	55.4		----
970	D4737	55.1		----	1807	ISO4264	54.7		----
971	D4737	54.9		----	1810		----		----
974	D4737	55.2		----	1811	ISO4264	55.2		----
995	ISO4264	54.4		----	1832		----		----
997		----		----	1833	ISO4264	54.7		----
1006	D4737	55.2		----	1849	ISO4264	54.77		----
1011	ISO4264	52.3	E, R(0.01)	----	1857	D4737	54.9		----
1016		----		----	1858	D4737	55.4		----

1862	ISO4264	54.8	----	1995	----	----	----
1881			----	2129	IP380	55.3	----
1936	ISO4264	55.0	----	2130	D4737	54.91	----
1937		54.94	----	2146			----
1938	ISO4264	55.0	----	6016			----
1941	ISO4264	54.98	----	6018	ISO4264	55.3	E
1944	ISO4264	55.33	----	6028	ISO4264	54.8	----
1949	D4737	54.8	----	6034	D4737	54.7	----
1950	D4737	54.9	----	6047	ISO4264	54.0	E
1953			----	6075	ISO4264	48.32	E,R(0.01)
1968			----	6108			----
1976	D4737	55.20	----	7006			----
1984	ISO4264	55.167	----	9057			----
1986	D4737	54.6	----				

normality OK  
n 123 (+3ex)  
outliers 6  
mean (n) 54.928  
st.dev. (n) 0.3640  
R(calc.) 1.019  
R(ISO4264:07) unknown

Compare R(iis16G01EN) = 0.820

Recalculated values			
343	ISO4264	55.4	*
593	D4737 – Calc. A	54.83	
823	D4737 – Calc. A	55.02	
1011	ISO4264	55.16	
1339	ISO4264	55.07	
1635	ISO4264	55.02	
1681	ISO4264	55.03	*
6018	ISO4264	55.04	
6047	ISO4264	54.97	
6075	ISO4264	54.96	

\* results recalculated because distillation results were corrected without correcting CCI

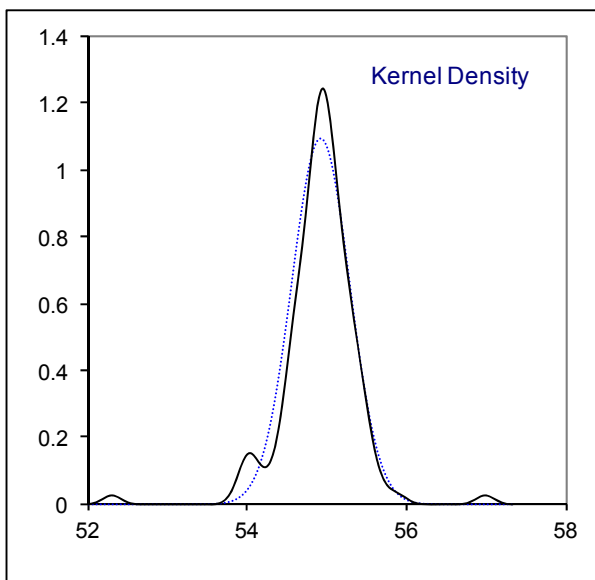
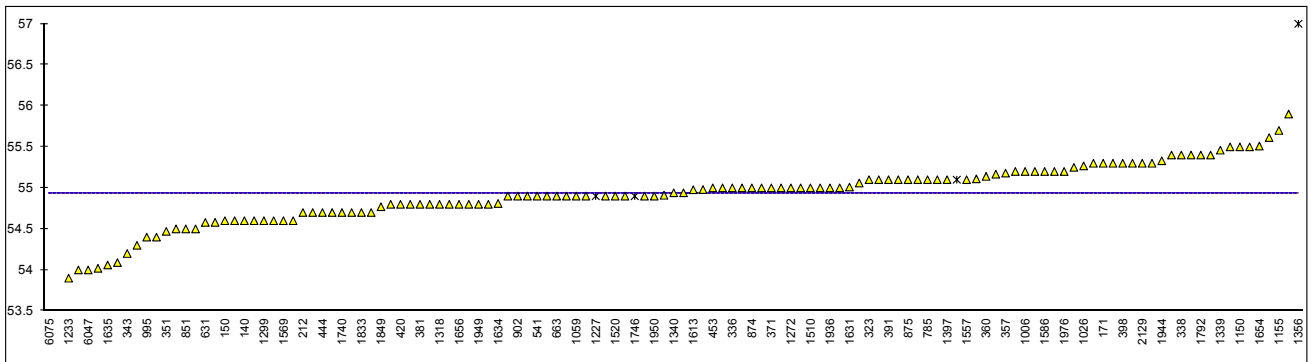
Lab 1194 first reported this test result as cloud point

Lab 1316 first reported: 55.7

Lab 1356 first reported: 58

Lab 1635 first reported: 52.82

Test results of labs 1227, 1498 and 1746 were excluded as test method is not equivalent (different calculation, see §4)



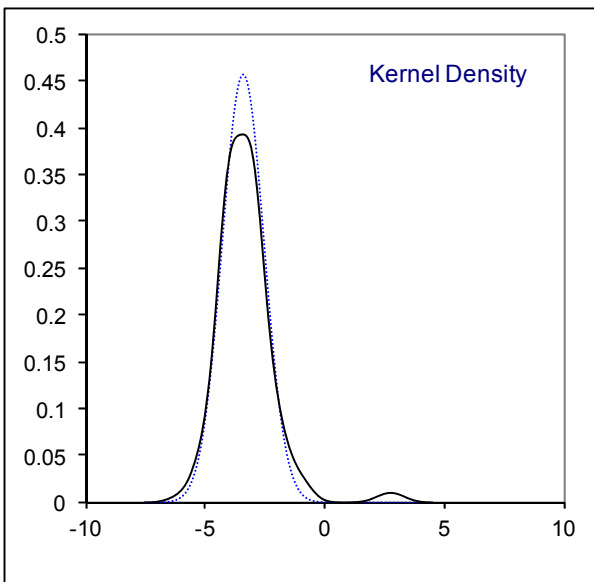
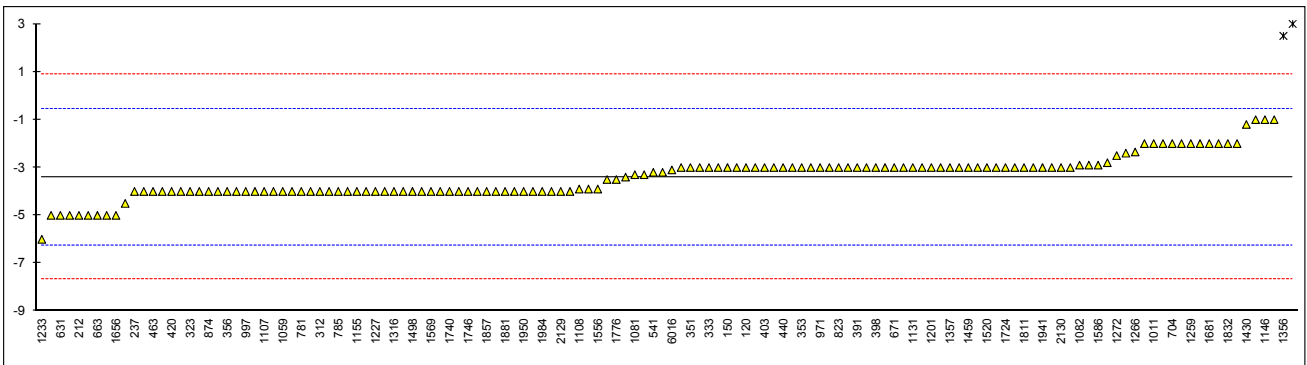
## Determination of Cloud Point on sample #17025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D2500	-3		0.28	1026	ISO3015	-4		-0.42
132	D2500	-3		0.28	1033	D7689	-3.5		-0.07
140	EN23015	-4		-0.42	1059	EN23015	-4		-0.42
150	EN23015	-3.0		0.28	1081	D5771	-3.3		0.07
158		----		----	1082	D5771	-2.9		0.35
171	D2500	-4		-0.42	1107	D5772	-4		-0.42
212		-5		-1.12	1108	D5771	-3.9		-0.35
237	D2500	-4		-0.42	1109	D5773	-3.2		0.14
238		----		----	1121	IP219	-3		0.28
273	D2500	-2		0.98	1126		----		----
311	EN23015	-4		-0.42	1131	EN23015	-3		0.28
312	EN23015	-4		-0.42	1134	IP219	-3		0.28
317	D5771	-5		-1.12	1146	D2500	-1		1.68
323	EN23015	-4		-0.42	1150	EN23015	-4.5		-0.77
331		----		----	1155	ISO3015	-4		-0.42
332		----		----	1161	D7683	-4		-0.42
333	EN23015	-3		0.28	1167		----		----
334	EN23015	-4		-0.42	1191	D5771	-2.4		0.70
335	ISO3015	-4		-0.42	1194		----		----
336	EN23015	-3		0.28	1199		----		----
337	EN23015	-3		0.28	1201	ISO3015	-3		0.28
338	EN23015	-4		-0.42	1205		----		----
342	ISO3015	-2		0.98	1227	D2500	-4		-0.42
343	EN23015	-3		0.28	1229	D5771	-2.8		0.42
345	D5771	-3		0.28	1233	ISO3015	-6		-1.82
351	D7683	-3		0.28	1237		----		----
353	IP219	-3		0.28	1259	EN23015	-2		0.98
356	D2500	-4		-0.42	1266	EN23015	-2.35		0.73
357	D5771	-4		-0.42	1272	EN23015	-2.5		0.63
360	EN23015	-3		0.28	1286		----		----
369	EN23015	-4		-0.42	1299	D2500	-2		0.98
370	EN23015	-4		-0.42	1300	EN23015	-4.0		-0.42
371	EN23015	-4		-0.42	1316	D5771	-4.0		-0.42
372	EN23015	-3		0.28	1318	D7689	-3.9		-0.35
381	ISO3015	-5		-1.12	1339		----		----
391	EN23015	-3		0.28	1340	EN23015	-3		0.28
398	EN23015	-3		0.28	1356	ISO3015	2.5	R(0.01)	4.13
399	EN23015	-1		1.68	1357	D5773	-3.0		0.28
402	EN23015	-2		0.98	1367	IP219	-3		0.28
403	EN23015	-3		0.28	1397	EN23015	-4		-0.42
420	EN23015	-4		-0.42	1412		----		----
432		----		----	1430	D5771	-1.2		1.54
440	IP219	-3		0.28	1457	ISO3015	-3.3		0.07
444		----		----	1459	ISO3015	-3.0		0.28
445	IP219	-3		0.28	1498	D2500	-4		-0.42
447	D2500	-5		-1.12	1510	D2500	-3		0.28
453	D5773	-2.9		0.35	1520	EN23015	-3		0.28
463	EN23015	-4		-0.42	1556	ISO3015	-3.9		-0.35
485		----		----	1557	ISO3015	-4		-0.42
541	D5771	-3.2		0.14	1569	EN23015	-4		-0.42
593		----		----	1586	D5771	-2.9		0.35
631	D2500	-5		-1.12	1613	D2500	-3		0.28
663	D2500	-5		-1.12	1631		----		----
671	D2500	-3		0.28	1634		----		----
704	ISO3015	-2		0.98	1635	EN23015	-4		-0.42
781	EN23015	-4		-0.42	1654		----		----
785	D7683	-4		-0.42	1656	IP219	-5		-1.12
823	D2500	-3		0.28	1681	ISO3015	-2		0.98
840		----		----	1684		----		----
842		----		----	1720	D5773	-3.4		0.00
851	D2500	-5		-1.12	1724	D2500	-3		0.28
873	D2500	-3		0.28	1730		----		----
874	D2500	-4		-0.42	1740	ISO3015	-4		-0.42
875	D2500	-3		0.28	1742	ISO3015	-4		-0.42
886		----		----	1746	D2500	-4		-0.42
902		----		----	1776	EN23015	-3.5		-0.07
963		----		----	1792	D2500	-2		0.98
970	D2500	-3		0.28	1807	EN23015	-3		0.28
971	D2500	-3		0.28	1810	D7689	-4.0		-0.42
974	D2500	-3		0.28	1811	EN23015	-3		0.28
995	EN23015	-4		-0.42	1832	ISO3015	-2		0.98
997	EN23015	-4		-0.42	1833	D2500	-2		0.98
1006		----		----	1849		----		----
1011	D2500	-2		0.98	1857	EN23015	-4		-0.42
1016		----		----	1858	D2500	-4		-0.42



1862	EN23015	-3		0.28	1995	----	----
1881	EN23015	-4		-0.42	2129	EN23015	-4
1936		----		----	2130	IP219	-3
1937		----		----	2146		----
1938		----		----	6016	D5771	-3.1
1941	ISO3015	-3	C	0.28	6018		----
1944	D2500	-3		0.28	6028	ISO3015	-4
1949	EN23015	-4		-0.42	6034		----
1950	EN23015	-4		-0.42	6047		----
1953	D7683	-4		-0.42	6075	EN23015	-3
1968	EN23015	3	R(0.01)	4.48	6108		----
1976		----		----	7006		----
1984	EN23015	-4		-0.42	9057	In house	-1.0
1986	ISO3015	-4		-0.42			1.68
normality		OK					
n		134					
outliers		2					
mean (n)		-3.39					
st.dev. (n)		0.873					
R(calc.)		2.44					
R(EN23015:94)		4					

Lab 351 remarked: "Cloud point equivalent to ASTM D2500 in accordance with ASTM D7683"  
 Lab 1941 first reported: -12



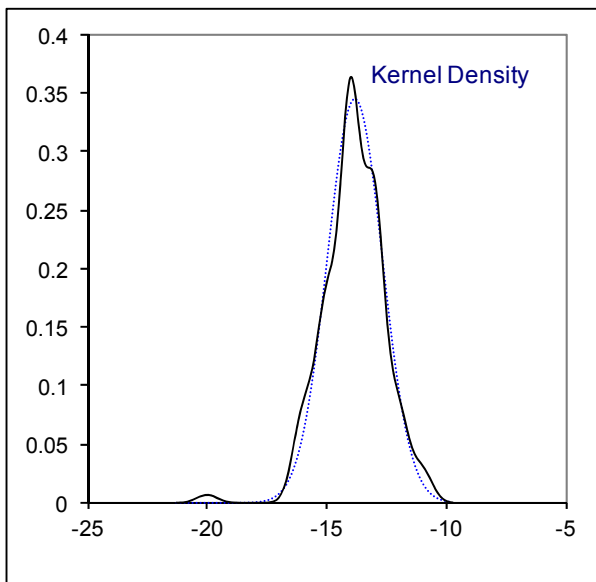
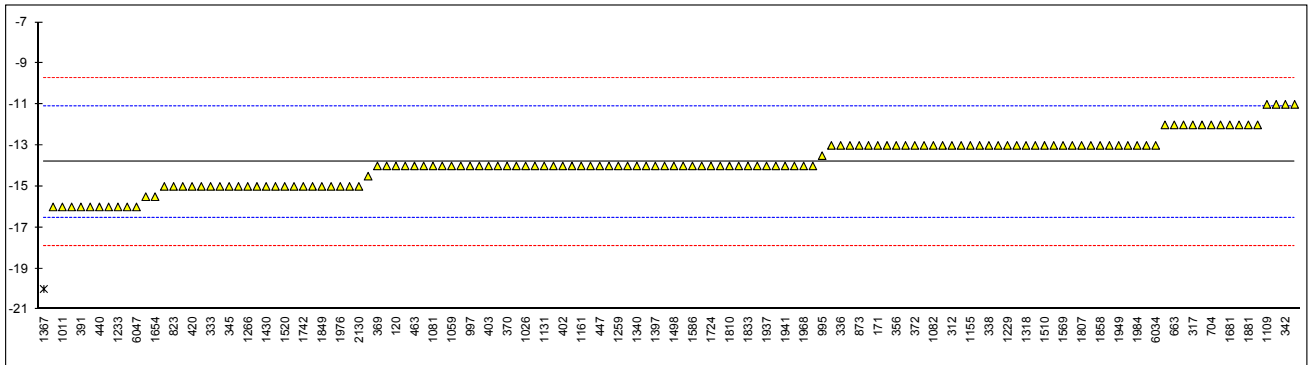
## Determination of Cold Filter Plugging Point on sample #17025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	EN116	-14		-0.14	1026	EN16329	-14		-0.14
132		----		----	1033	IP309	-14		-0.14
140	EN116	-14		-0.14	1059	EN116	-14		-0.14
150	EN116	-14.0		-0.14	1081	EN116	-14		-0.14
158		----		----	1082	EN116	-13		0.60
171	D6371	-13		0.60	1107	EN116	-15		-0.87
212		----		----	1108	EN116	-16		-1.60
237	D6371	-13		0.60	1109	IP309	-11.0		2.06
238		----		----	1121	IP309	-16		-1.60
273	IP309	-11		2.06	1126		----		----
311	EN116	-13		0.60	1131	EN116	-14		-0.14
312	D6371	-13		0.60	1134	IP309	-15		-0.87
317	EN116	-12		1.33	1146		----		----
323	EN116	-13		0.60	1150	EN116	-14.5		-0.50
331		----		----	1155	EN116	-13		0.60
332		----		----	1161	EN116	-14		-0.14
333	EN116	-15		-0.87	1167	EN116	-14		-0.14
334	EN116	-15		-0.87	1191	EN116	-15		-0.87
335	EN116	-13		0.60	1194	EN116	-13		0.60
336	EN116	-13		0.60	1199		----		----
337	EN116	-14		-0.14	1201	EN116	-14		-0.14
338	EN116	-13		0.60	1205		----		----
342	D6371	-11		2.06	1227	EN116	-16		-1.60
343	EN116	-15		-0.87	1229	EN116	-13		0.60
345	EN116	-15		-0.87	1233	D6371	-16		-1.60
351		----		----	1237	EN116	-15.5		-1.23
353	IP309	-12		1.33	1259	EN116	-14		-0.14
356	IP309	-13		0.60	1266	EN116	-15.0		-0.87
357	EN116	-13		0.60	1272	EN116	-13.0		0.60
360	EN116	-13		0.60	1286		----		----
369	EN116	-14		-0.14	1299	EN116	-14		-0.14
370	EN116	-14		-0.14	1300	EN116	-12.0		1.33
371	EN116	-14		-0.14	1316	EN116	-15.0		-0.87
372	EN116	-13		0.60	1318	D6371	-13		0.60
381	EN116	-13		0.60	1339		----		----
391	EN116	-16		-1.60	1340	EN116	-14		-0.14
398	EN116	-14		-0.14	1356	D6371	-14		-0.14
399		----		----	1357	D6371	-13.0		0.60
402	EN116	-14		-0.14	1367	EN116	-20	R(0.01)	-4.52
403	EN116	-14		-0.14	1397	EN116	-14		-0.14
420	EN116	-15		-0.87	1412		----		----
432		----		----	1430	EN116	-15		-0.87
440	IP309	-16		-1.60	1457	EN116	-15		-0.87
444		----		----	1459	EN116	-14.0		-0.14
445	IP309	-13		0.60	1498	D6371	-14		-0.14
447	IP309	-14		-0.14	1510	IP309	-13		0.60
453	EN116	-14		-0.14	1520	EN116	-15		-0.87
463	EN116	-14		-0.14	1556	EN116	-13.0		0.60
485		----		----	1557	EN116	-14		-0.14
541	EN116	-14		-0.14	1569	EN116	-13		0.60
593		----		----	1586	EN116	-14		-0.14
631		----		----	1613	D6371	-16		-1.60
663	EN116	-12		1.33	1631	EN116	-13		0.60
671		----		----	1634		----		----
704	EN116	-12		1.33	1635	EN116	-14		-0.14
781	EN116	-14		-0.14	1654	EN116	-15.5		-1.23
785		----		----	1656	EN116	-15		-0.87
823	D6371	-15		-0.87	1681	EN116	-12.0		1.33
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724	IP309	-14		-0.14
873	EN116	-13		0.60	1730		----		----
874	EN116	-14		-0.14	1740	EN116	-12		1.33
875	EN116	-12		1.33	1742	EN116	-15		-0.87
886		----		----	1746	D6371	-11		2.06
902	D6371	-13		0.60	1776	EN116	-15		-0.87
963		----		----	1792	EN116	-14		-0.14
970	IP309	-12		1.33	1807	EN116	-13	C	0.60
971		----		----	1810	EN116	-14		-0.14
974	IP309	-14		-0.14	1811	EN116	-14		-0.14
995	EN116	-13.5		0.23	1832		----		----
997	EN116	-14		-0.14	1833	EN116	-14		-0.14
1006	D6371	-16		-1.60	1849	EN116	-15		-0.87
1011	EN116	-16		-1.60	1857	EN116	-13		0.60
1016		----		----	1858	IP309	-13		0.60

1862	EN116	-14	-0.14	1995		----	----
1881	EN116	-12	1.33	2129	EN116	-15	-0.87
1936	EN116	-15	-0.87	2130	IP309	-15	-0.87
1937	EN116	-14	-0.14	2146		----	----
1938	EN116	-14	-0.14	6016	D6371	-14	-0.14
1941	EN116	-14	-0.14	6018		----	----
1944	EN116	-13	0.60	6028	EN116	-13	0.60
1949	D6371	-13	0.60	6034	EN116	-13	0.60
1950	EN116	-14	-0.14	6047	EN116	-16.0	-1.60
1953	EN116	-13	0.60	6075		----	----
1968	EN116	-14	-0.14	6108		----	----
1976	EN116	-15	-0.87	7006		----	----
1984	EN116	-13	0.60	9057		----	----
1986	EN116	-12	1.33				

normality OK  
 n 135  
 outliers 1  
 mean (n) -13.81  
 st.dev. (n) 1.154  
 R(calc.) 3.23  
 R(EN116:15) 3.83

Lab 1807 first reported: -8



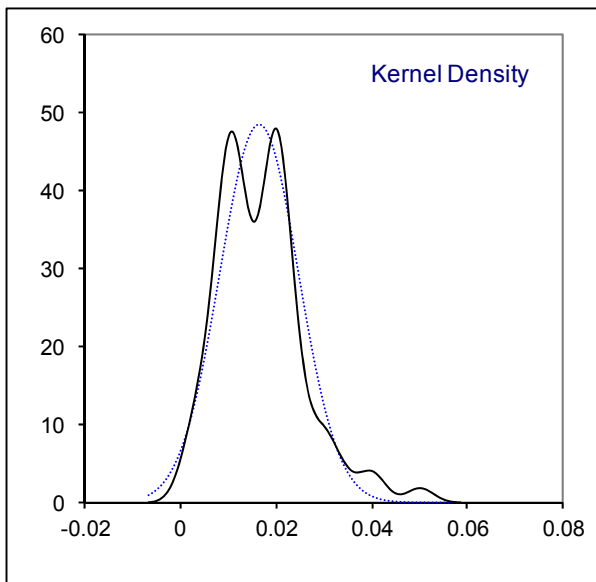
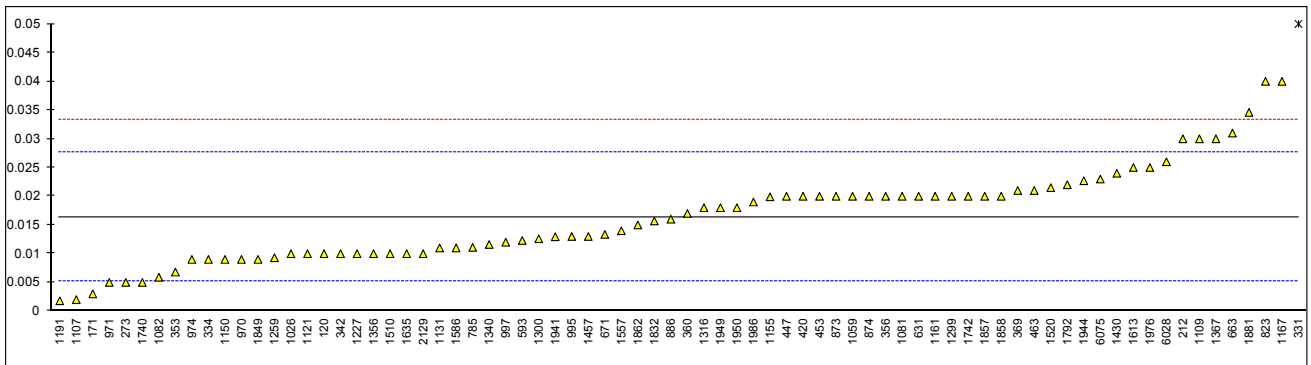
Determination of Carbon Residue (Micro method) on 10% residue on sample #17025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO10370	0.01		-1.13	1026	ISO10370	0.01		-1.13
132	ISO10370	<0.10		----	1033		----		----
140	ISO10370	<0.10		----	1059	ISO10370	0.02		0.64
150	ISO10370	<0.10		----	1081	ISO10370	0.02		0.64
158		----		----	1082	ISO10370	0.0059		-1.86
171	D189	0.003	C	-2.37	1107	D4530	0.002		-2.55
212	ISO10370	0.03		2.41	1108		----		----
237		----		----	1109	D4530	0.03		2.41
238		----		----	1121	IP398	0.01		-1.13
273	D4530	0.005		-2.02	1126		----		----
311	ISO10370	<0.10		----	1131	ISO10370	0.011		-0.96
312		----		----	1134		----		----
317	ISO10370	<0.10		----	1146		----		----
323	ISO10370	<0.10		----	1150		0.009		-1.31
331	ISO10370	0.05	R(0.01)	5.95	1155	ISO10370	0.0199		0.62
332		----		----	1161	ISO10370	0.02		0.64
333		----		----	1167	ISO10370	0.04		4.18
334	ISO10370	0.009		-1.31	1191	ISO10370	0.0018		-2.58
335		----		----	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	ISO10370	<0.10		----
338		----		----	1205		----		----
342	ISO10370	0.01		-1.13	1227		0.01		-1.13
343	ISO10370	<0.1		----	1229	ISO10370	<0,01		----
345		----		----	1233		----		----
351	ISO10370	<0.05		----	1237		----		----
353	IP13	0.0068		-1.70	1259	ISO10370	0.0093		-1.26
356	ISO10370	0.02		0.64	1266		----		----
357		----		----	1272		----		----
360	ISO10370	0.017		0.11	1286		----		----
369	ISO10370	0.021		0.81	1299	D4530	0.02		0.64
370		----		----	1300	ISO10370	0.0126		-0.67
371		----		----	1316	D4530	0.018		0.28
372	ISO10370	<0.10		----	1318		----		----
381		----		----	1339		----		----
391		----		----	1340	ISO10370	0.0116		-0.85
398		----		----	1356	ISO10370	0.01		-1.13
399		----		----	1357	D4530	<0.10		----
402		----		----	1367		0.03		2.41
403		----		----	1397		----		----
420	ISO3405/ISO6615	0.02		0.64	1412		----		----
432		----		----	1430	D189	0.024		1.34
440		----		----	1457	ISO10370	0.013		-0.60
444		----		----	1459		----		----
445	ISO10370	<0.01		----	1498		----		----
447	IP398	0.02		0.64	1510	D4530	0.01		-1.13
453	ISO10370	0.02		0.64	1520	ISO10370	0.0215		0.90
463	ISO10370	0.021		0.81	1556	ISO10370	<0,01		----
485		----		----	1557	ISO10370	0.014		-0.42
541		----		----	1569	ISO10370	<.10		----
593	D189	0.0123		-0.73	1586	ISO10370	0.011		-0.96
631	D4530	0.02		0.64	1613	D189	0.025		1.52
663	D4530	0.031		2.58	1631	ISO10370	<0.1		----
671	D4530	0.01335	C	-0.54	1634		----		----
704	ISO10370	< 0.10		----	1635	ISO10370	0.01		-1.13
781	ISO10370	<0.10		----	1654		----		----
785	D4530	0.0111		-0.94	1656	ISO10370	<0.1		----
823	ISO10370	0.04		4.18	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851	D4530	<0.1		----	1724	D4530	<0.1		----
873	D4530	0.02		0.64	1730		----		----
874	ISO10370	0.02		0.64	1740	ISO10370	0.005		-2.02
875		----		----	1742	ISO10370	0.02		0.64
886	D4530	0.016		-0.07	1746		----		----
902	D4530	<0,1		----	1776		----		----
963		----		----	1792	ISO10370	0.022		0.99
970	D4530	0.009		-1.31	1807		----		----
971	D4530	0.005		-2.02	1810		----		----
974	D4530	0.009		-1.31	1811		----		----
995	D189	0.013		-0.60	1832		0.0157		-0.12
997	D189	0.012		-0.78	1833	ISO10370	<0.1		----
1006		----		----	1849	ISO10370	0.009		-1.31
1011	ISO10370	<0.05		----	1857	ISO10370	0.02		0.64
1016		----		----	1858	D4530	0.02		0.64

1862	ISO10370	0.015	-0.25	1995		----	----
1881	ISO10370	0.0346	3.22	2129	ISO10370	0.010	-1.13
1936		----	----	2130	IP398	<0.01	
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	ISO10370	0.01295	-0.61	6018		----	----
1944	ISO10370	0.0227	1.11	6028	ISO10370	0.026	1.70
1949	ISO10370	0.018	0.28	6034		----	----
1950	ISO10370	0.018	0.28	6047		----	----
1953		----	----	6075	ISO10370	0.023	1.17
1968		----	----	6108		----	----
1976	ISO10370	0.025	1.52	7006		----	----
1984		----	----	9057		----	----
1986	ISO10370	0.019	0.46				

normality OK  
n 75  
outliers 1  
mean (n) 0.01640  
st.dev. (n) 0.008220  
R(calc.) 0.02302  
R(ISO10370:14) 0.01582

Lab 171 first reported: 0.35  
Lab 671 first reported: 0.05321



## Determination of Copper Corrosion (3 hrs at 50°C) on sample #17025;

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D130	1A		----	1026	ISO2160	1A		----
132	ISO2160	1a		----	1033	IP154	1b		----
140	ISO2160	1a		----	1059	ISO2160	1a		----
150	D130	1a		----	1081	D130	1a		----
158		----		----	1082		----		----
171	D130	1a		----	1107		----		----
212	D130	1A		----	1108	ISO2160	1		----
237	D130	1A		----	1109	D130	1a		----
238	D130	1A		----	1121	IP154	1a		----
273	D130	1a		----	1126		----		----
311	D130	1a		----	1131	ISO2160	1a		----
312		----		----	1134	IP154	1A		----
317	IP154	1a		----	1146		----		----
323	ISO2160	1a		----	1150	ISO2160	1a		----
331		----		----	1155	ISO2160	1a		----
332		----		----	1161	ISO2160	1a		----
333		----		----	1167	ISO2160	1a		----
334	ISO2160	1		----	1191	ISO2160	1a		----
335	ISO2160	1b		----	1194		----		----
336	ISO2160	1		----	1199		----		----
337		----		----	1201	D130	1B		----
338		----		----	1205		----		----
342	D130	1a		----	1227	D130	1A		----
343	ISO2160	1a		----	1229	ISO2160	1a		----
345	D130	1A		----	1233		----		----
351	ISO2160	1a		----	1237		----		----
353		----		----	1259	ISO2160	1A		----
356	D130	1A		----	1266	ISO2160	1		----
357	ISO2160	1a		----	1272	ISO2160	1A		----
360	ISO2160	1A		----	1286		----		----
369	ISO2160	1A		----	1299	D130	1A		----
370	D130	1A		----	1300	ISO2160	1a		----
371	ISO2160	1a		----	1316	D130	1a		----
372	ISO2160	1A		----	1318	D130	1a		----
381	ISO2160	1		----	1339	ISO2160	1a		----
391	D130	1a		----	1340	ISO2160	klasa 1		----
398		----		----	1356		----		----
399		----		----	1357	D130	1A		----
402	ISO2160	1a		----	1367		1A		----
403	ISO2160	1a		----	1397	ISO2160	1		----
420		----		----	1412		----		----
432		----		----	1430	D130	1a		----
440		----		----	1457	D130	1A		----
444	D130	1a		----	1459		----		----
445	IP154	1A		----	1498		----		----
447	D130	1A		----	1510	D130	1A		----
453	IP154	1A		----	1520	ISO2160	1a		----
463	ISO2160	1A		----	1556	ISO2160	class 1		----
485	ISO2160	1		----	1557	ISO2160	1a		----
541	D130	1a		----	1569	ISO2160	1a		----
593		----		----	1586	D130	1b		----
631	D130	1A		----	1613	D130	1a		----
663	D130	1a		----	1631	ISO2160	1A		----
671	D130	1A		----	1634		----		----
704	ISO2160	1a		----	1635	ISO2160	1a		----
781	D130	1a		----	1654	ISO2160	1A		----
785		----		----	1656	IP154	1		----
823	D130	1a		----	1681	ISO2160	1a		----
840		----		----	1684	ISO2160	1A		----
842		----		----	1720		----		----
851	D130	1a		----	1724	D130	1a		----
873	D130	1A		----	1730		----		----
874	D130	1a		----	1740	ISO2160	1A		----
875	D130	1a		----	1742		----		----
886	D130	1a		----	1746	D130	1a		----
902	ISO2160	1a		----	1776		----		----
963		----		----	1792	D130	1a		----
970	D130	1a		----	1807	D130	1A		----
971	D130	1a		----	1810		----		----
974	D130	1a		----	1811		----		----
995	D130	1a		----	1832	ISO2160	1A		----
997		----		----	1833	ISO2160	1		----
1006	D130	1a		----	1849	ISO2160	1A		----
1011	ISO2160	1b		----	1857	ISO2160	1a		----
1016	D130	1A		----	1858	D130	1A		----

