**Institute for
Interlaboratory Studies**

Results of Proficiency Test
Gasoil - EN (summer)
February 2023

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

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1   INTRODUCTION

Since 1994 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for the analysis of Gasoil twice a year. One round in accordance with the latest version of EN590 and one round in accordance with the latest version of ASTM D975. During the annual proficiency testing program 2022/2023 it was decided to continue the round robin for the analysis of Gasoil summer quality in accordance with the latest version of EN590.

In this interlaboratory study registered for participation:
- 166 laboratories in 54 countries on Gasoil - EN (summer) iis23G01EN
- 55 laboratories in 30 countries on Gasoil - EN Cetane Number and DCN iis23G01CN
- 85 laboratories in 38 countries on Gasoil - EN Total Contamination iis23G01TC
- 57 laboratories in 29 countries on Gasoil - EN Oxidation Stability iis23G01OX

In total 171 laboratories in 54 countries registered for participation in one or more proficiency tests, see appendix 2 for the number of participants per country. In this report the results of the Gasoil - EN (summer) proficiency test is presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2   SET UP

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

Sample ID	PT ID	Quantity	Purpose
#23005	iis22G01EN	1x 1 L + 1x 0.5 L	Regular analyzes
#23006	iis22G01CN	4x 1 L	Cetane Number and DCN
#23007	iis22G01TC	1x 1 L	Total Contamination
#23008	iis22G01OX	1x 1 L	Oxidation Stability

Table 1: Gasoil samples used in PT iis23G01

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

2.1   ACCREDITATION

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

2.2 PROTOCOL

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

For the preparation of the sample for the regular analyzes in Gasoil (summer) a batch of approximately 400 liters of Gasoil summer grade was obtained from the local market. After homogenization 195 amber glass bottles of 1 L and 195 amber glass bottles of 0.5 L were filled and labelled #23005.
The homogeneity of the subsamples was checked by the determination of Density at 15 °C in accordance with ISO12185 on 16 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3
sample #23005-1	837.32
sample #23005-2	837.32
sample #23005-3	837.32
sample #23005-4	837.32
sample #23005-5	837.32
sample #23005-6	837.31
sample #23005-7	837.32
sample #23005-8	837.32
sample #23005-9	837.31
sample #23005-10	837.32
sample #23005-11	837.31
sample #23005-12	837.31
sample #23005-13	837.31
sample #23005-14	837.32
sample #23005-15	837.31
sample #23005-16	837.32

Table 2: homogeneity test results of subsamples #23005

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

	Density at 15 °C in kg/m^3
r (observed)	0.01
reference test method	ISO12185:96
0.3 x R (reference test method)	0.15

Table 3: evaluation of the repeatability of subsamples #23005

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

For the preparation of the sample for the analyzes of Cetane Number and Derived Cetane Number in Gasoil (summer) a batch of approximately 400 liters of Gasoil summer grade was obtained from the local market. After homogenization 265 amber glass bottles of 1 L were filled and labelled #23006.
The homogeneity of the subsamples was checked by the determination of Density at 15 °C in accordance with ISO12185 on 12 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3
sample #23006-1	837.34
sample #23006-2	837.34
sample #23006-3	837.34
sample #23006-4	837.34
sample #23006-5	837.35
sample #23006-6	837.34
sample #23006-7	837.34
sample #23006-8	837.35
sample #23006-9	837.35
sample #23006-10	837.35
sample #23006-11	837.34
sample #23006-12	837.34

Table 4: homogeneity test results of subsamples #23006

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

	Density at 15 °C in kg/m^3
r (observed)	0.01
reference test method	ISO12185:96
0.3 x R (reference test method)	0.15

Table 5: evaluation of the repeatability of subsamples #23006

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

For the preparation of the sample for the analysis of Total Contamination in Gasoil (summer) a batch of approximately 150 liters of Gasoil summer grade was used. A defined volume of fresh prepared and well shaken dust suspension of Arizona Dust material in an oil suspension was added to an empty amber glass bottle of 1 L by means of a calibrated pipette. The addition was checked by weighing the bottle before and after the addition. In total 110 bottles were prepared and subsequently filled up to 1 L from this batch of Gasoil and homogenized. The subsamples were labelled #23007.

For the preparation of the sample for the analyzes of Oxidation Stability in Gasoil a batch of approximately 100 liters of Gasoil was obtained from the local market. The batch was made positive for Oxidation Stability by adding copper rods for a while to enhance the oxidation of Gasoil. After homogenization 80 amber glass bottles of 1 L were filled and labelled #23008. The homogeneity of the subsamples was checked by the determination of Density at 15 °C in accordance with ISO12185 on 8 stratified randomly selected subsamples.

	Density at 15 °C in kg/m^3
sample #23008-1	841.96
sample #23008-2	841.96
sample #23008-3	841.96
sample #23008-4	841.97
sample #23008-5	841.97
sample #23006-6	841.97
sample #23008-7	841.96
sample #23008-8	841.96

Table 6: homogeneity test results of subsamples #23008

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

	Density at 15 °C in kg/m^3
r (observed)	0.01
reference test method	ISO12185:96
0.3 x R (reference test method)	0.15

Table 7: evaluation of the repeatability of subsamples #23008

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

Depending on the registration of the participant the appropriate set of PT samples was sent on January 18, 2023. An SDS was added to the sample package.

2.5   STABILITY OF THE SAMPLES

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

2.6   ANALYZES

The participants were requested to determine on sample #23005: Total Acid Number, Ash content, Calculated Cetane Index (four variables), Cloud Point, Cold Filter Plugging Point (CFPP), Carbon Residue (micro method) on 10% distillation residue, Copper Corrosion 3 hrs at 50 °C, Density at 15 °C, Distillation at 760 mmHg (IBP, 10%, 50%, 90%, 95% recovered, FBP and Volume at 250 °C and 350 °C), FAME, Flash Point PMcc, Kinematic Viscosity at 40 °C, Lubricity by HFRR at 60 °C, Manganese as Mn, Nitrogen, Aromatic Hydrocarbons (Polycyclic, Mono, Di, Tri+ and Total), Pour Point (Manual and Automated), Sulfur and Water.
On sample #23006 it was requested to determine: Cetane Number, Derived Cetane Number (EN15195 and EN16715) and Indicated Cetane Number (ICN).
On sample #23007 it was requested to determine: Total Contamination.
On sample #23008 it was requested to determine: Oxidation Stability Induction period and Oxidation Stability Filterable Insolubles, Adherent Insolubles and Total Insolubles.

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

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

3   RESULTS

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

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

Test results that came in after the deadline were not taken into account in this screening for suspect data and thus these participants were not requested for checks.

3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5).
For the statistical evaluation the unrounded (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

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

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

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

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

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

3.2 GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported test results are plotted. The corresponding laboratory numbers are on the X-axis. The straight horizontal line presents the consensus value (a trimmed mean).

The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected reference test method. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.

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

3.3　Z-SCORES

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

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

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

The z-scores were calculated according to:

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

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

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

$$
\begin{aligned}
&|z| & < 1 & \quad \text{good} \\
1 < \ &|z| & < 2 & \quad \text{satisfactory} \\
2 < \ &|z| & < 3 & \quad \text{questionable} \\
3 < \ &|z| & & \quad \text{unsatisfactory}
\end{aligned}
$$

4   EVALUATION

In this proficiency test some problems were encountered with the dispatch of the samples.
For the Gasoil PT for regular analyzes thirty participants reported test results after the final reporting date and seven other participants did not report any test results.
For the Cetane Number PT four participants reported test results after the final reporting date and eight other participants did not report any test results.
For the Total Contamination PT ten participants reported test results after the final reporting date and fourteen other participants did not report any test results.
For the Oxidation Stability PT eight participants reported test results after the final reporting date and eleven other participants did not report any test results.
Not all participants were able to report all tests requested.
In total 163 participants reported 3302 numerical test results. Observed were 79 outlying test results, which is 2.4%. In proficiency tests outlier percentages of 3% - 7.5% are quite normal.

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

4.1   EVALUATION PER SAMPLE AND PER TEST

In this section the reported test results are discussed per sample and per test. The test methods which were used by the various laboratories were taken into account for explaining the observed differences when possible and applicable. These test methods are also in the tables together with the original data in appendix 1. The abbreviations, used in these tables, are explained in appendix 3.

In the iis PT reports ASTM test methods are referred to with a number (e.g. D5950) and an added designation for the year that the test method was adopted or revised (e.g. D5950:14). When a method has been reapproved an "R" will be added and the year of approval (e.g. D5950:14R20).

sample #23005

Total Acid Number: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D974:22 and ASTM D664-A:18e2.
When the test results are evaluated separately for ASTM D974/ ISO6618/ IP139 and ASTM D664/ IP177 both the calculated reproducibilities are in agreement with the respective requirements of test method ASTM D974:22 and ASTM D664-A:18e2.

Ash content: 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 ISO6245:01.

Calculated Cetane Index, four variables: Regretfully, no reproducibility is mentioned in procedure A of ASTM D4737:21 nor in the equivalent test methods ISO4264:18 and IP380:19. Therefore, iis has estimated a reproducibility for Calculated Cetane Index by Four Variable Equation based on previous iis PTs (see iis memo 1904).

This determination was not problematic. Two statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is in agreement with the estimated target reproducibility based on iis memo 1904.

Cloud Point: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO3015:19.

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.

Carbon Residue (micro method) on 10% residue: This determination was problematic. 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. All reporting laboratories agreed on a result of 1 (1A/1B).

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

Distillation at 760 mmHg: This determination was not problematic. In total nine statistical outliers were observed over eight parameters. All calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ISO3405:19 automated mode.

When evaluated against the requirements of ISO3405:19 manual mode only the calculated reproducibilities for IBP, 95% rec. and FBP are not in agreement.

FAME: This determination was problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN14078:14 mode A and mode B. When evaluated separately for mode A or mode B both calculated reproducibilities are not in agreement with the respective requirements.

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

Kinematic Viscosity at 40 °C: This determination was not problematic. Nine statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with ISO3104:20.

Lubricity by HFRR at 60 °C: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of modes A and B of ISO12156-1:18 and in agreement with ASTM D6079:18.

Manganese: This determination was not problematic. The majority of the reporting participants agreed on a test result less than 0.5 mg/kg. Therefore, no z-scores are calculated.

Nitrogen: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with ASTM D4629:17.

Polycyclic Aromatic Hydrocarbons: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements EN12916:19.

Mono Aromatic Hydrocarbons: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements EN12916:19.

Di Aromatic Hydrocarbons: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements EN12916:19.

Tri+ Aromatic Hydrocarbons: This determination was not problematic. Four statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements EN12916:19.

Total Aromatic Hydrocarbons: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements EN12916:19.

Pour Point Manual: This determination was not problematic. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with ISO3016:19.

Pour Point Automated: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with ASTM D5950:14R20 for 3 °C interval.

Sulfur: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO20846:19.

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

sample #23006

Cetane Number: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ISO5165:20.

DCN - EN15195: This determination was not problematic. No statistical outliers were observed over two parameters. The calculated reproducibilities for Derived Cetane Number and Ignition Delay are in agreement with the requirements of EN15195:14.

DCN - EN16715: This determination was problematic. No statistical outliers were observed over three parameters. The calculated reproducibility for Derived Cetane Number, Ignition Delay and Combustion Delay are not in agreement with the requirements of EN16715:15.

Indicated Cetane Number (ICN): The determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of EN17155:18.

sample #23007

Total Contamination: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in not in agreement with the requirements of EN12662:14.

sample #23008

Oxidation Stability Induction period: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with EN15751:14.

Oxidation Stability Insolubles: This determination was problematic. In total six outliers were observed over three parameters. The calculated reproducibility after rejection of the statistical outliers is in agreement for Filterable insoluble (A) with the respective requirements of ISO12205:95 but not in agreement for Adherent (B) and Total (A) + (B).

4.2   PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameter	unit	n	average	2.8 * sd	R(lit)
Total Acid Number	mg KOH/g	73	0.057	0.028	0.04
Ash content	%M/M	57	0.0008	0.0017	0.005
Calc. Cetane Index, 4 variables		114	51.7	0.8	0.9
Cloud Point	°C	124	-4.8	2.3	4
Cold Filter Plugging Point	°C	120	-8.6	3.2	3.5
Carbon Residue on 10% residue	%M/M	60	0.020	0.026	0.018
Copper Corrosion 3 hrs at 50 °C		111	1 (1A/1B)	n.a.	n.a.
Density at 15 °C	kg/m^3	145	837.3	0.2	0.5
Initial Boiling Point	°C	140	162.8	6.8	9.0
Temp at 10% recovery	°C	142	194.5	4.1	4.3
Temp at 50% recovery	°C	144	275.0	3.1	3.0
Temp at 90% recovery	°C	144	335.3	3.8	5.0
Temp at 95% recovery	°C	143	348.4	6.0	8.6
Final Boiling Point	°C	141	357.2	5.1	7.1
Volume at 250 °C	%V/V	137	35.5	1.7	2.7
Volume at 350 °C	%V/V	135	95.5	1.7	2.7
FAME	%V/V	83	6.85	0.64	0.50
Flash Point PMcc	°C	146	56.0	2.9	4.0
Kinematic Viscosity at 40 °C	mm^2/s	118	2.640	0.031	0.030
Lubricity by HFRR at 60 °C	µm	72	190	45	80
Manganese as Mn	mg/L	43	<0.5	n.e.	n.e.
Nitrogen	mg/kg	43	34.9	5.8	5.0
Polycyclic Arom. Hydrocarbons	%M/M	65	2.18	0.79	0.87
Mono Aromatic Hydrocarbons	%M/M	63	21.2	2.7	2.7
Di Aromatic Hydrocarbons	%M/M	63	2.00	0.69	0.64
Tri$^+$ Aromatic Hydrocarbons	%M/M	56	0.14	0.20	0.53
Total Aromatic Hydrocarbons	%M/M	57	23.4	2.8	2.9
Pour Point Manual	°C	80	-11.9	3.6	9
Pour Point Automated Δ3 °C	°C	39	-11.7	4.3	6.1
Sulfur	mg/kg	124	9.0	1.7	2.1
Water	mg/kg	122	62	20	54

Table 8: reproducibilities of tests on sample #23005

Parameter	unit	n	average	2.8 * sd	R(lit)
Cetane Number		28	52.7	2.1	4.4
DCN (EN15195)		5	52.9	1.2	2.5
Ignition Delay (EN15195)	ms	3	3.85	0.08	0.20
DCN (EN16715)		14	53.0	2.0	1.5
Ignition Delay (EN16715)	ms	14	2.96	0.22	0.15
Combustion Delay (EN16715)	ms	14	4.47	0.19	0.13
Indicated Cetane Number (ICN)		4	52.9	1.4	2.2
Total Contamination	mg/kg	64	30.9	17.8	9.2

Parameter	unit	n	average	2.8 * sd	R(lit)
Ox. Stab. Induction period	hours	21	36.2	13.7	7.3
Ox. Stab. Filt. Insolubles (A)	g/m³	29	1.4	3.7	6.2
Ox. Stab. Adh. Insolubles (B)	g/m³	31	2.8	8.1	6.2
Ox. Stab. Total Insolubles (A + B)	g/m³	35	4.7	10.1	8.8

Table 9: reproducibilities of tests on samples #23006, #23007 and #23008

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF FEBRUARY 2023 WITH PREVIOUS PTS

	February 2023	February 2022	February 2021	February 2020	March 2019
Number of reporting laboratories	163	159	179	170	173
Number of test results	3302	3134	3637	3624	3565
Number of statistical outliers	79	70	90	93	108
Percentage of statistical outliers	2.4%	2.2%	2.5%	2.6%	3.0%

Table 10: comparison with previous proficiency tests

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

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

Parameter	February 2023	February 2022	February 2021	February 2020	March 2019
Total Acid Number	+	-	+	+	+
Ash content	++	++	++	++	++
Calc. Cetane Index, 4 variables	+	+/-	+/-	+	-
Cloud Point	+	++	+	+	+
Cold Filter Plugging Point	+	+	+/-	+	-
Carbon Residue on 10% residue	-	-	-	-	--
Density at 15 °C	++	++	++	++	+
Distillation at 760 mmHg	+	+	+	+	+
FAME	-	+/-	-	-	--
Flash Point PMcc	+	+/-	+	+	+/-
Kinematic Viscosity at 40 °C	+/-	+	+	+	+
Lubricity by HFRR at 60 °C	+	+	+	+	+
Manganese as Mn	n.e.	n.e.	-	--	--
Nitrogen	-	-	-	--	-
Polycyclic Aromatics	+/-	+	+/-	--	+/-
Mono, Di, Tri⁺ Aromatics	+	+	+	+	+/l-
Total Aromatics	+/-	+/-	+	+	+

Parameter	February 2023	February 2022	February 2021	February 2020	March 2019
Pour Point Manual	++	+	+	+	+
Pour Point Automated Δ3 °C	+	+	+	+	+
Sulfur	+	+	+/-	+/-	+
Water	++	++	++	++	++
Cetane Number	++	+	+	+	+
DCN (EN15195)	++	+	-	+	-
DCN (EN16715)	-	-	-	-	-
Indicated Cteane Number (ICN)	+	n.e.	n.e.	n.e.	n.e.
Total Contamination	-	-	+/-	-	-
Ox. Stability Induction period	-	-	-	-	--
Ox. Stability Insolubles	-	(--)	+	(--)	+

Table 11: comparison of determinations to the reference test methods

Results between brackets no z-scores are calculated

The following performance categories were used:

     ++   : group performed much better than the reference test method

     +   : group performed better than the reference test method

     +/-   : group performance equals the reference test method

     -     : group performed worse than the reference test method

     --   : group performed much worse than the reference test method

     n.e. : not evaluated

APPENDIX 1

Determination of Total Acid Number on sample #23005; result in mg KOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D664-A	0.031		-1.83	962	D974	0.06		0.20
140	D974	0.15	C,R(0.01)	6.50	963	D974	0.06		0.20
171	D974	0.06		0.20	971	D664-A	0.06		0.20
206		-----		-----	974	D974	0.06		0.20
207		-----		-----	995	D974	0.043		-0.99
208		-----		-----	997	D974	0.043		-0.99
209		-----		-----	1006	D664-A	0.058		0.06
225	D974	0.05		-0.50	1016	ISO6618	0.054		-0.22
228	D974	0.068		0.76	1039	D664-A	0.06		0.20
237	D664-A	0.056		-0.08	1040	ISO6618	0.0505		-0.47
238		-----		-----	1059		-----		-----
311	D664-A	<0.10		-----	1064		-----		-----
312	D974	0.061		0.27	1095	D974	0.06		0.20
317	D974	0.06		0.20	1097		-----		-----
323	D974	0.079	C	1.53	1108	D974	0.0576		0.03
328		-----		-----	1121	D664-A	0.071		0.97
331	D664-A	<0.05		-----	1126		-----		-----
333		-----		-----	1131		-----		-----
334	D974	0.06		0.20	1134		-----		-----
335		-----		-----	1140	D974	0.057	C	-0.01
337		-----		-----	1146		-----		-----
338		-----		-----	1191		-----		-----
342	D664-A	0.06	C	0.20	1199		-----		-----
343	D974	<0.1		-----	1205		-----		-----
345		-----		-----	1212	D974	0.062		0.34
351		-----		-----	1227	D664-A	0.05		-0.50
360	ISO6618	0.063		0.41	1259		-----		-----
365		-----		-----	1275	IP177	0.07		0.90
369		-----		-----	1286		-----		-----
370		-----		-----	1299	D664-A	0.06		0.20
371	D974	0.065		0.55	1320		-----		-----
372	D974	0.057		-0.01	1356	D664-A	<0.05		-----
381	D664-A	0.06		0.20	1397		-----		-----
391		-----		-----	1399		-----		-----
396	D664-A	0.066		0.62	1438		-----		-----
398	D664-A	0.041		-1.13	1498		-----		-----
399		-----		-----	1556	D664-A	0.05		-0.50
404	D664-A	0.062		0.34	1569	D664	0.04		-1.20
420	ISO6618	0.06		0.20	1586	D664-A	0.047		-0.71
431		-----		-----	1612		-----		-----
432		-----		-----	1613	D974	0.044		-0.92
440		-----		-----	1631		-----		-----
444		-----		-----	1634		-----		-----
445	D974	0.06		0.20	1635	D664	0.067		0.69
447	IP139	0.07		0.90	1636		-----		-----
467	D664-A	0.073		1.11	1656	D664-A	<0.1		-----
480		-----		-----	1676		-----		-----
494	D664-A	0.04		-1.20	1681		-----		-----
495	D664-A	0.053		-0.29	1724	D664	<0.100		-----
498		-----		-----	1730		-----		-----
541	D974	<0.1		-----	1742		-----		-----
663	D664-A	<0.10		-----	1743	D664-A	0.04		-1.20
671		-----		-----	1746	D974	0.06		0.20
704		-----		-----	1776	D664-A	0.06		0.20
734		-----		-----	1796	D664-A	0.0801		1.61
736	D664-A	0.07		0.90	1807	D664-A	0.042	C	-1.06
752	D664	0.10	R(0.05)	3.00	1810		-----		-----
759		-----		-----	1811		-----		-----
778		-----		-----	1833		-----		-----
779		-----		-----	1849		-----		-----
781	D974	0.06		0.20	1854	D664-A	0.065		0.55
782		-----		-----	1857	D974	0.059		0.13
785		-----		-----	1858	D664-A	0.052		-0.36
798		-----		-----	1862	D974	0.0596		0.17
823	D664-A	<0.10		-----	1950	D664	0.069		0.83
872		-----		-----	1953		-----		-----
873	D664	0.06		0.20	1961		-----		-----
874	D974	0.06		0.20	1976		-----		-----
875	D664	0.07		0.90	1984	ISO6618	<0.1		-----
902	D664	<0.10		-----	2129	D974	0.0515		-0.40
904	D664-A	<0,1		-----	2130		-----		-----
913		-----		-----	2146		-----		-----
914	D974	0.043		-0.99	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	D971	0.0566		-0.04	6258	D974	0.06		0.20
6075		-----		-----	6299		-----		-----
6142	D664-A	0.04		-1.20	6307		-----		-----
6185		-----		-----	6321	D664-A	0.05		-0.50
6192	D974	0.04		-1.20	6363		-----		-----
6203	D664-A	0.05		-0.50	6373	D974	0.066		0.62
6226	D664-A	0.02	R(0.05)	-2.60	6416		-----		-----
6229	D664-A	0.05		-0.50	6441	D664-A	0.12	R(0.01)	4.40
6240	D974	0.059		0.13	6478		-----		-----
6242		-----		-----	6510	D974	0.06		0.20

			D974/ISO6618/IP139 only	D664/IP177 only
normality	OK		suspect	OK
n	73		38	36
outliers	4		1	3
mean (n)	0.05715		0.05786	0.05647
st.dev. (n)	0.009848		0.007859	0.011551
R(calc.)	0.02757		0.02201	0.03234
st.dev.(D974:22)	0.014286		0.014286	-----
R(D974:22)	0.04		0.04	-----
Compare				
R(D664-A:18e2)	0.03849		-----	0.03811

Lab 140 first reported 0.12
Lab 323 first reported 0.02
Lab 342 first reported 0.03
Lab 1140 first reported 0.0057
Lab 1807 first reported 0.02
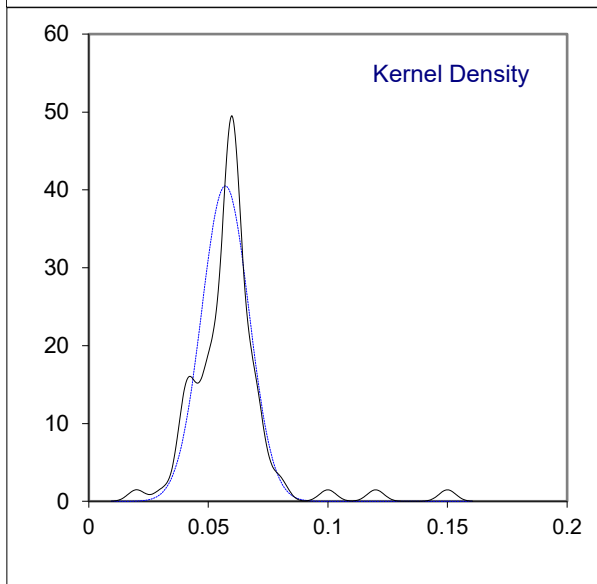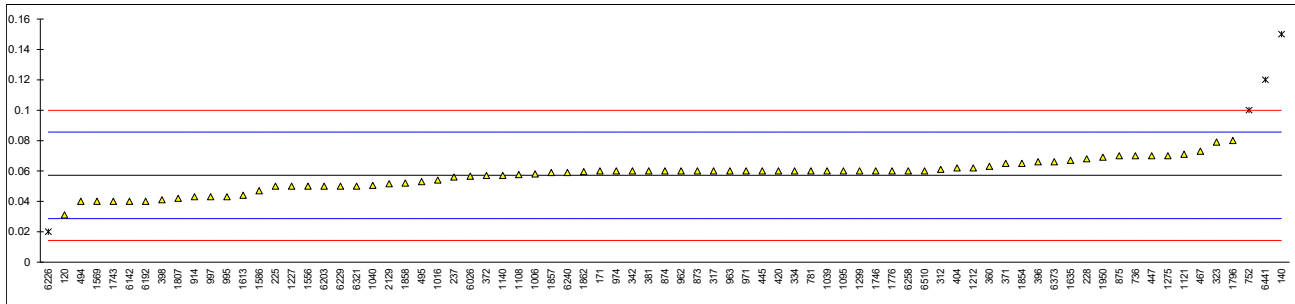
Determination of Ash content on sample #23005; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO6245	<0.001		-----	962	D482	<0.01		-----
140	ISO6245	<0.001		-----	963	ISO6245	<0.001		-----
171	ISO6245	<0.001		-----	971	ISO6245	0.0005		-0.17
206		-----		-----	974	D482	0.0009		0.06
207		-----		-----	995	ISO6245	0.0007		-0.06
208		-----		-----	997	ISO6245	0.0007		-0.06
209		-----		-----	1006		-----		-----
225	D482	0.001		0.11	1016	D482	0.0004368		-0.20
228	D482	0.001897		0.61	1039	ISO6245	<0.001		-----
237	D482	<0.01		-----	1040		-----		-----
238		-----		-----	1059	ISO6245	<0,001		-----
311	ISO6245	<0.001		-----	1064		-----		-----
312		-----		-----	1095	ISO6245	0.001		0.11
317	ISO6245	<0.001		-----	1097		-----		-----
323	ISO6245	< 0.001		-----	1108		-----		-----
328		-----		-----	1121	ISO6245	0.0014		0.34
331		-----		-----	1126		-----		-----
333		-----		-----	1131	ISO6245	0.0006		-0.11
334	ISO6245	<0.001		-----	1134	ISO6245	<0.001		-----
335		-----		-----	1140	D482	0.0000		-0.45
337		-----		-----	1146	D482	<0,001		-----
338		-----		-----	1191	ISO6245	0		-0.45
342	ISO6245	0.0001		-0.39	1199		-----		-----
343	ISO6245	<0.001		-----	1205		-----		-----
345	ISO6245	<0.001		-----	1212	ISO6245	<0,001		-----
351	ISO6245	0.0022		0.78	1227		-----		-----
360	ISO6245	0.0004		-0.22	1259		-----		-----
365	IP4	0.001		0.11	1275	IP4	0.0006		-0.11
369	ISO6245	<0.001		-----	1286		-----		-----
370	ISO6245	<0.001		-----	1299	D482	<0.010		-----
371	ISO6245	0.0004		-0.22	1320		-----		-----
372	ISO6245	0.001		0.11	1356	ISO6245	<0.010		-----
381		-----		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396	D482	<0,01		-----	1438		-----		-----
398	ISO6245	0.004	R(0.01)	1.79	1498		-----		-----
399		-----		-----	1556	ISO6245	0.0003		-0.28
404	ISO6245	0.002		0.67	1569	ISO6245	<0.005		-----
420	ISO6245	<0,001		-----	1586	ISO6245	0.001		0.11
431		-----		-----	1612	D482	<0.001		-----
432		-----		-----	1613	D482	<0.01		-----
440		-----		-----	1631		-----		-----
444		-----		-----	1634		-----		-----
445	ISO6245	<0.001		-----	1635		-----		-----
447	IP4	0.001		0.11	1636	ISO6245	0.00075		-0.03
467	ISO6245	0.0001		-0.39	1656	ISO6245	<0.01		-----
480		-----		-----	1676		-----		-----
494	ISO6245	<0,001		-----	1681	ISO6245	0.0012		0.22
495		-----		-----	1724	D482	<0,010		-----
498		-----		-----	1730		-----		-----
541	D482	<0.001		-----	1742		-----		-----
663	D482	<0.010		-----	1743	ISO6245	<0,001		-----
671	D482	0.001		0.11	1746	D482	0.002		0.67
704		-----		-----	1776		-----		-----
734		-----		-----	1796	D482	0.002		0.67
736	ISO6245	0.0015		0.39	1807		-----		-----
752	ISO6245	0.0001		-0.39	1810		-----		-----
759	ISO6245	<0.001		-----	1811		-----		-----
778		-----		-----	1833	ISO6245	0.001		0.11
779	ISO6245	0.0005		-0.17	1849	ISO6245	0.00097		0.09
781	ISO6245	0.0002		-0.34	1854	ISO6245	0.0007		-0.06
782		-----		-----	1857	ISO6245	0.0003		-0.28
785	D482	0.0003		-0.28	1858	ISO6245	0.0002		-0.34
798		-----		-----	1862	ISO6245	0.0005		-0.17
823	ISO6245	0.001		0.11	1950	ISO6245	0.0007		-0.06
872		-----		-----	1953		-----		-----
873	D482	<0.010		-----	1961		-----		-----
874	ISO6245	0.0003		-0.28	1976		-----		-----
875	ISO6245	0.0003		-0.28	1984		-----		-----
902	ISO6245	<0.01		-----	2129	ISO6245	0.002		0.67
904	D482	<0,01		-----	2130		-----		-----
913		-----		-----	2146		-----		-----
914	D482	0.001		0.11	6012	ISO6245	0.0008		0.00