1862	ISO2160	1A	----	1995		----	----
1881	D130	1a	----	2129	D130	1a	----
1936		----	----	2130	IP154	1	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	ISO2160	class 1	----	6018	ISO2160	1a	----
1944	ISO2160	1a	----	6028	ISO2160	1a	----
1949	D130	1a	----	6034	D130	1a	----
1950	ISO2160	1a	----	6047		----	----
1953	ISO2160	1A	----	6075	ISO2160	1A	----
1968	ISO2160	1a	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986	D130	1	----				
	n	125					
	mean (n)	1					

Determination of Density at 15 °C on sample #17025; result in kg/m<sup>3</sup>

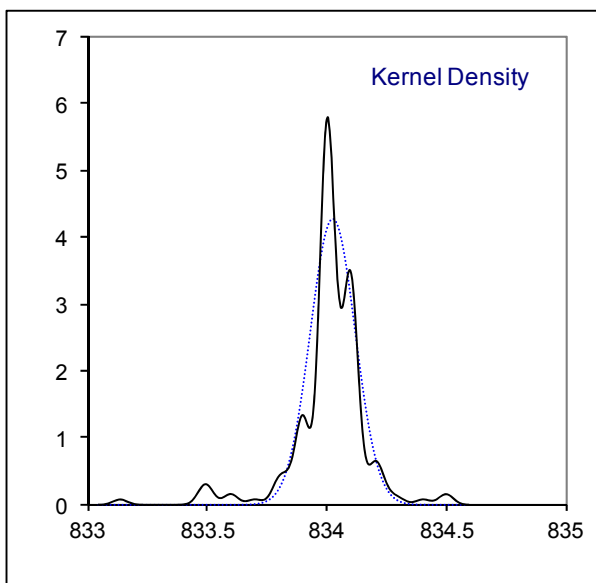
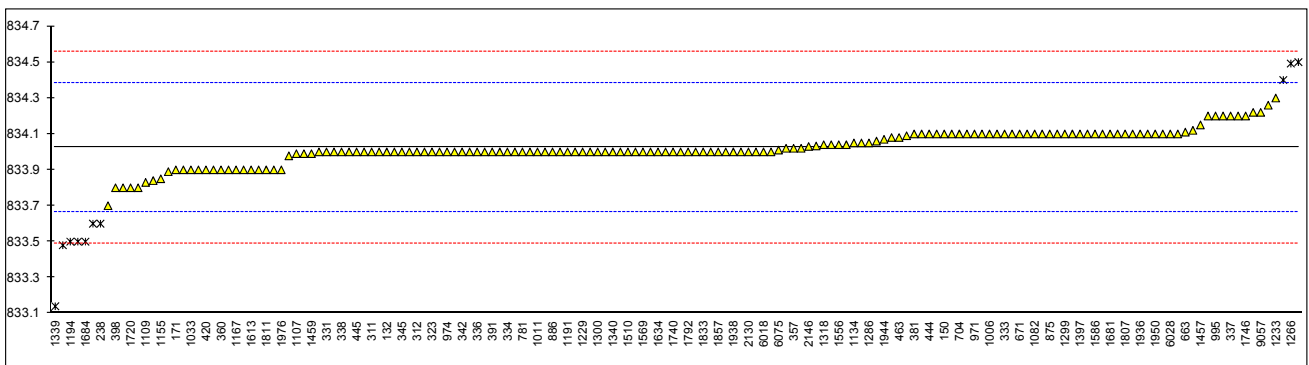
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO12185	834.0		-0.14	1026	D4052	834.1		0.42
132	D4052	834.0		-0.14	1033	IP365	833.9	C	-0.70
140	D4052	834.1		0.42	1059	ISO12185	834.0		-0.14
150	ISO12185	834.1		0.42	1081	D4052	833.90		-0.70
158		----		----	1082	ISO12185	834.1		0.42
171	D4052	833.9	C	-0.70	1107	D4052	833.99		-0.19
212	ISO12185	834.2		0.98	1108	ISO12185	834.1		0.42
237	D4052	834.1		0.42	1109	D4052	833.83		-1.09
238	D4052	833.6	R(0.01)	-2.38	1121	IP365	834.2		0.98
273	D4052	834.0		-0.14	1126	ISO12185	833.99		-0.19
311	ISO12185	834.0		-0.14	1131	ISO12185	834.0		-0.14
312	ISO12185	834.0		-0.14	1134	IP365	834.05		0.14
317	ISO12185	833.8		-1.26	1146	D4052	833.89		-0.75
323	ISO12185	834.0		-0.14	1150	ISO12185	833.978		-0.26
331	ISO12185	834.0		-0.14	1155	ISO3675	833.85		-0.98
332	ISO12185	833.9		-0.70	1161	ISO12185	834.02		-0.03
333	ISO12185	834.1		0.42	1167	ISO12185	833.9		-0.70
334	ISO12185	834.0		-0.14	1191	ISO12185	834.0		-0.14
335	ISO12185	834.0		-0.14	1194	ISO12185	833.5	C,R(0.01)	-2.94
336	ISO12185	834.0		-0.14	1199		----		----
337	ISO12185	834.2		0.98	1201	ISO12185	834.0	C	-0.14
338	ISO12185	834.0		-0.14	1205	ISO12185	834.09		0.37
342	ISO12185	834.0		-0.14	1227	D4052	834.1		0.42
343	ISO12185	833.48	R(0.01)	-3.05	1229	ISO12185	834.0		-0.14
345	ISO12185	834.0		-0.14	1233	ISO12185	834.3		1.54
351	ISO12185	834.05		0.14	1237	ISO12185	833.9		-0.70
353	IP365	834.0		-0.14	1259	ISO12185	834.0		-0.14
356	D4052	834.02		-0.03	1266	ISO3675	834.492	R(0.01)	2.62
357	ISO12185	834.02		-0.03	1272	ISO12185	833.5	R(0.01)	-2.94
360	ISO12185	833.9		-0.70	1286	ISO12185	834.050		0.14
369	ISO12185	834.1		0.42	1299	D4052	834.1		0.42
370	ISO12185	834.0		-0.14	1300	ISO12185	834.0		-0.14
371	ISO12185	834.0		-0.14	1316	D4052	834.0		-0.14
372	ISO12185	834.1		0.42	1318	D4052	834.04	C	0.09
381	ISO12185	834.1		0.42	1339	ISO3675	833.14	R(0.01)	-4.95
391	ISO12185	834		-0.14	1340	ISO12185	834.0		-0.14
398	ISO12185	833.8		-1.26	1356	ISO12185	834.5	C,R(0.01)	2.66
399	ISO12185	834.0		-0.14	1357	D4052	834.4	R(0.05)	2.10
402	ISO12185	834.0		-0.14	1367	ISO12185	834.1		0.42
403	ISO12185	834.08		0.31	1397	ISO12185	834.1		0.42
420	ISO3675	833.9		-0.70	1412		----		----
432	ISO12185	834.26		1.32	1430	D4052	834.1		0.42
440	D4052	834.1		0.42	1457	ISO12185	834.15		0.70
444	IP365	834.1		0.42	1459	ISO12185	833.99		-0.19
445	IP365	834.0		-0.14	1498	D4052	834.0		-0.14
447	D4052	833.9		-0.70	1510	IP365	834.0		-0.14
453	IP365	834.0		-0.14	1520	ISO12185	834.04		0.09
463	ISO12185	834.08		0.31	1556	ISO12185	834.04		0.09
485	ISO12185	834.0		-0.14	1557	ISO12185	834.0		-0.14
541	ISO12185	834.0		-0.14	1569	ISO12185	834.0		-0.14
593	D1298	833.6	R(0.01)	-2.38	1586	ISO12185	834.1		0.42
631	D4052	834.22		1.09	1613	D4052	833.9		-0.70
663	D4052	834.11		0.48	1631	ISO12185	834.0		-0.14
671	D4052	834.1		0.42	1634	ISO12185	834.0		-0.14
704	ISO12185	834.1		0.42	1635	ISO12185	834.1		0.42
781	ISO12185	834.0		-0.14	1654	ISO12185	834.033		0.05
785	D4052	834.0		-0.14	1656	D4052	833.9		-0.70
823	ISO12185	834.1		0.42	1681	ISO12185	834.1		0.42
840		----		----	1684	ISO12185	833.5	R(0.01)	-2.94
842		----		----	1720	D4052	833.8		-1.26
851	D4052	833.9		-0.70	1724	D4052	834.0		-0.14
873	D4052	834.0		-0.14	1730	ISO12185	833.84		-1.03
874	ISO12185	834.0		-0.14	1740	ISO12185	834.0		-0.14
875	D4052	834.1		0.42	1742	ISO12185	834.0		-0.14
886	D4052	834.0		-0.14	1746	D4052	834.2		0.98
902	D4052	834.1		0.42	1776	ISO12185	834.1		0.42
963		----		----	1792	ISO12185	834.0		-0.14
970	D4052	834.0		-0.14	1807	ISO12185	834.1		0.42
971	D4052	834.1		0.42	1810	ISO12185	833.8		-1.26
974	ISO12185	834.0		-0.14	1811	ISO12185	833.9		-0.70
995	ISO12185	834.2		0.98	1832	ISO12185	834.0		-0.14
997	ISO12185	834.2		0.98	1833	ISO12185	834.0	C	-0.14
1006	D4052	834.1		0.42	1849	ISO12185	834.0		-0.14
1011	ISO12185	834.0		-0.14	1857	ISO12185	834.0		-0.14
1016		----		----	1858	D4052	833.9		-0.70



1862	ISO12185	834.0	-0.14	1995		----	----
1881	ISO12185	834.1	0.42	2129	D4052	834.1	0.42
1936	ISO12185	834.1	0.42	2130	IP365	834.0	-0.14
1937	ISO12185	834.1	0.42	2146	ISO12185	834.03	0.03
1938	ISO12185	834.0	-0.14	6016	D4052	834	-0.14
1941	ISO12185	834.12	0.53	6018	ISO12185	834.0	-0.14
1944	ISO12185	834.07	0.25	6028	ISO12185	834.1	0.42
1949	ISO12185	834.06	0.20	6034	D4052	834.0	-0.14
1950	ISO12185	834.1	0.42	6047	ISO3675	834.1	0.42
1953		----	----	6075	ISO12185	834.01	-0.08
1968	ISO3675	833.7	-1.82	6108		----	----
1976	ISO12185	833.9	-0.70	7006		----	----
1984	ISO12185	834.0	-0.14	9057	D4052	834.22	1.09
1986	ISO12185	834.04	0.09				

normality suspect  
n 156  
outliers 10  
mean (n) 834.02  
st.dev. (n) 0.093  
R(calc.) 0.26  
R(ISO12185:96) 0.5

Lab 171 first reported: 834.8  
Lab 1033 first reported: 883.9  
Lab 1194 first reported: 0.8335 kg/m<sup>3</sup>  
Lab 1201 first reported: 0.8340 kg/ m<sup>3</sup>  
Lab 1318 first reported: 832.04  
Lab 1356 first reported: 834.75  
Lab 1833 first reported: 0.834 (without unit)



## Determination of Distillation on sample #17025; result in °C

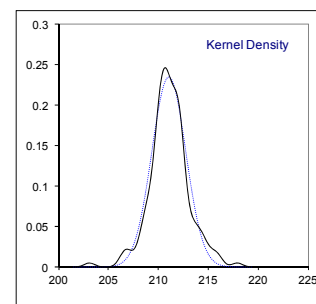
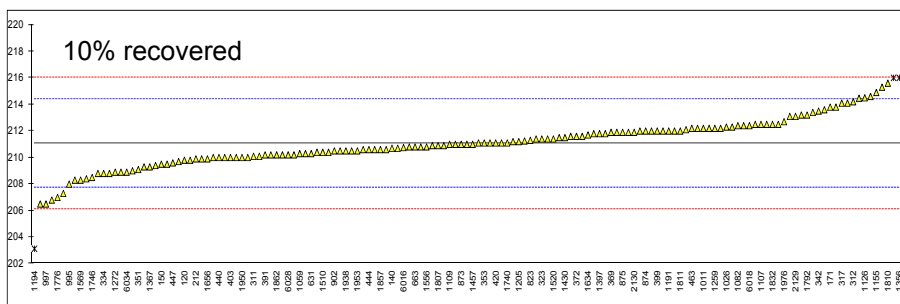
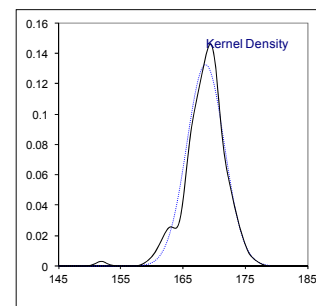
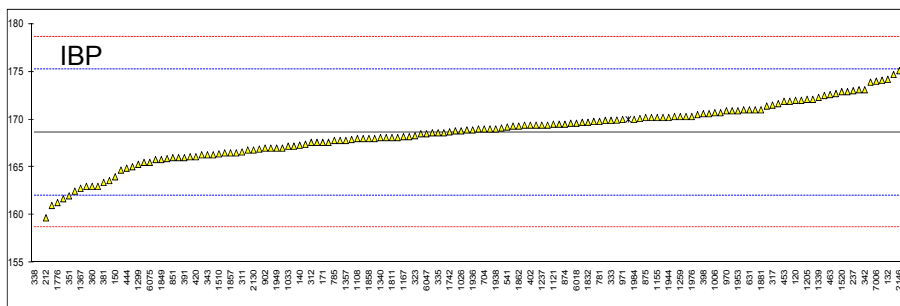
lab	method	IBP	10%rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
120	D86-Automated	172.0	209.8	278.6	340.2	359.1	362.0	29.9	93.0
132	D86-Automated	174.2	<b>217.9 R(1)</b>	280.2	338.5	354.6	361.3	28.1	93.9
140	ISO3405-Automated	167.3	210.7	276.6	335.2	350.2	356.8	30.7	94.9
150	D86-Automated	164.0	209.5	277.2	336.4	352.5	362.5	31.4	95.4
158		----	----	----	----	----	----	----	----
171	D86-Automated	167.6	213.8	278.6	337.4	354.1	362.1	29.5	94.0
212		159.7	209.9	278.0	338.1	352.9	361.6	----	----
237	D86-Manual	173.0	209.0	277.0	333.0	345.0	360.0	32.0	96.0
238	D86-Manual	163.0	210.0	277.0	337.0	353.0	364.0	31.0	94.0
273	D86-Automated	173.1	211.0	278.5	336.9	350.9	358.5	30	95
311	ISO3405-Automated	166.6	210.1	277.6	337.4	354.2	362.4	30.5	94.1
312	ISO3405-Automated	167.6	214.2	279.2	336.4	350.3	360.2	29.2	95.0
317	D86-Automated	171.5	214.1	279.3	337.6	353.2	363.8	29.3	94.5
323	ISO3405-Automated	168.3	211.4	278.6	338.9	355.8	359.0	29.4	93.6
331		----	----	----	----	----	----	----	----
332		----	----	----	----	----	----	----	----
333	D86-Automated	169.9	211.1	278.1	335.7	350.4	362.1	29.6	95.0
334	ISO3405-Automated	169.7	208.8	277.6	335.6	349.9	363.9	30.1	95.1
335	ISO3405-Automated	168.6	208.8	278.7	337.8	353.7	363.4	30.5	94.2
336	D86-Automated	166.3	211.5	277.6	337.3	352.7	363.0	30.2	94.3
337		----	----	----	----	----	----	----	----
338	ISO3405-Automated	<b>135.9 R(1)</b>	214.6	279.0	337.1	353.6	358.9	29.3	94.2
342	D86-Automated	173.1	213.5	277.8	338.2	353.8	360.6	29.0	94.0
343	ISO3405-Automated	166.3 C	213.6 C	278.1 C	339.2 C	352.5 C	362.7 C	31.7	96.6
345		----	----	----	----	----	----	----	----
351	ISO3405-Automated	162.0	209.1	276.7	337.4	354.5	364.2	30.8	94.1
353	IP123-Automated	169.4	211.1	278.8	339.6	356.2	366.7	28.7	93.4
356	D86-Automated	167.0	213.8	279.8	338.6	354.6	363.7	28.9	93.9
357	ISO3405-Automated	169.9	213.4	278.7	336.1	350.3	360.7	29.0	94.9
360	ISO3405-Automated	163.0	211.2	279.3	338.4	353.9	360.2	29.2	94.0
369	D86-Automated	167.2	211.9	279.7	340.1	356.8	365.9	29.6	94.5
370	ISO3405-Automated	165.8	208.4	277.4	338.8	354.4	362.7	30.9	94.1
371	ISO3405-Automated	169.5	210.8	278.5	338.8	354.3	363.3	29.6	93.9
372	ISO3405-Automated	169.0	211.6	278.3	337.4	352.7	361.6	29.2	94.1
381	D86-Automated	163.4	210.2	279.0	336.9	350.8	363.7	29.4	94.8
391	ISO3405-Automated	166.0	210.2	279.3	336.8	350.7	361.4	29.6	94.9
398	ISO3405-Automated	170.6	213.1	278.7	339.2	355.5	363.6	29.1	93.7
399	D86-Automated	170.2 C	212.0 C	276.5 C	333.7 C	345.3 C	359.9 C	31.4 C	96.0 C
402	ISO3405-Automated	169.4	212.0	279.2	338.2	352.2	362.4	29.7	94.3
403	ISO3405-Automated	169.4	210.0	277.2	335.4	350.0	359.5	30.6	95.0
420	ISO3405-Automated	166.1	211.1	277.4	336.3	354.0	359.2	30.2	94.3
432		----	----	----	----	----	----	----	----
440	D86-Manual	171.0	210.0	276.0	338.5	353.5	364.5	31	94
444	D86-Automated	164.9	210.6	277.4	334.8	347.5	361.9	30.6	95.7
445	IP123-Automated	161.7	209.7	277.2	335.8	351.2	361.7	30.2	94.7
447	D86-Automated	166.1	209.6	277.9	336.7	351.7	362.3	30.3	94.5
453	IP123-Automated	171.9	211.6	278.3	337.7	353.4	363.7	29.8	94.3
463	ISO3405-Automated	172.6	212.2	279.1	338.9	354.4	366.1	29.0	93.8
485	ISO3405-Automated	169.80	212.00	279.65	338.35	354.30	362.60	28.95	93.90
541	ISO3405-Automated	169.2	210.9	278.0	336.3	351.4	361.7	29.8	94.6
593		176.5	210.6	276.8	337.0	351.1	356.1	32	95
631	D86-Automated	171.0	210.3	277.2	335.5	349.2	359.3	30.6	95.2
663	D86-Automated	161.00	210.80	278.70	336.05	350.80	360.40	29.60	95.15
671		----	----	----	----	----	----	----	----
704	ISO3405-Manual	169.0	211.0	278.5	337.0	350.0	361.0	29.5	95.0
781	ISO3405-Automated	169.8	211.8	278.8	337.6	353.6	362.9	29.2	94.2
785	D86-Automated	167.8	211.1	278.9	336.5	353.5	363.5	29.6	94.5
823	ISO3405-Automated	168.6	211.3	278.7	336.9	349.9	363.4	29.9	94.9
840		----	----	----	----	----	----	----	----
842		----	----	----	----	----	----	----	----
851	D86-Manual	166.0	210.0	276.0	335.0	352.0	363.5	31.0	94.0
873	D86-Manual	169.0	211.0	278.5	337.5	354.0	364.0	29.6	94.0
874	ISO3405-Manual	169.5	212.0	279.0	338.5	354.5	363.0	29.0	94.0
875	D86-Automated	170.2	211.9	279.2	338.2	354.0	363.2	29.6	94.1
886		----	----	----	----	----	----	----	----
902	D86-Automated	167.0	210.5	278.4	338.0	354.2	363.2	30.6	95.0
963		----	----	----	----	----	----	----	----
970	D86-Automated	170.9	212.0	278.4	336.8	353.0	362.2	29.3	94.3
971	D86-Automated	170.0	211.4	278.1	337.0	353.0	362.0	30.0	94.3
974	D86-Automated	172.0	212.5	279.0	337.5	353.2	362.6	29.3	94.2
995	ISO3405-Manual	166.0	208.0	278.0	336.5	353.5	361.5	30.0	94.0
997	ISO3405-Manual	165.5	206.5	277.5	336.0	353.5	362.0	30.0	94.0
1006	D86-Automated	170.7	212.2	279.3	338.0	353.0	364.7	----	----
1011	D86-Automated	168.8	212.2	278.8	336.6	351.3	361.6	29.2	94.7

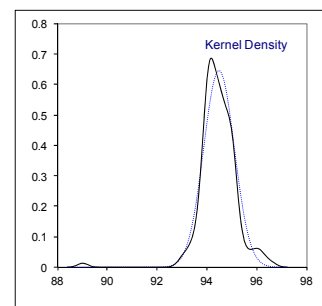
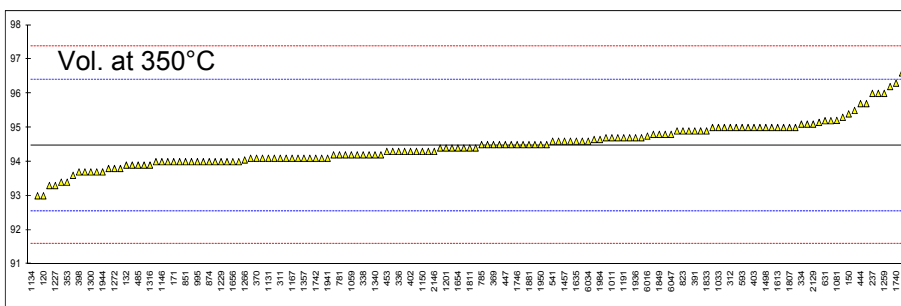
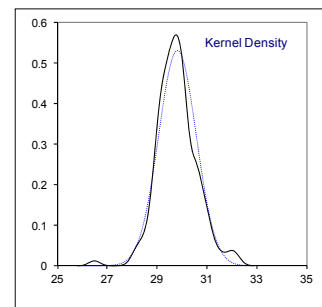
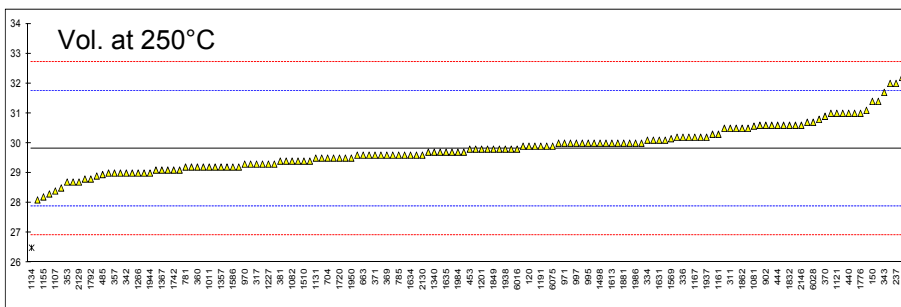
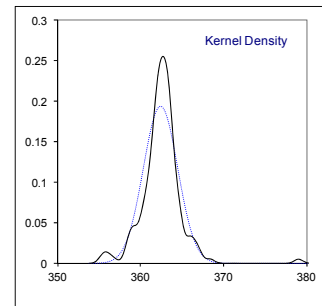
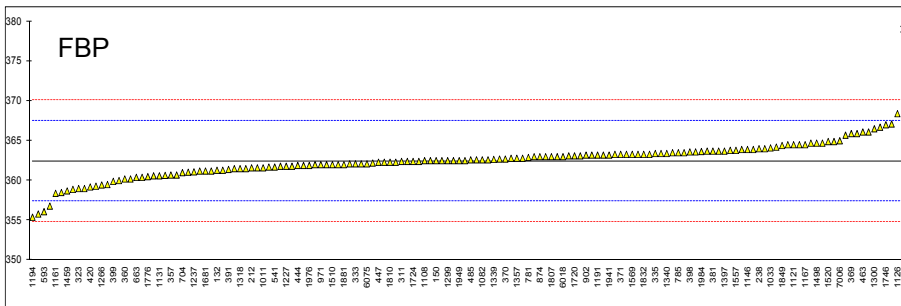
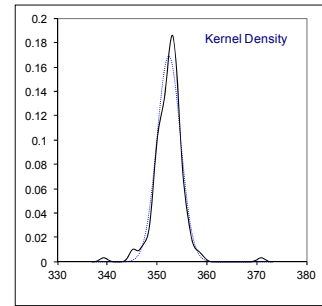
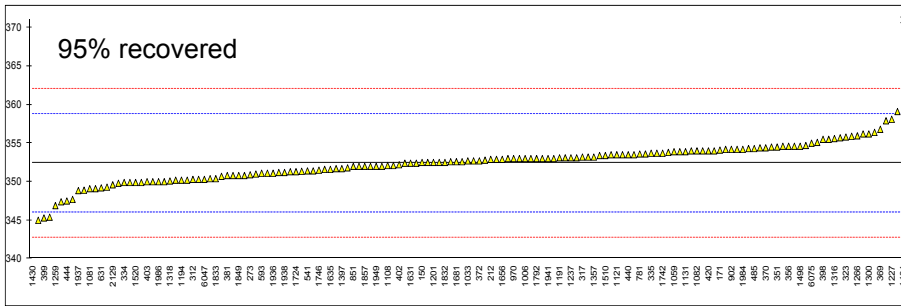
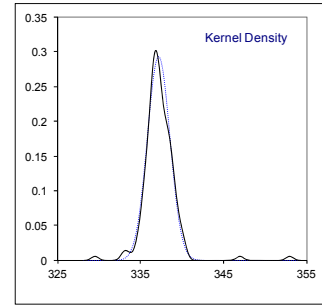
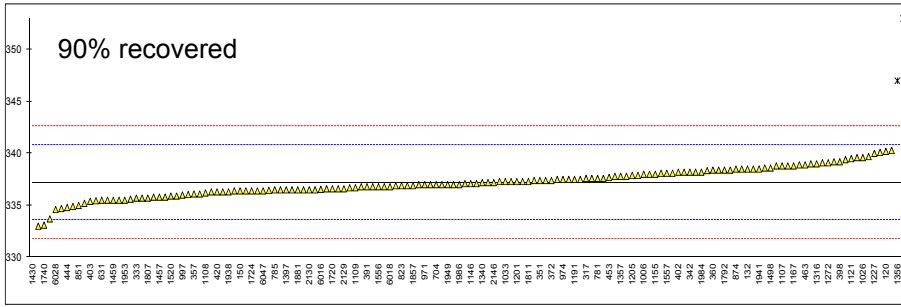
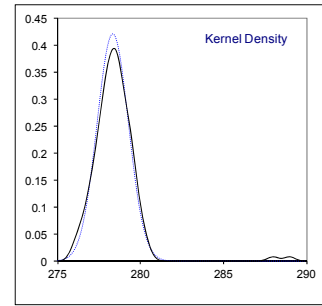
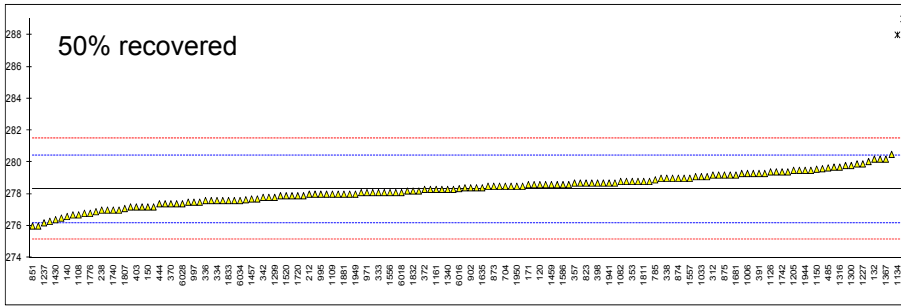
lab	method	IBP	10%rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
1016		----	----	----	----	----	----	----	----
1026		168.8	212.3	279.6	339.6	357.9	364.5	28.7	93.3
1033		167.2	211.9	279.1	337.3	352.7	364.1	30	95
1059	ISO3405-Automated	168.6	210.3	278.4	337.6	353.9	362.5	29.9	94.2
1081	D86-Automated	167.6	210.4	277.5	335.5	349.1	363.3	30.57	95.21
1082	ISO3405-Automated	172.7	212.4	278.8	337.3	354.0	362.6	29.4	94.2
1107	D86-Automated	166.8	212.5	279.9	338.8	355.9	362.5	28.4	93.7
1108	ISO3405-Automated	168.0	209.4	276.7	336.2	352.1	362.5	30.5	94.5
1109	D86-Automated	166.3	211.0	278.0	336.7	352.4	361.8	29.6	94.4
1121	IP123-Manual	169.5	206.5	278.0	339.5	353.5	364.5	31.0	93.0
1126		172.5	214.5	279.4	339.1	355.1	368.4	28.5	93.4
1131	ISO3405-Automated	169.1	210.3	278.1	337.5	353.9	360.6	29.5	94.1
1134	D86-Manual	<b>170.0 ex</b>	<b>216.0 ex</b>	<b>288.0 R(1)</b>	<b>353.0 R(1)</b>	<b>371.0 R(1)</b>	<b>379.0 R(1)</b>	<b>26.5 R(1)</b>	<b>89.0 R(1)</b>
1146	ISO3405-Automated	166.5	209.9	277.8	337.1	351.8	363.9	30	94
1150	ISO3405-Automated	169.93	214.47	279.57	338.20	354.60	362.80	29.5	94.3
1155	ISO3405-Automated	170.2	214.9	280.2	338.0	353.7	361.9	28.2	94.1
1161	ISO3405-Automated	167.8	210.0	278.3	337.0	351.1	358.4	30.3	94.7
1167	ISO3405-Automated	168.2	206.8	278.3	338.8	356.4	364.5	30.2	94.1
1191	ISO3405-Automated	170.3	212.0	278.7	337.5	353.1	363.2	29.9	94.7
1194	D86-Automated	<b>151.87 R(1)</b>	<b>203.13 R(1)</b>	276.3	336.4	350.2	355.4	32.2	94.9
1199		----	----	----	----	----	----	----	----
1201	ISO3405-Automated	170.5	211.9	278.0	337.3	352.5	360.7	29.8	94.4
1205	D86-Automated	172.1	211.2	279.5	337.9	353.1	363.1	29.0	94.2
1227		171.9	212.2	279.9	340.0	358.1	361.8	29.3	93.3
1229	ISO3405-Automated	168.5	212.5	279.2	338.4	354.7	360.4	28.8	94.0
1233		----	----	----	----	----	----	----	----
1237	ISO3405-Manual	169.4	207.3	276.2	336.1	353.1	361.1	31.1	94.1
1259	ISO3405-Automated	170.3	212.2	278.6	334.7	346.9	363.2	29.2	96.0
1266	ISO3405-Automated	174.70	214.10	280.05	340.30	355.95	359.45	29.00	94.05
1272	ISO3405-Automated	163.6	208.9	278.2	339.1	354.2	363.3	30.1	93.8
1286		----	----	----	----	----	----	----	----
1299	D86-Automated	165.3	208.3	277.8	337.1	352.5	362.5	----	----
1300	ISO3405-Automated	170.6	215.3	279.8	339.0	356.2	366.5	29.0	93.7
1316	D86-Automated	167.4	212.3 C	279.7	339.0	355.6	363.6	29.4	93.9
1318	D86-Automated	165.9	210.1	278.1	336.8	350.1	361.5	30.6	95.0
1339	ISO3405-Automated	172.30	209.30	277.65	336.45	351.35	362.65	29.90	94.65
1340	ISO3405-Automated	168.1	210.8	278.3	337.2	353.0	363.4	29.7	94.2
1356	ISO3405-Manual	----	<b>216 ex,C</b>	<b>289 C, R(1)</b>	<b>347 C, R(1)</b>	----	----	----	----
1357	D86-Automated	167.8	211.4	279.1	337.8	353.2	362.8	29.2	94.1
1367		162.8	209.3	280.2	339.4	354	366.1	29.1	93.7
1397	ISO3405-Automated	169.6	211.8	279.0	336.5	351.7	363.7	29.2	94.6
1412		----	----	----	----	----	----	----	----
1430	D86-Automated	169.3	211.5	276.4	<b>329.5 R(1)</b>	<b>339.3 R(1)</b>	359.0	----	----
1457	ISO3405-Automated	170.3	211.0	277.7	335.8	351.6	362.6	30.0	94.6
1459	ISO3405-Automated	168.0	211.1	278.6	335.5	349.3	358.7	29.3	95.2
1498	D86-Automated	167.6	211.8	279.4	338.6	354.6	364.7	30	95
1510	D86-Automated	166.4	210.4	278.6	337.5	353.4	362.0	29.4	94.2
1520	ISO3405-Manual	172.9	211.4	277.9	335.9	349.9	364.9	30.0	95.0
1556	ISO3405-Automated	168.9	210.8	278.1	336.8	351.4	362.0	29.7	94.6
1557	ISO3405-Automated	168.2	210.6	279.0	338.1	353.1	363.8	29.4	94.0
1569	D86-Automated	173.9	208.3	278.3	337.6	352.0	363.3	30.15	94.5
1586	D86-Automated	172.9	213.2	278.6	337.2	352.9	363.9	29.2	94.3
1613	D86-Automated	168.1	212.2	277.6	335.7	348.9	363.0	30	95
1631	ISO3405-Automated	----	----	----	----	352.4	----	30.1	94.4
1634	ISO3405-Automated	164.7	211.7	277.2	334.9	349.8	361.2	29.6	95.1
1635	ISO3405-Automated	169.4	212.0	278.4	336.8	351.6	363.3	29.7	94.6
1654	ISO3405-Automated	----	----	----	----	352.6	----	29.1	94.4
1656	D86-Automated	171.0	209.9	277.9	337.3	352.9	364.9	29.8	94.0
1681	ISO3405-Automated	170.2 C	210.4 C	279.2 C	337.8 C	352.6 C	361.2 C	29.6 C	94.1 C
1684		----	----	----	----	----	----	----	----
1720	D86-Automated	174.1 C	212.1	277.9	336.6	351.0	363.1	29.5	94.7
1724		167.9	210.5	277.7	336.4	351.3	362.4	29.7	94.6
1730		----	----	----	----	----	----	----	----
1740	ISO3405-Automated	170.9	211.1	277	333.1	345.4	362.3	30.1	96.3
1742	ISO3405-Automated	168.7	211.6	279.4	338.1	353.7	364.7	29.1	94.1
1746	D86-Manual	163.0	208.5	278.5	336.5	351.5	367.0	31.0	94.5
1776	ISO3405-Automated	161.3	207.0	276.8	335.5	349.9	360.5	31.0	95.0
1792	D86-Automated	172.1	213.2	279.4	338.4	353.0	355.8	28.8	94.1
1807	D86-Automated	171.4	210.9	277.1	335.7	350.2	363	30.2	95
1810	D86-Automated	170.7	215.6	280.5	337.9	353	362.3	28.3	94.4
1811	D86-Automated	168.1	212.0	278.8	337.3	352.4	363.1	29.1	94.4
1832	ISO3405-Automated	169.7	212.5	278.2	336.4	352.5	363.3	30.6	96.2
1833	D86-Automated	166.9	208.8	277.6	335.9	350.4	361.5	30.6	94.9
1849	ISO3405-Automated	165.8	209.8	277.9	336.3	350.8	364.4	29.8	94.8
1857	ISO3405-Automated	166.5	210.6	278.2	336.9	352.0	361.3	30.0	94.5
1858	D86-Manual	168.0	212.5	279.5	338.5	355.5	362.5	29.5	94.0