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	ISO6245	0.0013		0.28	6258	ISO6245	0.0001		-0.39
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307	IP4	0.0006		-0.11
6185		-----		-----	6321	IP4	<0.001		-----
6192	ISO6245	0.0004		-0.22	6363		-----		-----
6203	ISO6245	0.0021		0.73	6373	ISO6245	0.0002		-0.34
6226	ISO6245	0.0015		0.39	6416		-----		-----
6229		-----		-----	6441	ISO6245	0.0006		-0.11
6240	ISO6245	0.00012		-0.38	6478		-----		-----
6242	ISO6245	0.0002		-0.34	6510	ISO6245	<0.001	C	-----

normality	OK
n	57
outliers	1
mean (n)	0.00080
st.dev. (n)	0.000602
R(calc.)	0.00168
st.dev.(ISO6245:01)	0.001786
R(ISO6245:01)	0.005

Lab 6510 first reported 0.003

Kernel Density
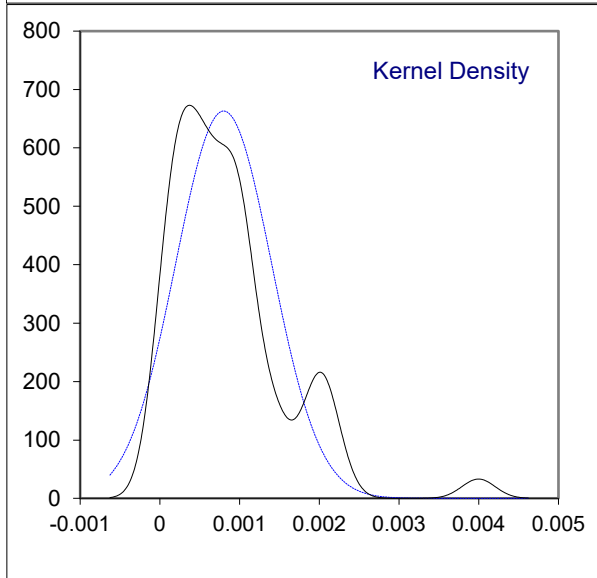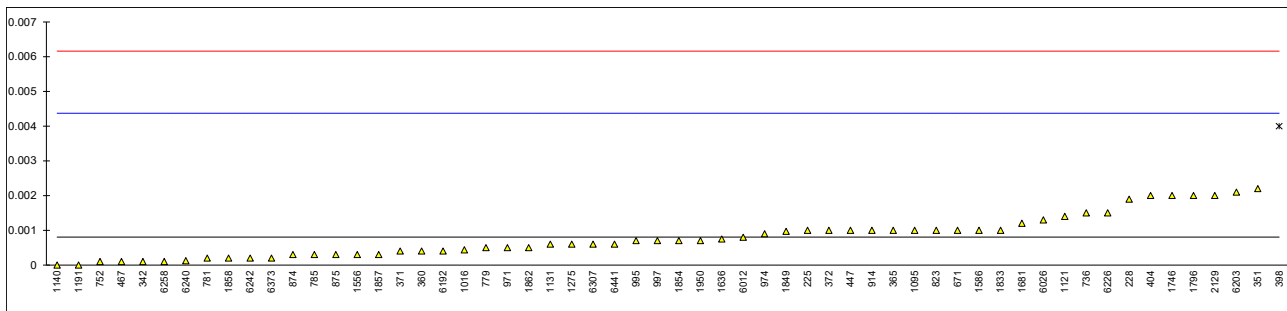
Determination of Calculated Cetane Index, four variables acc. to ISO4264 on sample #23005

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4737-A	51.73		0.20	962	D4737-A	51.5		-0.51
140	ISO4264	52.0		1.03	963	ISO4264	51.8		0.41
171	D4737-B	50.4	R(0.01)	-3.91	971	D4737-A	51.8		0.41
206		-----		-----	974	D4737-A	51.5		-0.51
207		-----		-----	995	ISO4264	52.0		1.03
208		-----		-----	997	ISO4264	51.9		0.72
209		-----		-----	1006	D4737-A	51.9		0.72
225		-----		-----	1016		-----		-----
228	D4737-A	51.4		-0.82	1039	ISO4264	52.0		1.03
237	D4737-A	52.3	C	1.96	1040		-----		-----
238		-----		-----	1059	ISO4264	51.7		0.11
311	D4737-A	51.5		-0.51	1064	ISO4264	51.96		0.91
312	ISO4264	51.7		0.11	1095		-----		-----
317	D4737-A	51.9		0.72	1097	ISO4264	51.4		-0.82
323	ISO4264	51.6		-0.20	1108	D4737-A	51.5		-0.51
328	ISO4264	51.6		-0.20	1121	ISO4264	51.664		0.00
331		-----		-----	1126		-----		-----
333		-----		-----	1131	ISO4264	51.681		0.05
334	ISO4264	51.4		-0.82	1134	ISO4264	51.6604		-0.02
335		-----		-----	1140	IP380	50.78		-2.73
337		-----		-----	1146	ISO4264	51.78		0.35
338	ISO4264	51.4		-0.82	1191		-----		-----
342	ISO4264	51.5		-0.51	1199		-----		-----
343	ISO4264	51.4		-0.82	1205	ISO4264	51.88		0.66
345		-----		-----	1212	ISO4264	51.8		0.41
351	ISO4264	51.3	C	-1.13	1227	D4737-A	51.5		-0.51
360	D4737-A	51.4		-0.82	1259	ISO4264	51.44		-0.70
365	IP380	51.64		-0.08	1275	IP380	51.5		-0.51
369	ISO4264	51.94		0.85	1286		-----		-----
370	ISO4264	51.62		-0.14	1299	D4737-A	51.8		0.41
371	ISO4264	52.0		1.03	1320		-----		-----
372	ISO4264	51.6		-0.20	1356	ISO4264	51	C	-2.05
381		-----		-----	1397	ISO4264	52.2		1.65
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	ISO4264	54.0	E,R(0.01)	7.21	1498		-----		-----
399		-----		-----	1556	ISO4264	51.70		0.11
404	ISO4264	51.6		-0.20	1569	ISO4264	51.7		0.11
420	ISO4264	52.0		1.03	1586	ISO4264	51.2		-1.44
431		-----		-----	1612	D4737	52.13151		1.44
432		-----		-----	1613	D4734-A	51.5		-0.51
440		-----		-----	1631	ISO4264	51.5	E	-0.51
444		-----		-----	1634	ISO4264	51.77		0.32
445	ISO4264	51.4		-0.82	1635	D4737-A	51.1		-1.75
447	IP380	51.8		0.41	1636	ISO4264	51.72		0.17
467	ISO4264	51.78		0.35	1656	ISO4264	51.7		0.11
480	ISO4264	52.2		1.65	1676		-----		-----
494	ISO4264	51.9		0.72	1681	ISO4264	51.84		0.54
495	ISO4264	51.57		-0.30	1724	ISO4264	51.81		0.45
498		-----		-----	1730		-----		-----
541	D4737-A	51.8	E	0.41	1742		-----		-----
663	D4737-A	51.61	C	-0.17	1743	ISO4264	51.3		-1.13
671	D4737-A	52.00		1.03	1746	D976	53.34	ex	5.17
704		-----		-----	1776	ISO4264	50.9		-2.36
734	ISO4264	51.82		0.48	1796	D4737-A	51.6		-0.20
736	ISO4264	51.6		-0.20	1807	D4737-A	51.6		-0.20
752	ISO4264	52.0		1.03	1810		-----		-----
759	ISO4264	51.8		0.41	1811	ISO4264	51.5		-0.51
778		-----		-----	1833	ISO4264	51.5		-0.51
779	ISO4264	52.1		1.34	1849	ISO4264	51.72		0.17
781	ISO4264	51.6		-0.20	1854	D4737-A	51.28		-1.19
782	D4737-A	51.5		-0.51	1857	ISO4264	51.79		0.38
785	ISO4264	51.8		0.41	1858	D4737-A	51.8		0.41
798		-----		-----	1862	D4737-A	51.9		0.72
823	ISO4264	51.7	C	0.11	1950		-----		-----
872		51.8		0.41	1953		-----		-----
873	ISO4264	51.7		0.11	1961		-----		-----
874	ISO4264-A	51.6		-0.20	1976	D4737-A	51.6		-0.20
875	ISO4264	51.8		0.41	1984		-----		-----
902	D4264	51.6		-0.20	2129	IP380	51.1		-1.75
904	D4737-A	51.5		-0.51	2130	IP380	51.7		0.11
913		-----		-----	2146		-----		-----
914	D4737-A	51.73		0.20	6012	ISO4264	51.1		-1.75

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	D4737-A	51.2		-1.44	6258	ISO4264	52.0		1.03
6075		-----		-----	6299	D4737-A	51.8		0.41
6142		-----		-----	6307	ISO4264	51.91		0.75
6185	D4737-A	52.1		1.34	6321	IP380	51.7		0.11
6192		51.6		-0.20	6363		-----		-----
6203	ISO4264	51.9		0.72	6373	ISO4264	51.8388		0.53
6226	ISO4264	51.6	E	-0.20	6416	D4737-A	51.9		0.72
6229		-----		-----	6441	ISO4264	52.1	E	1.34
6240	ISO4264	50.7	E	-2.98	6478		-----		-----
6242	ISO4264	51.98		0.97	6510	ISO4264	51.6		-0.20

normality	suspect
n	114
outliers	2 (+1ex)
mean (n)	51.666
st.dev. (n)	0.2874
R(calc.)	0.805
st.dev.(iis memo 1904)	0.3239
R(iis memo 1904)	0.907

Lab 237 first reported 52.6
Lab 351 first reported 50.3
Lab 663 first reported 50.40
Lab 823 first reported 50.6
Lab 1356 first reported 53
Lab 1746 test result excluded because ASTM D976 is not identical to ASTM D4737

For lab with an E, iis calculated a difference in CCI
Lab 398: 52.55
Lab 541: 51.52
Lab 1631: 51.79
Lab 6226: 51.92
Lab 6240: 51.83
Lab 6441: 51.73