lab	method	IBP	10%rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
1862	ISO3405-Automated	169.3	210.2	276.9	335.8	349.1	361.2	30.5	95.5
1881	ISO3405-Manual	171.0	209.5	278.0	336.5	352.0	362.0	30.0	94.5
1936	ISO3405-Automated	168.9	210.7	278.0	336.5	351.1	362.1	29.8	94.7
1937	ISO3405-Automated	171.65	210.2	277.5	335.45	348.85	360.65	30.2	95.3
1938	ISO3405-Automated	169.0	210.5	278.1	336.3	351.2	362.3	29.8	94.7
1941	ISO3405-Automated	170.1	210.9	278.7	338.5	353.0	363.2	29.8	94.1
1944	ISO3405-Manual	170.2	212.4	279.5	339.7	355.7	365.7	29.0	93.7
1949	D86-Manual	167.0	210.5	278.0	337.0	352.0	362.5	30.0	94.5
1950	ISO3405-Manual	168.0	210.0	278.5	337.0	353.0	362.5	29.5	94.5
1953	ISO3405-Automated	170.9	210.5	278.5	335.5	347.7	365.9	-----	-----
1968		-----	-----	-----	-----	-----	-----	-----	-----
1976		170.3	212.7	278.6	336.6	350.8	361.9	29.2	94.8
1984	ISO3405-Automated	170.00	211.25	279.30	338.20	354.20	363.65	29.70	94.65
1986	ISO3405-Manual	167.0	210.0	277.0	337.0	350.0	363.0	30.0	95.0
1995		-----	-----	-----	-----	-----	-----	-----	-----
2129	ISO3405-Automated	162.5 C	213.1	279.5	336.6	349.6	367.1	28.7	95.1
2130	IP123-Automated	166.8	211.9	277.6	336.5	352.1	361.8	29.6	94.5
2146		175.1	208.9	277.4	337.2	352.6	363.3	30.6	94.3
6016	D86-Automated	165.05	210.75	278.35	336.55	350	361.05	29.8	94.75
6018	ISO3405-Automated	169.6	212.4	278.1	336.8	352.8	363.0	29.7	94.4
6028	ISO3405-Automated	168.1	210.2	277.4	334.6	347.4	362.4	30.7	95.7
6034	D86-Automated	166.5	208.9	277.6	336.5	352.0	362.8	30.5	94.6
6047	ISO3405-Automated	168.5	210.6	278.8	336.4	350.3	363.5	30.0	94.8
6075		165.5	210.2	278.7	338.4	355.0	362.1	29.9	93.8
6108		-----	-----	-----	-----	-----	-----	-----	-----
7006		174	-----	-----	-----	-----	365	-----	-----
9057		-----	-----	-----	-----	-----	-----	-----	-----
	normality	OK	OK	OK	OK	suspect	suspect	OK	suspect
	n	149	148	150	149	151	151	147	147
	outliers	2 (+1ex)	2 (+2ex)	2	3	2	1	1	1
	mean (n)	168.65	211.06	278.32	337.18	352.40	362.45	29.82	94.48
	st.dev. (n)	3.015	1.699	0.948	1.360	2.358	2.063	0.751	0.617
	R(calc.)	8.44	4.76	2.65	3.81	6.60	5.78	2.10	1.73
	R(ISO3405:11, autom.)	9.28	4.64	2.97	5.06	8.98	7.1	2.7	2.7
	R(ISO3405:11, man.)	6.75	4.72	3.90	3.99	5.16	3.94	2.66	2.32

Lab 343 first reported 158.8, 207.6, 274.4, 331.9, 345.3 and 357.4  
 Lab 399 first reported 150.3, 208.7, 273.7, 331.0, 342.4, 354.8, 32.7 and 97.4  
 Lab 1316 first reported for temp. at 10% rec: 195.4  
 Lab 1357 first reported: 220, 292, 352  
 Lab 1681 first reported 138.5, 206.2, 275.6, 335.0, 348.5, 352.1, 31.8 and 95.4  
 Lab 1720 first reported for IBP: 156  
 Lab 2129 first reported for IBP: 177.2

Test results of lab 1134 and 1356 were excluded as other distillation test results showed two or more statistical outliers





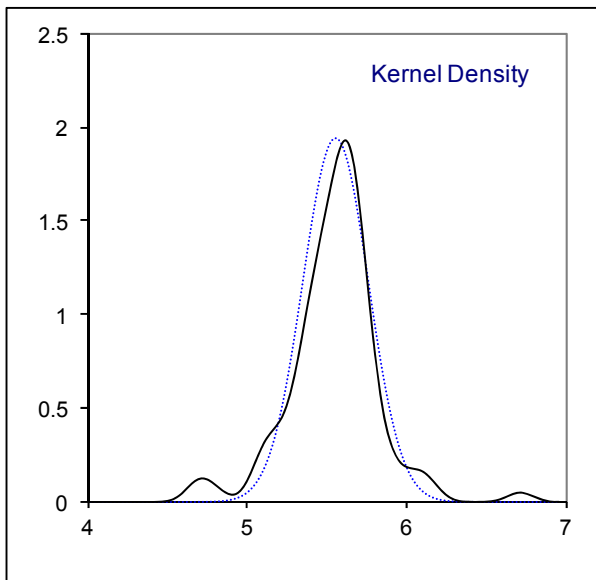
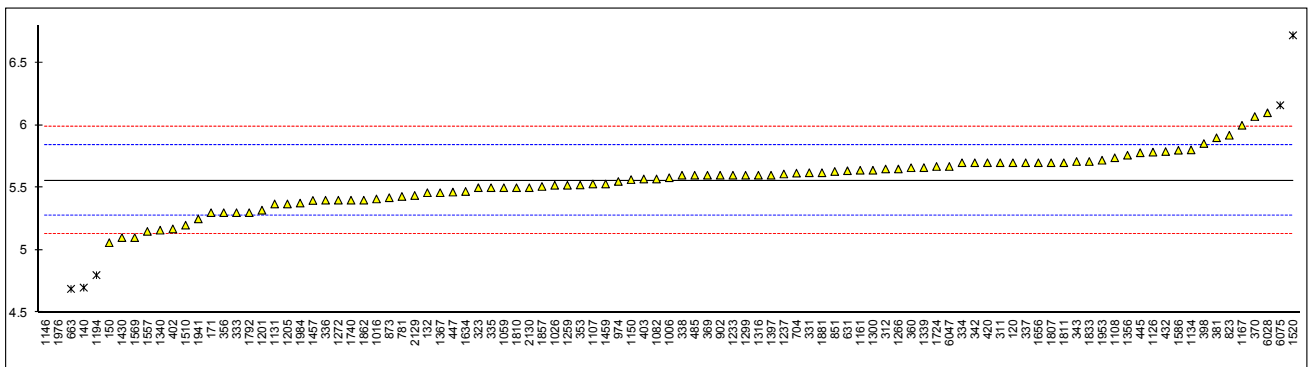
## Determination of FAME on sample #17025; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D7371	5.7		0.99	1026	EN14078	5.52		-0.27
132	D7371	5.46		-0.69	1033		----		----
140	EN14078	4.7	R(0.05)	-6.02	1059	EN14078	5.5		-0.41
150	D7371	5.06		-3.49	1081		----		----
158		----		----	1082	EN14078	5.57		0.08
171	D7371	5.30		-1.81	1107	EN14078	5.53		-0.20
212		----		----	1108	EN14078	5.74		1.27
237		----		----	1109		----		----
238		----		----	1121		----		----
273		----		----	1126	EN14078	5.785		1.59
311	EN14078	5.7		0.99	1131	EN14078	5.37		-1.32
312	EN14078	5.65		0.64	1134	EN14078	5.803		1.72
317		----		----	1146	D7371	0.51	R(0.01)	-35.38
323	EN14078	5.5		-0.41	1150	EN14078	5.5649		0.05
331	EN14078	5.62		0.43	1155		----		----
332		----		----	1161	EN14078	5.64		0.57
333	EN14078	5.3		-1.81	1167	EN14078	6.0		3.10
334	EN14078	5.7		0.99	1191		----		----
335	EN14078	5.5		-0.41	1194	EN14078	4.8	R(0.05)	-5.31
336	EN14078	5.4		-1.11	1199		----		----
337		5.7		0.99	1201	EN14078	5.32		-1.67
338	EN14078	5.6		0.29	1205	EN14078	5.37		-1.32
342	EN14078	5.7		0.99	1227		----		----
343	EN14078	5.71		1.06	1229		----		----
345		----		----	1233	EN14078	5.6		0.29
351		----		----	1237	EN14078	5.61		0.36
353	EN14078	5.522		-0.25	1259	EN14078	5.52		-0.27
356	EN14078	5.3		-1.81	1266	EN14078	5.65		0.64
357		----		----	1272	EN14078	5.4		-1.11
360	EN14078	5.66		0.71	1286		----		----
369	EN14078	5.6		0.29	1299	EN14078	5.6		0.29
370	EN14078	6.07		3.59	1300	EN14078	5.640		0.57
371		----		----	1316	EN14078	5.6		0.29
372		----		----	1318		----		----
381	EN14078	5.9		2.40	1339	EN14078	5.661		0.72
391		----		----	1340	EN14078	5.16		-2.79
398	EN14078	5.854		2.07	1356	EN14078	5.76		1.41
399		----		----	1357		----		----
402	EN14078	5.17		-2.72	1367	EN14078	5.46	C	-0.69
403	EN14078	5.57		0.08	1397	EN14078	5.6		0.29
420	EN14078	5.7		0.99	1412		----		----
432	EN14078	5.79		1.62	1430	D7806	5.1		-3.21
440		----		----	1457	EN14078	5.398		-1.12
444		----		----	1459	EN14078	5.53		-0.20
445	EN14078	5.78		1.55	1498		----		----
447	EN14078	5.465		-0.65	1510	EN14078	5.2		-2.51
453		----		----	1520	EN14078	6.72	C,R(0.01)	8.14
463		----		----	1556		----		----
485	EN14078	5.6		0.29	1557	EN14078	5.15		-2.86
541		----		----	1569	EN14078	5.1		-3.21
593		----		----	1586	EN14078	5.8		1.69
631	EN14078	5.636		0.54	1613		----	W	----
663	EN14078	4.6897	R(0.05)	-6.09	1631		----		----
671		----		----	1634	EN14078	5.47		-0.62
704	EN14078	5.617		0.41	1635		----		----
781	EN14078	5.43		-0.90	1654		----		----
785		----		----	1656	EN14078	5.7		0.99
823	EN14078	5.92		2.54	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851	EN14078	5.63		0.50	1724	EN14078	5.67		0.78
873	EN14078	5.42		-0.97	1730		----		----
874	EN14078	n/a		----	1740	EN14078	5.4		-1.11
875		----		----	1742		----		----
886		----		----	1746		----		----
902	EN14078	5.6		0.29	1776		----		----
963		----		----	1792	EN14078	5.30		-1.81
970		----		----	1807	EN14078	5.7		0.99
971		----		----	1810	EN14078	5.5		-0.41
974	EN14078	5.55		-0.06	1811	EN14078	5.70		0.99
995		----		----	1832		----		----
997		----		----	1833	EN14078	5.71		1.06
1006	EN14078	5.58		0.15	1849		----		----
1011		----		----	1857	EN14078	5.51		-0.34
1016	EN14078	5.41		-1.04	1858		----		----

1862	EN14078	5.40	C	-1.11	1995	-----	-----		
1881	EN14078	5.62		0.43	2129	EN14078	5.438	-0.84	
1936		-----		-----	2130	EN14078	5.5	-0.41	
1937		-----		-----	2146		-----	-----	
1938		-----		-----	6016		-----	-----	
1941	EN14078	5.25		-2.16	6018		-----	-----	
1944		-----		-----	6028	EN14078	6.1	3.80	
1949		-----		-----	6034		-----	-----	
1950		-----		-----	6047	EN14078	5.67	0.78	
1953	EN14078	5.72		1.13	6075	EN14078	6.16	R(0.05)	4.22
1968		-----		-----	6108		-----	-----	
1976	EN14078	3.386	R(0.01)	-15.23	7006		-----	-----	
1984	EN14078	5.3768		-1.27	9057		-----	-----	
1986		-----		-----					

		EN14078 only	
normality	OK	OK	
n	92	86	
outliers	7	6	
mean (n)	5.558	5.570	
st.dev. (n)	0.2058	0.1961	
R(calc.)	0.576	0.549	
R(EN14078:14)	0.399	Range B	0.400

Lab 1367 first reported: 6.14  
 Lab 1520 first reported: 4.72  
 Lab 1613 first reported: 4.58  
 Lab 1862 first reported: 6.54



## Determination of Flash Point PMcc on sample #17025; result in °C

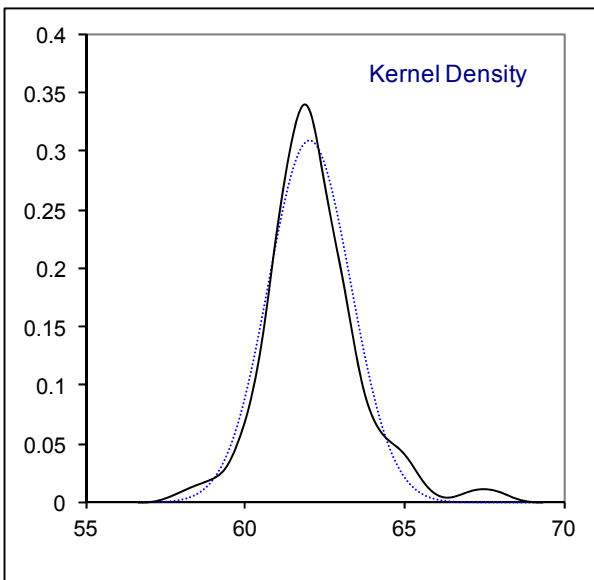
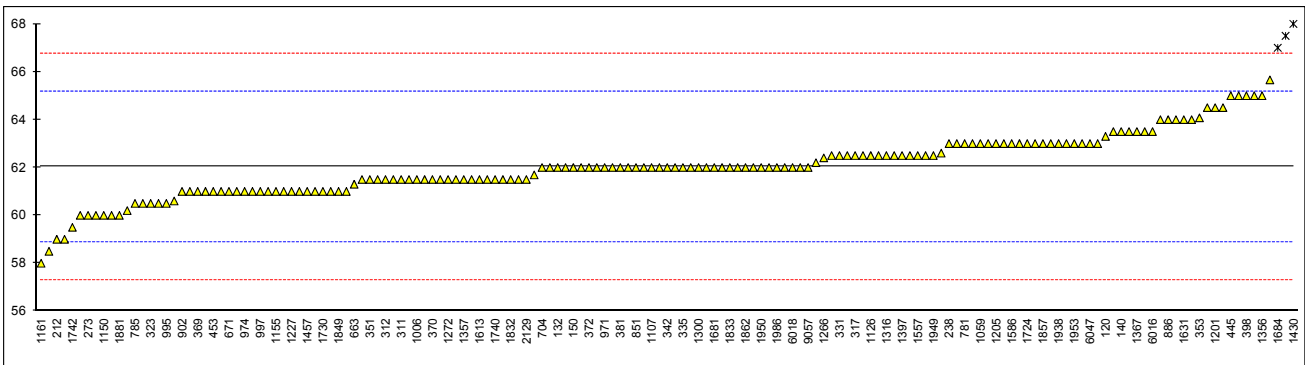
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D93-A	63.3		0.81	1026	ISO2719-A	60.5		-0.97
132	ISO2719-A	62.0		-0.02	1033		----		----
140	D93-A	63.5		0.94	1059	ISO2719-A	63.0		0.62
150	D93-A	62.0		-0.02	1081	D93-A	62.6		0.37
158		----		----	1082	ISO2719-A	62.0		-0.02
171	D93-A	60.0		-1.29	1107	D93-A	62.0		-0.02
212	ISO2719-A	59.0	C	-1.92	1108	ISO2719-A	62.5		0.30
237	D93-A	62.0		-0.02	1109	D93-A	62.0		-0.02
238	D93-A	63.0		0.62	1121	IP34-A	62.5		0.30
273	D93-A	60		-1.29	1126	ISO2719-A	62.5		0.30
311	ISO2719-A	61.5	C	-0.33	1131	ISO2719-A	61.5		-0.33
312	D93-A	61.5		-0.33	1134	IP34-A	61.5		-0.33
317	ISO2719-A	62.5		0.30	1146	D93-A	61.5		-0.33
323	ISO2719-A	60.5		-0.97	1150	ISO2719-A	60.0		-1.29
331	D93-A	62.5		0.30	1155	ISO2719-A	61.0		-0.65
332		----		----	1161	ISO2719-A	58.0		-2.56
333	D93-A	64.5		1.57	1167	ISO2719-A	62.5		0.30
334	ISO2719-A	61.0		-0.65	1191	ISO2719-A	61.0		-0.65
335	ISO2719-A	62.0		-0.02	1194		----		----
336	ISO2719-A	63.0		0.62	1199		----		----
337		----		----	1201	ISO2719-A	64.5		1.57
338	ISO2719-A	65.0		1.89	1205	D93-A	63.0		0.62
342	ISO2719-A	62.0		-0.02	1227	D93-A	61		-0.65
343	ISO2719-A	65		1.89	1229	ISO2719-A	63.0		0.62
345	ISO2719-B	61		-0.65	1233	ISO2719-A	63.5		0.94
351	ISO2719-A	61.50		-0.33	1237	ISO2719-A	60.6		-0.91
353	ISO2719-A	64.075		1.30	1259	ISO2719-A	64.0		1.26
356	D93-A	63.0		0.62	1266	ISO2719-A	62.40		0.24
357	ISO2719-A	62.5		0.30	1272	ISO2719	61.5		-0.33
360	ISO2719-A	59.0		-1.92	1286	ISO2719-A	61.69		-0.21
369	ISO2719-A	61.0		-0.65	1299	D93-A	61.5		-0.33
370	ISO2719-A	61.5		-0.33	1300	ISO2719-A	62.0		-0.02
371	ISO2719-A	61.0		-0.65	1316	D93-A	62.5		0.30
372	ISO2719-A	62.0		-0.02	1318	D93-A	61.0		-0.65
381	ISO2719-A	62.0		-0.02	1339	ISO2719-A	65.66		2.31
391	ISO2719-A	62.0		-0.02	1340	ISO2719-A	62.5		0.30
398	ISO2719-A	65.0		1.89	1356	ISO2719-A	65	C	1.89
399	ISO2719-A	61.0		-0.65	1357	D93-A	61.5		-0.33
402	ISO2719-B	62.0		-0.02	1367	D93-A	63.5		0.94
403	ISO2719-A	60.2		-1.16	1397	ISO2719-A	62.5		0.30
420	ISO2719-A	62.0		-0.02	1412		----		----
432	ISO2719-A	63.5		0.94	1430	D93-A	68	R(0.01)	3.80
440	IP34-A	61.5		-0.33	1457	ISO2719-A	61.0		-0.65
444	D93-A	62.2		0.11	1459	ISO2719-A	62.00		-0.02
445	IP34-A	65.0		1.89	1498	D93-A	63.5		0.94
447	ISO2719-A	61.5		-0.33	1510	IP34-A	58.5		-2.24
453	IP34-A	61.0		-0.65	1520	ISO2719-A	61.5		-0.33
463	D93-A	64.0		1.26	1556	ISO2719-A	62.5		0.30
485	ISO2719-A	62.0		-0.02	1557	ISO2719-B	62.5		0.30
541	ISO2719-A	60.0		-1.29	1569	ISO2719-A	62.5		0.30
593	D93-A	60.5		-0.97	1586	ISO2719-A	63.0		0.62
631	D93-A	62.0		-0.02	1613	D93-A	61.5		-0.33
663	D93-A	61.3		-0.46	1631	ISO2719-A	64.0		1.26
671	D93-A	61		-0.65	1634	ISO2719-A	63.0		0.62
704	ISO2719-A	62.0		-0.02	1635	ISO2719-A	64		1.26
781	ISO2719-A	63.0		0.62	1654	ISO2719-A	61.5		-0.33
785	D93-A	60.5		-0.97	1656	D93-A	64.5		1.57
823	ISO2719-A	62.0		-0.02	1681	ISO2719-A	62.0		-0.02
840		----		----	1684	ISO2719-A	67	C,R(0.05)	3.16
842		----		----	1720	D93-A	61.0		-0.65
851	D93-A	62.0		-0.02	1724	D93-A	63		0.62
873	D93-A	61.5		-0.33	1730	D93-A	61.0		-0.65
874	ISO2719-A	62.0		-0.02	1740	ISO2719-A	61.5		-0.33
875	D93-A	61.0		-0.65	1742	ISO2719-A	59.5		-1.61
886	D93-A	64.0		1.26	1746	D93-A	67.5	R(0.05)	3.48
902	D93-A	61		-0.65	1776	ISO2719-A	61.5		-0.33
963		----		----	1792	ISO2719-A	62.0		-0.02
970	D93-A	61.0		-0.65	1807	ISO2719-A	63.0		0.62
971	D93-A	62.0		-0.02	1810	ISO2719-A	61.0		-0.65
974	D93-A	61.0		-0.65	1811	ISO2719-A	60.0		-1.29
995	D93-A	60.5		-0.97	1832	ISO2719-A	61.5		-0.33
997	D93-A	61.0		-0.65	1833	ISO2719-A	62.0		-0.02
1006	D93-A	61.5		-0.33	1849	ISO2719-A	61		-0.65
1011	ISO2719	63.0		0.62	1857	ISO2719-A	63.0		0.62
1016		----		----	1858	D93-A	62.0		-0.02



1862	ISO2719-A	62.0	-0.02	1995		----	----
1881	ISO2719-A	60.0	-1.29	2129	ISO2719-A	61.5	-0.33
1936	ISO2719-A	63	0.62	2130	D93-A	62	-0.02
1937	ISO2719-A	62	-0.02	2146		----	----
1938	ISO2719-A	63	0.62	6016	D93-A	63.5	0.94
1941	ISO2719-A	63.0	0.62	6018	ISO2719-A	62.0	-0.02
1944	ISO2719-A	61.5	-0.33	6028	ISO2719-A	62.0	-0.02
1949	ISO2719-A	62.5	0.30	6034	D93-A	61.0	-0.65
1950	ISO2719-A	62.0	-0.02	6047	ISO2719-A	63.0	0.62
1953	ISO2719-A	63	0.62	6075	ISO2719-A	63.0	0.62
1968		----	----	6108		----	----
1976	ISO2719-A	62.0	-0.02	7006		----	----
1984	ISO2719-A	63.0	0.62	9057	In house	62	-0.02
1986	ISO2719-A	62.0	-0.02				

normality OK  
 n 158  
 outliers 3  
 mean (n) 62.03  
 st.dev. (n) 1.29  
 R(calc.) 3.61  
 R(ISO2719:02) 4.40

Lab 212 first reported: 56.0  
 Lab 311 first reported: 57.0  
 Lab 1356 first reported: 69  
 Lab 1684 first reported: 75



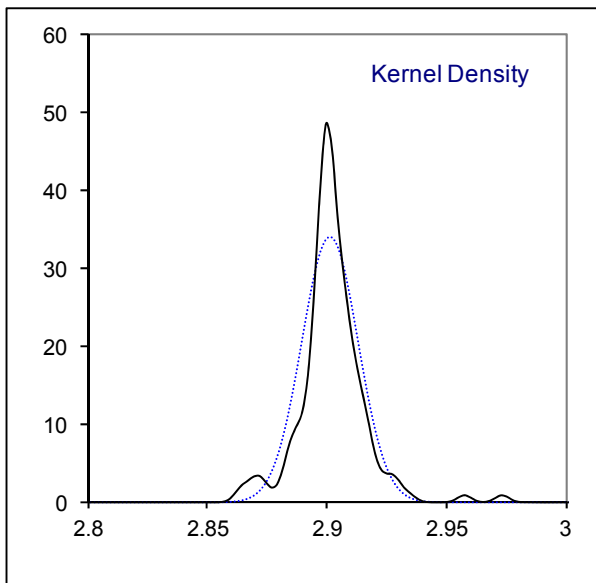
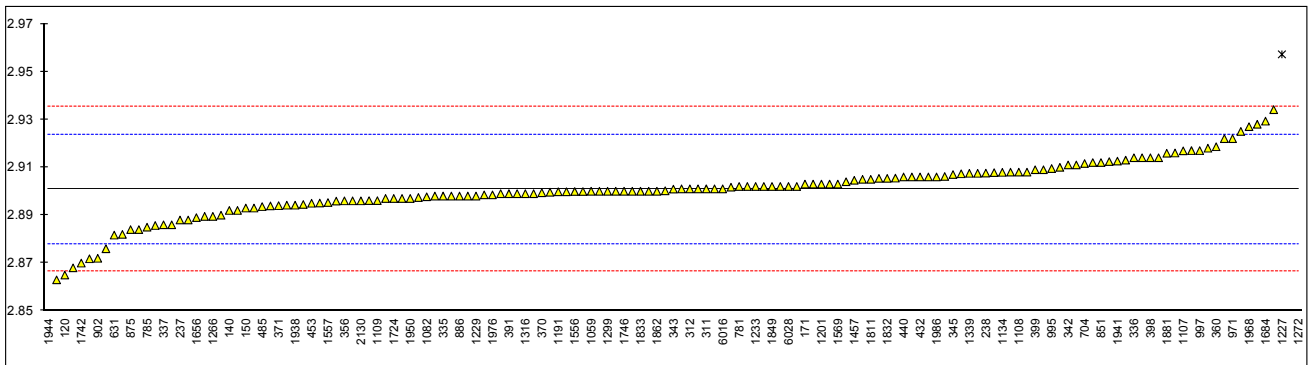
Determination of Kinematic Viscosity at 40°C on sample #17025; result in mm<sup>2</sup>/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D445	2.865		-3.14	1026	ISO3104	2.910		0.80
132	ISO3104	2.925		2.11	1033	IP71	2.917		1.41
140	ISO3104	2.892		-0.78	1059	ISO3104	2.900		-0.08
150	D445	2.893		-0.69	1081	D445	2.903		0.18
158		----		----	1082	ISO3104	2.8977		-0.28
171	D445	2.903		0.18	1107	D445	2.9169		1.40
212		2.973	C,R(0.01)	6.31	1108	ISO3104	2.908		0.62
237	D445	2.888	C	-1.13	1109	D445	2.8961		-0.42
238	D445	2.9076		0.59	1121	IP71	2.914		1.15
273	D445	2.905		0.36	1126		----		----
311	ISO3104	2.901		0.01	1131	ISO3104	2.8974		-0.31
312	D445	2.901		0.01	1134	IP71	2.9079		0.61
317	D445	2.898		-0.25	1146	D445	2.9054		0.39
323	ISO3104	2.901		0.01	1150	ISO3104	2.9078		0.60
331		----		----	1155	ISO3104	2.8945		-0.56
332		----		----	1161	ISO3104	2.909		0.71
333	ISO3104	2.902		0.10	1167	ISO3104	2.899		-0.17
334	ISO3104	2.901		0.01	1191	ISO3104	2.8998		-0.10
335	ISO3104	2.898		-0.25	1194		----		----
336	ISO3104	2.914		1.15	1199		----		----
337	ISO3104	2.886		-1.30	1201	ISO3104	2.903		0.18
338		----		----	1205	ISO3104	2.8857		-1.33
342	ISO3104	2.911		0.88	1227	D445	2.9572	R(0.01)	4.93
343	ISO3104	2.9009		0.00	1229	ISO3104	2.898		-0.25
345	ISO3104	2.907	C	0.53	1233	ISO3104	2.902		0.10
351	ISO3104	2.897		-0.34	1237		----		----
353	IP71	2.8985		-0.21	1259	ISO3104	2.884		-1.48
356	D445	2.896		-0.43	1266	ISO3104	2.8895		-1.00
357	ISO3104	2.899		-0.17	1272	ISO3104	3.390	R(0.01)	42.81
360	ISO3104	2.9186		1.55	1286		----		----
369	ISO3104	2.922		1.85	1299	D445	2.900		-0.08
370	ISO3104	2.8994		-0.13	1300	ISO3104	2.8951		-0.51
371	ISO3104	2.894		-0.60	1316	D445	2.899		-0.17
372	ISO3104	2.882		-1.65	1318	D7042	2.8959		-0.44
381	ISO3104	2.906		0.45	1339	ISO3104	2.9075		0.58
391	ISO3104	2.899		-0.17	1340	ISO3104	2.888		-1.13
398	ISO3104	2.914		1.15	1356	ISO3104	2.9075		0.58
399	ISO3104	2.909		0.71	1357	D445	2.906		0.45
402	ISO3104	2.908		0.62	1367	IP71	2.868		-2.88
403	ISO3104	2.916	C	1.32	1397	D7042	2.911		0.88
420	ISO3104	2.8718		-2.55	1412		----		----
432	ISO3104	2.906		0.45	1430	D445	2.900		-0.08
440	D445	2.906		0.45	1457	ISO3104	2.9046		0.32
444	D445	2.8939		-0.61	1459	D7042	2.9073		0.56
445	IP71	2.898		-0.25	1498	D445	2.903		0.18
447	D445	2.928		2.37	1510	D445	2.904		0.27
453	IP71	2.895		-0.52	1520	ISO3104	2.9341		2.91
463	ISO3104	2.8895		-1.00	1556	ISO3104	2.8999		-0.09
485	ISO3104	2.8936		-0.64	1557	ISO3104	2.8953		-0.49
541	ISO3104	2.8942		-0.59	1569	ISO3104	2.903		0.18
593	D445	2.890		-0.95	1586	ISO3104	2.902		0.10
631	D445	2.8817		-1.68	1613	D7042	2.8998		-0.10
663	D445	2.8961		-0.42	1631	ISO3104	2.876		-2.18
671		----		----	1634	ISO3104	2.896		-0.43
704	ISO3104	2.9116		0.94	1635	ISO3104	2.901		0.01
781	ISO3104	2.902		0.10	1654	ISO3104	2.9017		0.07
785	D445	2.885		-1.39	1656	D445	2.889		-1.04
823	ISO3104	2.913		1.06	1681	ISO3104	2.9055		0.40
840		----		----	1684	ISO3104	2.9293		2.49
842		----		----	1720	D7042	2.863	C	-3.32
851	D445	2.912		0.97	1724	D445	2.897		-0.34
873	D445	2.900		-0.08	1730		----		----
874	ISO3104	2.898		-0.25	1740	ISO3104	2.893		-0.69
875	D445	2.884		-1.48	1742	ISO3104	2.870		-2.71
886	D445	2.898		-0.25	1746	D445	2.900		-0.08
902	D445	2.872		-2.53	1776	ISO3104	2.892		-0.78
963		----		----	1792	ISO3104	2.908		0.62
970	D445	2.918		1.50	1807	ISO3104	2.900		-0.08
971	D445	2.922		1.85	1810	ISO3104	2.897		-0.34
974	D445	2.914		1.15	1811	ISO3104	2.905		0.36
995	ISO3104	2.9095		0.75	1832	ISO3104	2.9054		0.39
997	ISO3104	2.917		1.41	1833	ISO3104	2.900		-0.08
1006	D445	2.8996		-0.11	1849	ISO3104	2.902		0.10
1011	ISO3104	2.912		0.97	1857	ISO3104	2.900		-0.08
1016		----		----	1858	D445	2.8999		-0.09