Kernel Density
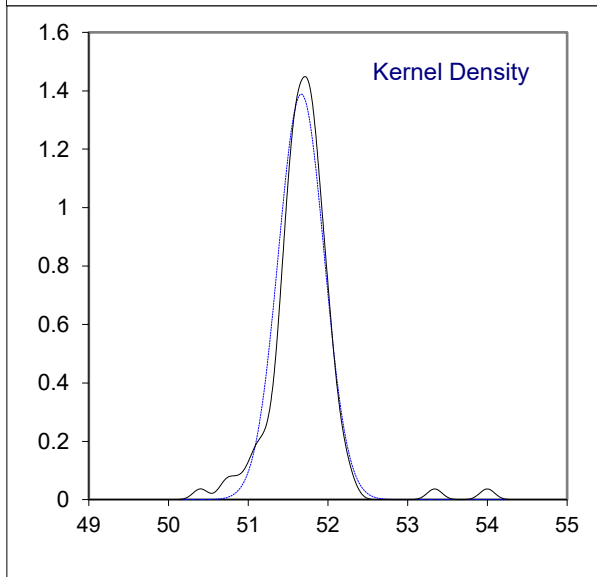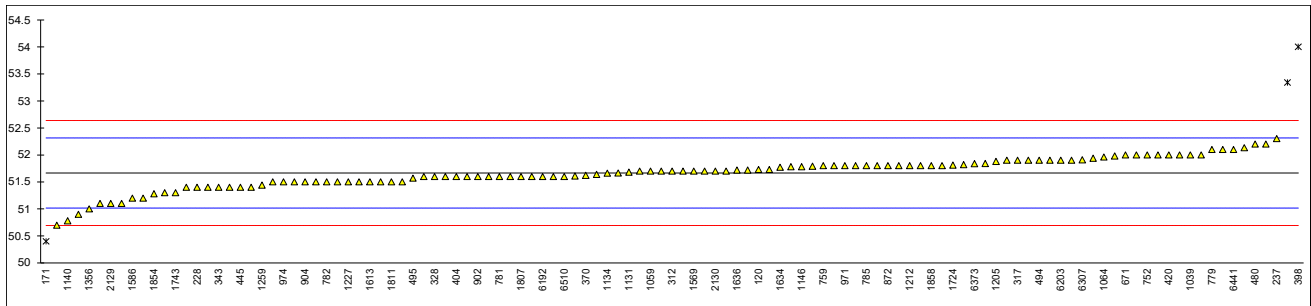
Determination of Cloud Point on sample #23005; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5773	-4.4	C	0.25	962	D5771	-5.0		-0.17
140	EN23015	-5		-0.17	963	ISO3015	-5		-0.17
171	ISO3015	-4		0.53	971	ISO3015	-4		0.53
206		-----		-----	974	D2500	-4		0.53
207		-----		-----	995	ISO3015	-5		-0.17
208		-----		-----	997	ISO3015	-5		-0.17
209		-----		-----	1006		-----		-----
225	D2500	-5		-0.17	1016	ISO3015	-4.9		-0.10
228	D2500	-4		0.53	1039	ISO3015	-5.4		-0.45
237	D2500	-4		0.53	1040	D5771	-5.6		-0.59
238	D2500	-5		-0.17	1059	ISO3015	-6		-0.87
311	D2500	-5		-0.17	1064		-----		-----
312	EN23015	-7		-1.57	1095		-----		-----
317	D5771	-5		-0.17	1097	ISO3015	-6		-0.87
323	ISO3015	-5		-0.17	1108	D5771	5.3	R(0.01)	7.04
328	ISO3015	-5		-0.17	1121	ISO3015	-3.9		0.60
331		-----		-----	1126		-----		-----
333	D2500	-5		-0.17	1131	ISO3015	-4.8		-0.03
334	ISO3015	-5		-0.17	1134	ISO3015	-5		-0.17
335	ISO3015	-5.5		-0.52	1140	D5773	-4.6		0.11
337	ISO3015	-4		0.53	1146		-6		-0.87
338	ISO3015	-4		0.53	1191	D7689	-4.6		0.11
342	ISO3015	-5		-0.17	1199		-----		-----
343	ISO3015	-5		-0.17	1205		-----		-----
345	D5771	-5.0		-0.17	1212	D7689	-5		-0.17
351	D7683	-5.0		-0.17	1227	D2500	-5		-0.17
360	D2500	-5.0		-0.17	1259	EN23015	-4		0.53
365	IP219	-6		-0.87	1275	IP219	-4.6		0.11
369	ISO3015	-5		-0.17	1286		-----		-----
370	ISO3015	-5		-0.17	1299	D2500	-3		1.23
371	ISO3015	-6		-0.87	1320		-----		-----
372	ISO3015	-5		-0.17	1356	EN23015	-3	C	1.23
381		-----		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396	D2500	-6		-0.87	1438		-----		-----
398	ISO3015	-7		-1.57	1498		-----		-----
399	ISO3015	-6		-0.87	1556	ISO3015	-5.4		-0.45
404	ISO3015	-4		0.53	1569	EN23015	-5		-0.17
420	ISO3015	-5		-0.17	1586	ISO3015	-5		-0.17
431		-----		-----	1612	D2500	-6		-0.87
432		-----		-----	1613	D2500	-5.0		-0.17
440		-----		-----	1631	D2500	-4		0.53
444		-----		-----	1634		-----		-----
445	ISO3015	-2		1.93	1635	D7689	-5		-0.17
447	IP219	-4		0.53	1636	D5771	-4.4		0.25
467	ISO3015	-5.5		-0.52	1656	D2500	-3		1.23
480		-----		-----	1676		-----		-----
494	ISO3015	-5		-0.17	1681	ISO3015	-4		0.53
495	EN23015	-5		-0.17	1724	D2500	-4		0.53
498		-----		-----	1730		-----		-----
541		-----		-----	1742	ISO3015	-5		-0.17
663	D2500	-5		-0.17	1743	ISO3015	-5		-0.17
671	D2500	-4.0		0.53	1746	D2500	-5		-0.17
704		-----		-----	1776	ISO3015	-5		-0.17
734	D7683	-3.9		0.60	1796	D2500	-4		0.53
736	ISO3015	-5		-0.17	1807	ISO3015	-5		-0.17
752	ISO3015	-5		-0.17	1810	D2500	-5		-0.17
759	ISO3015	-4		0.53	1811	ISO3015	-6		-0.87
778	D2500	-4		0.53	1833	D2500	-4		0.53
779	ISO3015	-5		-0.17	1849		-----		-----
781	ISO3015	-4		0.53	1854	D2500	-4		0.53
782	ISO3015	-4.5		0.18	1857	ISO3015	-5		-0.17
785	D7683	-6.0		-0.87	1858	ISO3015	-5		-0.17
798		-----		-----	1862	ISO3015	-5		-0.17
823	ISO3015	-4		0.53	1950	ISO3015	-5		-0.17
872	ISO3015	-5		-0.17	1953	D7683	-5		-0.17
873	D2500	-5		-0.17	1961		-----		-----
874	ISO3015	-5		-0.17	1976	ISO3015	-5		-0.17
875	ISO3015	-4		0.53	1984	ISO3015	-5		-0.17
902	ISO3015	-5		-0.17	2129	D2500	-5.8		-0.73
904	D2500	-5		-0.17	2130	D5771	-3.7		0.74
913		-----		-----	2146		-----		-----
914	D2500	-4.0		0.53	6012	D2500	-5		-0.17

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	EN23015	-4		0.53	6258	ISO3015	-4		0.53
6075		-----		-----	6299	ISO3015	-5		-0.17
6142	EN23015	-3.5		0.88	6307		-----		-----
6185	D7683	-4.3		0.32	6321	D5773	-4.0		0.53
6192	ISO3015	1	R(0.01)	4.03	6363	D2500	-5		-0.17
6203	ISO3015	-3		1.23	6373	ISO3015	-3		1.23
6226	D5771	-5		-0.17	6416		-----		-----
6229		-----		-----	6441	D2500	-7.0		-1.57
6240	ISO3015	-4.4		0.25	6478		-----		-----
6242	ISO3015	-4.0		0.53	6510	ISO3015	-6		-0.87

normality	suspect
n	124
outliers	2
mean (n)	-4.76
st.dev. (n)	0.820
R(calc.)	2.29
st.dev.(ISO3015:19)	1.429
R(ISO3015:19)	4

Lab 120 first reported -10.0
Lab 1356 first reported -1

Kernel Density
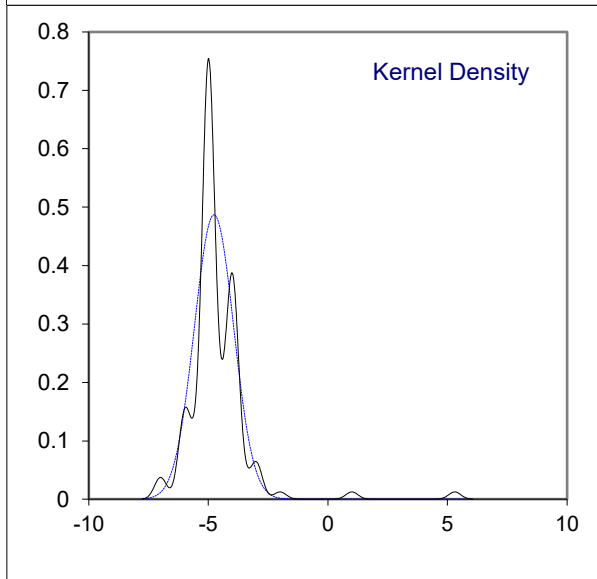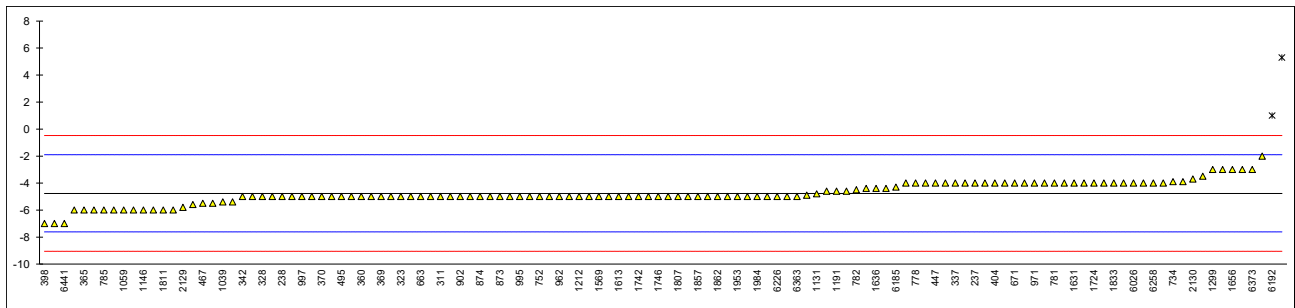
Determination of Cold Filter Plugging Point (CFPP) on sample #23005; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	D6371	-10		-1.12
140	EN116	-7		1.27	963	EN116	-8		0.47
171	D6371	-9		-0.32	971	IP309	-8		0.47
206		-----		-----	974	IP309	-7		1.27
207		-----		-----	995		-----		-----
208		-----		-----	997	EN116	-8		0.47
209		-----		-----	1006	D6371	-9		-0.32
225		-----		-----	1016	EN116	-9	C	-0.32
228		-----		-----	1039	EN116	-9.0		-0.32
237	D6371	-8		0.47	1040	EN16329	-8.0		0.47
238		-----		-----	1059	EN116	-9		-0.32
311	EN116	-8		0.47	1064		-----		-----
312	EN116	-8		0.47	1095	EN116	-9		-0.32
317	EN116	-7		1.27	1097	EN116	-8		0.47
323	EN116	-9		-0.32	1108	EN116	-9		-0.32
328	EN116	-9		-0.32	1121	IP309	-8.0		0.47
331		-----		-----	1126		-----		-----
333	EN116	-10		-1.12	1131	EN116	-10.0		-1.12
334	EN116	-10		-1.12	1134	EN116	-7		1.27
335	EN116	-8		0.47	1140	D6371	-7		1.27
337	EN116	-7		1.27	1146		-----		-----
338	EN116	-9		-0.32	1191	EN116	-7.666		0.74
342	EN116	-9		-0.32	1199		-----		-----
343	EN116	-8		0.47	1205		-----		-----
345	EN116	-7		1.27	1212	EN116	-10		-1.12
351	EN116	-9		-0.32	1227	EN116	-7		1.27
360	D6371	-9		-0.32	1259	EN116	-9		-0.32
365	IP309	-8		0.47	1275	IP309	-9		-0.32
369	EN116	-9		-0.32	1286		-----		-----
370	EN116	-9		-0.32	1299	EN116	-9		-0.32
371		-----		-----	1320		-----		-----
372	EN116	-9		-0.32	1356	EN116	-6		2.06
381	EN116	-11		-1.92	1397	EN116	-10		-1.12
391		-----		-----	1399		-----		-----
396	EN116	-9		-0.32	1438		-----		-----
398	EN116	-21	R(0.01)	-9.88	1498		-----		-----
399		-----		-----	1556	EN116	-9.0		-0.32
404	EN116	-8		0.47	1569	EN116	-6		2.06
420	EN116	-8		0.47	1586	EN116	-9		-0.32
431	EN116	-9		-0.32	1612	D6371	-9		-0.32
432		-----		-----	1613	D6371	-12.0		-2.71
440		-----		-----	1631	IP309	-9		-0.32
444		-----		-----	1634	EN116	-9		-0.32
445	EN116	-8		0.47	1635		-----		-----
447	IP309	-8		0.47	1636	EN116	-8.5		0.07
467	EN116	-6		2.06	1656	IP309	-9		-0.32
480		-----		-----	1676		-----		-----
494	EN116	-8		0.47	1681	EN116	-8.0		0.47
495	EN116	-8		0.47	1724	IP309	-9		-0.32
498		-----		-----	1730		-----		-----
541		-----		-----	1742	EN116	-10		-1.12
663	EN116	-9		-0.32	1743	EN116	-9		-0.32
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN116	-9		-0.32
734	EN116	-8		0.47	1796	D6371	-8		0.47
736	EN116	-12		-2.71	1807	EN116	-11		-1.92
752	EN116	-8		0.47	1810	EN116	-8		0.47
759	D6371	-8		0.47	1811	EN116	-8		0.47
778	EN116	-8		0.47	1833	EN116	-10		-1.12
779	EN116	-9		-0.32	1849	EN116	-11		-1.92
781	EN116	-9		-0.32	1854	EN116	-7		1.27
782	EN116	-9.5		-0.72	1857	EN116	-7		1.27
785	EN116	-8.0		0.47	1858	EN116	-7		1.27
798		-----		-----	1862	EN116	-8		0.47
823	IP309	-9		-0.32	1950	EN116	-7		1.27
872		-----		-----	1953	EN116	-11		-1.92
873	EN116	-9		-0.32	1961		-----		-----
874	EN116	-9		-0.32	1976	EN116	-9		-0.32
875	EN116	-8		0.47	1984	EN116	-9		-0.32
902	EN116	-9		-0.32	2129	EN116	-9		-0.32
904	EN116	-8		0.47	2130	D6371	-9.0		-0.32
913		-----		-----	2146		-----		-----
914		-----		-----	6012	EN116	-8		0.47

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	EN116	-7		1.27	6258	EN116	-10		-1.12
6075		-----		-----	6299	EN116	-9		-0.32
6142	EN116	-10		-1.12	6307		-----		-----
6185	EN116	-9		-0.32	6321	IP309	-8		0.47
6192	EN116	-9		-0.32	6363	EN116	-10		-1.12
6203	EN116	-8		0.47	6373	EN116	-9		-0.32
6226	EN116	-7		1.27	6416		-----		-----
6229		-----		-----	6441	EN116	-11.0		-1.92
6240	EN116	-8		0.47	6478	EN116	-9		-0.32
6242	EN116	-7.4		0.95	6510	EN116	-7		1.27

normality	OK
n	120
outliers	1
mean (n)	-8.59
st.dev. (n)	1.141
R(calc.)	3.19
st.dev.(EN116:15)	1.256
R(EN116:15)	3.52

Lab 1016 first reported -1

Kernel Density
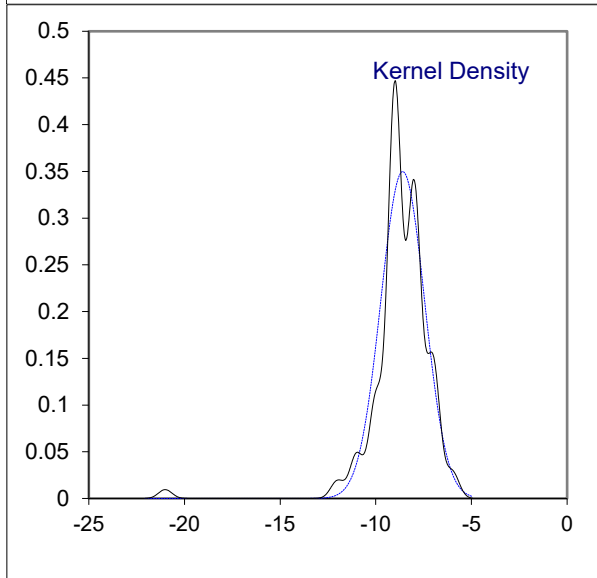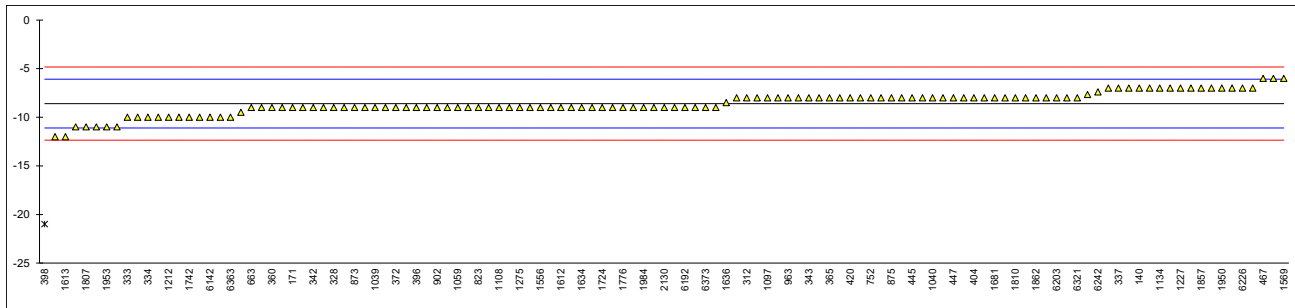
Determination of Carbon Residue (micro method) on 10% distillation residue on sample #23005; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO10370	<0.01	C	-----	962	D4530	<0.1		-----
140	ISO10370	<0.10		-----	963	ISO10370	<0.1		-----
171	ISO10370	<0.10		-----	971	ISO10370	<0.10		-----
206		-----		-----	974	D4530	0.02		0.02
207		-----		-----	995	D189	0.011		-1.38
208		-----		-----	997	D189	0.013		-1.07
209		-----		-----	1006		-----		-----
225	D4530	0.02		0.02	1016	ISO10370	<0.01		-----
228		-----		-----	1039	ISO10370	<0.10		-----
237	D4530	0.02		0.02	1040		-----		-----
238		-----		-----	1059	ISO10370	0.03		1.58
311	ISO10370	<0.10		-----	1064		-----		-----
312		-----		-----	1095	ISO10370	<0.21		-----
317	ISO10370	<0.10		-----	1097		-----		-----
323	ISO10370	< 0.10		-----	1108		-----		-----
328	ISO10370	<0.10		-----	1121	ISO10370	0.003		-2.63
331		-----		-----	1126		-----		-----
333		-----		-----	1131	ISO10370	0.030		1.58
334	ISO10370	<0.10		-----	1134		-----		-----
335		-----		-----	1140	D4530	0.01		-1.54
337		-----		-----	1146		-----		-----
338		-----		-----	1191		-----		-----
342	ISO10370	0.03		1.58	1199		-----		-----
343	ISO10370	<0.1		-----	1205		-----		-----
345		-----		-----	1212	ISO10370	<0,10		-----
351	D4530	0.023		0.49	1227	D4530	0.01		-1.54
360	ISO10370	0.018		-0.29	1259		-----		-----
365	IP13	0.031		1.73	1275	IP398	0.023		0.49
369	ISO10370	0.032		1.89	1286		-----		-----
370	ISO10370	0.034		2.20	1299	D4530	0.01		-1.54
371		-----		-----	1320		-----		-----
372	ISO10370	0.028		1.27	1356	ISO10370	<0.01		-----
381		-----		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	ISO10370	0.019		-0.13	1498		-----		-----
399		-----		-----	1556	ISO10370	0.01		-1.54
404	ISO10370	0.024		0.64	1569	ISO10370	<0.10		-----
420	ISO6615/3405	0.01		-1.54	1586	ISO10370	0.01		-1.54
431		-----		-----	1612		-----		-----
432		-----		-----	1613	D189	<0.1		-----
440		-----		-----	1631	D4530	<0.1		-----
444		-----		-----	1634		-----		-----
445	ISO10370	0.02		0.02	1635		-----		-----
447	IP398	0.02		0.02	1636	ISO10370	0.010		-1.54
467	ISO10370	0.008		-1.85	1656	ISO10370	<0.1		-----
480		-----		-----	1676		-----		-----
494	ISO10370	<0,03		-----	1681		-----		-----
495		-----		-----	1724	D4530	<0,10		-----
498		-----		-----	1730		-----		-----
541	D4530	<0.1		-----	1742	ISO10370	0.03		1.58
663	D4530	<0.1		-----	1743	ISO10370	0.04		3.14
671	D4530	0.0199		0.01	1746	D4530	0.07	R(0.01)	7.81
704		-----		-----	1776		-----		-----
734		-----		-----	1796		-----		-----
736	ISO10370	0.04		3.14	1807		-----		-----
752		-----		-----	1810		-----		-----
759		-----		-----	1811		-----		-----
778		-----		-----	1833	ISO10370	<0.1		-----
779		-----		-----	1849		-----		-----
781	ISO10370	0.02		0.02	1854	ISO10370	0.015		-0.76
782		-----		-----	1857	ISO10370	0.016		-0.60
785	ISO10370	0.02		0.02	1858	ISO10370	0.0155		-0.68
798		-----		-----	1862	ISO10370	0.0155		-0.68
823	ISO10370	<0.10		-----	1950	ISO10370	0.016		-0.60
872		-----		-----	1953		-----		-----
873	ISO10370	0.02		0.02	1961		-----		-----
874	D4530	0.02		0.02	1976	ISO10370	0.0238		0.61
875		-----		-----	1984		-----		-----
902	ISO10370	0.04		3.14	2129	ISO10370	0.017		-0.45
904	D4530	0.04		3.14	2130	IP398	0.0067		-2.05
913		-----		-----	2146		-----		-----
914	D4530	0.018		-0.29	6012	D189	0.020		0.02

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	ISO10370	0.0151		-0.74	6258	ISO10370	0.01		-1.54
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307	IP398	0.0085		-1.77
6185	D4530	0.01		-1.54	6321	IP398	0.04		3.14
6192	ISO10370	0.011		-1.38	6363		-----		-----
6203	ISO10370	0.02		0.02	6373	ISO10370	0.03		1.58
6226	ISO10370	0.02		0.02	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240	ISO10370	0.013		-1.07	6478		-----		-----
6242	ISO10370	0.0238		0.61	6510	ISO10370	0.01		-1.54

normality	OK
n	60
outliers	1
mean (n)	0.01986
st.dev. (n)	0.009414
R(calc.)	0.02636
st.dev.(ISO10370:14)	0.006420
R(ISO10370:14)	0.01798

Lab 120 first reported 0.52

Kernel Density
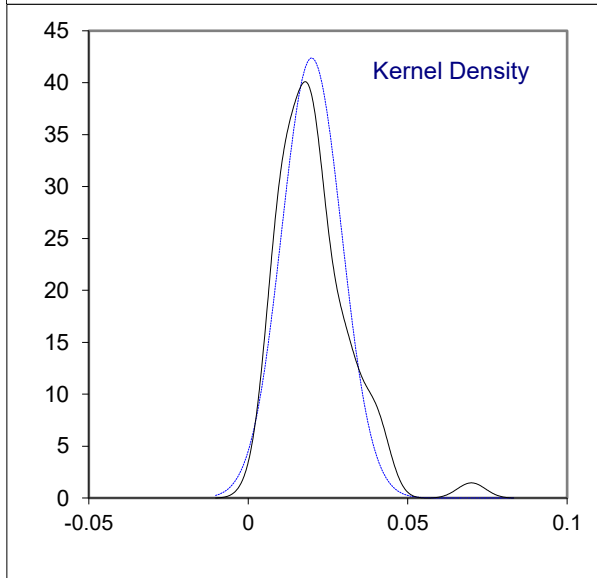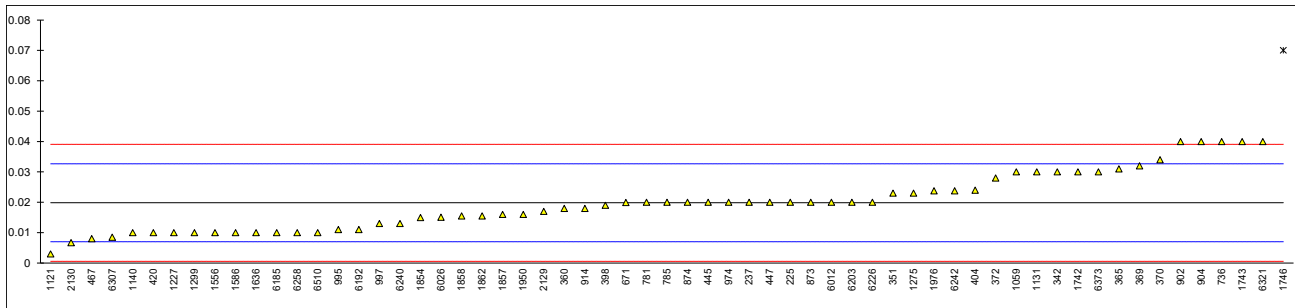
Determination of Copper Corrosion 3 hrs at 50 °C on sample #23005

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D130	1a		-----	962	D130	1a		-----
140	ISO2160	1a		-----	963	D130	1a		-----
171	D130	1a		-----	971	ISO2160	1a		-----
206		-----		-----	974	D130	1a		-----
207		-----		-----	995	D130	1A		-----
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225	D130	1a		-----	1016	ISO2160	1A		-----
228	D130	1A		-----	1039	ISO2160	1A		-----
237	D130	1A		-----	1040		-----		-----
238	D130	1A		-----	1059	ISO2160	1a		-----
311	D130	1A		-----	1064	ISO2160	1a		-----
312	D130	1a		-----	1095	ISO2160	1a		-----
317	D130	1a		-----	1097	ISO2160	1a		-----
323	ISO2160	1A		-----	1108	ISO2160	1A		-----
328	ISO2160	1		-----	1121	IP154	1a		-----
331		-----		-----	1126		-----		-----
333		-----		-----	1131	ISO2160	1a		-----
334		1		-----	1134		-----		-----
335	D130	1a		-----	1140	D130	1B		-----
337		-----		-----	1146		-----		-----
338		-----		-----	1191	ISO2160	1a		-----
342	ISO2160	1a		-----	1199		-----		-----
343	ISO2160	1a		-----	1205		-----		-----
345	ISO2160	1a		-----	1212	ISO2160	1a		-----
351	ISO2160	1a		-----	1227	D130	1A		-----
360	ISO2160	1A		-----	1259		-----		-----
365	IP154	1a		-----	1275	IP154	1A		-----
369	ISO2160	1a		-----	1286		-----		-----
370	ISO2160	1A		-----	1299	D130	1A		-----
371	ISO2160	1a		-----	1320		-----		-----
372	ISO2160	1a		-----	1356		-----		-----
381	ISO2160	1a		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396	D130	1A		-----	1438		-----		-----
398	D130	1a		-----	1498		-----		-----
399	D130	1A		-----	1556	ISO2160	Class 1a		-----
404	ISO2160	clasa 1		-----	1569	ISO2160	1a		-----
420	ISO2160	1a		-----	1586	ISO2160	1A		-----
431		-----		-----	1612	D130	1A		-----
432		-----		-----	1613	D130	1a		-----
440		-----		-----	1631	D130	1a		-----
444		-----		-----	1634	ISO2160	1a		-----
445	D130	1a		-----	1635	D130	1a		-----
447	IP154	1A		-----	1636	ISO2160	1a		-----
467	ISO2160	1A		-----	1656	IP154	1a		-----
480		-----		-----	1676		-----		-----
494	D130	1A		-----	1681	ISO2160	1a		-----
495		-----		-----	1724	D130	No:1a		-----
498		-----		-----	1730		-----		-----
541	D130	1a		-----	1742		-----		-----
663	D130	1a		-----	1743	ISO2160	1a		-----
671	D130	1A		-----	1746	D130	1a		-----
704		-----		-----	1776		-----		-----
734		-----		-----	1796	D130	1a		-----
736	ISO2160	1A		-----	1807	ISO2160	1a		-----
752		-----		-----	1810		-----		-----
759		-----		-----	1811		-----		-----
778		-----		-----	1833	D130	No:1		-----
779	ISO2160	1a		-----	1849	ISO2160	1A		-----
781	ISO2160	1a		-----	1854	D130	1A		-----
782		-----		-----	1857	ISO2160	1a		-----
785	D130	1a		-----	1858	D130	1A		-----
798		-----		-----	1862	ISO2160	1A		-----
823	D130	1a		-----	1950	D130	1a		-----
872		-----		-----	1953	ISO2160	Class 1A		-----
873	D130	1a		-----	1961	ISO2160	1a		-----
874	D130	1a		-----	1976	ISO2160	1a		-----
875	D130	1a		-----	1984	ISO2160	1a		-----
902	D130	1a		-----	2129	IP154	1a		-----
904	D130	1a		-----	2130	D130	1a		-----
913		-----		-----	2146		-----		-----
914	D130	1a		-----	6012	D130	1A		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	D130	1a		-----	6258	ISO2160	1a		-----
6075		-----		-----	6299	ISO2160	1a		-----
6142		-----		-----	6307		-----		-----
6185	D130	1A		-----	6321	IP154	1A		-----
6192		1A		-----	6363		-----		-----
6203	D130	1a		-----	6373	D130	1A		-----
6226	D130	1A		-----	6416	D130	1A		-----
6229		-----		-----	6441		-----		-----
6240	D130	1a		-----	6478		-----		-----
6242	ISO2160	1a		-----	6510	D130	1a		-----

n	111	
mean	1 (1A/1B)	