1862	ISO3104	2.9000	-0.08	1995		----	----
1881	ISO3104	2.9159	1.31	2129	ISO3104	2.9002	-0.06
1936	ISO3104	2.899	-0.17	2130	IP71	2.896	-0.43
1937	ISO3104	2.902	0.10	2146		----	----
1938	ISO3104	2.8942	-0.59	6016	D445	2.901	0.01
1941	ISO3104	2.9126	1.02	6018		----	----
1944	ISO3104	2.7641	C,R(0.01) -11.98	6028	ISO3104	2.902	0.10
1949	ISO3104	2.9062	0.46	6034		----	----
1950	ISO3104	2.897	-0.34	6047	ISO3104	2.9124	1.01
1953		----	----	6075	ISO3104	2.902	0.10
1968	ISO3104	2.927	2.28	6108		----	----
1976	ISO3104	2.8985	-0.21	7006		----	----
1984	ISO3104	2.886	-1.30	9057		----	----
1986	ISO3104	2.906	0.45				

normality suspect  
n 149  
outliers 4  
mean (n) 2.9009  
st.dev. (n) 0.01176  
R(calc.) 0.0329  
R(ISO3104:94) 0.0320

Lab 212 first reported: 2.945  
Lab 237 first reported: 2.946  
Lab 345 first reported: 2.971  
Lab 403 first reported: 2.816  
Lab 1720 first reported: 2.981  
Lab 1944 first reported: 2.9501



Determination of Lubricity by HFRR at 60 °C on sample #17025; result in  $\mu\text{m}$ 

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D6079	211	ex	-0.71	1026	ISO12156-1	187		-1.46
132	ISO12156-1	302		2.12	1033	ISO12156-1	217		-0.52
140	ISO12156-1	196		-1.18	1059	ISO12156-1	250		0.50
150	D6079	342	ex	3.37	1081	ISO12156-1	221		-0.40
158		----		----	1082		----		----
171	D6079	200	ex	-1.05	1107	ISO12156-1	153		-2.51
212		----		----	1108	ISO12156-1	221		-0.40
237	D6079	230	ex,C	-0.12	1109	IP450	212		-0.68
238		----		----	1121		----		----
273		----		----	1126		----		----
311	ISO12156-1	199		-1.08	1131	ISO12156-1	215		-0.58
312	ISO12156-1	210		-0.74	1134	D6079	355	ex	3.77
317		----		----	1146		----		----
323	ISO12156-1	190		-1.36	1150		----		----
331		----		----	1155	ISO12156-1	244.5		0.33
332		----		----	1161		----		----
333		----		----	1167	ISO12156-1	251		0.54
334	ISO12156-1	196		-1.18	1191	ISO12156-1	196		-1.18
335	ISO12156-1	221		-0.40	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	ISO12156-1	216		-0.55
338		----		----	1205		----		----
342	ISO12156-1	190		-1.36	1227		----		----
343	ISO12156-1	224		-0.30	1229	ISO12156-1	204		-0.93
345		----		----	1233	ISO12156-1	301		2.09
351		----		----	1237		----		----
353		----		----	1259	ISO12156-1	220		-0.43
356	D6079	332	ex	3.06	1266		----		----
357		----		----	1272	ISO12156-1	234.0		0.01
360	ISO12156-1	170		-1.98	1286		----		----
369		----		----	1299	ISO12156-1	258		0.75
370	ISO12156-1	291		1.78	1300	ISO12156-1	293.7	C	1.86
371		----		----	1316	ISO12156-1	201.5		-1.00
372	ISO12156-1	230		-0.12	1318	ISO12156-1	203		-0.96
381		----		----	1339		----		----
391	ISO12156-1	216		-0.55	1340	ISO12156-1	221		-0.40
398		----		----	1356	ISO12156-1	224		-0.30
399		----		----	1357	D6079	280	ex	1.44
402	ISO12156-1	201		-1.02	1367	ISO12156-1	225		-0.27
403	ISO12156-1	216		-0.55	1397	ISO12156-1	187		-1.46
420	ISO12156-1	278		1.38	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	ISO12156-1	188.5		-1.41
444		----		----	1459		----		----
445	ISO12156-1	227		-0.21	1498		----		----
447	ISO12156-1	240		0.19	1510		----		----
453	ISO12156-1	271		1.16	1520	ISO12156-1	278.8	C	1.40
463	ISO12156-1	246.5		0.40	1556	ISO12156-1	305.0		2.22
485		----		----	1557	ISO12156-1	227		-0.21
541		----		----	1569	ISO12156-1	258		0.75
593		----		----	1586	ISO12156-1	235		0.04
631	D7688	201	ex	-1.02	1613	ISO12156-1	261		0.85
663		----		----	1631	ISO12156-1	280		1.44
671		----		----	1634		----		----
704	ISO12156-1	262		0.88	1635	ISO12156-1	290		1.75
781	ISO12156-1	298		2.00	1654		----		----
785		----		----	1656	ISO12156-1	321		2.71
823	ISO12156-1	205		-0.90	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724	ISO12156-1	249		0.47
873	ISO12156-1	300		2.06	1730		----		----
874	ISO12156-1	n/a		----	1740	ISO12156-1	210		-0.74
875		----		----	1742		----		----
886		----		----	1746		----		----
902	ISO12156-1	243		0.29	1776	ISO12156-1	219		-0.46
963		----		----	1792	ISO12156-1	230		-0.12
970	D6079	330	ex	2.99	1807	ISO12156-1	224		-0.30
971		----		----	1810	ISO12156-1	195		-1.21
974	D6079	328	ex	2.93	1811	ISO12156-1	213		-0.65
995	ISO12156-1	251		0.54	1832		----		----
997		----		----	1833	ISO12156-1	235		0.04
1006	D6079	271.5	ex	1.17	1849		----		----
1011	ISO12156-1	198		-1.11	1857	ISO12156-1	251		0.54
1016		----		----	1858		----		----

1862	ISO12156-1	223	-0.34	1995	----	----	
1881	----	----	----	2129	ISO12156-1	181	-1.64
1936	----	----	----	2130	IP450	230	-0.12
1937	----	----	----	2146	----	----	
1938	----	----	----	6016	----	----	
1941	ISO12156-1	246	0.38	6018	----	----	
1944	ISO12156-1	331	3.02	6028	ISO12156-1	272	1.19
1949	ISO12156-1	238.8	0.16	6034	----	----	
1950	----	----	----	6047	----	----	
1953	----	----	----	6075	ISO12156-1	205.6	-0.88
1968	----	----	----	6108	----	----	
1976	----	----	----	7006	----	----	
1984	ISO12156-1	243.6150	0.31	9057	----	----	
1986	----	----	----				

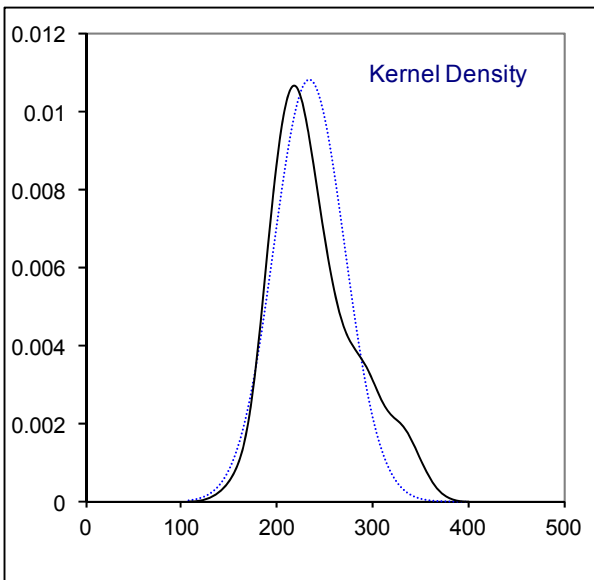
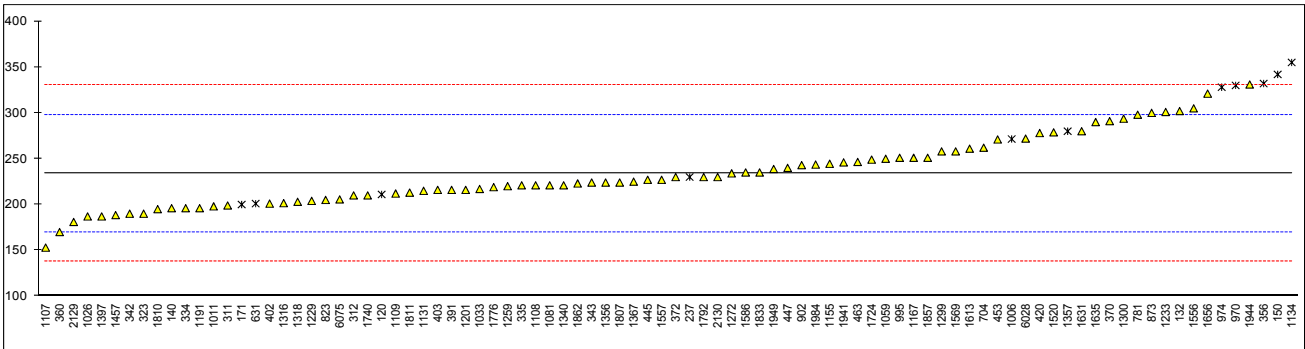
normality OK  
 n 79  
 outliers 0 (+11ex)  
 mean (n) 233.779  
 st.dev. (n) 36.9263  
 R(calc.) 103.394  
 R(ISO12156:16) 90

All reported results  
 OK  
 0  
 0  
 239.434  
 42.9237  
 120.186  
 90

Compare R(D6079:11) = 80

Lab 237 first reported: 391  
 Lab 1300 first reported: 378  
 Lab 1520 first reported: 378.8

ex = result excluded, calculation procedure of test method is different than Corrected Wear Scar diameter from specification EN590.



## Determination of Manganese as Mn on sample #17025; result in mg/L

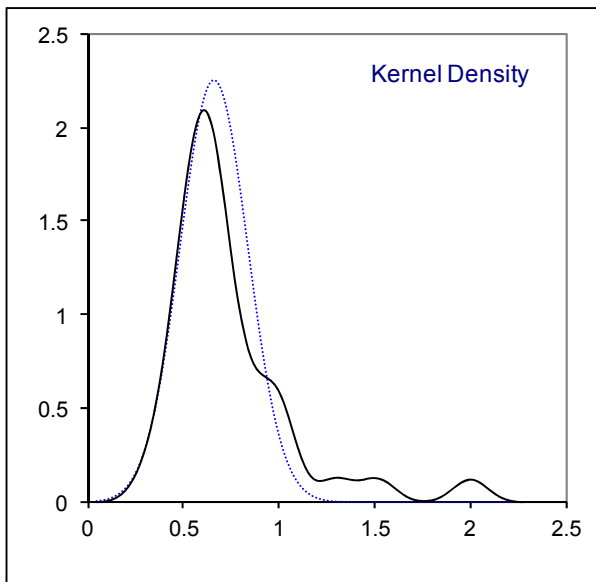
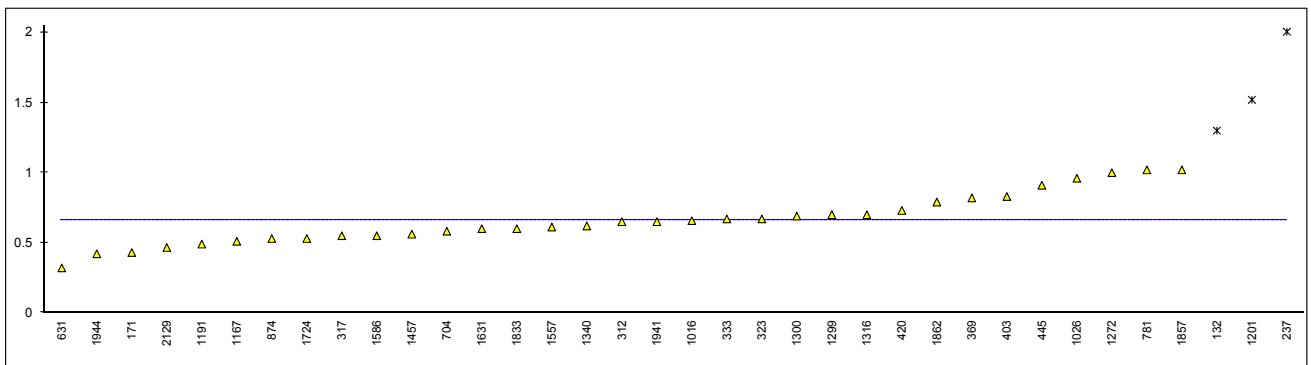
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	D7111	0.96		----
132	D3831	1.3	R(0.05)	----	1033		----		----
140		----		----	1059		----		----
150		----		----	1081		----		----
158		----		----	1082		----		----
171	EN16576	0.43		----	1107		----		----
212		----		----	1108		----		----
237	D7111	1.28	C,R(0.01)	----	1109		----		----
238		----		----	1121		----		----
273		----		----	1126		----		----
311		----		----	1131		----		----
312	EN16576	0.65		----	1134		----		----
317	EN16576	0.55		----	1146		----		----
323	EN16576	0.67		----	1150		----		----
331		----		----	1155		----		----
332		----		----	1161		----		----
333	EN16576	0.67		----	1167	EN16576	0.51		----
334		----		----	1191	D5185	0.49		----
335		----		----	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	EN16576	1.52	R(0.05)	----
338		----		----	1205		----		----
342		----		----	1227		----		----
343		----		----	1229		----		----
345		----		----	1233		----		----
351		----		----	1237		----		----
353		----		----	1259		----		----
356		----		----	1266		----		----
357		----		----	1272	EN16576	1.0		----
360	EN16576	< 0.50		----	1286		----		----
369	EN16576	0.82		----	1299	EN16135	0.7		----
370		----		----	1300	EN16576	0.69		----
371		----		----	1316		0.70		----
372		----		----	1318		----		----
381	D3831	<2,0		----	1339		----		----
391		----		----	1340	EN16576	0.62		----
398		----		----	1356		----		----
399		----		----	1357		----		----
402		----		----	1367		----		----
403	EN16576	0.83		----	1397		----		----
420	EN16576	0.73		----	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	EN16576	0.561		----
444		----		----	1459		----		----
445	EN16576	0.91		----	1498		----		----
447		----		----	1510		----		----
453		----		----	1520		----		----
463		----		----	1556		----		----
485		----		----	1557	INH-1200	0.612		----
541		----		----	1569		----		----
593		----		----	1586	D3831	0.55		----
631	D3831	0.32		----	1613		----		----
663		----		----	1631	EN16576	0.6		----
671		----		----	1634		----		----
704	EN16576	0.582		----	1635		----		----
781	EN16576	1.02		----	1654		----		----
785		----		----	1656	EN16576	<1		----
823		----		----	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724	EN16576	0.53		----
873		----		----	1730		----		----
874	EN16576	0.53		----	1740		----		----
875		----		----	1742		----		----
886		----		----	1746		----		----
902		----		----	1776		----		----
963		----		----	1792		----		----
970		----		----	1807		----		----
971		----		----	1810		----		----
974		----		----	1811		----		----
995		----		----	1832		----		----
997		----		----	1833	EN16576	0.6		----
1006		----		----	1849		----		----
1011		----		----	1857	EN16576	1.02		----
1016	EN16576	0.657		----	1858		----		----

1862	EN16576	0.79	----	1995	----	----
1881		----	----	2129	D7111	0.466
1936		----	----	2130		----
1937		----	----	2146		----
1938		----	----	6016		----
1941	EN16576	0.65	----	6018		----
1944	IP592	0.4211	----	6028		----
1949		----	----	6034		----
1950		----	----	6047		----
1953		----	----	6075		----
1968		----	----	6108		----
1976		----	----	7006		----
1984		----	----	9057		----
1986		----	----			

normality	OK
n	33
outliers	3
mean (n)	0.662
st.dev. (n)	0.1774
R(calc.)	0.497
R(EN16576:14)	(0.170)

Lab 237 first reported: 2.006



## Determination of Nitrogen on sample #17025; result in mg/kg

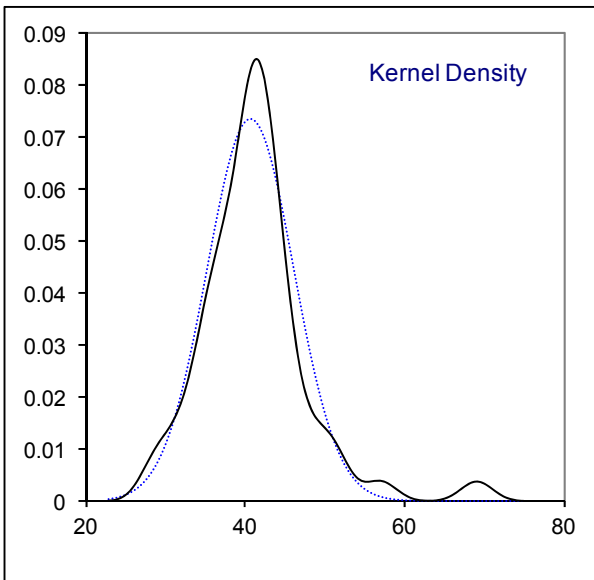
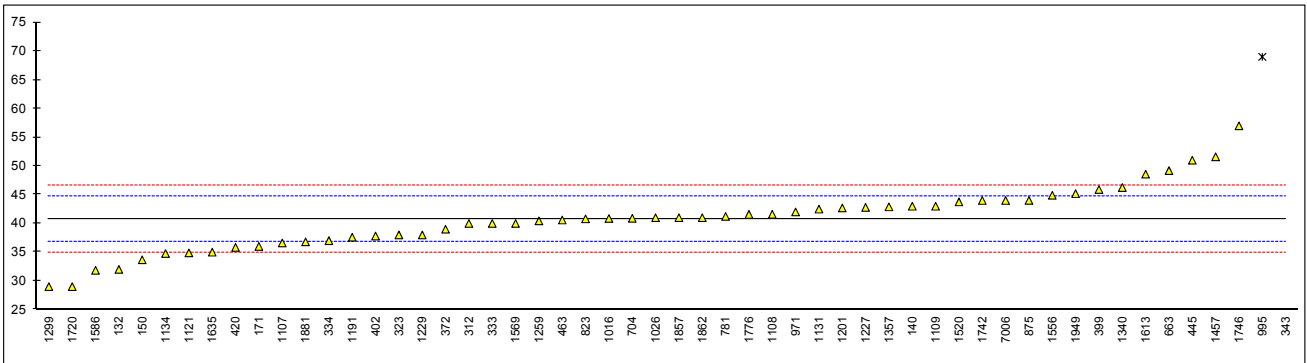
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	D4629	41.0		0.14
132	D4629	32		-4.48	1033		----		----
140	D4629	43		1.16	1059		----		----
150	D4629	33.68		-3.62	1081		----		----
158		----		----	1082		----		----
171	D4629	36		-2.43	1107	D4629	36.6		-2.12
212		----		----	1108	D5762	41.6		0.45
237		----		----	1109	D4629	43		1.16
238		----		----	1121	D4629	34.87		-3.01
273		----		----	1126		----		----
311		----		----	1131	D4629	42.5		0.91
312	D4629	40		-0.38	1134	D4629	34.76		-3.06
317		----		----	1146		----		----
323	D4629	38		-1.40	1150		----		----
331		----		----	1155		----		----
332		----		----	1161		----		----
333	D4629	40		-0.38	1167		----		----
334	D4629	37		-1.91	1191	D4629	37.6		-1.61
335		----		----	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	D4629	42.7		1.01
338		----		----	1205		----		----
342		----		----	1227	D4629	42.8		1.06
343		1970	R(0.01)	989.53	1229	D4629	38		-1.40
345		----		----	1233		----		----
351		----		----	1237		----		----
353		----		----	1259	D4629	40.443		-0.15
356		----		----	1266		----		----
357		----		----	1272		----		----
360		----		----	1286		----		----
369		----		----	1299	D4629	29.0		-6.02
370		----		----	1300		----		----
371		----		----	1316		----		----
372	D4629	39		-0.89	1318		----		----
381		----		----	1339		----		----
391		----		----	1340	D4629	46.25		2.83
398		----		----	1356		----		----
399	D4629	45.9		2.65	1357	D4629	42.89		1.11
402	D4629	37.81		-1.50	1367		----		----
403		----		----	1397		----		----
420	D4629	35.83		-2.51	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	D4629	51.6		5.57
444		----		----	1459		----		----
445	D5762	51.0		5.27	1498		----		----
447		----		----	1510		----		----
453		----		----	1520	D4629	43.75		1.55
463	D4629	40.60		-0.07	1556	D4629	44.9		2.14
485		----		----	1557		----		----
541		----		----	1569	D4629	40.0		-0.38
593		----		----	1586	D5762	31.85		-4.56
631		----		----	1613	D4629	48.58	C	4.03
663	D4629	49.2		4.34	1631		----		----
671		----		----	1634		----		----
704	D4629	40.9		0.09	1635	D4629	35.0		-2.94
781	D4629	41.22		0.25	1654		----		----
785		----		----	1656		----		----
823	D4629	40.8		0.03	1681		----		----
840		----		----	1684		----		----
842		----		----	1720	D4629	29.0		-6.02
851		----		----	1724		----		----
873		----		----	1730		----		----
874		----		----	1740		----		----
875	D4629	44.01		1.68	1742	D4629	44		1.68
886		----		----	1746	D4629	57.0		8.34
902		----		----	1776	ISO3734	41.58	C	0.43
963		----		----	1792		----		----
970		----		----	1807		----		----
971	D4629	42.0		0.65	1810		----		----
974		----		----	1811		----		----
995		69	C,R(0.01)	14.50	1832		----		----
997		----		----	1833		----		----
1006		----		----	1849		----		----
1011		----		----	1857	D4629	41		0.14
1016	D4629	40.86		0.07	1858		----		----



1862	D4629	41	0.14	1995	----	----
1881	D4629	36.8	-2.02	2129	----	----
1936		----	----	2130	----	----
1937		----	----	2146	----	----
1938		----	----	6016	----	----
1941		----	----	6018	----	----
1944		----	----	6028	----	----
1949	D4629	45.2	2.29	6034	----	----
1950		----	----	6047	----	----
1953		----	----	6075	----	----
1968		----	----	6108	----	----
1976		----	----	7006	D4629	44
1984		----	----	9057	----	1.68
1986		----	----			----

normality	suspect
n	52
outliers	2
mean (n)	40.73
st.dev. (n)	5.425
R(calc.)	15.19
R(D4629:12)	5.46

Lab 995 first reported: 59  
 Lab 1613 first reported: 58.48  
 Lab 1776 first reported: 55



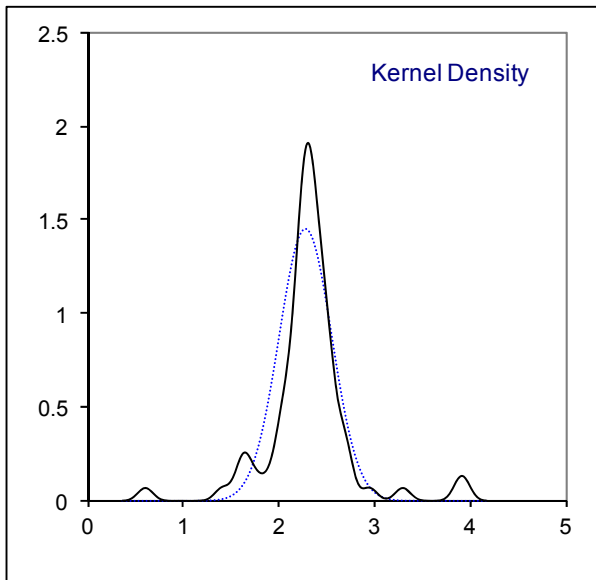
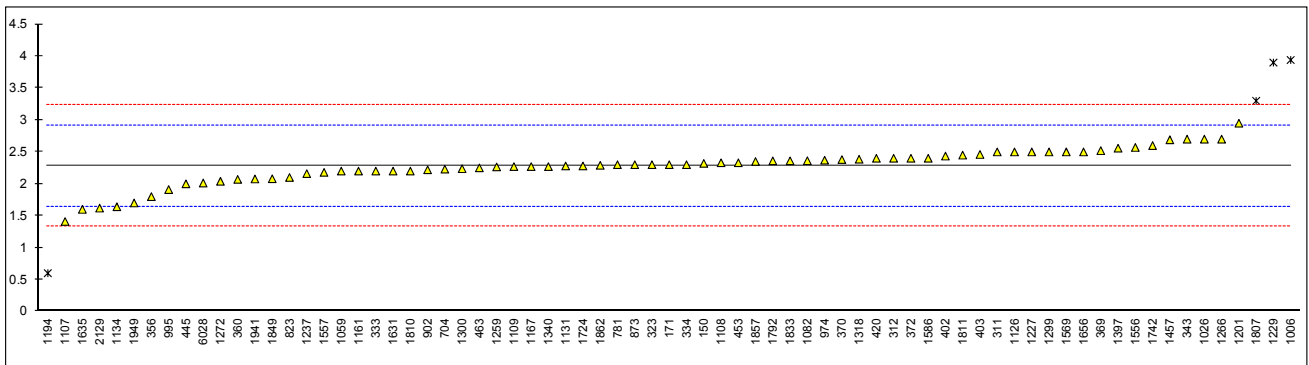
## Determination of Poly-Aromatic Hydrocarbons on sample #17025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	EN12916	2.7		1.33
132		----		----	1033		----		----
140		----		----	1059	EN12916	2.2		-0.25
150	EN12916	2.32		0.13	1081		----		----
158		----		----	1082	EN12916	2.362	C	0.26
171	EN12916	2.3		0.07	1107	IP391	1.41		-2.74
212		----		----	1108	EN12916	2.33		0.16
237		----		----	1109	IP391	2.27		-0.03
238		----		----	1121		----		----
273		----		----	1126	EN12916	2.5		0.70
311	EN12916	2.5		0.70	1131	EN12916	2.28		0.00
312	EN12916	2.4		0.38	1134	IP391	1.641		-2.01
317		----		----	1146		----		----
323	EN12916	2.3		0.07	1150		----		----
331		----		----	1155		----		----
332		----		----	1161	EN12916	2.2		-0.25
333		2.2		-0.25	1167	EN12916	2.27		-0.03
334	EN12916	2.3		0.07	1191	EN12916	----		----
335		----		----	1194	IP391	0.6	R(0.01)	-5.30
336		----		----	1199		----		----
337		----		----	1201	EN12916	2.95	E	2.12
338		----		----	1205		----		----
342		----		----	1227		2.5		0.70
343	EN12916	2.7	C	1.33	1229	EN12916	3.9	R(0.01)	5.12
345		----		----	1233		----		----
351		----		----	1237	EN12916	2.16		-0.38
353		----		----	1259	EN12916	2.265		-0.04
356	IP391	1.8		-1.51	1266	EN12916	2.70		1.33
357		----		----	1272	EN12916	2.04		-0.75
360	EN12916	2.07		-0.66	1286		----		----
369	EN12916	2.52		0.76	1299	EN12916	2.5		0.70
370	EN12916	2.38		0.32	1300	EN12916	2.237		-0.13
371		----		----	1316		----		----
372	EN12916	2.4		0.38	1318	EN12916	2.386		0.34
381		----		----	1339		----		----
391		----		----	1340	EN12916	2.27		-0.03
398		----		----	1356		----		----
399		----		----	1357	IP391	----		----
402	EN12916	2.435		0.49	1367		----		----
403	EN12916	2.46		0.57	1397	EN12916	2.558		0.88
420	EN12916	2.4		0.38	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	EN12916	2.69		1.30
444		----		----	1459		----		----
445	IP391	2.0		-0.88	1498		----		----
447		----		----	1510		----		----
453		2.33		0.16	1520		----		----
463	EN12916	2.25		-0.09	1556	EN12916	2.57		0.92
485		----		----	1557	EN12916	2.18		-0.31
541		----		----	1569	EN12916	2.5		0.70
593		----		----	1586	EN12916	2.4		0.38
631		----		----	1613		----		----
663		----		----	1631	EN12916	2.2		-0.25
671		----		----	1634		----		----
704	EN12916	2.23		-0.15	1635	EN12916	1.6		-2.14
781	EN12916	2.30		0.07	1654		----		----
785		----		----	1656	IP391	2.5		0.70
823	IP391	2.1		-0.56	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724		2.28		0.00
873	EN12916	2.30		0.07	1730		----		----
874	EN12916	n/a		----	1740		----		----
875		----		----	1742	EN12916	2.6		1.01
886		----		----	1746		----		----
902	EN12916	2.22		-0.19	1776	EN12916	----		----
963		----		----	1792	IP391	2.36		0.26
970		----		----	1807	EN12916	3.3	R(0.05)	3.22
971		----		----	1810	EN12916	2.20		-0.25
974	IP391	2.37		0.29	1811	EN12916	2.45		0.54
995	EN12916	1.91		-1.16	1832		----		----
997		----		----	1833	EN12916	2.36		0.26
1006		3.94	R(0.01)	5.25	1849	EN12916	2.08		-0.63
1011		----		----	1857		2.35		0.22
1016		----		----	1858		----		----

1862	EN12916	2.29	0.04	1995		----	----
1881		----	----	2129	EN12916	1.62	-2.08
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	EN12916	2.076	-0.64	6018		----	----
1944		----	----	6028	EN12916	2.013	-0.84
1949	EN12916	1.70	-1.83	6034		----	----
1950		----	----	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986		----	----				

normality	suspect
n	69
outliers	4
mean (n)	2.279
st.dev. (n)	0.2755
R(calc.)	0.771
R(EN12916:16)	0.887

Lab 343 first reported: 20.62  
 Lab 1082 first reported: 0.245  
 Lab 1201 iis calculated: 3.49