Determination of Density at 15 °C on sample #23005; result in kg/m³

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	837.3		-0.12	962	D4052	837.3		-0.12
140	D4052	837.4		0.44	963	ISO12185	837.4		0.44
171	ISO12185	837.4		0.44	971	ISO3675	837.4		0.44
206	D7777	837.2	C	-0.68	974	ISO12185	837.4		0.44
207	D7777	837.1	C	-1.24	995	ISO12185	837.5		1.00
208	D7777	837.2	C	-0.68	997	ISO12185	837.6	R(0.05)	1.56
209	D7777	837.1	C	-1.24	1006	D4052	837.4		0.44
225	D4052	837.3		-0.12	1016		-----		-----
228	D4052	837.4		0.44	1039	ISO12185	837.3		-0.12
237	D4052	837.3		-0.12	1040	ISO12185	837.4		0.44
238	D4052	837.3		-0.12	1059	ISO12185	837.3		-0.12
311	ISO12185	837.27		-0.28	1064	ISO12185	837.2		-0.68
312	ISO12185	837.3		-0.12	1095	ISO12185	837.4		0.44
317	ISO12185	837.3		-0.12	1097	ISO12185	837.35		0.16
323	ISO12185	837.4		0.44	1108	ISO12185	837.30		-0.12
328	ISO12185	837.4		0.44	1121	ISO12185	837.3		-0.12
331	ISO12185	837.4		0.44	1126	ISO12185	837.29		-0.17
333	ISO12185	837.3		-0.12	1131	ISO12185	837.37		0.28
334	ISO12185	837.3		-0.12	1134	ISO12185	837.4		0.44
335	ISO12185	837.3		-0.12	1140	D4052	837.4		0.44
337	ISO12185	837.4		0.44	1146	D4052	837.3		-0.12
338	ISO12185	837.3		-0.12	1191	ISO12185	837.34		0.11
342	D4052	837.4		0.44	1199		-----		-----
343	ISO12185	837.3		-0.12	1205	ISO12185	837.34		0.11
345	ISO12185	837.4		0.44	1212	ISO12185	837.3		-0.12
351	ISO12185	837.29		-0.17	1227	D4052	837.3		-0.12
360	ISO12185	837.3		-0.12	1259		-----		-----
365	IP365	837.3		-0.12	1275	IP365	837.3		-0.12
369	ISO12185	837.3		-0.12	1286	ISO12185	837.324		0.02
370	ISO12185	837.3		-0.12	1299	D4052	837.2		-0.68
371	ISO12185	837.2		-0.68	1320		-----		-----
372	ISO12185	837.3		-0.12	1356	ISO12185	837.4		0.44
381	ISO12185	837.3		-0.12	1397	ISO12185	837.3		-0.12
391		-----		-----	1399		-----		-----
396	D4052	837.3		-0.12	1438		-----		-----
398	ISO12185	837.3		-0.12	1498		-----		-----
399	ISO12185	837.4		0.44	1556	ISO12185	837.45		0.72
404	ISO12185	837.3		-0.12	1569	ISO12185	837.2		-0.68
420	ISO12185	837.2		-0.68	1586	ISO12185	837.4		0.44
431	ISO12185	837.3		-0.12	1612	D1298	837.0	R(0.05)	-1.80
432	ISO12185	837.37		0.28	1613	D4052	837.23		-0.51
440	D4052	837.3		-0.12	1631	D4052	837.3		-0.12
444	D4052	837.3		-0.12	1634	ISO12185	837.300		-0.12
445	ISO12185	837.4		0.44	1635	ISO12185	837.3		-0.12
447	IP365	837.3		-0.12	1636	ISO12185	837.4		0.44
467	ISO12185	837.31		-0.06	1656	D4052	837.4	C	0.44
480	ISO12185	837.3		-0.12	1676	ISO12185	837.35		0.16
494	ISO12185	837.3		-0.12	1681	ISO12185	837.4		0.44
495	ISO12185	837.29		-0.17	1724	D4052	837.3		-0.12
498		-----		-----	1730	D4052	837.48		0.89
541	D4052	837.4		0.44	1742	ISO12185	837.2		-0.68
663	D4052	837.3		-0.12	1743	ISO12185	837.3		-0.12
671	D4052	837.4		0.44	1746	D4052	837.3		-0.12
704		-----		-----	1776	ISO12185	837.79	R(0.01)	2.63
734	D4052	837.5	C	1.00	1796	D4052	837.3		-0.12
736	ISO12185	837.4		0.44	1807	ISO12185	837.3		-0.12
752	ISO12185	837.4		0.44	1810	D4052	837.4		0.44
759	ISO12185	837.3		-0.12	1811	ISO12185	837.3		-0.12
778	ISO12185	837.4		0.44	1833	ISO12185	837.3		-0.12
779	ISO12185	837.3		-0.12	1849	ISO12185	837.4		0.44
781	ISO12185	837.3		-0.12	1854	ISO12185	837.35	C	0.16
782	ISO12185	837.3		-0.12	1857	ISO12185	837.3		-0.12
785	ISO12185	837.2		-0.68	1858	ISO12185	837.3		-0.12
798		-----		-----	1862	ISO12185	837.28		-0.23
823	ISO12185	837.3		-0.12	1950	ISO12185	837.3		-0.12
872	ISO12185	837.3		-0.12	1953	In house	839.0	R(0.01)	9.40
873	D4052	837.2		-0.68	1961		-----		-----
874	ISO12185	837.3		-0.12	1976	ISO12185	837.3		-0.12
875	ISO12185	837.2		-0.68	1984	ISO12185	837.425		0.58
902	ISO12185	837.3		-0.12	2129	D4052	837.3		-0.12
904	D4052	837.5		1.00	2130	D4052	837.2		-0.68
913		-----		-----	2146	ISO12185	837.3		-0.12
914	D4052	837.3		-0.12	6012	ISO3675	837.5		1.00

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	D4052	837.8	R(0.01)	2.68	6258	ISO12185	837.2		-0.68
6075		-----		-----	6299	ISO12185	837.37		0.28
6142	ISO12185	837.3		-0.12	6307	IP365	837.19		-0.73
6185	D4052	837.3		-0.12	6321	IP365	837.4		0.44
6192	D1298	837.3		-0.12	6363	ISO12185	837.9	R(0.01)	3.24
6203	ISO12185	837.44		0.67	6373	ISO12185	837.29		-0.17
6226	ISO12185	837.3		-0.12	6416	D1298	837.3		-0.12
6229	D7042	836.8	R(0.01)	-2.92	6441	ISO12185	837.5	C	1.00
6240	ISO12185	837.3		-0.12	6478	ISO12185	837.1	C	-1.24
6242	ISO12185	837.25		-0.40	6510	ISO12185	837.3		-0.12

normality	OK
n	145
outliers	7
mean (n)	837.321
st.dev. (n)	0.0765
R(calc.)	0.214
st.dev.(ISO12185:96)	0.1786
R(ISO12185:96)	0.5

Lab 206 first reported 837.6
Lab 207 first reported 837.5
Lab 208 first reported 837.6
Lab 209 first reported 837.5
Lab 734 reported 0.8375 kg/m^3
Lab 1656 first reported 837.1
Lab 1854 first reported 837.56
Lab 6441 first reported 837.0
Lab 6478 first reported 836.8

Kernel Density
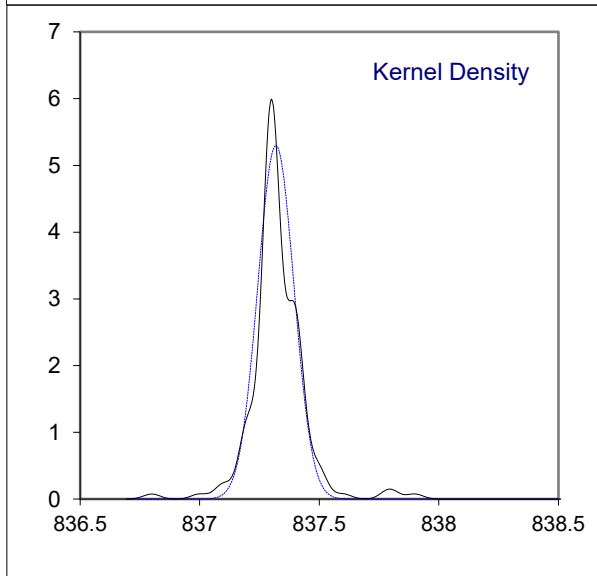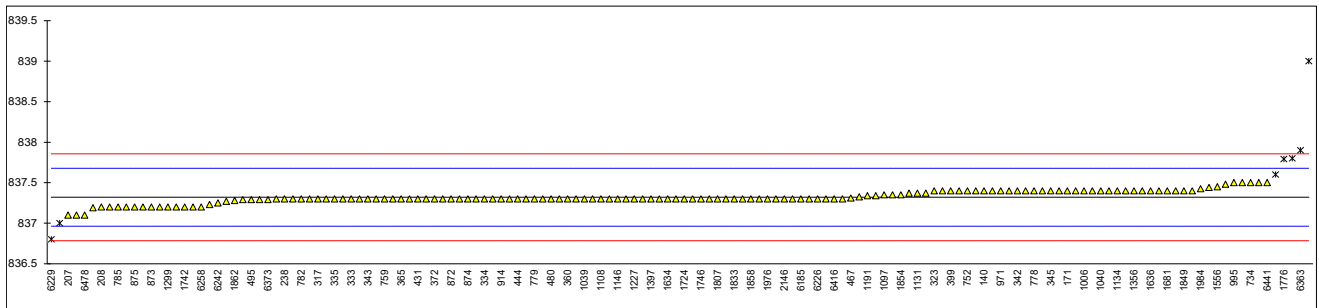
Determination of Distillation at 760 mmHg on sample #23005; result in °C

lab	method	IBP	10%rec	50%rec	90%rec	95%rec	FBP
120	D86-automated	163.5	194.6	275.4	334.7	347.6	358.6
140	ISO3405-automated	167.1	196.9	275.7	335.4	347.9	356.6
171	ISO3405-automated	162.0	193.5	275.5	335.5	348.4	358.4
206	D7345	162.8	193.4	273.4	335.1	348.1	357.4
207	D7345	162.4	192.6	273.3	335.0	349.0	357.8
208	D7345	162.6	193.5	273.4	334.8	348.5	357.3
209	D7345	162.4	192.8	273.3	335.1	348.2	358.1
225		-----	-----	-----	-----	-----	-----
228	D86-manual	163.0	194.0	274.0	333.0	343.0	357.0
237	D86-manual	169.0	195.0 C	278.0	337.0	350.0	359.0 C
238		-----	-----	-----	-----	-----	-----
311	D86-automated	165.8	193.2	274.8	335.2	348.7	357.3
312	ISO3405-automated	163.7	193.3	275.7	335.7	350.0	356.6
317	ISO3405-automated	164.6	194.5	276.5	336.8	350.1	357.3
323	ISO3405-automated	164.7	194.7	274.9	335.4	348.7	357.3
328	ISO3405-automated	160.9	194.2	275.0	334.4	347.9	356.5
331		-----	-----	-----	-----	-----	-----
333	ISO3405-automated	159.8	193.5	274.7	334.0	346.6	353.6
334	ISO3405-automated	162.0	193.1	274.4	333.5	345.8	355.8
335	ISO3405-automated	164.4	194.5	276.9	338.3	354.4	359.1
337		-----	-----	-----	-----	-----	-----
338	ISO3405-automated	160.5	193.7	274.1	334.0	346.6	357.7
342	D86-automated	167.5	193.6	274.7	335.1	348.6	356.3
343	ISO3405-automated	163.4	191.3	274.7	336.2	348.3	357.6
345	ISO3405-automated	161.1	194.85	273.57	334.35	346.97	354.2
351	ISO3405-automated	161.6 C	191.5 C	273.8 C	336.9	352.6	352.8
360	ISO3405-automated	156.5	192.5	274.1	335.3	348.0	352.6
365	D86-manual	159.8	194.0	275.0	335.6	349.6	357.7
369	ISO3405-automated	162.9	195.4	276.1	336.5	350.7	358.9
370	ISO3405-automated	162.7	192.6	275.4	336.5	349.9	358.7
371	ISO3405-automated	162.7	194.9	276.5	337.0	352.0	358.4
372	ISO3405-automated	160.7	193.3	274.9	334.5	346.9	357.2
381	ISO3405-automated	164.7	194.0	273.9	336.3	347.7	355.1 C
391		-----	-----	-----	-----	-----	-----
396	D86-automated	175 C,R(1)	194.6 C	275.1	335.1	348.7	355.4
398	D86	176.6 R(1)	209.2 R(1)	273.7	333.0	344.5	353.8
399		-----	-----	-----	-----	-----	-----
404	ISO3405-automated	163.3	193.8	275.1	334.8	348.0	357.8
420	ISO3405-automated	163.2	195.5	275.5	336.3	351.9	357.0
431		162.2	194.1	273.7	333.5	345.8	356.5
432		-----	-----	-----	-----	-----	-----
440	D86-automated	161.3	192.8	274.3	333.6	344.3	344.7 R(1)
444	D86-automated	159.0	192.4	274.6	334.3	347.5	356.0
445	ISO3405-automated	162.0	194.1	274.1	333.7	346.4	355.4
447	IP123-automated	160.7	195.5	275.5	335.3	348.4	357.1
467	ISO3405-automated	164.2	195.1	275.5	334.0	347.2	355.7
480	ISO3405-automated	162.65	196.55	277.2	336.3	349.5	357.3
494	D86-automated	166.2	196.0	275.6	336.7	351.0	359.4
495	D86-automated	158.3	194.5	274.5	334.1	346.7	356.3
498		-----	-----	-----	-----	-----	-----
541	D86-automated	161.8	194	274.6	334.8	348.1	356.6
663	D86-automated	160.6	194.8	274.6	334.0	346.0	355.8
671	D86-automated	169.2	196.3	276.3	337.7	352.5	360.6
704		-----	-----	-----	-----	-----	-----
734	D86-automated	165.01	195.72	275.87	335.81	348.42	358.09
736	ISO3405-automated	162.2	195.3	274.8	335.0	347.7	357.5
752	ISO3405-manual	161.8	196.4	276.5	336.3	349.3	359.3
759	ISO3405-manual	162.0	194.0	276.0	337.0	349.5	358.5
778		-----	-----	-----	-----	-----	-----
779	ISO3405-manual	164.0	195.0	277.0	339.5	352.5	362.5
781	ISO3405-automated	160.6	194.3	275.0	334.5	347.1	357.8
782	D86-manual	163.0	194.0	273.8	335.0	348.0	359.5
785	ISO3405-automated	160.6	194.8	275.4	335.8	349.2	357.5
798		-----	-----	-----	-----	-----	-----
823	ISO3405-automated	160.3	194.0	275.4	336.6	350.2	358.8
872	ISO3405	163.0	194.0	276.0	335.5	349.0	358.0
873	D86-manual	162.5	194.0	275.5	335.0	348.5	357.5
874	ISO3405-manual	162.0	194.0	275.0	335.5	349.0	357.0
875	ISO3405-automated	163.0	194.4	275.7	336.1	350.8	357.7
902	ISO3405-automated	164.2	196.2	274.0	333.5	346.1	357.0
904	D86-automated	164.1	194.1	273.9	333.5	346.1	357.0
913		-----	-----	-----	-----	-----	-----
914	D86-automated	159.9	194.9	275.3	334.0	346.7	357.1
962	D86-automated	161.8	192.6	274.5	335.7	350.1	355.6
963	D86-automated	164.4	196.7	275.3	334.0	347.3	355.3

lab	method	IBP	10%rec	50%rec	90%rec	95%rec	FBP
971	ISO3405-automated	162.5	194.6	276.1	336.1	350.4	357.4
974	D86-automated	162.0	193.3	274.7	335.0	348.8	357.1
995	ISO3405	163.5	195.5	276.0	336.5	350.0	359.0
997	ISO3405	163.0	196.0	277.5	336.0	350.5	360.0
1006		163.3	196.3	275.5	334.5	347.0	357.3
1016		-----	-----	-----	-----	-----	-----
1039	D2887a	169.4	199.4	274.7	336.6	350.7	363.0
1040	ISO3405-automated	156.4	-----	273.3	334.3	346.2	356.2
1059	ISO3405-automated	161.2	196.4	274.7	334.5	347.5	353.4
1064		165.4	195.3	276.0	338.2	349.1 C	358.4
1095		163.1	196.2	275.5	334.0	346.5	357.1
1097	ISO3405-automated	160.7	192.9	273.8	334.6	347.2	353.6
1108	D86-automated	161.3	193.5	274.2	334.5	348.2	356.8
1121	D86-manual	164.5	193.5	275.3	336.7	351.2	356.2
1126	ISO3405-automated	164.6	197.7	274.7	333.7	-----	358.2
1131	ISO3405-automated	163.0	194.1	275.4	336.2	350.6	356.1
1134	ISO3405-automated	164.2	194.1	275.3	336.3	350.3	358.0
1140	D86-automated	156.9	189.5	272.1	333.2	345.5	354.1
1146		164.3	195.6	275.2	335.6	347.6	358.9
1191	ISO3405-automated	167.4	196.1	276.4	336.8	350.6	359.1
1199		-----	-----	-----	-----	-----	-----
1205	D86-automated	162.6	196.4	275.6	334.6	346.3	357.2
1212	ISO3405-automated	161.4	193.6	276.2	337.4	353.4	358.1
1227	D86-automated	164.2	194.3	274.1	334.2	346.9	356.9
1259	ISO3405-automated	161.2	193.5	274.2	332.9	344.5	357.6
1275	IP123-automated	159.0	193.7	274.2	334.5	348.6	355.1
1286		-----	-----	-----	-----	-----	-----
1299	D86-automated	163.8	194.5	275.7	336.3	350	358.8
1320		-----	-----	-----	-----	-----	-----
1356		-----	194 C	272 C	340 C	-----	-----
1397		165.9	198.5	276.2	334.9	347.9	356.6
1399		-----	-----	-----	-----	-----	-----
1438	D86-automated	160.8	194.1	276.0	336.5	352.1	358.2
1498		-----	-----	-----	-----	-----	-----
1556	ISO3405-automated	164.1	195.1	275.3	335.3	348.1	358.0
1569	ISO3405-automated	162.4	194.5	275.4	334.6	346.4	356.2
1586	D86-automated	159.4	192.3	273.6	333.3	345.3	355.8
1612	D86-manual	164.90933	193.90333	276.88615	338.87332	355.86980	360.86876
1613	D86-automated	165.6	194.8	273.8	333.1	344.0	358.9
1631	D86	161.2	194.9	275.5	335.7	348.8	358.8
1634	ISO3405-automated	163.3	195.6	275.3	334.7	347.5	358.0
1635	ISO3405-manual	161.0	194.0	272.0	334.0	346.0	356.0
1636	ISO3405-automated	161.8	196.5	274.7	335.4	347.6	355.1
1656	IP123-automated	164.3	193.8	274.9	335.5	349.5	356.2
1676		165.4	194.7	276.6	335.5	348.2	357.8
1681	ISO3405-automated	162.0	194.4	276.3	335.2	347.7	358.1
1724	D86-automated	162.6	195.9	275.2	335.7	348.9	357.7
1730		-----	-----	-----	-----	-----	-----
1742	ISO3405-automated	163.3	195.3	274.9	334.7	347.7	357.0
1743	ISO3405-automated	161.8	191.8	273.8	334.5	348.1	355.1
1746	D86-manual	162.0	196.0	276.0	338.5	349.0	-----
1776	ISO3405-automated	160.5	192.4	272.7	331.7	343.0	353.6
1796	D86-automated	159.9	193.9	274.7	336.0	350.0	357.7
1807	ISO3405-automated	164.6	193.0	275.0	335.3	347.6	358.8
1810	D86-automated	161	195.4	275.8	335.2	347.9	358.4
1811	ISO3405-automated	162.3	194.6	274.3	333.9	345.7	355.6
1833	ISO3405-automated	161.4	193.5	273.6	334.2	347.1	356.8
1849	ISO3405-automated	163.5	196.3	275.2	335.15	347.5	356.8
1854	ISO3405-automated	166.1	191.5	274.4	334.7	347	358.5
1857	ISO3405-automated	161.20	195.15	275.40	335.90	350.25	357.30
1858	ISO3405-manual	163.0	194.5	276.0	334.5	349.0	357.5
1862	ISO3405-automated	163.8	194.8	276.4	336.1	350.5	357.9
1950	ISO3104-manual	163.0	194.0	276.0	335.5	349.5	358.0
1953		163.3	195.9	273.5	336.6	348.2	358.0
1961		-----	-----	-----	-----	-----	-----
1976	ISO3405-automated	161.3	196.0	274.2	332.5	343.7	354.9
1984	ISO3405-automated	165.3	195.75	276.35	336.6	350.7	359.35
2129	D86-automated	157.2 C	191.3	273.0	333.2	345.7	353.9
2130	D86-automated	158.1	194.3	274.9	334.0	346.4	355.2
2146		152.9 R(5)	194.4	274.1	334.8	347.9	358.6
6012	D86-manual	164.4	191.4	273.4	336.0	347.5	360.5
6026	ISO3405-manual	162.0	193.5	274.0	335.0	348.0	358.0
6075		-----	-----	-----	-----	-----	-----
6142	ISO3405-automated	158.0	192.7	273.2	333.3	345.9	355.25
6185		166.3	196.9	276.65	334.95	348.85	356.5
6192	D86	167.9	194.1	274.7	334	345.8	357.8
6203	ISO3405-automated	161.3	196.4	275.8	336.4	349.8	358.8
6226	ISO3405-automated	166.1	195.7	275.9	336.5	349.6	356.7

lab	method	IBP	10%rec	50%rec	90%rec	95%rec	FBP
6229	D86-automated	160.6	193.5	273.2	333.5	346.7	352.4
6240	D86-automated	163.7	195.3	275.6	335.8	350.1	357.3
6242	ISO3405-automated	162.9	195.3	276.3	336.5	348.7	359.6
6258	ISO3405-automated	162.7	195.6	276.0	336.2	348.9	358.9
6299	ISO3405-automated	165.5	195.1	275.9	337.4	352.1	357.8
6307	IP123-automated	164.95	195.2	275.9	335.6	349.4	360.25
6321	IP123-automated	164.0	194.8	275.0	335.1	348.6	356.8
6363		-----	-----	-----	-----	349.0	352.9
6373	ISO3405-automated	166.1	194.3	276.0	336.6	351.4	357.4
6416	D86-automated	163.1	195.9	275.6	335.7	349.4	355.7
6441	ISO3405-automated	165.39	196.80	274.94	334.52	346.30	358.08
6478		168	193	276　　C	334	350	-----
6510	D86-automated	163.9	194.2	275.0	334.1	346.0	357.9
	normality	OK	suspect	OK	OK	OK	suspect
	n	140	142	144	144	143	141
	outliers	3	1	0	0	0	1
	mean (n)	162.84	194.48	275.01	335.27	348.38	357.21
	st.dev. (n)	2.420	1.457	1.107	1.374	2.139	1.804
	R(calc.)	6.78	4.08	3.10	3.85	5.99	5.05
	st.dev.(ISO3405-A:19)	3.199	1.528	1.071	1.796	3.055	2.536
	R(ISO3405-A:19)	8.96	4.28	3.0	5.03	8.55	7.1
Compare							
	R(ISO3405-M:19)	5.74	4.78	4.14	3.97	4.72	3.84

Lab 237 first reported 200.0, 363.0
Lab 351 first reported 148.4, 187.3, 269.9
Lab 381 first reported 352.1
Lab 396 first reported 157, 191.6
Lab 1064 first reported 355.2
Lab 1356 first reported 204, 280, 344
Lab 2129 first reported 155.0
Lab 6478 first reported 271