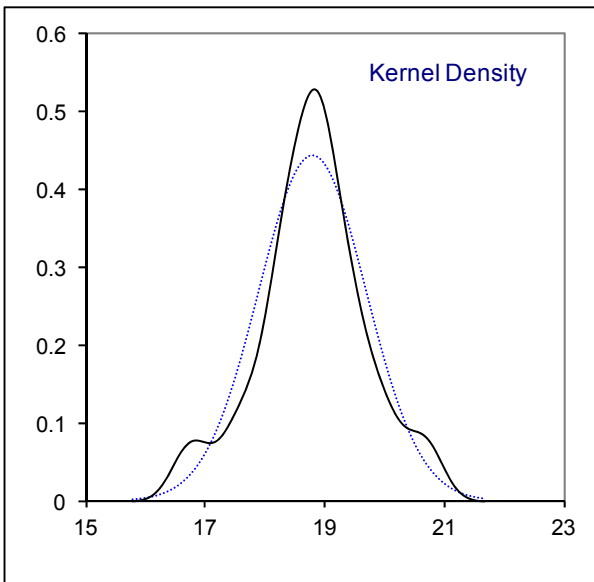
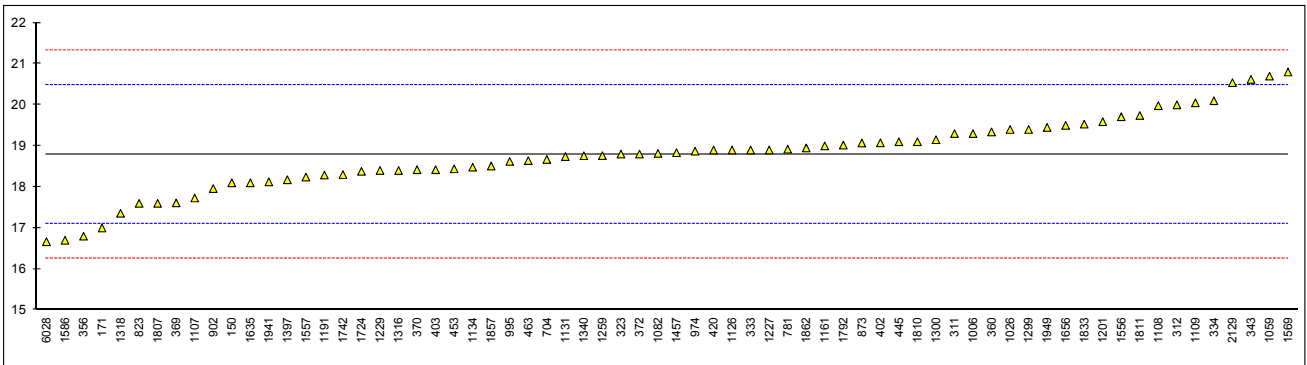
## Determination of Mono-Aromatic Hydrocarbons on sample #17025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	EN12916	19.4		0.72
132		----		----	1033		----		----
140		----		----	1059	EN12916	20.7		2.26
150	EN12916	18.1		-0.83	1081		----		----
158		----		----	1082	EN12916	18.817		0.02
171	EN12916	17.0		-2.13	1107	IP391	17.73		-1.26
212		----		----	1108	EN12916	19.98		1.40
237		----		----	1109	IP391	20.05		1.49
238		----		----	1121		----		----
273		----		----	1126	EN12916	18.9		0.12
311	EN12916	19.3		0.60	1131	EN12916	18.74		-0.07
312	EN12916	20.0		1.43	1134	IP391	18.480		-0.37
317		----		----	1146		----		----
323	EN12916	18.8		0.00	1150		----		----
331		----		----	1155		----		----
332		----		----	1161	EN12916	19.0		0.24
333		18.9		0.12	1167	EN12916	----		----
334	EN12916	20.1		1.55	1191	EN12916	18.29		-0.60
335		----		----	1194	IP391	----		----
336		----		----	1199		----		----
337		----		----	1201	EN12916	19.59		0.94
338		----		----	1205		----		----
342		----		----	1227		18.9		0.12
343	EN12916	20.62	C	2.16	1229	EN12916	18.4		-0.47
345		----		----	1233		----		----
351		----		----	1237	EN12916	----		----
353		----		----	1259	EN12916	18.761		-0.04
356	IP391	16.8		-2.37	1266	EN12916	----		----
357		----		----	1272	EN12916	----		----
360	EN12916	19.34		0.64	1286		----		----
369	EN12916	17.61		-1.41	1299	EN12916	19.4		0.72
370	EN12916	18.42		-0.45	1300	EN12916	19.15		0.42
371		----		----	1316		18.4		-0.47
372	EN12916	18.8		0.00	1318	EN12916	17.357		-1.71
381		----		----	1339		----		----
391		----		----	1340	EN12916	18.76		-0.04
398		----		----	1356		----		----
399		----		----	1357	IP391	----		----
402	EN12916	19.075		0.33	1367		----		----
403	EN12916	18.42		-0.45	1397	EN12916	18.174		-0.74
420	EN12916	18.9		0.12	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	EN12916	18.834		0.04
444		----		----	1459		----		----
445	IP391	19.1		0.36	1498		----		----
447		----		----	1510		----		----
453		18.44		-0.42	1520		----		----
463	EN12916	18.64		-0.19	1556	EN12916	19.710		1.08
485		----		----	1557	EN12916	18.24		-0.66
541		----		----	1569	EN12916	20.80		2.37
593		----		----	1586	EN12916	16.7		-2.48
631		----		----	1613		----		----
663		----		----	1631	EN12916	----		----
671		----		----	1634		----		----
704	EN12916	18.67		-0.15	1635	EN12916	18.1		-0.83
781	EN12916	18.92		0.15	1654		----		----
785		----		----	1656	IP391	19.5		0.83
823	IP391	17.6		-1.42	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724		18.38		-0.49
873	EN12916	19.07		0.32	1730		----		----
874	EN12916	n/a		----	1740		----		----
875		----		----	1742	EN12916	18.3		-0.59
886		----		----	1746		----		----
902	EN12916	17.96		-0.99	1776	EN12916	----		----
963		----		----	1792	IP391	19.02		0.27
970		----		----	1807	EN12916	17.6		-1.42
971		----		----	1810	EN12916	19.10		0.36
974	IP391	18.87	C	0.09	1811	EN12916	19.74		1.12
995	EN12916	18.622		-0.21	1832		----		----
997		----		----	1833	EN12916	19.53		0.87
1006		19.30		0.60	1849	EN12916	----		----
1011		----		----	1857		18.51		-0.34
1016		----		----	1858		----		----

1862	EN12916	18.95	0.18	1995		----	----
1881		----	----	2129	EN12916	20.54	2.07
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	EN12916	18.123	-0.80	6018		----	----
1944		----	----	6028	EN12916	16.665	-2.53
1949	EN12916	19.45	0.77	6034		----	----
1950		----	----	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986		----	----				

normality OK  
n 68  
outliers 0  
mean (n) 18.796  
st.dev. (n) 0.8996  
R(calc.) 2.519  
R(EN12916:16) 2.363

Lab 343 first reported: 2.3  
Lab 974 first reported: 21.87



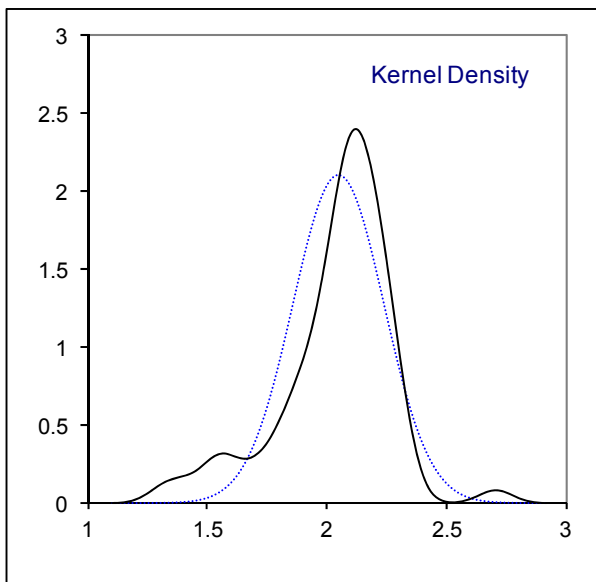
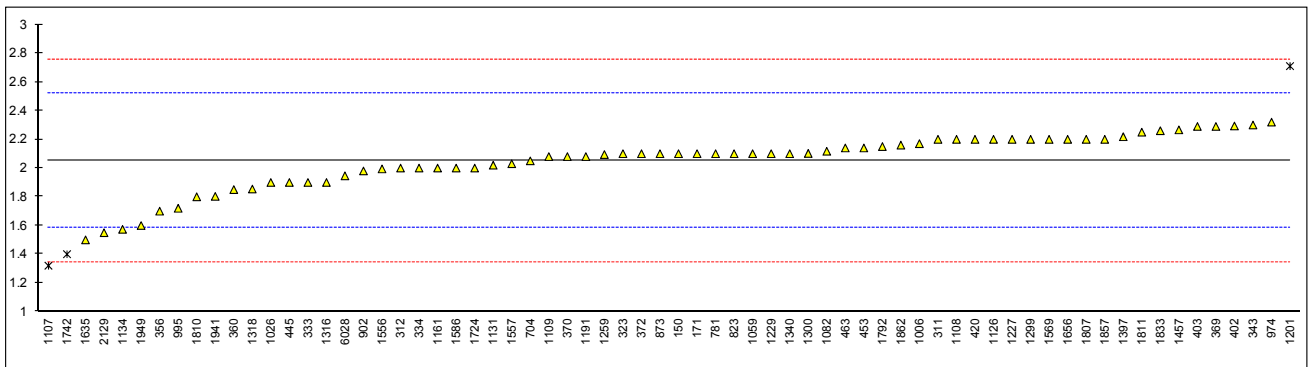
## Determination of Di-Aromatic Hydrocarbons on sample #17025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	EN12916	1.9		-0.65
132		----		----	1033		----		----
140		----		----	1059	EN12916	2.1		0.20
150	EN12916	2.1		0.20	1081		----		----
158		----		----	1082	EN12916	2.117		0.28
171	EN12916	2.1		0.20	1107	IP391	1.32	R(0.05)	-3.12
212		----		----	1108	EN12916	2.20		0.63
237		----		----	1109	IP391	2.08		0.12
238		----		----	1121		----		----
273		----		----	1126	EN12916	2.2		0.63
311	EN12916	2.2		0.63	1131	EN12916	2.02		-0.14
312	EN12916	2.0		-0.22	1134	IP391	1.573		-2.04
317		----		----	1146		----		----
323	EN12916	2.1		0.20	1150		----		----
331		----		----	1155		----		----
332		----		----	1161	EN12916	2.0		-0.22
333		1.9		-0.65	1167	EN12916	----		----
334	EN12916	2.0		-0.22	1191	EN12916	2.08		0.12
335		----		----	1194	IP391	----		----
336		----		----	1199		----		----
337		----		----	1201	EN12916	2.71	R(0.05)	2.80
338		----		----	1205		----		----
342		----		----	1227		2.2		0.63
343	EN12916	2.3	C	1.06	1229	EN12916	2.1		0.20
345		----		----	1233		----		----
351		----		----	1237	EN12916	----		----
353		----		----	1259	EN12916	2.094		0.18
356	IP391	1.7		-1.50	1266	EN12916	----		----
357		----		----	1272	EN12916	----		----
360	EN12916	1.85		-0.86	1286		----		----
369	EN12916	2.29		1.01	1299	EN12916	2.2		0.63
370	EN12916	2.08		0.12	1300	EN12916	2.102		0.21
371		----		----	1316		1.9		-0.65
372	EN12916	2.1		0.20	1318	EN12916	1.854		-0.84
381		----		----	1339		----		----
391		----		----	1340	EN12916	2.10		0.20
398		----		----	1356		----		----
399		----		----	1357	IP391	----		----
402	EN12916	2.293		1.03	1367		----		----
403	EN12916	2.29		1.01	1397	EN12916	2.218		0.71
420	EN12916	2.2		0.63	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	EN12916	2.266		0.91
444		----		----	1459		----		----
445	IP391	1.9		-0.65	1498		----		----
447		----		----	1510		----		----
453		2.14		0.38	1520		----		----
463	EN12916	2.14		0.38	1556	EN12916	1.994		-0.25
485		----		----	1557	EN12916	2.03		-0.09
541		----		----	1569	EN12916	2.20		0.63
593		----		----	1586	EN12916	2.0		-0.22
631		----		----	1613		----		----
663		----		----	1631	EN12916	----		----
671		----		----	1634		----		----
704	EN12916	2.05		-0.01	1635	EN12916	1.5		-2.35
781	EN12916	2.10		0.20	1654		----		----
785		----		----	1656	IP391	2.2		0.63
823	IP391	2.1		0.20	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724		2.0		-0.22
873	EN12916	2.10		0.20	1730		----		----
874	EN12916	n/a		----	1740		----		----
875		----		----	1742	EN12916	1.4	R(0.05)	-2.77
886		----		----	1746		----		----
902	EN12916	1.98		-0.31	1776	EN12916	----		----
963		----		----	1792	IP391	2.15		0.42
970		----		----	1807	EN12916	2.2		0.63
971		----		----	1810	EN12916	1.8		-1.07
974	IP391	2.32		1.14	1811	EN12916	2.25		0.84
995	EN12916	1.72		-1.41	1832		----		----
997		----		----	1833	EN12916	2.26		0.89
1006		2.17		0.50	1849	EN12916	----		----
1011		----		----	1857		2.20		0.63
1016		----		----	1858		----		----

1862	EN12916	2.16	0.46	1995		----	----
1881		----	----	2129	EN12916	1.55	-2.14
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	EN12916	1.803	-1.06	6018		----	----
1944		----	----	6028	EN12916	1.946	-0.45
1949	EN12916	1.60	-1.92	6034		----	----
1950		----	----	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986		----	----				

normality	suspect
n	65
outliers	3
mean (n)	2.052
st.dev. (n)	0.1905
R(calc.)	0.533
R(EN12916:16)	0.658

Lab 343 first reported: 0.3



Determination of Tri<sup>+</sup>-Aromatic Hydrocarbons on sample #17025; result in %M/M

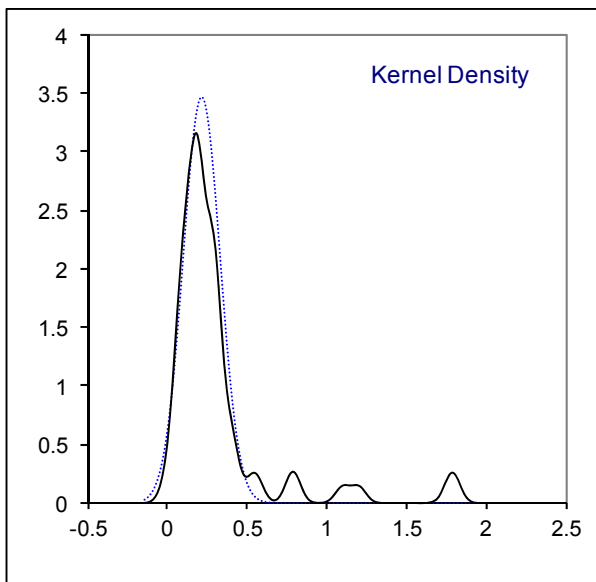
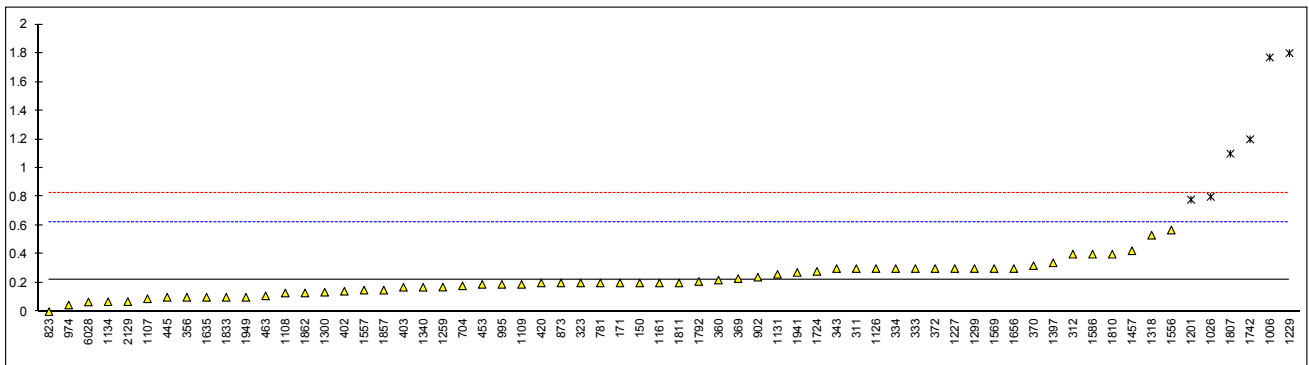
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	EN12916	0.8	R(0.01)	2.86
132		----		----	1033		----		----
140		----		----	1059	EN12916	<0,1		----
150	EN12916	0.2		-0.10	1081		----		----
158		----		----	1082	EN12916	----		----
171	EN12916	0.2		-0.10	1107	IP391	0.09		-0.64
212		----		----	1108	EN12916	0.13		-0.44
237		----		----	1109	IP391	0.19		-0.15
238		----		----	1121		----		----
273		----		----	1126	EN12916	0.3		0.40
311	EN12916	0.3		0.40	1131	EN12916	0.26		0.20
312	EN12916	0.4		0.89	1134	IP391	0.069		-0.74
317		----		----	1146		----		----
323	EN12916	0.2		-0.10	1150		----		----
331		----		----	1155		----		----
332		----		----	1161	EN12916	0.2		-0.10
333		0.3		0.40	1167	EN12916	----		----
334	EN12916	0.3		0.40	1191	EN12916	----		----
335		----		----	1194	IP391	----		----
336		----		----	1199		----		----
337		----		----	1201	EN12916	0.78	R(0.01)	2.76
338		----		----	1205		----		----
342		----		----	1227		0.3		0.40
343	EN12916	0.3	C	0.40	1229	EN12916	1.80	R(0.01)	7.79
345		----		----	1233		----		----
351		----		----	1237	EN12916	----		----
353		----		----	1259	EN12916	0.171		-0.24
356	IP391	0.1		-0.59	1266	EN12916	----		----
357		----		----	1272	EN12916	----		----
360	EN12916	0.22		0.00	1286		----		----
369	EN12916	0.23		0.05	1299	EN12916	0.3		0.40
370	EN12916	0.32		0.49	1300	EN12916	0.135		-0.42
371		----		----	1316		----		----
372	EN12916	0.3		0.40	1318	EN12916	0.532		1.54
381		----		----	1339		----		----
391		----		----	1340	EN12916	0.17		-0.25
398		----		----	1356		----		----
399		----		----	1357	IP391	----		----
402	EN12916	0.142		-0.38	1367		----		----
403	EN12916	0.17		-0.25	1397	EN12916	0.340		0.59
420	EN12916	0.2		-0.10	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	EN12916	0.424		1.01
444		----		----	1459		----		----
445	IP391	0.1		-0.59	1498		----		----
447		----		----	1510		----		----
453		0.19		-0.15	1520		----		----
463	EN12916	0.11		-0.54	1556	EN12916	0.568		1.72
485		----		----	1557	EN12916	0.15		-0.34
541		----		----	1569	EN12916	0.30		0.40
593		----		----	1586	EN12916	0.4		0.89
631		----		----	1613		----		----
663		----		----	1631	EN12916	----		----
671		----		----	1634		----		----
704	EN12916	0.18		-0.20	1635	EN12916	0.1		-0.59
781	EN12916	0.20		-0.10	1654		----		----
785		----		----	1656	IP391	0.3		0.40
823	IP391	0		-1.08	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724		0.28		0.30
873	EN12916	0.20		-0.10	1730		----		----
874	EN12916	n/a		----	1740		----		----
875		----		----	1742	EN12916	1.2	R(0.01)	4.83
886		----		----	1746		----		----
902	EN12916	0.24		0.10	1776	EN12916	----		----
963		----		----	1792	IP391	0.21		-0.05
970		----		----	1807	EN12916	1.1	R(0.01)	4.34
971		----		----	1810	EN12916	0.4		0.89
974	IP391	0.046		-0.86	1811	EN12916	0.20		-0.10
995	EN12916	0.19		-0.15	1832		----		----
997		----		----	1833	EN12916	0.1		-0.59
1006		1.77	R(0.01)	7.64	1849	EN12916	----		----
1011		----		----	1857		0.15		-0.34
1016		----		----	1858		----		----



1862	EN12916	0.13	-0.44	1995		----	----
1881		----	----	2129	EN12916	0.07	-0.74
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	EN12916	0.273	0.26	6018		----	----
1944		----	----	6028	EN12916	0.067	-0.75
1949	EN12916	0.10	-0.59	6034		----	----
1950		----	----	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986		----	----				

normality OK  
 n 58  
 outliers 6  
 mean (n) 0.220  
 st.dev. (n) 0.1152  
 R(calc.) 0.323  
 R(EN12916:16) 0.568

Lab 343 first reported: 2.7



## Determination of Total Aromatic Hydrocarbons on sample #17025; result in %M/M

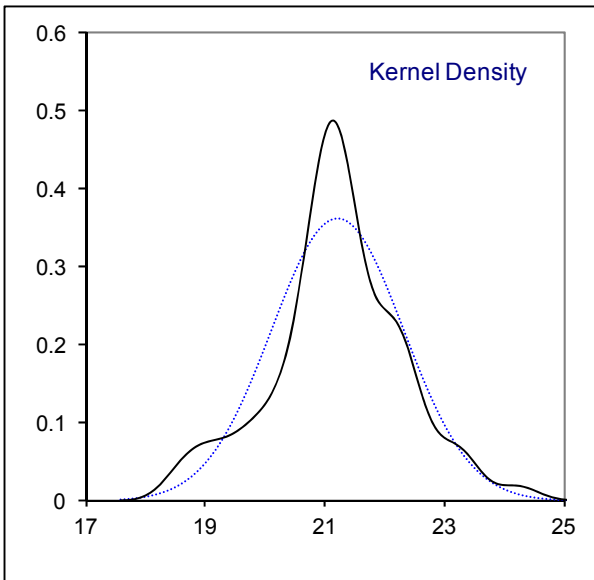
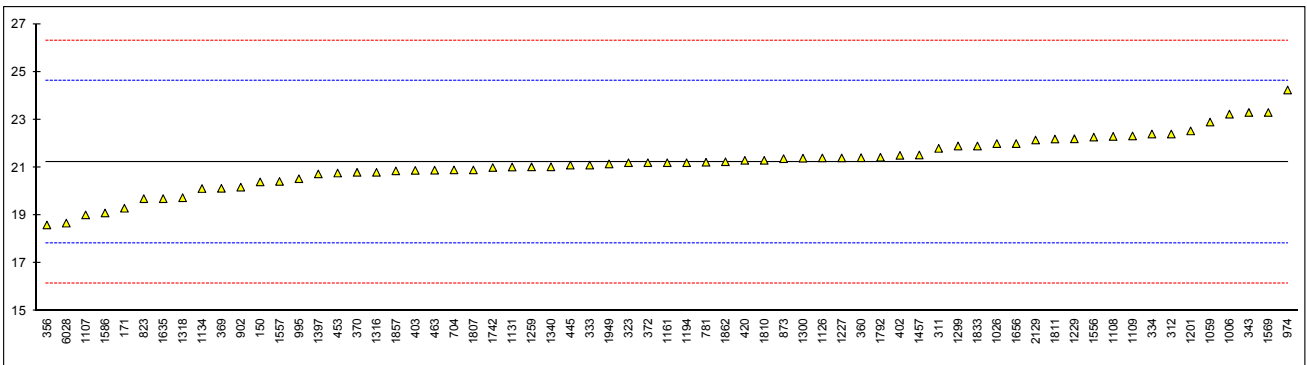
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	EN12916	22.0		0.46
132		----		----	1033		----		----
140		----		----	1059	EN12916	22.9		0.99
150	EN12916	20.4		-0.48	1081		----		----
158		----		----	1082	EN12916	----		----
171	EN12916	19.3		-1.13	1107	IP391	19.02		-1.30
212		----		----	1108	EN12916	22.3		0.64
237		----		----	1109	IP391	22.32		0.65
238		----		----	1121		----		----
273		----		----	1126	EN12916	21.4		0.11
311	EN12916	21.8		0.34	1131	EN12916	21.02		-0.12
312	EN12916	22.4		0.70	1134	IP391	20.122		-0.65
317		----		----	1146		----		----
323	EN12916	21.2		-0.01	1150		----		----
331		----		----	1155		----		----
332		----		----	1161	EN12916	21.2		-0.01
333		21.1		-0.07	1167	EN12916	----		----
334	EN12916	22.4		0.70	1191	EN12916	----		----
335		----		----	1194	IP391	21.2		-0.01
336		----		----	1199		----		----
337		----		----	1201	EN12916	22.53	E	0.77
338		----		----	1205		----		----
342		----		----	1227		21.4		0.11
343	EN12916	23.3		1.23	1229	EN12916	22.2		0.58
345		----		----	1233		----		----
351		----		----	1237	EN12916	----		----
353		----		----	1259	EN12916	21.026		-0.11
356	IP391	18.6		-1.55	1266	EN12916	----		----
357		----		----	1272	EN12916	----		----
360	EN12916	21.41		0.11	1286		----		----
369	EN12916	20.13		-0.64	1299	EN12916	21.9		0.40
370	EN12916	20.80		-0.25	1300	EN12916	21.39		0.10
371		----		----	1316		20.8		-0.25
372	EN12916	21.2		-0.01	1318	EN12916	19.74		-0.87
381		----		----	1339		----		----
391		----		----	1340	EN12916	21.03		-0.11
398		----		----	1356		----		----
399		----		----	1357	IP391	----		----
402	EN12916	21.510		0.17	1367		----		----
403	EN12916	20.88		-0.20	1397	EN12916	20.732		-0.29
420	EN12916	21.3		0.05	1412		----		----
432		----		----	1430		----		----
440		----		----	1457	EN12916	21.524		0.18
444		----		----	1459		----		----
445	IP391	21.1		-0.07	1498		----		----
447		----		----	1510		----		----
453		20.77		-0.26	1520		----		----
463	EN12916	20.89		-0.19	1556	EN12916	22.272		0.62
485		----		----	1557	EN12916	20.42		-0.47
541		----		----	1569	EN12916	23.30		1.23
593		----		----	1586	EN12916	19.1		-1.25
631		----		----	1613		----		----
663		----		----	1631	EN12916	----		----
671		----		----	1634		----		----
704	EN12916	20.90		-0.19	1635	EN12916	19.7		-0.90
781	EN12916	21.22		0.00	1654		----		----
785		----		----	1656	IP391	22.0		0.46
823	IP391	19.7		-0.90	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724		----		----
873	EN12916	21.37		0.09	1730		----		----
874	EN12916	n/a		----	1740		----		----
875		----		----	1742	EN12916	21.0		-0.13
886		----		----	1746		----		----
902	EN12916	20.18		-0.61	1776	EN12916	----		----
963		----		----	1792	IP391	21.43		0.12
970		----		----	1807	EN12916	20.9		-0.19
971		----		----	1810	EN12916	21.3		0.05
974	IP391	24.24	E	1.78	1811	EN12916	22.19		0.57
995	EN12916	20.532		-0.41	1832		----		----
997		----		----	1833	EN12916	21.9		0.40
1006		23.23		1.19	1849	EN12916	----		----
1011		----		----	1857		20.86		-0.21
1016		----		----	1858		----		----

1862	EN12916	21.24	0.01	1995		----	----
1881		----	----	2129	EN12916	22.15	0.55
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016		----	----
1941	EN12916	----	----	6018		----	----
1944		----	----	6028	EN12916	18.678	-1.50
1949	EN12916	21.15	-0.04	6034		----	----
1950		----	----	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057		----	----
1986		----	----				

normality OK  
n 65  
outliers 0  
mean (n) 21.219  
st.dev. (n) 1.1055  
R(calc.) 3.095  
R(EN12916:16) 4.744

Lab 974 iis calculated: 21.236

Lab 1201 iis calculated: 23.08

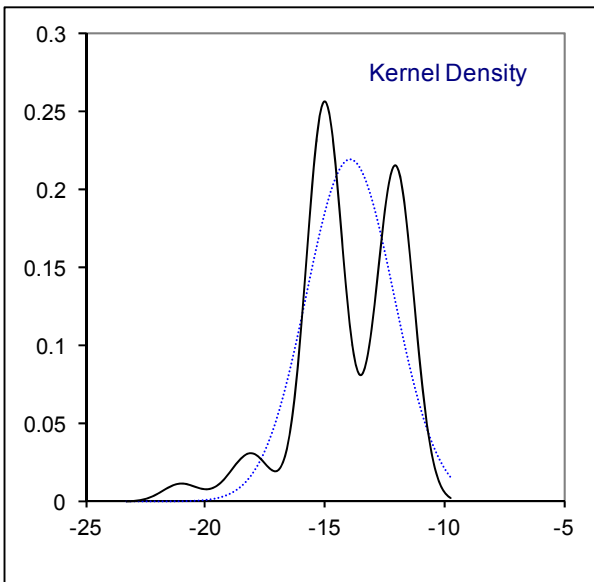
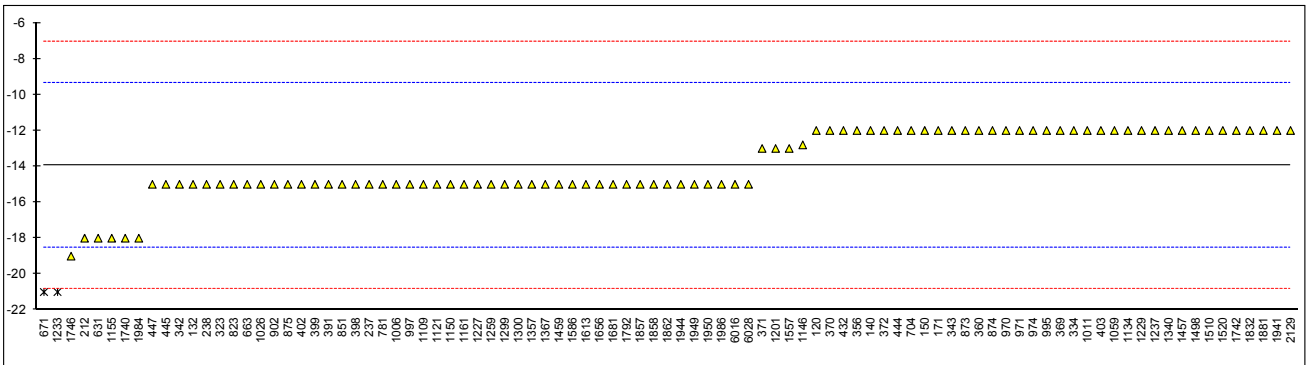


Determination of Pour Point, Manual on sample #17025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D97	-12		0.84	1026	D97	-15		-0.47
132	ISO3016	-15		-0.47	1033		----		----
140	ISO3016	-12		0.84	1059	ISO3016	-12		0.84
150	D97	-12		0.84	1081		----		----
158		----		----	1082		----		----
171	D97	-12		0.84	1107		----		----
212	ISO3016	-18		-1.77	1108		----		----
237	D97	-15		-0.47	1109	D97	-15		-0.47
238	D97	-15		-0.47	1121	IP15	-15		-0.47
273		----		----	1126		----		----
311		----		----	1131		----		----
312		----		----	1134	IP15	-12		0.84
317		----		----	1146	D97	-12.8		0.49
323	ISO3016	-15		-0.47	1150	ISO3016	-15		-0.47
331		----		----	1155	ISO3016	-18		-1.77
332		----		----	1161	ISO3016	-15		-0.47
333		----		----	1167		----		----
334	ISO3016	-12		0.84	1191		----		----
335		----		----	1194		----		----
336		----		----	1199		----		----
337		----		----	1201	ISO3016	-13		0.41
338		----		----	1205		----		----
342	ISO3016	-15		-0.47	1227	D97	-15		-0.47
343	ISO3016	-12		0.84	1229	ISO3016	-12		0.84
345		----		----	1233	ISO3016	-21	R(0.05)	-3.08
351		----		----	1237	ISO3016	-12		0.84
353		----		----	1259	ISO3016	-15		-0.47
356	D97	-12		0.84	1266		----		----
357		----		----	1272		----		----
360	ISO3016	-12		0.84	1286		----		----
369	ISO3016	-12		0.84	1299	D97	-15		-0.47
370	ISO3016	-12		0.84	1300	ISO3016	-15.0		-0.47
371	ISO3016	-13		0.41	1316		----		----
372	ISO3016	-12		0.84	1318		----		----
381		----		----	1339		----		----
391	ISO3016	-15		-0.47	1340	ISO3016	-12		0.84
398	ISO3016	-15		-0.47	1356		----		----
399	ISO3016	-15		-0.47	1357	D97	-15.0		-0.47
402	ISO3016	-15		-0.47	1367	IP15	-15		-0.47
403	D97	-12		0.84	1397		----		----
420		----		----	1412		----		----
432	ISO3016	-12		0.84	1430		----		----
440		----		----	1457	ISO3016	-12		0.84
444	D97	-12	C	0.84	1459	ISO3016	-15.0		-0.47
445	IP15	-15		-0.47	1498	D97	-12		0.84
447	D97	-15		-0.47	1510	D97	-12		0.84
453		----		----	1520	ISO3016	-12		0.84
463		----		----	1556		----		----
485		----		----	1557	ISO3016	-13		0.41
541		----		----	1569		----		----
593		----		----	1586	ISO3016	-15		-0.47
631	D97	-18		-1.77	1613	D97	-15		-0.47
663	D97	-15		-0.47	1631		----		----
671	D97	-21	R(0.05)	-3.08	1634		----		----
704	ISO3016	-12		0.84	1635		----		----
781	ISO3016	-15		-0.47	1654		----		----
785		----		----	1656	IP15	-15		-0.47
823	ISO3016	-15		-0.47	1681	ISO3016	-15		-0.47
840		----		----	1684		----		----
842		----		----	1720		----		----
851	D97	-15		-0.47	1724		----		----
873	D97	-12		0.84	1730		----		----
874	ISO3016	-12		0.84	1740	ISO3016	-18		-1.77
875	D97	-15		-0.47	1742	ISO3016	-12		0.84
886		----		----	1746	D97	-19		-2.21
902	D97	-15		-0.47	1776		----		----
963		----		----	1792	ISO3016	-15		-0.47
970	D97	-12		0.84	1807		----		----
971	D97	-12		0.84	1810		----		----
974	D97	-12		0.84	1811		----		----
995	D97	-12		0.84	1832	ISO3016	-12		0.84
997	D97	-15		-0.47	1833		----		----
1006	D97	-15		-0.47	1849		----		----
1011	D97	-12		0.84	1857	ISO3016	-15		-0.47
1016		----		----	1858	D97	-15		-0.47

1862	ISO3016	-15	-0.47	1995		----	----
1881	ISO3016	-12	0.84	2129	ISO3016	-12	0.84
1936		----	----	2130		----	----
1937		----	----	2146		----	----
1938		----	----	6016	D97	-15	-0.47
1941	ISO3016	-12	0.84	6018		----	----
1944	D97	-15	-0.47	6028	D97	-15	-0.47
1949	ISO3016	-15	-0.47	6034		----	----
1950	ISO3016	-15	-0.47	6047		----	----
1953		----	----	6075		----	----
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984	ISO3016	-18	-1.77	9057		----	----
1986	ISO3016	-15	-0.47				
normality	OK						
n	91						
outliers	2						
mean (n)	-13.932						
st.dev. (n)	1.8197						
R(calc.)	5.095						
R(ISO3016:94)	6.43						

Lab 444 first reported test result as automatic pour point  
 Lab 1941 first reported: -3

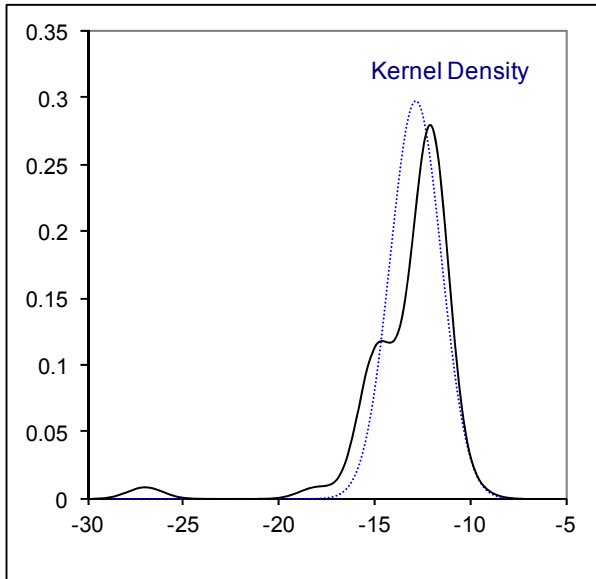
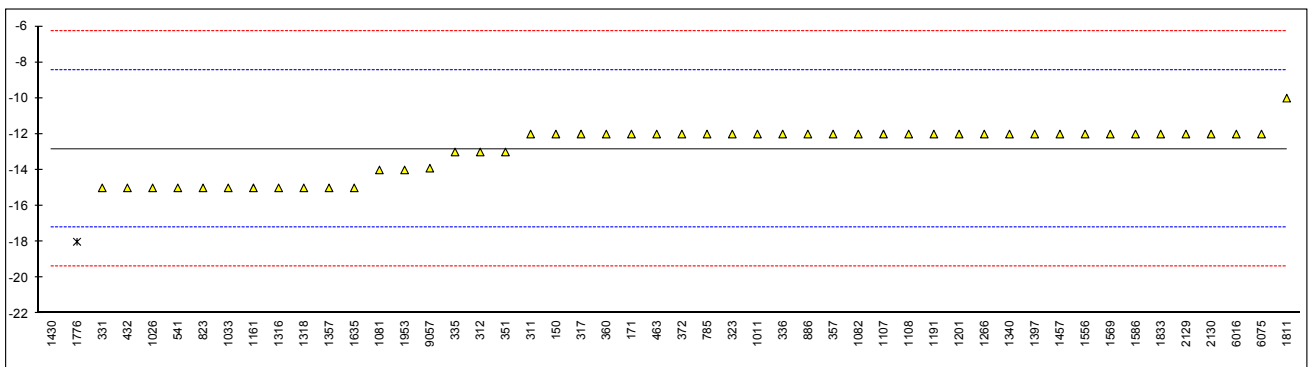


Determination of Pour Point, Automated, 3 °C interval on sample #17025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		----		----	1026	D5950	-15		-1.00
132		----		----	1033	D7346	-15		-1.00
140		----		----	1059		----		----
150	D5950	-12.0		0.38	1081	D5950	-14		-0.54
158		----		----	1082	D5950	-12		0.38
171	D5950	-12		0.38	1107	D5950	-12		0.38
212		----		----	1108	D5950	-12		0.38
237		----		----	1109		----		----
238		----		----	1121		----		----
273		----		----	1126		----		----
311	D5950	-12		0.38	1131		----		----
312	D5950	-13		-0.08	1134		----		----
317	D6749	-12		0.38	1146		----		----
323	D5950	-12		0.38	1150		----		----
331	D5950	-15		-1.00	1155		----		----
332		----		----	1161	D6749	-15		-1.00
333		----		----	1167		----		----
334		----		----	1191	D5950	-12		0.38
335	D5950	-13		-0.08	1194		----		----
336	D5950	-12		0.38	1199		----		----
337		----		----	1201	D5950	-12		0.38
338		----		----	1205		----		----
342		----		----	1227		----		----
343		----		----	1229		----		----
345		----		----	1233		----		----
351	D6749	-13		-0.08	1237		----		----
353		----		----	1259		----		----
356		----		----	1266	D5950	-12.0		0.38
357	D5950	-12		0.38	1272		----		----
360	D5950	-12		0.38	1286		----		----
369		----		----	1299		----		----
370		----		----	1300		----		----
371		----		----	1316	D5950	-15.0		-1.00
372	D5950	-12		0.38	1318	D7346	-15.0		-1.00
381		----		----	1339		----		----
391		----		----	1340	ISO3016	-12		0.38
398		----		----	1356		----		----
399		----		----	1357	D5949	-15.0		-1.00
402		----		----	1367		----		----
403		----		----	1397	D5950	-12		0.38
420		----		----	1412		----		----
432	D5950	-15		-1.00	1430	D5950	-27	R(0.01)	-6.50
440		----		----	1457	D5950	-12		0.38
444		----		----	1459		----		----
445		----		----	1498		----		----
447		----		----	1510		----		----
453		----		----	1520		----		----
463	D6892	-12		0.38	1556	In house	-12.0		0.38
485		----		----	1557		----		----
541	D5950	-15		-1.00	1569	D5950	-12		0.38
593		----		----	1586	D5950	-12		0.38
631		----		----	1613		----		----
663		----		----	1631		----		----
671		----		----	1634		----		----
704		----		----	1635	D5950	-15		-1.00
781		----		----	1654		----		----
785	D6749	-12		0.38	1656		----		----
823	D5950	-15		-1.00	1681		----		----
840		----		----	1684		----		----
842		----		----	1720		----		----
851		----		----	1724		----		----
873		----		----	1730		----		----
874	D5950	n/a		----	1740		----		----
875		----		----	1742		----		----
886	D5950	-12		0.38	1746		----		----
902		----		----	1776	D5950	-18	R(0.05)	-2.37
963		----		----	1792		----		----
970		----		----	1807		----		----
971		----		----	1810		----		----
974		----		----	1811	D5950	-10		1.30
995		----		----	1832		----		----
997		----		----	1833	D5950	-12		0.38
1006		----		----	1849		----		----
1011	D6892	-12		0.38	1857		----		----
1016		----		----	1858		----		----

1862		----	----	1995		----	----
1881		----	----	2129	D5950	-12	0.38
1936		----	----	2130	D5950	-12	0.38
1937		----	----	2146		----	----
1938		----	----	6016	D5950	-12	0.38
1941		----	----	6018		----	----
1944		----	----	6028		----	----
1949		----	----	6034		----	----
1950		----	----	6047		----	----
1953	D6749	-14	-0.54	6075	NF T 60-105	-12	0.38
1968		----	----	6108		----	----
1976		----	----	7006		----	----
1984		----	----	9057	In house	-13.9	-0.49
1986		----	----				

normality OK  
 n 48  
 outliers 2  
 mean (n) -12.831  
 st.dev. (n) 1.3404  
 R(calc.) 3.753  
 R(D5950:14) 6.1



## Determination of Sulphur on sample #17025; result in mg/kg

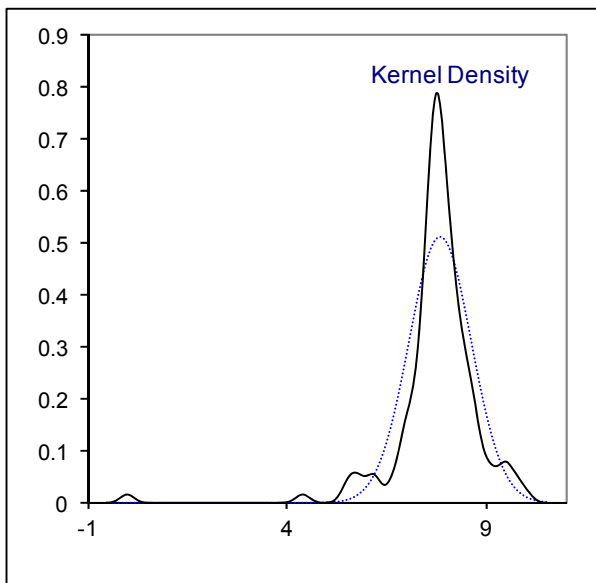
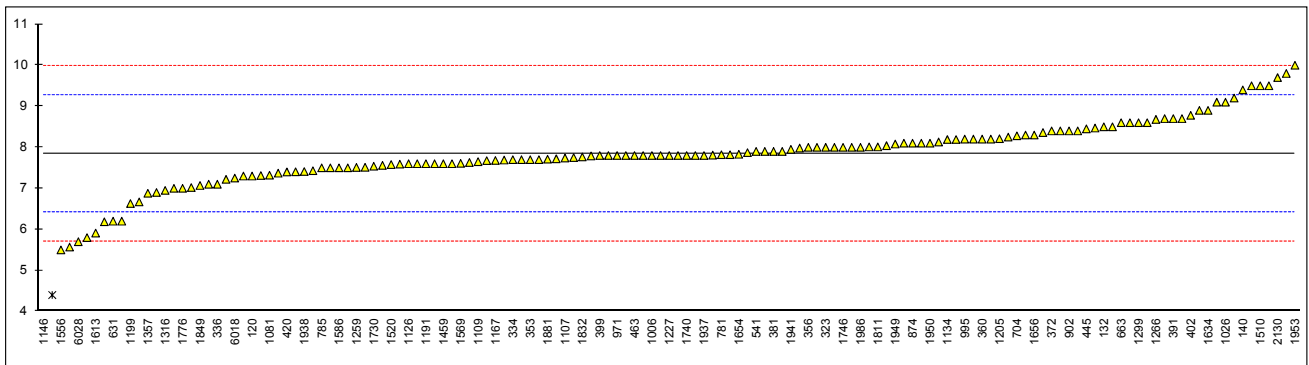
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D7039	7.3		-0.76	1026	ISO20846	9.1		1.76
132	D5453	8.5		0.92	1033		----		----
140	ISO20846	9.4		2.18	1059	ISO20846	7.1		-1.04
150	D5453	7.6		-0.34	1081	ISO20846	7.32		-0.74
158		----		----	1082		----		----
171	D5453	8.1		0.36	1107	D5453	7.74		-0.15
212		----		----	1108	ISO20846	8.1		0.36
237	D5453	8.0		0.22	1109	D7039	7.65		-0.27
238		----		----	1121	ISO20846	5.57		-3.19
273	D5453	6.67		-1.65	1126	ISO20846	7.6		-0.34
311	ISO20846	7.6	C	-0.34	1131	ISO20846	7.7		-0.20
312	ISO20846	7.3		-0.76	1134	IP490	8.19		0.48
317	D5453	7.8		-0.06	1146	D4294	0	C,R(0.01)	-10.99
323	ISO20846	8.0		0.22	1150	ISO20884	6.185		-2.33
331	ISO8754	<300		----	1155		----		----
332		----		----	1161	ISO20846	8.25		0.57
333	ISO20846	7.8		-0.06	1167	ISO20846	7.68		-0.23
334	ISO20846	7.7		-0.20	1191	ISO20846	7.60		-0.34
335	ISO20846	6.9		-1.32	1194	D7220	8.9		1.48
336	ISO20846	7.1		-1.04	1199	ISO20884	6.63		-1.70
337	ISO20846	7.8		-0.06	1201	ISO20846	8.3		0.64
338	ISO20846	8.2		0.50	1205	ISO20846	8.21		0.51
342		----		----	1227	D5453	7.8		-0.06
343	ISO20846	8.47		0.87	1229	ISO20846	9.8		2.74
345	ISO20846	8.6		1.06	1233		----		----
351	ISO20846	7.72		-0.18	1237	ISO20846	8.19		0.48
353	IP531	7.7		-0.20	1259	ISO20846	7.51		-0.47
356	ISO20846	8.0		0.22	1266	ISO20846	8.68		1.17
357	ISO20846	8.4		0.78	1272	ISO20846	6.2		-2.31
360	ISO20846	8.20		0.50	1286		----		----
369	ISO20846	7.56		-0.40	1299	ISO20846	8.6		1.06
370	ISO20846	7.43		-0.58	1300	ISO20846	7.5		-0.48
371	ISO20846	7.75		-0.13	1316	ISO13032	6.95		-1.25
372	ISO20846	8.4		0.78	1318	D5453	7.513		-0.47
381	ISO20846	7.9		0.08	1339	ISO20884	7.87		0.03
391	ISO20846	8.7		1.20	1340	ISO20846	7.79		-0.08
398	ISO20846	9.2		1.90	1356	ISO8754	<300		----
399	ISO20846	7.8		-0.06	1357	D5453	6.88		-1.35
402	ISO20846	8.78		1.31	1367	D4294	8		0.22
403	ISO20846	9.10		1.76	1397	ISO20846	7.8		-0.06
420	ISO20846	7.40		-0.62	1412		----		----
432		----		----	1430		----		----
440	D5453	7.313		-0.75	1457	ISO20846	8.01		0.23
444		----		----	1459	ISO8754	7.6		-0.34
445	IP490	8.45		0.85	1498	D5453	7.404		-0.62
447	D5453	8.13		0.40	1510	D4294	9.5		2.32
453	ISO20846	7.8		-0.06	1520	ISO20846	7.58		-0.37
463	D5453	7.80		-0.06	1556	ISO20884	5.5		-3.29
485	ISO20846	7.63		-0.30	1557	ISO20846	7.7		-0.20
541	ISO20846	7.90		0.08	1569	ISO20846	7.61		-0.33
593		----		----	1586	ISO20846	7.5		-0.48
631	D7039	6.2		-2.31	1613	D5453	5.91	C	-2.71
663	D5453	8.60		1.06	1631	ISO20846	7.59		-0.36
671		----		----	1634	ISO20846	8.9		1.48
704	ISO20846	8.28		0.61	1635	ISO20846	8.7		1.20
781	ISO20846	7.82		-0.04	1654	ISO20846	7.83		-0.02
785	ISO20884	7.5		-0.48	1656	D5453	8.3		0.64
823	ISO20846	8.7		1.20	1681	ISO13032	7.9		0.08
840		----		----	1684	ISO13032	5.80	C	-2.87
842		----		----	1720	D5453	9.5	C	2.32
851	D2622	7.0		-1.18	1724	D5453	7.6		-0.34
873	ISO20846	8.50		0.92	1730	ISO20846	7.54		-0.43
874	D2622	8.1		0.36	1740	ISO20846	7.8		-0.06
875	ISO20846	8.4		0.78	1742	ISO20846	8.6		1.06
886		----		----	1746	D7039	8.0		0.22
902	ISO20846	8.4		0.78	1776	ISO20846	7		-1.18
963		----		----	1792	ISO13032	8.0		0.22
970	D5453	7.9		0.08	1807		----		----
971	D5453	7.8		-0.06	1810	ISO20846	8.2		0.50
974		----		----	1811	ISO20846	8.01		0.23
995	ISO20846	8.2		0.50	1832	ISO20846	7.766		-0.11
997		----		----	1833	ISO20846	7.82		-0.04
1006	D5453	7.8		-0.06	1849	ISO20846	7.07		-1.09
1011	ISO20846	9.5		2.32	1857	ISO20846	7.8		-0.06
1016		----		----	1858	ISO20846	7.69		-0.22



1862	ISO20846	7.37	-0.67	1995	----	----		
1881	ISO20846	7.71	-0.19	2129	ISO20846	7.02	-1.16	
1936	ISO20846	7.5	-0.48	2130	IP490	9.7	2.60	
1937	ISO20846	7.8	-0.06	2146	ISO20846	8.04	0.27	
1938	ISO20846	7.41	-0.61	6016	----	----		
1941	ISO20846	7.95	0.15	6018	ISO20846	7.25	-0.83	
1944	D5453	8.36	0.72	6028	ISO20846	5.7	-3.01	
1949	ISO20846	8.08	0.33	6034	----	----		
1950	ISO20884	8.1	0.36	6047	ISO20846	7.675	-0.24	
1953	D4294	10	3.02	6075	ISO20846	4.40	R(0.01)	-4.83
1968	ISO20846	7.22	C	-0.88	6108	----	----	
1976	----	----	----	7006	D5453	7.81	C	-0.05
1984	ISO20846	7.98167	0.19	9057	----	----	----	
1986	ISO13032	8.0	0.22					

normality suspect  
n 143  
outliers 2  
mean (n) 7.85  
st.dev. (n) 0.7808  
R(calc.) 2.186  
R(ISO20846:11) 1.999

Lab 311 first reported: 5.4  
Lab 1146 first reported: -10  
Lab 1613 first reported: 3.55  
Lab 1684 first reported: 0.63  
Lab 1720 first reported: 1  
Lab 1968 first reported: 5.22  
Lab 7006 first reported: 11.1



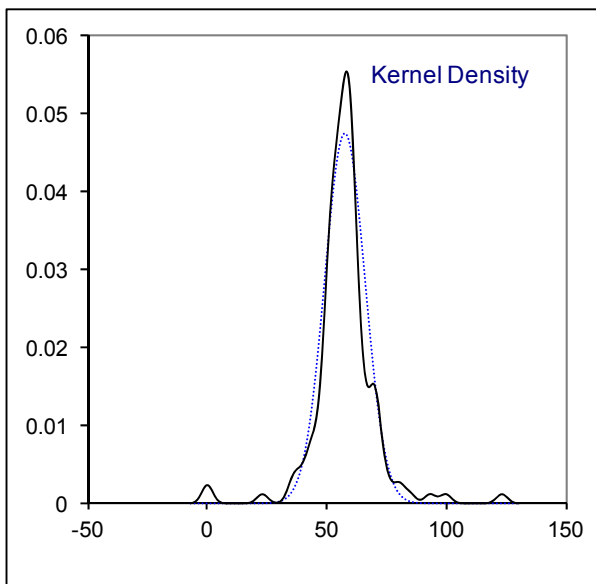
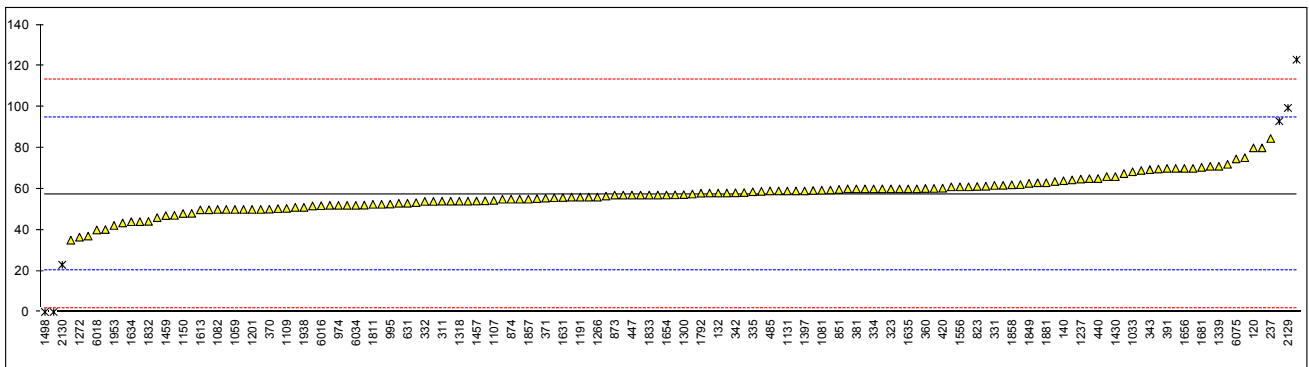
## Determination of Water content KF on sample #17025; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO12937	80		1.21	1026	D6304	53		-0.24
132	D6304	58		0.03	1033	IP438	68.37		0.59
140	ISO12937	64		0.35	1059	ISO12937	50		-0.40
150	E1064	123	R(0.01)	3.52	1081	ISO12937	59.36		0.10
158		----		----	1082	ISO12937	50		-0.40
171	D6304	72		0.78	1107	ISO12937	54.4		-0.16
212		----		----	1108	ISO12937	56		-0.08
237	D6304	84.5733		1.46	1109	D6304	50.5		-0.37
238		----		----	1121	IP438	64.4		0.38
273	D6304	63		0.30	1126		----		----
311	ISO12937	54		-0.18	1131	ISO12937	59		0.08
312	ISO12937	60		0.14	1134	IP438	49.825		-0.41
317	ISO12937	35		-1.20	1146	D6304	40.2		-0.93
323	ISO12937	60		0.14	1150	ISO12937	48		-0.51
331	In house	61.7		0.23	1155	ISO12937	60.23		0.15
332	ISO12937	53.9		-0.19	1161	ISO12937	54.194		-0.17
333	ISO12937	60		0.14	1167	ISO12937	56.5		-0.05
334	ISO12937	60		0.14	1191	ISO12937	56		-0.08
335	ISO12937	58.6		0.06	1194	IP438	62.1		0.25
336	ISO12937	50		-0.40	1199		----		----
337	ISO12937	50		-0.40	1201	ISO12937	50		-0.40
338	ISO12937	67.46		0.54	1205		----		----
342	ISO12937	58.1		0.04	1227	D6304	56		-0.08
343		69.4		0.64	1229	ISO12937	59		0.08
345	ISO12937	58.8		0.07	1233		----		----
351	ISO12937	61		0.19	1237	ISO12937	64.8		0.40
353	IP438	71		0.73	1259	ISO12937	59.4712		0.11
356	E1064	52		-0.29	1266	ISO12937	56.00		-0.08
357	ISO12937	54		-0.18	1272	ISO12937	36.5		-1.12
360	ISO12937	60.2		0.15	1286		----		----
369	ISO12937	51.7		-0.31	1299	ISO12937	80		1.21
370	ISO12937	50.1		-0.39	1300	ISO12937	57.205		-0.01
371	ISO12937	55.5		-0.10	1316	D6304	44.05		-0.72
372	ISO12937	57		-0.02	1318	D6304	54.0		-0.18
381	ISO12937	60		0.14	1339	ISO12937	71		0.73
391	ISO12937	70		0.68	1340	ISO12937	59.24		0.10
398	ISO12937	65		0.41	1356	D6304	<100		----
399		----		----	1357	D6304	70		0.68
402	ISO12937	57.0		-0.02	1367	D6304	37		-1.10
403	ISO12937	53.3		-0.22	1397	ISO12937	59		0.08
420	ISO12937	60.36		0.16	1412		----		----
432		----		----	1430	D6304	66		0.46
440	IP438	65.04		0.41	1457	ISO12937	54.1		-0.18
444		----		----	1459	ISO12937	47.0		-0.56
445	IP438	61.3		0.21	1498	D2709	0.005	R(0.01)	-3.08
447	IP438	57		-0.02	1510	IP438	50		-0.40
453	IP438	55		-0.13	1520	ISO12937	93.0	R(0.05)	1.91
463	D6304	48.08		-0.50	1556	ISO12937	61		0.19
485	ISO12937	59.0		0.08	1557	ISO12937	55.3		-0.11
541	ISO12937	58.0		0.03	1569	In house	51		-0.34
593		----		----	1586	ISO12937	60.0		0.14
631	E203	53	C	-0.24	1613	D6304	49.81		-0.41
663	D6304	57.1		-0.02	1631	ISO12937	55.8		-0.09
671		----		----	1634	ISO12937	44		-0.72
704	ISO12937	55.7		-0.09	1635	ISO12937	60.0		0.14
781	ISO12937	63.6		0.33	1654	ISO12937	57.02		-0.02
785	ISO12937	75.21		0.96	1656	ISO12937	70		0.68
823	ISO12937	61.2		0.20	1681	ISO12937	70.5		0.70
840		----		----	1684	ISO12937	52.1		-0.29
842		----		----	1720		----		----
851	ISO12937	59.74		0.12	1724	D6304	61		0.19
873	D6304	57		-0.02	1730		----		----
874	ISO12937	55		-0.13	1740	ISO12937	53.9		-0.19
875	D6304	58.23		0.04	1742		----		----
886		----		----	1746		----		----
902	D6304	60		0.14	1776	ISO12937	46		-0.61
963		----		----	1792	ISO12937	57.9		0.03
970	D6304	58		0.03	1807	ISO12937	69		0.62
971	D6304	59.0		0.08	1810	D6304	55		-0.13
974	D6304	52		-0.29	1811	ISO12937	52.5		-0.26
995	ISO12937	52.61		-0.26	1832	ISO12937	44.18		-0.71
997		----		----	1833	ISO12937	57		-0.02
1006		----		----	1849	ISO12937	62.7		0.28
1011	ISO12937	66		0.46	1857	ISO12937	55		-0.13
1016	ISO12937	69.7		0.66	1858	IP438	62		0.25

1862	ISO12937	52	-0.29	1995	----	----	----
1881	ISO12937	63	0.30	2129	IP439	99.5	R(0.01) 2.26
1936	ISO12937	57.5	0.00	2130	IP438	23	R(0.05) -1.85
1937	ISO12937	54	-0.18	2146	----	----	----
1938	ISO12937	51	-0.34	6016	D6304	51.8	----
1941	ISO12937	57	-0.02	6018	ISO12937	40	----
1944	ISO12937	47.12	-0.55	6028	ISO12937	0.0058	R(0.01) -3.08
1949	----	----	----	6034	D6304	52	----
1950	IP439	60	0.14	6047	ISO12937	52.5	----
1953	ISO12937	42.20	-0.82	6075	ISO12937	74.6	0.92
1968	D6304	43.41	-0.75	6108	----	----	----
1976	----	----	----	7006	----	----	----
1984	ISO12937	50.4	-0.38	9057	In house	61.74	C 0.23
1986	IP439	70	0.68				

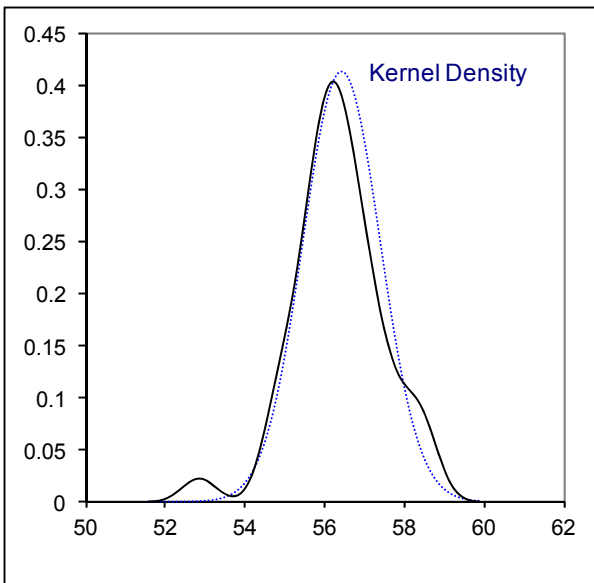
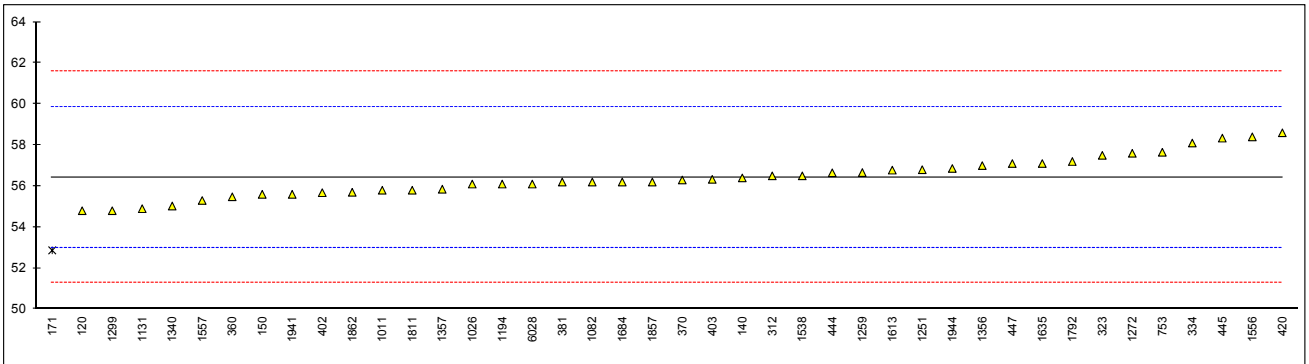
normality suspect  
n 140  
outliers 6  
mean (n) 57.419  
st.dev. (n) 8.4028  
R(calc.) 23.528  
R(ISO12937:00) 52.111

Lab 631 first reported: 320  
Lab 9057 first reported: 0.6174



## Determination of Cetane Number on sample #17026;

lab	method	value	mark	z(targ)	remarks
120	D613	54.8		-0.95	
140	D613	56.4		-0.02	
150	D613	55.6		-0.49	
171	D613	52.87	R(0.05)	-2.08	
311		----		----	
312	D613	56.5		0.04	
323	ISO5165	57.5		0.62	
334	ISO5165	58.1		0.97	
336		----		----	
343		----		----	
356		----		----	
360	ISO5165	55.48		-0.56	
370	ISO5165	56.3		-0.08	
381	ISO5165	56.2		-0.14	
402	ISO5165	55.68		-0.44	
403	ISO5165	56.33		-0.06	
420	ISO5165	58.6		1.26	
444	D613	56.65		0.13	
445	D613	58.34		1.11	
447	D613	57.1		0.39	
453		----		----	
753	ISO5165	57.65		0.71	
1011	ISO5165	55.8		-0.37	
1026	ISO5165	56.1		-0.20	
1059		----		----	
1081		----		----	
1082	ISO5165	56.2		-0.14	
1107		----		----	
1131	ISO5165	54.9		-0.90	
1134		----		----	
1161		----		----	
1167		----		----	
1191		----		----	
1194	D613	56.1		-0.20	
1201		----		----	
1229		----		----	
1251	ISO5165	56.8		0.21	
1259	ISO5165	56.66		0.13	
1272	INH-41401	57.6		0.68	
1299	D613	54.8		-0.95	
1340	ISO5165	55.03		-0.82	
1356	ISO5165	57		0.33	
1357	D613	55.85		-0.34	
1457		----		----	
1538	ISO5165	56.5		0.04	
1556	ISO5165	58.4		1.15	
1557	INH-1200	55.3		-0.66	
1586		----		----	
1613	D613	56.78		0.20	
1635	ISO5165	57.1		0.39	
1684	ISO5165	56.2		-0.14	
1776		----		----	
1792	ISO5165	57.2		0.45	
1807		----		----	
1810		----		----	
1811	D613	55.8		-0.37	
1857	D613	56.2		-0.14	
1862	ISO5165	55.7		-0.43	
1941	In house	55.6		-0.49	
1944	D613	56.86		0.25	
6028	ISO5165	56.1		-0.20	
6075		----		----	
6108		----		----	
	normality	OK			
	n	41			
	outliers	1			
	mean (n)	56.43			
	st.dev. (n)	0.966			
	R(calc.)	2.71			
	R(ISO5165:98)	4.8			

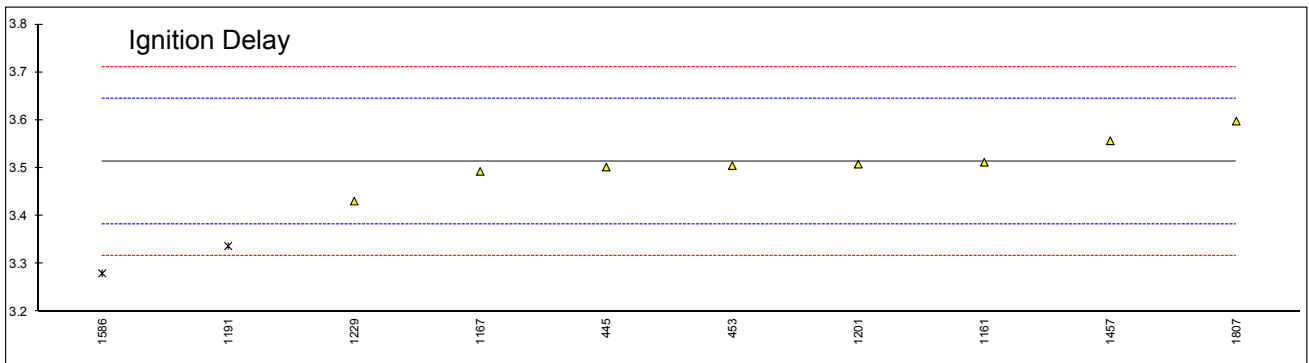
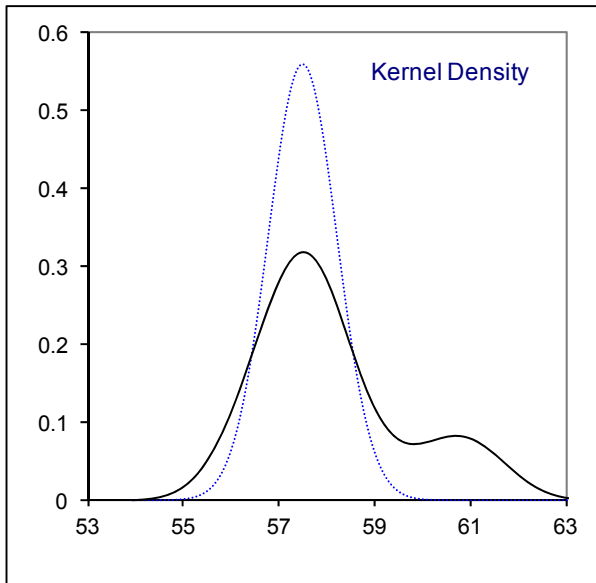
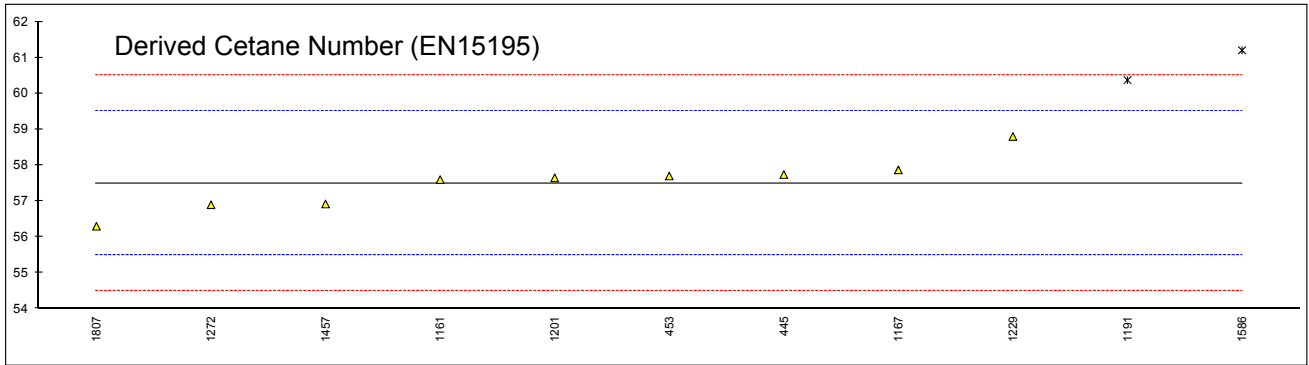


Determination of Derived Cetane Number (EN15195) on sample #17026;

lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	Air Temp.
120		----		----	----		----	----
140		----		----	----		----	----
150		----		----	----		----	----
171		----		----	----		----	----
311		----		----	----		----	----
312		----		----	----		----	----
323		----		----	----		----	----
334		----		----	----		----	----
336		----		----	----		----	----
343		----		----	----		----	----
356		----		----	----		----	----
360		----		----	----		----	----
370		----		----	----		----	----
381		----		----	----		----	----
402		----		----	----		----	----
403		----		----	----		----	----
420		----		----	----		----	----
444		----		----	----		----	----
445	IP498	57.74		0.24	3.502		-0.17	552.9 C
447		----		----	----		----	----
453	IP498	57.7		0.20	3.505		-0.13	570.5
753		----		----	----		----	----
1011		----		----	----		----	----
1026		----		----	----		----	----
1059		----		----	----		----	----
1081		----		----	----		----	----
1082		----		----	----		----	----
1107		----		----	----		----	----
1131		----		----	----		----	----
1134		----		----	----		----	----
1161	EN15195	57.6		0.10	3.512		-0.02	585.3
1167	EN15195	57.87		0.37	3.493		-0.31	588.6
1191	EN15195	60.37	DG(0.05)	2.88	3.337	DG(0.01)	-2.68	582.7
1194		----		----	----		----	----
1201	EN15195	57.65		0.15	3.508		-0.08	575.5
1229	EN15195	58.8		1.30	3.431		-1.25	----
1251		----		----	----		----	----
1259		----		----	----		----	----
1272	EN16715	56.9		-0.60	----		----	----
1299		----		----	----		----	----
1340		----		----	----		----	----
1356		----		----	----		----	----
1357		----		----	----		----	----
1457	EN15195	56.92		-0.58	3.557		0.67	581.6
1538		----		----	----		----	----
1556		----		----	----		----	----
1557		----		----	----		----	----
1586	EN15195	61.2	DG(0.05)	3.71	3.28	C,DG(0.01)	-3.55	----
1613		----		----	----		----	----
1635		----		----	----		----	----
1684		----		----	----		----	----
1776		----		----	----		----	----
1792		----		----	----		----	----
1807	EN15195	56.3		-1.20	3.598		1.29	564.5
1810		----		----	----		----	----
1811		----		----	----		----	----
1857		----		----	----		----	----
1862		----		----	----		----	----
1941		----		----	----		----	----
1944		----		----	----		----	----
6028		----		----	----		----	----
6075		----		----	----		----	----
6108		----		----	----		----	----
	normality	OK			suspect			
	n	9			8			
	outliers	2			2			
	mean (n)	57.50			3.51			
	st.dev. (n)	0.715			0.049			
	R(calc.)	2.00			0.14			
	R(EN15195:14)	2.80			0.18			

Lab 445 first reported for Air Temperature: 553°C

Lab 1586 first reported for Initial Delay: 2.3216

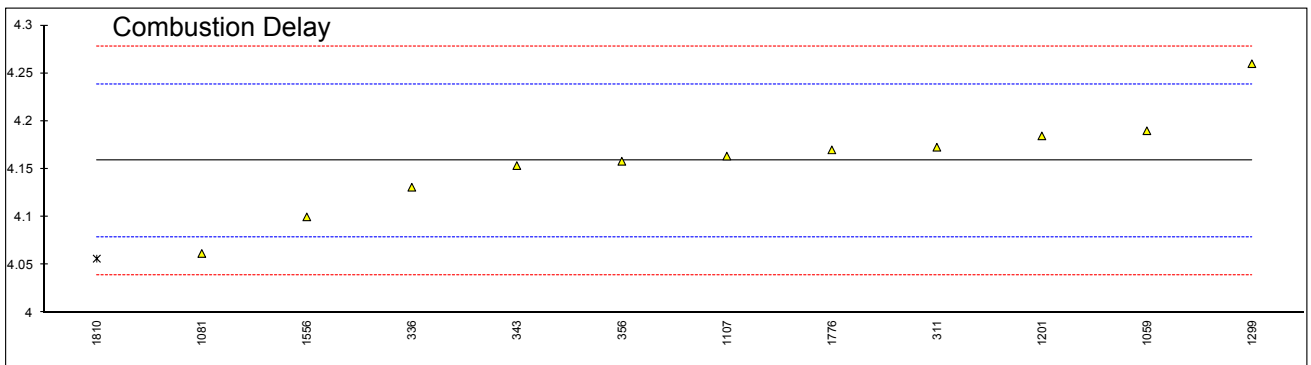
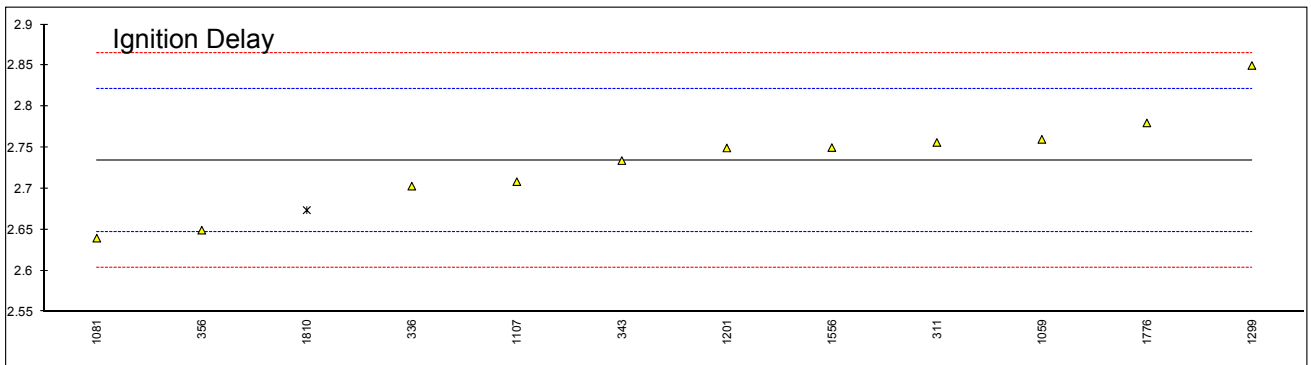
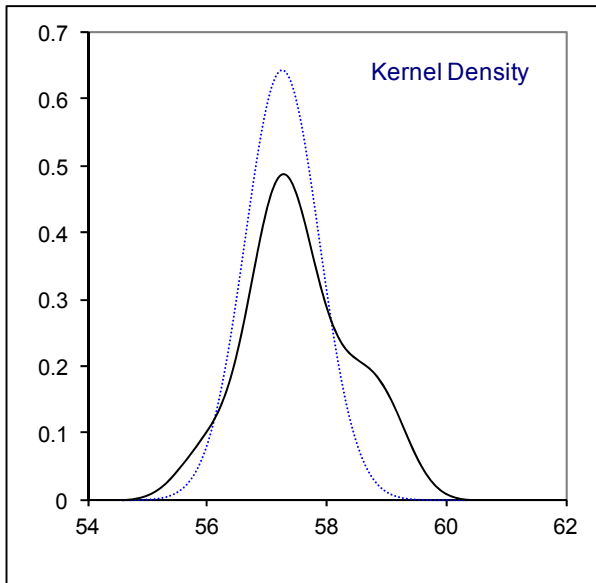
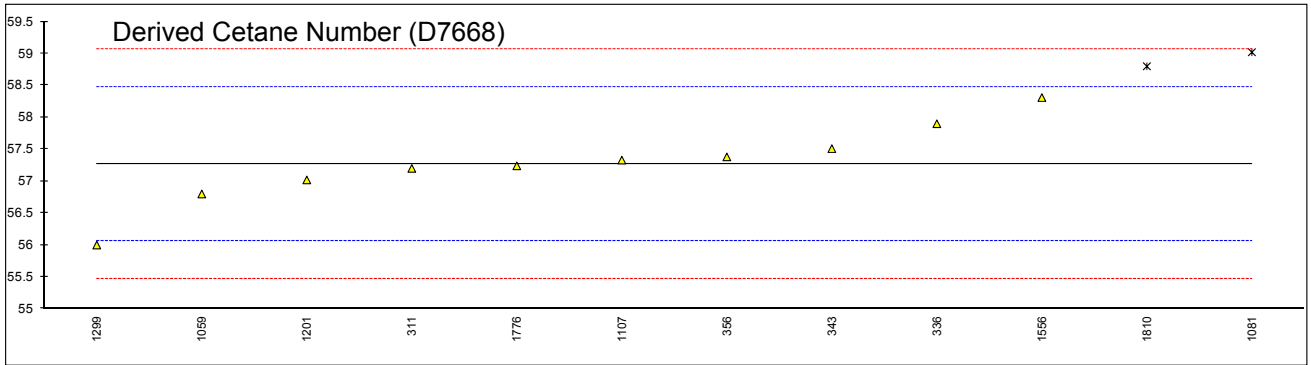


Determination of Derived Cetane Number (D7668) on sample #17026;

lab	method	DCN	mark	z(targ)	ID	mark	z(targ)	CD	mark	z(targ)	W. T.
120		----		----	----		----	----		----	----
140		----		----	----		----	----		----	----
150		----		----	----		----	----		----	----
171		----		----	----		----	----		----	----
311	D7668	57.2		-0.12	2.7562		0.50	4.1728		0.36	590.15
312		----		----	----		----	----		----	----
323		----		----	----		----	----		----	----
334		----		----	----		----	----		----	----
336	D7668	57.9		1.05	2.703		-0.72	4.131		-0.70	603.4
343	D7668	57.51		0.40	2.7341		-0.01	4.1536		-0.13	604.32
356	D7668	57.38		0.19	2.6493		-1.96	4.1581		-0.01	611.12
360		----		----	----		----	----		----	----
370		----		----	----		----	----		----	----
381		----		----	----		----	----		----	----
402		----		----	----		----	----		----	----
403		----		----	----		----	----		----	----
420		----		----	----		----	----		----	----
444		----		----	----		----	----		----	----
445		----		----	----		----	----		----	----
447		----		----	----		----	----		----	----
453		----		----	----		----	----		----	----
753		----		----	----		----	----		----	----
1011		----		----	----		----	----		----	----
1026		----		----	----		----	----		----	----
1059	D7668	56.8		-0.78	2.76		0.58	4.19		0.79	595.20
1081	D7668	59.02	G(0.05)	2.92	2.6396		-2.18	4.0618		-2.44	602.03
1082		----		----	----		----	----		----	----
1107	D7668	57.33		0.10	2.7084		-0.60	4.1635		0.12	603.24
1131		----		----	----		----	----		----	----
1134		----		----	----		----	----		----	----
1161		----		----	----		----	----		----	----
1167		----		----	----		----	----		----	----
1191		----		----	----		----	----		----	----
1194		----		----	----		----	----		----	----
1201	D7668	57.02		-0.42	2.7495		0.34	4.1846		0.65	601.28
1229		----		----	----		----	----		----	----
1251		----		----	----		----	----		----	----
1259		----		----	----		----	----		----	----
1272		----		----	----		----	----		----	----
1299	D7668	56.00		-2.12	2.85		2.65	4.26		2.55	586.18
1340		----		----	----		----	----		----	----
1356		----		----	----		----	----		----	----
1357		----		----	----		----	----		----	----
1457		----		----	----		----	----		----	----
1538		----		----	----		----	----		----	----
1556	EN16715	58.31		1.74	2.75		0.35	4.10		-1.48	589.07
1557		----		----	----		----	----		----	----
1586		----		----	----		----	----		----	----
1613		----		----	----		----	----		----	----
1635		----		----	----		----	----		----	----
1684		----		----	----		----	----		----	----
1776	EN16715	57.24		-0.05	2.78		1.04	4.17		0.28	594.74
1792		----		----	----		----	----		----	----
1807		----		----	----		----	----		----	----
1810	D7668	58.8	E, ex	2.55	2.6737	ex	-1.40	4.0564	ex	-2.57	600
1811		----		----	----		----	----		----	----
1857		----		----	----		----	----		----	----
1862		----		----	----		----	----		----	----
1941		----		----	----		----	----		----	----
1944		----		----	----		----	----		----	----
6028		----		----	----		----	----		----	----
6075		----		----	----		----	----		----	----
6108		----		----	----		----	----		----	----
	normality	suspect			OK			suspect			
	n	10			11			11			
	outliers	1 (+1ex)			0 (+1ex)			0 (+1ex)			
	mean (n)	57.27			2.73			4.16			
	st.dev. (n)	0.619			0.059			0.051			
	R(calc.)	1.73			0.17			0.14			
	R(D7668:14a)	1.68			0.12			0.11			

Lab 1810: results excluded because of calculation error, iis calculated 59.15 (according to ASTM D7668)  
W.T. = Chamber Wall Temperature



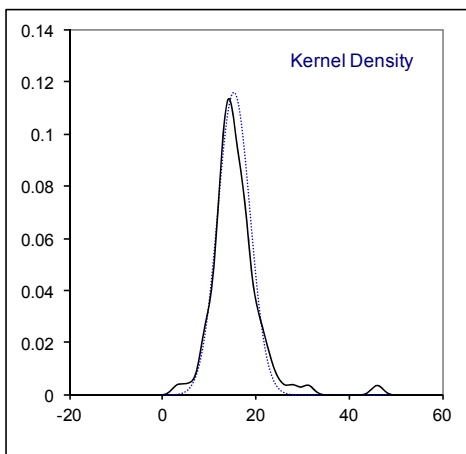
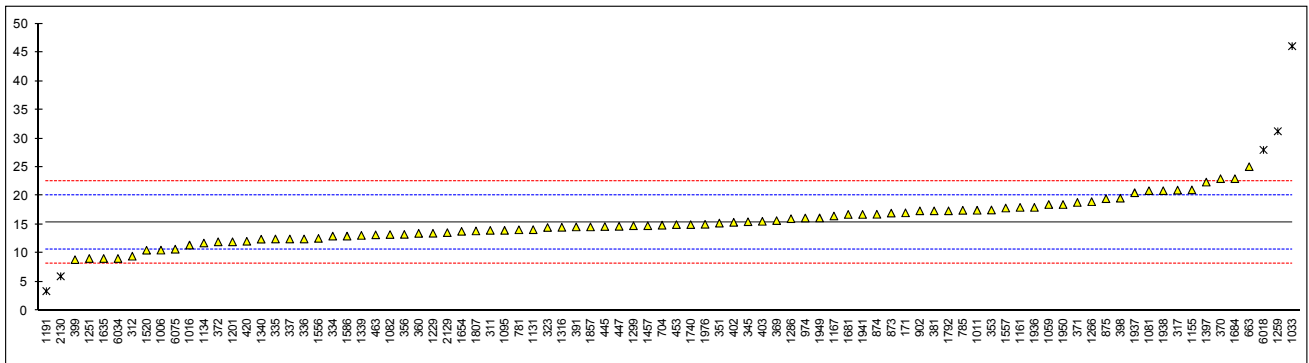


## Determination of Total Contamination on sample #17027; result in mg/kg

lab	method	value	mark	z(targ)	Volume filtered	remarks
120		----		----	----	
140		----		----	----	
150		----		----	----	
171	EN12662:2014	17.05		0.70	----	
237	EN12662:2014	>30		----	300	
273		----		----	----	
311	EN12662:2014	14.0		-0.58	300	
312	EN12662:2014	9.5		-2.48	300	
317	EN12662:2014	21		2.37	300	
323	EN12662:2014	14.5		-0.37	300	
331		----		----	----	
334	EN12662:2014	13.0		-1.01	286	
335	EN12662:2008	12.5		-1.22	----	
336	EN12662:2014	12.5		-1.22	----	
337	EN12662:2014	12.5		-1.22	300	
343	EN12662:2014	<12		----	----	
345	EN12662:2014	15.5		0.05	----	
351	EN12662:2014	15.26		-0.05	310	
353	EN12662:2014	17.547		0.91	600	volume not according to test method (version)
356	IP440	13.30		-0.88	310	
360	EN12662:2014	13.48		-0.80	300	
369	EN12662:2014	15.7		0.13	300	
370	EN12662:2014	23.0		3.21	300	
371	EN12662:2014	18.86		1.46	300	
372	EN12662:2014	12.0		-1.43	----	
381	EN12662:2014	17.4		0.85	290	
391	EN12662:2014	14.6		-0.33	335	
398	EN12662:1998	19.6		1.78	520	
399	EN12662:2014	8.9		-2.74	----	
402	EN12662:2014	15.4		0.01	300	
403	EN12662:2014	15.575		0.08	300	
420	EN12662:2014	12.1		-1.39	----	
440		----		----	----	
445	IP440	14.66		-0.31	----	
447	IP415	14.7		-0.29	----	
453	IP440	15		-0.16	----	
463	EN12662:2014	13.22		-0.91	300	
663	EN12662:2014	25.08		4.09	299	
704	EN12662:2014	14.9		-0.21	----	
781	EN12662:2014	14.1		-0.54	300	
785	EN12662:2014	17.49		0.89	300	
823		----		----	----	
840		----		----	----	
842		----		----	----	
873	EN12662:2014	17.0		0.68	300	
874	EN12662:2014	16.8		0.60	300	
875	EN12662:2014	19.51		1.74	300	
902	EN12662:2014	17.4		0.85	300	
963		----		----	----	
970		----		----	----	
974	IP440	16.15		0.32	800	volume not according to test method (version)
1006	EN12662:2014	10.56		-2.04	----	
1011	EN12662:2014	17.5		0.89	300	
1016	EN12662:2014	11.44		-1.66	300	
1033	IP440	46.06	R(0.01)	12.93	750	volume not according to test method (version)
1059	EN12662:2014	18.5		1.31	314.8	
1081	EN12662:2014	20.9		2.32	300	
1082	EN12662:2014	13.27		-0.89	290	
1095	EN12662:2014	14.0		-0.58	----	
1131	EN12662:2014	14.12		-0.53	----	
1134	EN12662:2012	11.793		-1.52	----	
1155	EN12662:2014	21.05		2.39	----	
1161	EN12662:2014	18.0		1.10	----	
1167	EN12662:2014	16.5		0.47	300	
1191	EN12662:2014	3.42	ex	-5.05	380	result excluded, see §4, vol. not acc. to test method
1201	EN12662:1998	12		-1.43	----	
1229	EN12662:2014	13.5		-0.80	300	
1251	EN12662:2014	9.1		-2.65	300	
1259	EN12662:2014	31.25	R(0.01)	6.69	296.0	
1266	EN12662:2014	19.0		1.52	----	
1272		----		----	----	
1286	EN12662:2014	16.033		0.27	----	
1299	EN12662:2014	14.8		-0.25	300	
1316	EN12662:2014	14.54		-0.36	300	
1339	EN12662:2014	13.12		-0.96	----	
1340	EN12662:2014	12.46		-1.23	300	

1357		----		----	----	
1397	EN12662:2014	22.4		2.96	300	
1457	EN12662:2014	14.8		-0.25	300	
1520	EN12662:2014	10.54		-2.04	300	
1556	EN12662:2014	12.6		-1.18	400	volume not according to test method (version)
1557	EN12662:2014	17.89		1.06	300	
1586	EN12662:2014	13		-1.01	300	
1613		----	W	----	----	first reported: 53.59
1631		----		----	----	
1635	EN12662:2014	9.1		-2.65	----	
1654	EN12662:2014	13.83		-0.66	----	
1681	EN12662:2014	16.77		0.58	----	
1684	EN12662:2014	23.0		3.21	----	
1724	EN12662:2014	<12		----	----	
1740	EN12662:2014	15		-0.16	300	
1792	EN12662:2014	17.40		0.85	----	
1807	EN12662:2014	13.9		-0.63	----	
1833	EN12662:2014	<12		----	----	
1849	EN12662:2014	<12	C	----	----	first reported: 40.9
1857	EN12662:2014	14.6		-0.33	300	
1936	EN12662:2014	18.0		1.10	----	
1937	EN12662:2014	20.55		2.18	----	
1938	EN12662:2014	20.9		2.32	----	
1941	EN12662:2014	16.77		0.58	----	
1949	EN12662:2014	16.16		0.33	----	
1950	EN12662:2014	18.5		1.31	----	
1976	EN12662:1998	15.049		-0.14	281.986	
1984	EN12662:2014	<12		----	300.0	
2129	EN12662:2014	13.6		-0.75	289.92	
2130	IP440	6	ex	-3.96	----	result excluded, see §4
6018	EN12662:2014	28	R(0.05)	5.32	400	volume not according to test method (version)
6028	EN12662:2014	< 12		----	----	
6034	EN12662:2014	9.10		-2.65	----	
6075	EN12662:2014	10.72	C	-1.97	365.2	first reported: 5.61
6108		----		----	----	

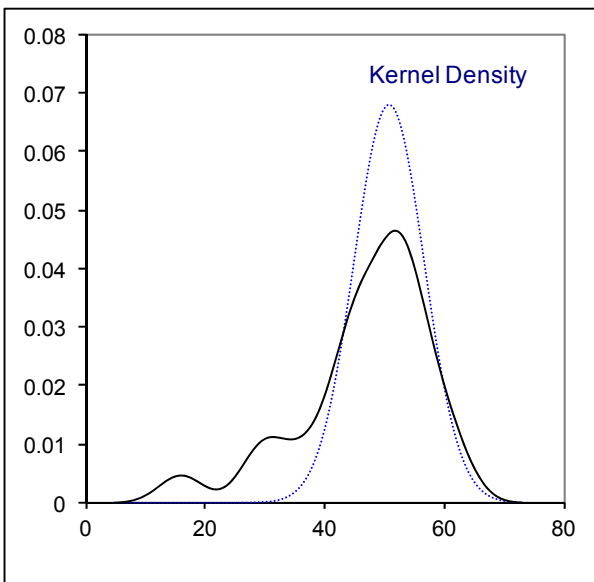
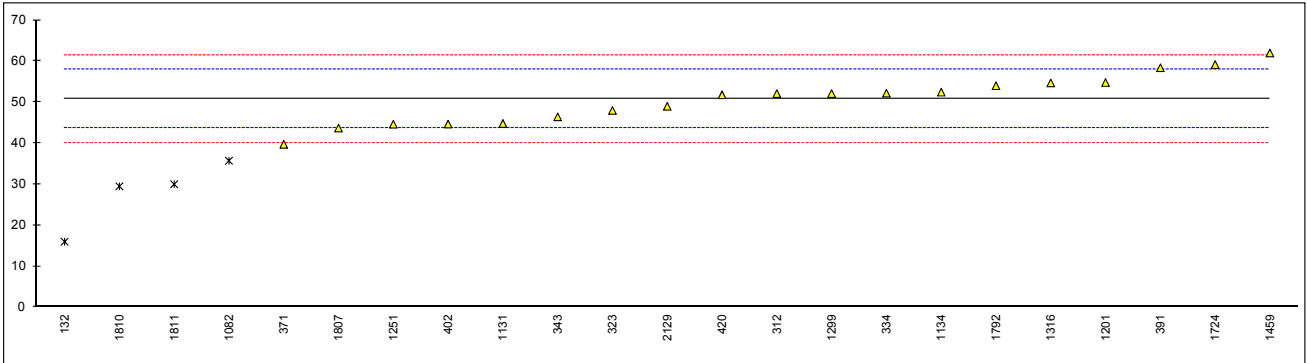
normality OK  
 n 83  
 outliers 3 (+2ex) Spike:  
 mean (n) 15.387 14.9 mg/kg  
 st.dev. (n) 3.4463  
 R(calc.) 9.650  
 R(EN12662:14) 6.641



## Determination of Oxidation Stability Induction period on sample #17028; results in hrs

lab	method	value	mark	z(targ)	remarks
120		----		----	
132	EN15751	16	R(0.05)	-9.70	
140		----		----	
150	EN15751	>48.0		----	
171		----		----	
237		----		----	
311	EN15751	>48		----	
312	EN15751	52.1		0.37	
323	EN15751	48.0		-0.77	
334	EN15751	52.2		0.40	
343	EN15751	46.43		-1.21	
360	EN15751	> 48		----	
370		----		----	
371	EN15751	39.74		-3.08	
372		----		----	
391	EN15751	58.4		2.13	
402	EN15751	44.68		-1.70	
403		----		----	
420	EN15751	51.8		0.29	
445		----		----	
447	EN15751	>20		----	
453		----		----	
463		----		----	
704		----		----	
823		----		----	
874		----		----	
902		----		----	
963		----		----	
974		----		----	
1011		----		----	
1016		----		----	
1033		----	W	----	first reported: 20
1059		----		----	
1081		----		----	
1082	EN15751	35.73	R(0.05)	-4.20	
1095		----		----	
1109		----		----	
1131	EN15751	44.81		-1.66	
1134	EN14112	52.46		0.47	
1167		----		----	
1191		----		----	
1201	EN15751	54.8		1.12	
1251	EN15751	44.64		-1.71	
1272		----		----	
1299	EN15751	52.1		0.37	
1300	EN15751	>48		----	
1316	EN15751	54.7		1.09	
1340		----		----	
1357		----		----	
1459	EN15751	62.00		3.13	
1557		----		----	
1613		----		----	
1631		----		----	
1654		----		----	
1681		----		----	
1724	EN15751	59.17		2.34	
1740		----		----	
1792	EN15751	54.02		0.90	
1807	EN15751	43.7		-1.97	
1810	EN16091	29.5	R(0.05)	-5.93	
1811	EN15751	30	R(0.05)	-5.79	
1833		----		----	
1857		----		----	
1941		----		----	
1949		----		----	
2129	EN15751	49.0		-0.50	
2130		----	W	----	first reported: 16
6034		----		----	
6075		----		----	

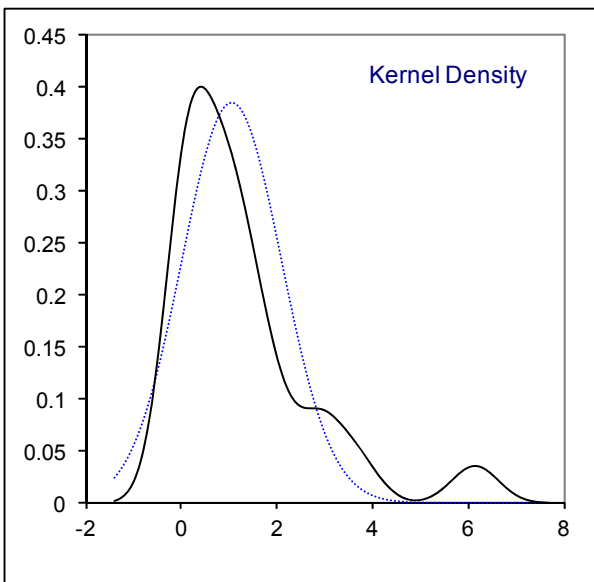
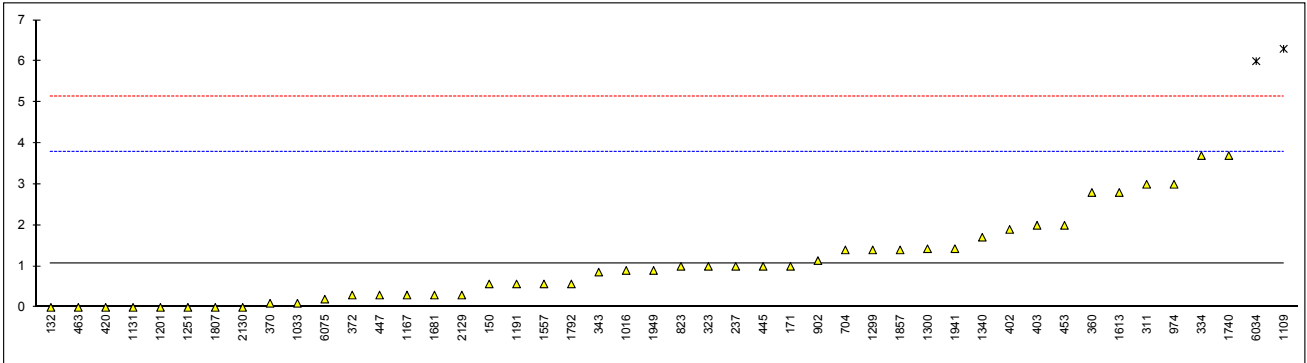
normality OK  
 n 19  
 outliers 4  
 mean (n) 50.78  
 st.dev. (n) 5.860  
 R(calc.) 16.41  
 R(EN15751:14) 10.04



Determination of Oxidation Stability Filterable Insolubles (A) on sample #17028; results in g/m<sup>3</sup>

lab	method	value	mark	z(targ)	remarks
120		----		----	
132	ISO12205	0		-0.78	
140		----		----	
150	ISO12205	0.57		-0.36	
171	D2274	1		-0.04	reported 0.1 mg/100 ml
237	D2274	1		-0.04	reported 0.1 mg/100 ml
311	ISO12205	3		1.42	reported 0.3 mg/100 ml
312		----		----	
323	ISO12205	1		-0.04	
334	ISO12205	3.7		1.94	
343	ISO12205	0.86		-0.15	
360	ISO12205	2.8		1.28	
370	ISO12205	0.1		-0.71	
371		----		----	
372	ISO12205	0.3		-0.56	
391		----		----	
402	ISO12205	1.9		0.62	
403	ISO12205	2.0		0.69	
420	ISO12205	0		-0.78	reported 0 mg/100 ml
445	D2274	1		-0.04	reported 0.1 mg/100 ml
447	IP388	0.3		-0.56	
453	ISO12205	2.0		0.69	
463	ISO12205	0.0		-0.78	
704	ISO12205	1.4		0.25	
823	ISO12205	1		-0.04	reported 0.1 mg/100 ml
874		----		----	
902	ISO12205	1.14		0.06	
963		----		----	
974	D2274	3		1.42	reported 0.3 mg/100 ml
1011		----		----	
1016	ISO12205	0.9		-0.12	
1033	D2274	0.1		-0.71	reported 0.01 mg/100 ml
1059		----		----	
1081		----		----	
1082		----		----	
1095		----		----	
1109	D2274	6.3	R(0.01)	3.85	reported 0.63 mg/100 ml
1131	ISO12205	0.00		-0.78	
1134		----		----	
1167	ISO12205	0.3		-0.56	reported 0.3 mg/100 ml
1191	ISO12205	0.57		-0.36	
1201	ISO12205	0		-0.78	reported 0 mg/100 ml
1251	ISO12205	0		-0.78	
1272		----		----	
1299	D2274	1.4		0.25	
1300	ISO12205	1.4285		0.27	
1316	D2274	<1		----	reported <0.1 mg/100 ml
1340	ISO12205	1.71		0.48	
1357		----		----	
1459		----		----	
1557	ISO12205	0.57		-0.36	
1613	D2274	2.8		1.28	reported 0.28 mg/100 ml
1631		----		----	
1654		----		----	
1681	ISO12205	0.3		-0.56	
1724		----		----	
1740	ISO12205	3.7		1.94	
1792	D2274	0.57		-0.36	
1807	ISO12205	0		-0.78	reported 0.0 mg/100 ml
1810		----		----	
1811		----		----	
1833		----		----	
1857	ISO12205	1.4		0.25	reported 0.14 mg/100 ml
1941	ISO12205	1.43		0.27	
1949	ISO12205	0.9		-0.12	reported 0.09 mg/100 ml
2129	ISO12205	0.3		-0.56	
2130	ISO12205	0		-0.78	
6034	D2274	6	R(0.01)	3.63	
6075	ISO12205	0.2		-0.63	

normality	suspect
n	44
outliers	2
mean (n)	1.060
st.dev. (n)	1.041
R(calc.)	2.914
R(ISO12205:95)	3.813

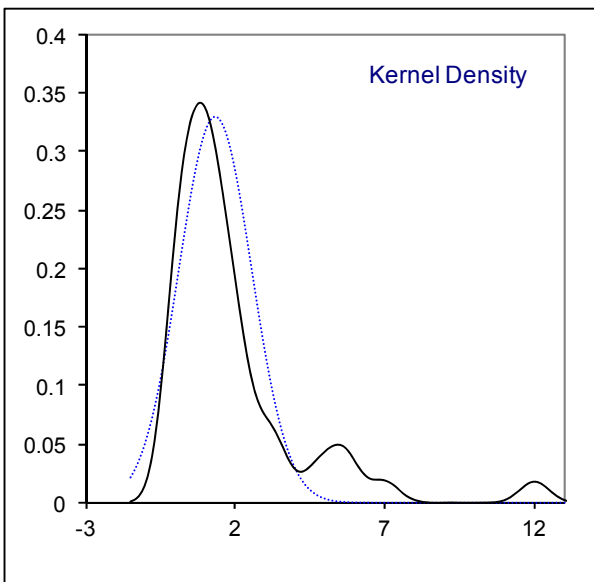
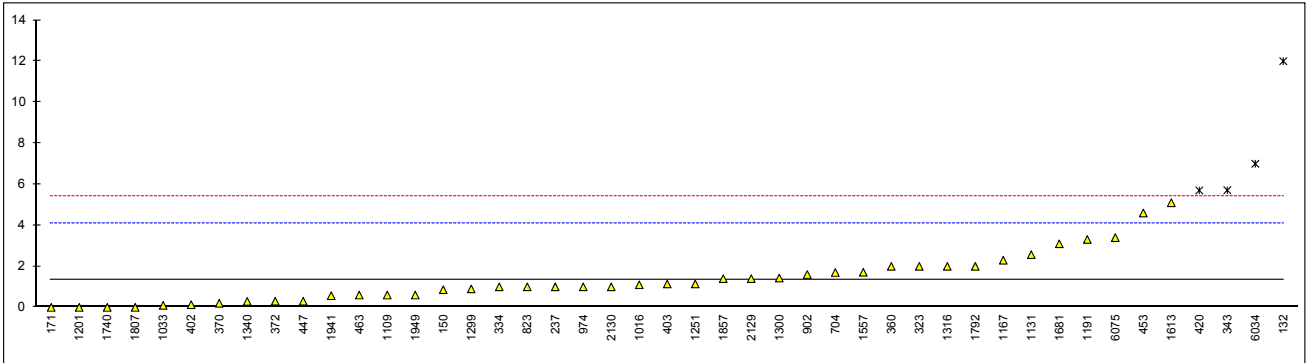


Determination of Oxidation Stability Adherent Insolubles (B) on sample #17028; results in g/m<sup>3</sup>

lab	method	value	mark	z(targ)	remarks
120		----		----	
132	ISO12205	12	R(0.01)	7.82	
140		----		----	
150	ISO12205	0.86		-0.36	
171	D2274	0		-0.99	reported 0.0 mg/100 ml
237	D2274	1		-0.26	reported 0.1 mg/100 ml
311	ISO12205	<1		----	reported <0.1 mg/100 ml
312		----		----	
323	ISO12205	2		0.48	
334	ISO12205	1		-0.26	
343	ISO12205	5.71	R(0.05)	3.20	
360	ISO12205	2.0		0.48	
370	ISO12205	0.2		-0.85	
371		----		----	
372	ISO12205	0.3		-0.77	
391		----		----	
402	ISO12205	0.13	C	-0.90	first reported: 6.81
403	ISO12205	1.14	C	-0.16	first reported: 6.86
420	ISO12205	5.7	R(0.05)	3.19	reported 0.57 mg/100 ml
445	D2274	<1		----	reported <0.1 mg/100 ml
447	IP388	0.3		-0.77	
453	ISO12205	4.6		2.38	
463	ISO12205	0.6		-0.55	
704	ISO12205	1.7		0.26	
823	ISO12205	1		-0.26	reported 0.1 mg/100 ml
874		----		----	
902	ISO12205	1.6		0.18	
963		----		----	
974	D2274	1		-0.26	reported 0.1 mg/100 ml
1011		----		----	
1016	ISO12205	1.1		-0.19	
1033	D2274	0.1		-0.92	reported 0.01 mg/100 ml
1059		----		----	
1081		----		----	
1082		----		----	
1095		----		----	
1109	D2274	0.6		-0.55	reported 0.06 mg/100 ml
1131	ISO12205	2.57		0.89	
1134		----		----	
1167	ISO12205	2.3		0.70	reported 0.23 mg/100 ml
1191	ISO12205	3.31		1.44	
1201	ISO12205	0		-0.99	reported 0 mg/100 ml
1251	ISO12205	1.14		-0.16	
1272		----		----	
1299	D2274	0.9		-0.33	
1300	ISO12205	1.4285		0.06	
1316	D2274	2		0.48	reported 0.2 mg/100 ml
1340	ISO12205	0.29		-0.78	
1357		----		----	
1459		----		----	
1557	ISO12205	1.71		0.26	
1613	D2274	5.1		2.75	reported 0.51 mg/100 ml
1631		----		----	
1654		----		----	
1681	ISO12205	3.1		1.28	
1724		----		----	
1740	ISO12205	0		-0.99	
1792	D2274	2.0		0.48	
1807	ISO12205	0		-0.99	reported 0.0 mg/100 ml
1810		----		----	
1811		----		----	
1833		----		----	
1857	ISO12205	1.4		0.03	reported 0.14 mg/100 ml
1941	ISO12205	0.57		-0.57	
1949	ISO12205	0.6		-0.55	reported 0.06 mg/100 ml
2129	ISO12205	1.4		0.03	
2130	ISO12205	1		-0.26	
6034	D2274	7	R(0.05)	4.15	
6075	ISO12205	3.4		1.50	



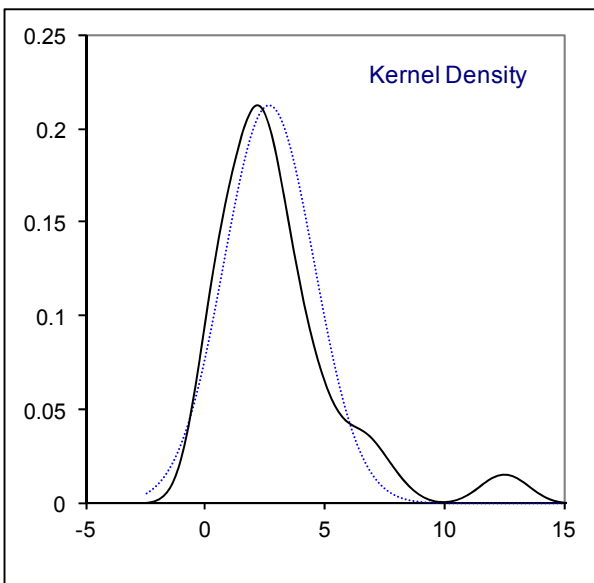
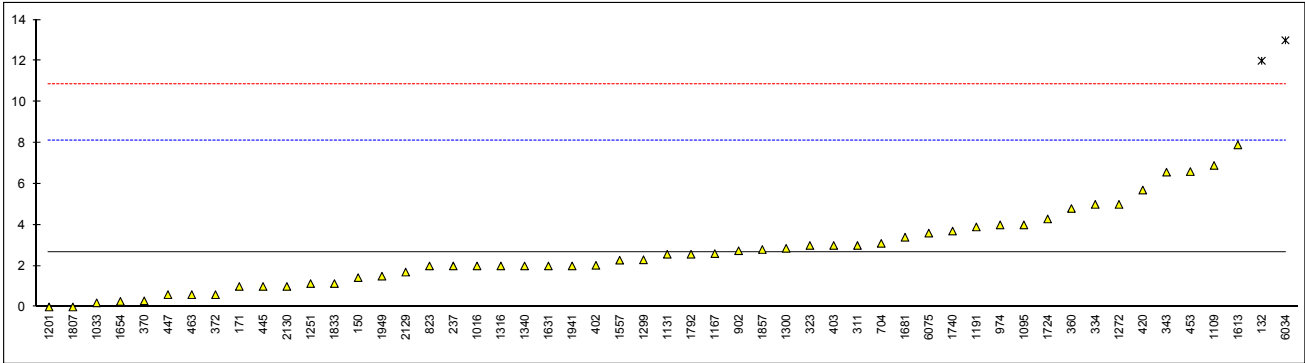
normality	not OK
n	41
outliers	4
mean (n)	1.352
st.dev. (n)	1.2107
R(calc.)	3.390
R(ISO12205:95)	3.813



Determination of Oxidation Stability Total Insolubles (A+B) on sample #17028; results in g/m<sup>3</sup>

lab	method	value	mark	z(targ)	remarks
120		----		----	
132	ISO12205	12	R(0.01)	3.42	
140		----		----	
150	ISO12205	1.43		-0.46	
171	D2274	1		-0.62	reported 0.1 mg/100 ml
237	D2274	2		-0.25	reported 0.2 mg/100 ml
311	ISO12205	3		0.12	reported 0.3 mg/100 ml
312		----		----	
323	ISO12205	3		0.12	
334	ISO12205	5		0.85	
343	ISO12205	6.57		1.43	
360	ISO12205	4.8		0.78	
370	ISO12205	0.3		-0.87	
371		----		----	
372	ISO12205	0.6		-0.76	
391		----		----	
402	ISO12205	2.03	C	-0.24	first reported: 8.71
403	ISO12205	3	C	0.12	first reported: 8.86
420	ISO12205	5.7		1.11	reported 0.57 mg/100 ml
445	D2274	1		-0.62	reported 0.1 mg/100 ml
447	IP388	0.6		-0.76	
453	ISO12205	6.6		1.44	
463	ISO12205	0.6		-0.76	
704	ISO12205	3.1		0.15	
823	ISO12205	2		-0.25	reported 0.2 mg/100 ml
874		----		----	
902	ISO12205	2.74		0.02	
963		----		----	
974	D2274	4		0.48	reported 0.4 mg/100 ml
1011		----		----	
1016	ISO12205	2		-0.25	
1033	D2274	0.2		-0.91	reported 0.02 mg/100 ml
1059		----		----	
1081		----		----	
1082		----		----	
1095	ISO12205	4		0.48	
1109	D2274	6.9		1.55	reported 0.69 mg/100 ml
1131	ISO12205	2.57		-0.04	
1134		----		----	
1167	ISO12205	2.6		-0.03	reported 0.26 mg/100 ml
1191	ISO12205	3.9		0.45	
1201	ISO12205	0		-0.98	reported 0 mg/100 ml
1251	ISO12205	1.14		-0.57	
1272	ISO12205	5.0		0.85	
1299	D2274	2.3		-0.14	
1300	ISO12205	2.857		0.06	
1316	D2274	2		-0.25	reported 0.2 mg/100 ml
1340	ISO12205	2.0		-0.25	
1357		----		----	
1459		----		----	
1557	ISO12205	2.28		-0.15	
1613	D2274	7.9		1.92	reported 0.79 mg/100 ml
1631	ISO12205	2		-0.25	
1654	ISO12205	0.270		-0.88	
1681	ISO12205	3.4		0.26	
1724	ISO12205	4.29		0.59	
1740	ISO12205	3.7		0.37	
1792	D2274	2.57		-0.04	
1807	ISO12205	0		-0.98	reported 0.0 mg/100 ml
1810		----		----	
1811		----		----	
1833	ISO12205	1.14		-0.57	
1857	ISO12205	2.8		0.04	reported 0.28 mg/100 ml
1941	ISO12205	2.00		-0.25	
1949	ISO12205	1.5		-0.43	reported 0.15 mg/100 ml
2129	ISO12205	1.7		-0.36	
2130	ISO12205	1		-0.62	
6034	D2274	13	R(0.01)	3.79	
6075	ISO12205	3.6		0.34	

normality OK  
 n 51  
 outliers 2  
 mean (n) 2.680  
 st.dev. (n) 1.8790  
 R(calc.) 5.261  
 R(ISO12205:95) 7.627



## APPENDIX 2

## z-scores Distillation sample #17025

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250°C	Vol 350°C
120	1.01	-0.76	0.26	1.67	2.09	-0.18	0.09	-1.54
132	1.68	<b>4.13</b>	1.77	0.73	0.68	-0.45	-1.78	-0.60
140	-0.41	-0.22	-1.63	-1.10	-0.69	-2.23	0.92	0.43
150	-1.40	-0.94	-1.06	-0.43	0.03	0.02	1.64	0.95
158	----	----	----	----	----	----	----	----
171	-0.32	1.65	0.26	0.12	0.53	-0.14	-0.33	-0.50
212	-2.70	-0.70	-0.31	0.51	0.15	-0.33	----	----
237	1.31	-1.24	-1.25	-2.32	-2.31	-0.97	2.26	1.58
238	-1.71	-0.64	-1.25	-0.10	0.19	0.61	1.23	-0.50
273	1.34	-0.04	0.17	-0.16	-0.47	-1.56	0.19	0.54
311	-0.62	-0.58	-0.68	0.12	0.56	-0.02	0.71	-0.39
312	-0.32	1.89	0.83	-0.43	-0.66	-0.89	-0.64	0.54
317	0.86	1.83	0.92	0.23	0.25	0.53	-0.54	0.02
323	-0.11	0.21	0.26	0.95	1.06	-1.36	-0.43	-0.91
331	----	----	----	----	----	----	----	----
332	----	----	----	----	----	----	----	----
333	0.38	0.02	-0.21	-0.82	-0.62	-0.14	-0.22	0.54
334	0.32	-1.36	-0.68	-0.88	-0.78	0.57	0.29	0.64
335	-0.02	-1.36	0.35	0.34	0.40	0.38	0.71	-0.29
336	-0.71	0.27	-0.68	0.06	0.09	0.22	0.40	-0.19
337	----	----	----	----	----	----	----	----
338	<b>-9.89</b>	2.14	0.64	-0.05	0.37	-1.40	-0.54	-0.29
342	<u>1.34</u>	1.47	-0.49	0.56	0.44	-0.73	-0.85	-0.50
343	-0.71	1.53	-0.21	1.12	0.03	0.10	1.95	2.20
345	----	----	----	----	----	----	----	----
351	-2.01	-1.18	-1.53	0.12	0.65	0.69	1.02	-0.39
353	0.23	0.02	0.45	1.34	1.18	1.68	-1.16	-1.12
356	-0.50	1.65	1.39	0.78	0.68	0.49	-0.95	-0.60
357	0.38	1.41	0.35	-0.60	-0.66	-0.69	-0.85	0.43
360	-1.71	0.08	0.92	0.67	0.47	-0.89	-0.64	-0.50
369	-0.44	0.51	1.30	1.61	1.37	1.36	-0.22	0.02
370	-0.86	-1.60	-0.87	0.89	0.62	0.10	1.12	-0.39
371	0.26	-0.16	0.17	0.89	0.59	0.34	-0.22	-0.60
372	0.11	0.33	-0.02	0.12	0.09	-0.33	-0.64	-0.39
381	-1.58	-0.52	0.64	-0.16	-0.50	0.49	-0.43	0.33
391	-0.80	-0.52	0.92	-0.21	-0.53	-0.41	-0.22	0.43
398	0.59	1.23	0.35	1.12	0.97	0.45	-0.74	-0.81
399	0.47	0.57	-1.72	-1.93	-2.22	-1.00	1.64	1.58
402	0.23	0.57	0.83	0.56	-0.06	-0.02	-0.12	-0.19
403	0.23	-0.64	-1.06	-0.99	-0.75	-1.16	0.81	0.54
420	-0.77	0.02	-0.87	-0.49	0.50	-1.28	0.40	-0.19
432	----	----	----	----	----	----	----	----
440	0.71	-0.64	-2.19	0.73	0.34	0.81	1.23	-0.50
444	-1.13	-0.28	-0.87	-1.32	-1.53	-0.22	0.81	1.26
445	-2.10	-0.82	-1.06	-0.77	-0.38	-0.29	0.40	0.23
447	-0.77	-0.88	-0.40	-0.27	-0.22	-0.06	0.50	0.02
453	0.98	0.33	-0.02	0.29	0.31	0.49	-0.02	-0.19
463	1.19	0.69	0.73	0.95	0.62	1.44	-0.85	-0.71
485	0.35	0.57	1.25	0.64	0.59	0.06	-0.90	-0.60
541	0.17	-0.10	-0.31	-0.49	-0.31	-0.29	-0.02	0.12
593	2.37	-0.28	-1.44	-0.10	-0.41	-2.50	2.26	0.54
631	0.71	-0.46	-1.06	-0.93	-1.00	-1.24	0.81	0.75
663	-2.31	-0.16	0.35	-0.63	-0.50	-0.81	-0.22	0.69
671	----	----	----	----	----	----	----	----
704	0.11	-0.04	0.17	-0.10	-0.75	-0.57	-0.33	0.54
781	0.35	0.45	0.45	0.23	0.37	0.18	-0.64	-0.29
785	-0.26	0.02	0.54	-0.38	0.34	0.41	-0.22	0.02
823	-0.02	0.15	0.35	-0.16	-0.78	0.38	0.09	0.43
840	----	----	----	----	----	----	----	----
842	----	----	----	----	----	----	----	----
851	-0.80	-0.64	-2.19	-1.21	-0.13	0.41	1.23	-0.50
873	0.11	-0.04	0.17	0.17	0.50	0.61	-0.22	-0.50
874	0.26	0.57	0.64	0.73	0.65	0.22	-0.85	-0.50
875	0.47	0.51	0.83	0.56	0.50	0.30	-0.22	-0.39
886	----	----	----	----	----	----	----	----
902	-0.50	-0.34	0.07	0.45	0.56	0.30	0.81	0.54
963	----	----	----	----	----	----	----	----
970	0.68	0.57	0.07	-0.21	0.19	-0.10	-0.54	-0.19
971	0.41	0.21	-0.21	-0.10	0.19	-0.18	0.19	-0.19
974	1.01	0.87	0.64	0.17	0.25	0.06	-0.54	-0.29
995	-0.80	-1.84	-0.31	-0.38	0.34	-0.37	0.19	-0.50
997	-0.95	-2.75	-0.78	-0.66	0.34	-0.18	0.19	-0.50
1006	0.62	0.69	0.92	0.45	0.19	0.89	----	----
1011	0.05	0.69	0.45	-0.32	-0.34	-0.33	-0.64	0.23

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250°C	Vol 350°C
1016	----	----	----	----	----	----	----	----
1026	0.05	0.75	1.20	1.34	1.71	0.81	-1.16	-1.22
1033	-0.44	0.51	0.73	0.06	0.09	0.65	0.19	0.54
1059	-0.02	-0.46	0.07	0.23	0.47	0.02	0.09	-0.29
1081	-0.32	-0.40	-0.78	-0.93	-1.03	0.34	0.78	0.76
1082	1.22	0.81	0.45	0.06	0.50	0.06	-0.43	-0.29
1107	-0.56	0.87	1.49	0.89	1.09	0.02	-1.47	-0.81
1108	-0.20	-1.00	-1.53	-0.55	-0.09	0.02	0.71	0.02
1109	-0.71	-0.04	-0.31	-0.27	0.00	-0.26	-0.22	-0.08
1121	0.26	-2.75	-0.31	1.28	0.34	0.81	1.23	-1.54
1126	1.16	2.07	1.01	1.06	0.84	2.35	-1.37	-1.12
1131	0.14	-0.46	-0.21	0.17	0.47	-0.73	-0.33	-0.39
1134	<b>0.41</b>	<b>2.98</b>	<b>9.12</b>	<b>8.76</b>	<b>5.80</b>	<b>6.53</b>	<b>-3.44</b>	<b>-5.68</b>
1146	-0.65	-0.70	-0.49	-0.05	-0.19	0.57	0.19	-0.50
1150	0.39	2.06	1.17	0.56	0.68	0.14	-0.33	-0.19
1155	0.47	2.32	1.77	0.45	0.40	-0.22	-1.68	-0.39
1161	-0.26	-0.64	-0.02	-0.10	-0.41	-1.60	0.50	0.23
1167	-0.14	-2.57	-0.02	0.89	1.25	0.81	0.40	-0.39
1191	0.50	0.57	0.35	0.17	0.22	0.30	0.09	0.23
1194	<b>-5.07</b>	<b>-4.78</b>	-1.91	-0.43	-0.69	-2.78	2.47	0.43
1199	----	----	----	----	----	----	----	----
1201	0.56	0.51	-0.31	0.06	0.03	-0.69	-0.02	-0.08
1205	1.04	0.08	1.11	0.40	0.22	0.26	-0.85	-0.29
1227	0.98	0.69	1.49	1.56	1.78	-0.26	-0.54	-1.22
1229	-0.05	0.87	0.83	0.67	0.72	-0.81	-1.05	-0.50
1233	----	----	----	----	----	----	----	----
1237	0.23	-2.27	-2.00	-0.60	0.22	-0.53	1.33	-0.39
1259	0.50	0.69	0.26	-1.38	-1.72	0.30	-0.64	1.58
1266	1.83	1.83	1.63	1.72	1.11	-1.18	-0.85	-0.45
1272	-1.52	-1.30	-0.12	1.06	0.56	0.34	0.29	-0.71
1286	----	----	----	----	----	----	----	----
1299	-1.01	-1.66	-0.49	-0.05	0.03	0.02	----	----
1300	0.59	2.56	1.39	1.00	1.18	1.60	-0.85	-0.81
1316	-0.38	0.75	1.30	1.00	1.00	0.45	-0.43	-0.60
1318	-0.83	-0.58	-0.21	-0.21	-0.72	-0.37	0.81	0.54
1339	1.10	-1.06	-0.64	-0.41	-0.33	0.08	0.09	0.18
1340	-0.17	-0.16	-0.02	0.01	0.19	0.38	-0.12	-0.29
1356	----	<b>2.98</b>	<b>10.07</b>	<b>5.43</b>	----	----	----	----
1357	-0.26	0.21	0.73	0.34	0.25	0.14	-0.64	-0.39
1367	-1.77	-1.06	1.77	1.23	0.50	1.44	-0.74	-0.81
1397	0.29	0.45	0.64	-0.38	-0.22	0.49	-0.64	0.12
1412	----	----	----	----	----	----	----	----
1430	0.20	0.27	-1.81	<b>-4.25</b>	<b>-4.09</b>	-1.36	----	----
1457	0.50	-0.04	-0.59	-0.77	-0.25	0.06	0.19	0.12
1459	-0.20	0.02	0.26	-0.93	-0.97	-1.48	-0.54	0.75
1498	-0.32	0.45	1.01	0.78	0.68	0.89	0.19	0.54
1510	-0.68	-0.40	0.26	0.17	0.31	-0.18	-0.43	-0.29
1520	1.28	0.21	-0.40	-0.71	-0.78	0.97	0.19	0.54
1556	0.08	-0.16	-0.21	-0.21	-0.31	-0.18	-0.12	0.12
1557	-0.14	-0.28	0.64	0.51	0.22	0.53	-0.43	-0.50
1569	1.58	-1.66	-0.02	0.23	-0.13	0.34	0.35	0.02
1586	1.28	1.29	0.26	0.01	0.15	0.57	-0.64	-0.19
1613	-0.17	0.69	-0.68	-0.82	-1.09	0.22	0.19	0.54
1631	----	----	----	----	0.00	----	0.29	-0.08
1634	-1.19	0.39	-1.06	-1.26	-0.81	-0.49	-0.22	0.64
1635	0.23	0.57	0.07	-0.21	-0.25	0.34	-0.12	0.12
1654	----	----	----	----	0.06	----	-0.74	-0.08
1656	0.71	-0.70	-0.40	0.06	0.15	0.97	-0.02	-0.50
1681	0.47	-0.40	0.83	0.34	0.06	-0.49	-0.22	-0.39
1684	----	----	----	----	----	----	----	----
1720	1.64	0.63	-0.40	-0.32	-0.44	0.26	-0.33	0.23
1724	-0.23	-0.34	-0.59	-0.43	-0.34	-0.02	-0.12	0.12
1730	----	----	----	----	----	----	----	----
1740	0.68	0.02	-1.25	-2.26	-2.18	-0.06	0.29	1.89
1742	0.01	0.33	1.01	0.51	0.40	0.89	-0.74	-0.39
1746	-1.71	-1.54	0.17	-0.38	-0.28	1.80	1.23	0.02
1776	-2.22	-2.45	-1.44	-0.93	-0.78	-0.77	1.23	0.54
1792	1.04	1.29	1.01	0.67	0.19	-2.62	-1.05	-0.39
1807	0.83	-0.10	-1.15	-0.82	-0.69	0.22	0.40	0.54
1810	0.62	2.74	2.05	0.40	0.19	-0.06	-1.57	-0.08
1811	-0.17	0.57	0.45	0.06	0.00	0.26	-0.74	-0.08
1832	0.32	0.87	-0.12	-0.43	0.03	0.34	0.81	1.78
1833	-0.53	-1.36	-0.68	-0.71	-0.62	-0.37	0.81	0.43
1849	-0.86	-0.76	-0.40	-0.49	-0.50	0.77	-0.02	0.33
1857	-0.65	-0.28	-0.12	-0.16	-0.13	-0.45	0.19	0.02
1858	-0.20	0.87	1.11	0.73	0.97	0.02	-0.33	-0.50

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250°C	Vol 350°C
1862	0.20	-0.52	-1.34	-0.77	-1.03	-0.49	0.71	1.06
1881	0.71	-0.94	-0.31	-0.38	-0.13	-0.18	0.19	0.02
1936	0.08	-0.22	-0.31	-0.38	-0.41	-0.14	-0.02	0.23
1937	0.91	-0.52	-0.78	-0.96	-1.11	-0.71	0.40	0.85
1938	0.11	-0.34	-0.21	-0.49	-0.38	-0.06	-0.02	0.23
1941	0.44	-0.10	0.35	0.73	0.19	0.30	-0.02	-0.39
1944	0.47	0.81	1.11	1.39	1.03	1.28	-0.85	-0.81
1949	-0.50	-0.34	-0.31	-0.10	-0.13	0.02	0.19	0.02
1950	-0.20	-0.64	0.17	-0.10	0.19	0.02	-0.33	0.02
1953	0.68	-0.34	0.17	-0.93	-1.47	1.36	----	----
1968	----	----	----	----	----	----	----	----
1976	0.50	0.99	0.26	-0.32	-0.50	-0.22	-0.64	0.33
1984	0.41	0.12	0.92	0.56	0.56	0.47	-0.12	0.18
1986	-0.50	-0.64	-1.25	-0.10	-0.75	0.22	0.19	0.54
1995	----	----	----	----	----	----	----	----
2129	-1.86	1.23	1.11	-0.32	-0.87	1.83	-1.16	0.64
2130	-0.56	0.51	-0.68	-0.38	-0.09	-0.26	-0.22	0.02
2146	1.95	-1.30	-0.87	0.01	0.06	0.34	0.81	-0.19
6016	-1.09	-0.19	0.02	-0.35	-0.75	-0.55	-0.02	0.28
6018	0.29	0.81	-0.21	-0.21	0.12	0.22	-0.12	-0.08
6028	-0.17	-0.52	-0.87	-1.43	-1.56	-0.02	0.92	1.26
6034	-0.65	-1.30	-0.68	-0.38	-0.13	0.14	0.71	0.12
6047	-0.05	-0.28	0.45	-0.43	-0.66	0.41	0.19	0.33
6075	-0.95	-0.52	0.35	0.67	0.81	-0.14	0.09	-0.71
6108	----	----	----	----	----	----	----	----
7006	1.61	----	----	----	----	1.01	----	----
9057	----	----	----	----	----	----	----	----

**APPENDIX 3****Number of participants per country**

1 lab in ARGENTINA	1 lab in MOROCCO
1 lab in AUSTRALIA	12 labs in NETHERLANDS
1 lab in AUSTRIA	1 lab in NIGER
1 lab in AZERBAIJAN	2 labs in NIGERIA
3 labs in BELGIUM	1 lab in NORWAY
2 labs in BOSNIA and HERZEGOVINA	2 labs in OMAN
3 labs in BULGARIA	1 lab in PHILIPPINES
1 lab in CHILE	3 labs in POLAND
3 labs in CROATIA	7 labs in PORTUGAL
1 lab in CYPRUS	4 labs in ROMANIA
3 labs in CZECH REPUBLIC	11 labs in RUSSIAN FEDERATION
1 lab in ECUADOR	1 lab in SAUDI ARABIA
1 lab in EGYPT	5 labs in SERBIA
3 labs in ESTONIA	2 labs in SLOVENIA
6 labs in FINLAND	1 lab in SOUTH AFRICA
10 labs in FRANCE	1 lab in SOUTH KOREA
2 labs in GEORGIA	10 labs in SPAIN
4 labs in GREECE	1 lab in SUDAN
1 lab in GUAM	4 labs in SWEDEN
2 labs in HONG KONG	2 labs in TAIWAN
1 lab in IRAN, Islamic Republic of	1 lab in THAILAND
1 lab in IRELAND	1 lab in TUNISIA
3 labs in ITALY	12 labs in TURKEY
1 lab in JORDAN	2 labs in UKRAINE
1 lab in KAZAKHSTAN	2 labs in UNITED ARAB EMIRATES
3 labs in LATVIA	16 labs in UNITED KINGDOM
3 labs in LITHUANIA	6 labs in UNITED STATES OF AMERICA
2 labs in MALTA	3 labs in VIETNAM
1 lab in MARTINIQUE	

## APPENDIX 4

### Abbreviations:

C	= final result after checking of first reported suspect result
D(0.01)	= outlier in Dixon's outlier test
D(0.05)	= straggler in Dixon's outlier test
G(0.01)	= outlier in Grubbs' outlier test
G(0.05)	= straggler in Grubbs' outlier test
DG(0.01)	= outlier in Double Grubbs' outlier test
DG(0.05)	= straggler in Double Grubbs' outlier test
R(0.01)	= outlier in Rosner's outlier test
R(1)	= outlier in Rosner's outlier test
R(0.05)	= straggler in Rosner's outlier test
R(5)	= straggler in Rosner's outlier test
ex	= excluded from calculations
E	= probably error in calculations
U	= probably reported in different unit
n.a.	= not applicable
fr.	= first reported
Rep./R	= reported
W	= withdrawn on request of the participant

### Literature:

- 1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, March 2017
- 2 ASTM E178-02
- 3 ASTM E1301-03
- 4 ISO 5725-86
- 5 ISO 5725, parts 1-6, 1994
- 6 ISO 13528-05
- 7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)
- 8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
- 9 IP 367/84
- 10 DIN 38402 T41/42
- 11 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
- 12 J.N. Miller, Analyst, 118, 455, (1993)
- 13 Analytical Methods Committee Technical Brief, No4 January 2001
- 14 The Royal Society of Chemistry 2002, Analyst 2002, 127 page1359-1364, P.J. Lowthian and M. Thompson. (see <http://www.rsc.org/suppdata/an/b2/b2110140n/>)
- 15 Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, *Technometrics*, 25(2), pp. 165-172, (1983)