Initial Boiling Point

10% recovered

50% recovered
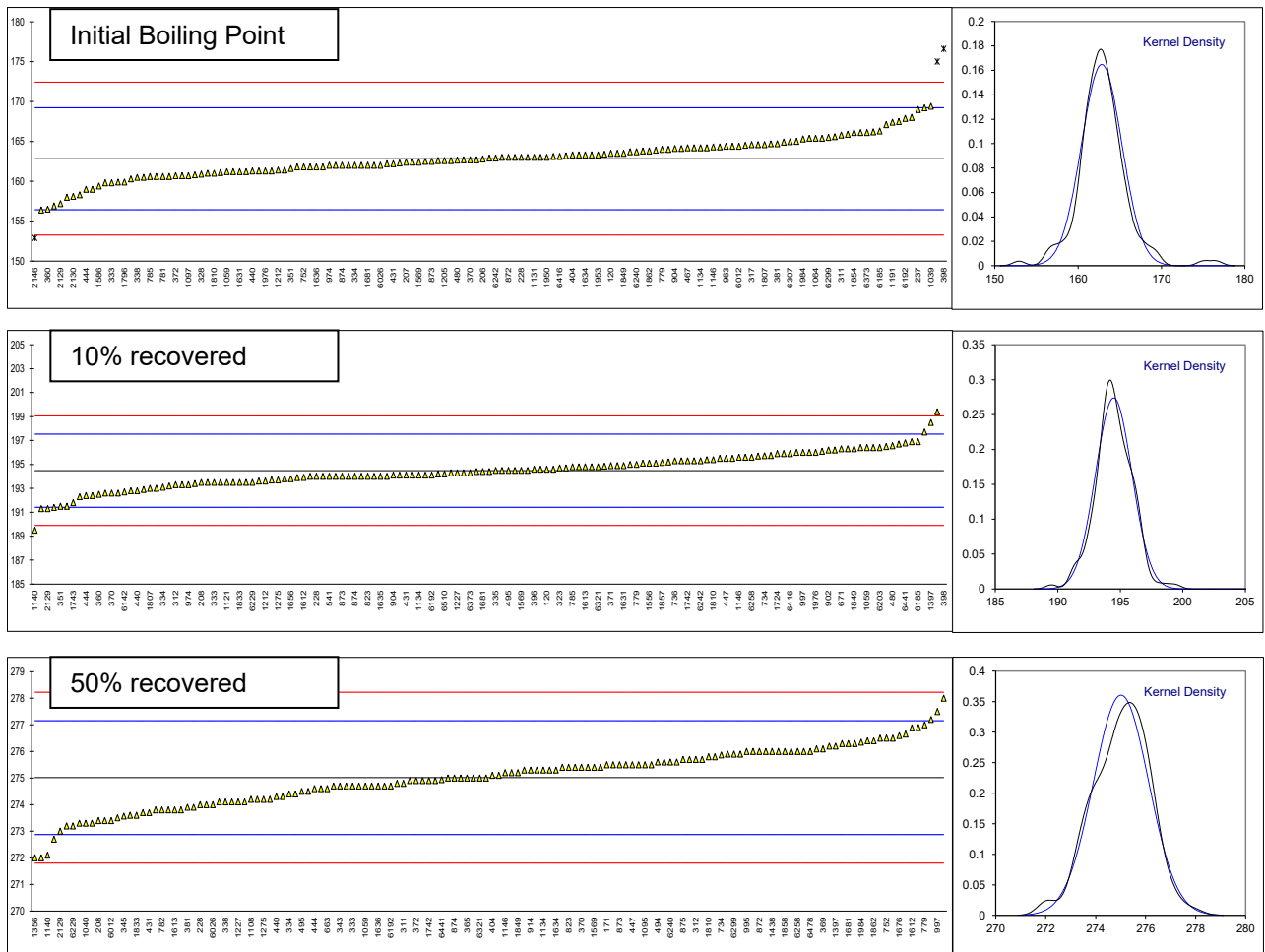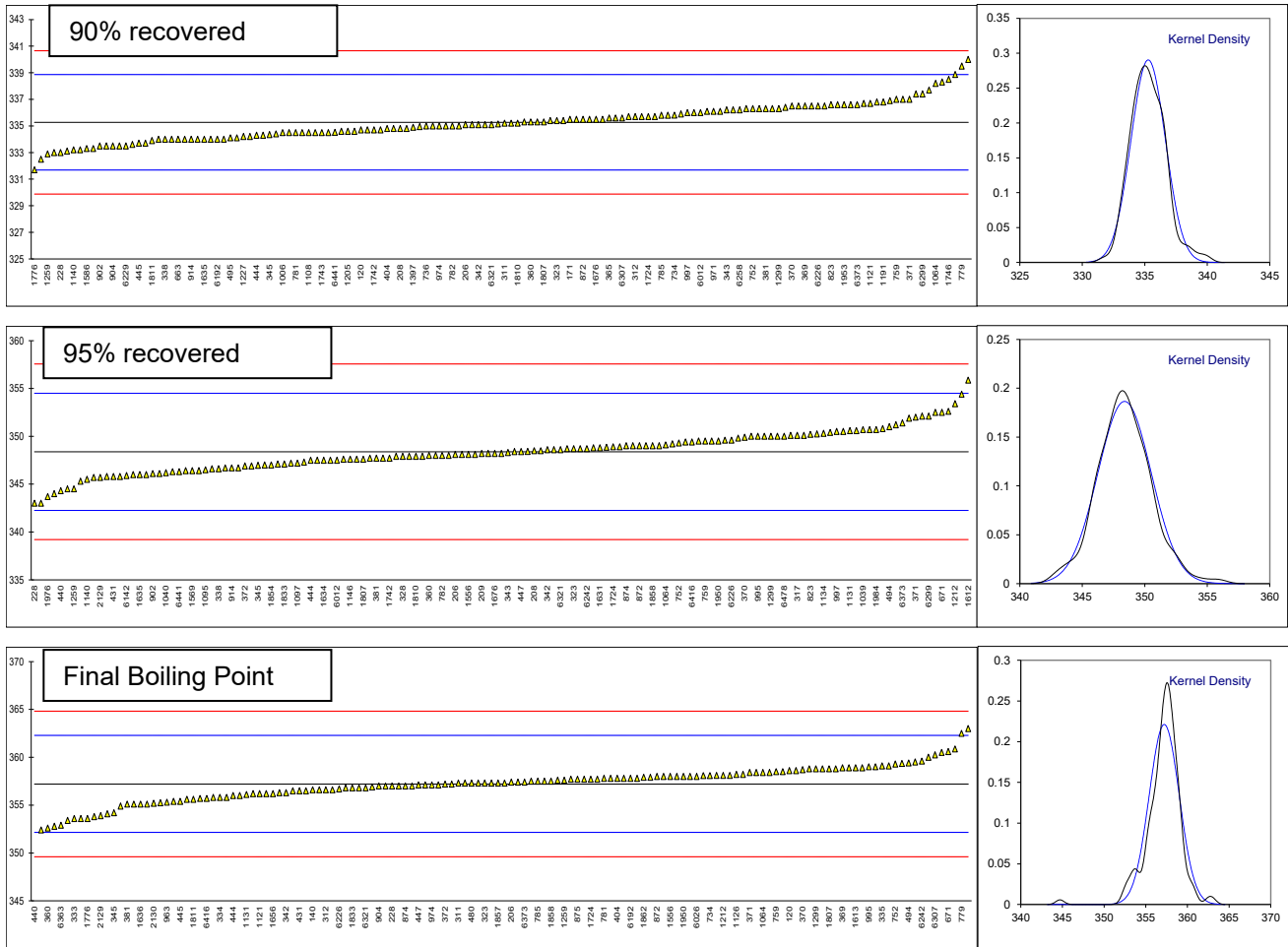
z-scores Distillation at 760 mmHg on sample #23005

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
120	0.21	0.08	0.36	-0.32	-0.26	0.55
140	1.33	1.58	0.64	0.07	-0.16	-0.24
171	-0.26	-0.64	0.45	0.13	0.01	0.47
206	-0.01	-0.71	-1.51	-0.09	-0.09	0.07
207	-0.14	-1.23	-1.60	-0.15	0.20	0.23
208	-0.07	-0.64	-1.51	-0.26	0.04	0.04
209	-0.14	-1.10	-1.60	-0.09	-0.06	0.35
225	-----	-----	-----	-----	-----	-----
228	0.05	-0.31	-0.95	-1.26	-1.76	-0.08
237	1.93	0.34	2.79	0.96	0.53	0.71
238	-----	-----	-----	-----	-----	-----
311	0.93	-0.84	-0.20	-0.04	0.10	0.04
312	0.27	-0.77	0.64	0.24	0.53	-0.24
317	0.55	0.01	1.39	0.85	0.56	0.04
323	0.58	0.15	-0.11	0.07	0.10	0.04
328	-0.60	-0.18	-0.01	-0.48	-0.16	-0.28
331	-----	-----	-----	-----	-----	-----
333	-0.95	-0.64	-0.29	-0.71	-0.58	-1.42
334	-0.26	-0.90	-0.57	-0.99	-0.85	-0.56
335	0.49	0.01	1.76	1.69	1.97	0.75
337	-----	-----	-----	-----	-----	-----
338	-0.73	-0.51	-0.85	-0.71	-0.58	0.19
342	1.46	-0.57	-0.29	-0.09	0.07	-0.36
343	0.18	-2.08	-0.29	0.52	-0.03	0.15
345	-0.54	0.24	-1.35	-0.51	-0.46	-1.19
351	-0.39	-1.95	-1.13	0.91	1.38	-1.74
360	-1.98	-1.29	-0.85	0.02	-0.13	-1.82
365	-0.95	-0.31	-0.01	0.18	0.40	0.19
369	0.02	0.60	1.01	0.68	0.76	0.67
370	-0.04	-1.23	0.36	0.68	0.50	0.59
371	-0.04	0.28	1.39	0.96	1.18	0.47
372	-0.67	-0.77	-0.11	-0.43	-0.49	0.00

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
381	0.58	-0.31	-1.04	0.57	-0.22	-0.83
391	-----	-----	-----	-----	-----	-----
396	3.80	0.08	0.08	-0.09	0.10	-0.71
398	4.30	9.63	-1.23	-1.26	-1.27	-1.35
399	-----	-----	-----	-----	-----	-----
404	0.15	-0.44	0.08	-0.26	-0.13	0.23
420	0.11	0.67	0.45	0.57	1.15	-0.08
431	-0.20	-0.25	-1.23	-0.99	-0.85	-0.28
432	-----	-----	-----	-----	-----	-----
440	-0.48	-1.10	-0.67	-0.93	-1.34	-4.93
444	-1.20	-1.36	-0.39	-0.54	-0.29	-0.48
445	-0.26	-0.25	-0.85	-0.87	-0.65	-0.71
447	-0.67	0.67	0.45	0.02	0.01	-0.04
467	0.43	0.41	0.45	-0.71	-0.39	-0.60
480	-0.06	1.36	2.04	0.57	0.37	0.04
494	1.05	1.00	0.55	0.80	0.86	0.86
495	-1.42	0.01	-0.48	-0.65	-0.55	-0.36
498	-----	-----	-----	-----	-----	-----
541	-0.32	-0.31	-0.39	-0.26	-0.09	-0.24
663	-0.70	0.21	-0.39	-0.71	-0.78	-0.56
671	1.99	1.19	1.20	1.35	1.35	1.34
704	-----	-----	-----	-----	-----	-----
734	0.68	0.81	0.80	0.30	0.01	0.35
736	-0.20	0.54	-0.20	-0.15	-0.22	0.11
752	-0.32	1.26	1.39	0.57	0.30	0.82
759	-0.26	-0.31	0.92	0.96	0.37	0.51
778	-----	-----	-----	-----	-----	-----
779	0.36	0.34	1.85	2.36	1.35	2.09
781	-0.70	-0.12	-0.01	-0.43	-0.42	0.23
782	0.05	-0.31	-1.13	-0.15	-0.13	0.90
785	-0.70	0.21	0.36	0.30	0.27	0.11
798	-----	-----	-----	-----	-----	-----
823	-0.79	-0.31	0.36	0.74	0.59	0.63
872	0.05	-0.31	0.92	0.13	0.20	0.31
873	-0.10	-0.31	0.45	-0.15	0.04	0.11
874	-0.26	-0.31	-0.01	0.13	0.20	-0.08
875	0.05	-0.05	0.64	0.46	0.79	0.19
902	0.43	1.13	-0.95	-0.99	-0.75	-0.08
904	0.40	-0.25	-1.04	-0.99	-0.75	-0.08
913	-----	-----	-----	-----	-----	-----
914	-0.92	0.28	0.27	-0.71	-0.55	-0.04
962	-0.32	-1.23	-0.48	0.24	0.56	-0.64
963	0.49	1.45	0.27	-0.71	-0.35	-0.75
971	-0.10	0.08	1.01	0.46	0.66	0.07
974	-0.26	-0.77	-0.29	-0.15	0.14	-0.04
995	0.21	0.67	0.92	0.68	0.53	0.71
997	0.05	1.00	2.32	0.41	0.69	1.10
1006	0.15	1.19	0.45	-0.43	-0.45	0.04
1016	-----	-----	-----	-----	-----	-----
1039	2.05	3.22	-0.29	0.74	0.76	2.28
1040	-2.01	-----	-1.60	-0.54	-0.71	-0.40
1059	-0.51	1.26	-0.29	-0.43	-0.29	-1.50
1064	0.80	0.54	0.92	1.63	0.23	0.47
1095	0.08	1.13	0.45	-0.71	-0.62	-0.04
1097	-0.67	-1.03	-1.13	-0.37	-0.39	-1.42
1108	-0.48	-0.64	-0.76	-0.43	-0.06	-0.16
1121	0.52	-0.64	0.27	0.80	0.92	-0.40
1126	0.55	2.11	-0.29	-0.87	-----	0.39
1131	0.05	-0.25	0.36	0.52	0.73	-0.44
1134	0.43	-0.25	0.27	0.57	0.63	0.31
1140	-1.86	-3.26	-2.72	-1.15	-0.94	-1.23
1146	0.46	0.73	0.17	0.18	-0.26	0.67
1191	1.43	1.06	1.29	0.85	0.73	0.75
1199	-----	-----	-----	-----	-----	-----
1205	-0.07	1.26	0.55	-0.37	-0.68	0.00
1212	-0.45	-0.57	1.11	1.19	1.64	0.35
1227	0.43	-0.12	-0.85	-0.60	-0.49	-0.12
1259	-0.51	-0.64	-0.76	-1.32	-1.27	0.15
1275	-1.20	-0.51	-0.76	-0.43	0.07	-0.83
1286	-----	-----	-----	-----	-----	-----
1299	0.30	0.01	0.64	0.57	0.53	0.63
1320	-----	-----	-----	-----	-----	-----
1356	-----	-0.31	-2.81	2.63	-----	-----
1397	0.96	2.63	1.11	-0.21	-0.16	-0.24
1399	-----	-----	-----	-----	-----	-----
1438	-0.64	-0.25	0.92	0.68	1.22	0.39
1498	-----	-----	-----	-----	-----	-----
1556	0.40	0.41	0.27	0.02	-0.09	0.31

lab	IBP	10%rec	50%rec	90%rec	95%rec	FBP
1569	-0.14	0.01	0.36	-0.37	-0.65	-0.40
1586	-1.07	-1.43	-1.32	-1.10	-1.01	-0.56
1612	0.65	-0.38	1.75	2.01	2.45	1.44
1613	0.86	0.21	-1.13	-1.21	-1.43	0.67
1631	-0.51	0.28	0.45	0.24	0.14	0.63
1634	0.15	0.73	0.27	-0.32	-0.29	0.31
1635	-0.57	-0.31	-2.81	-0.71	-0.78	-0.48
1636	-0.32	1.32	-0.29	0.07	-0.26	-0.83
1656	0.46	-0.44	-0.11	0.13	0.37	-0.40
1676	0.80	0.15	1.48	0.13	-0.06	0.23
1681	-0.26	-0.05	1.20	-0.04	-0.22	0.35
1724	-0.07	0.93	0.17	0.24	0.17	0.19
1730	-----	-----	-----	-----	-----	-----
1742	0.15	0.54	-0.11	-0.32	-0.22	-0.08
1743	-0.32	-1.75	-1.13	-0.43	-0.09	-0.83
1746	-0.26	1.00	0.92	1.80	0.20	-----
1776	-0.73	-1.36	-2.16	-1.99	-1.76	-1.42
1796	-0.92	-0.38	-0.29	0.41	0.53	0.19
1807	0.55	-0.97	-0.01	0.02	-0.26	0.63
1810	-0.57	0.60	0.73	-0.04	-0.16	0.47
1811	-0.17	0.08	-0.67	-0.76	-0.88	-0.64
1833	-0.45	-0.64	-1.32	-0.60	-0.42	-0.16
1849	0.21	1.19	0.17	-0.07	-0.29	-0.16
1854	1.02	-1.95	-0.57	-0.32	-0.45	0.51
1857	-0.51	0.44	0.36	0.35	0.61	0.04
1858	0.05	0.01	0.92	-0.43	0.20	0.11
1862	0.30	0.21	1.29	0.46	0.69	0.27
1950	0.05	-0.31	0.92	0.13	0.37	0.31
1953	0.15	0.93	-1.41	0.74	-0.06	0.31
1961	-----	-----	-----	-----	-----	-----
1976	-0.48	1.00	-0.76	-1.54	-1.53	-0.91
1984	0.77	0.83	1.25	0.74	0.76	0.84
2129	-1.76	-2.08	-1.88	-1.15	-0.88	-1.31
2130	-1.48	-0.12	-0.11	-0.71	-0.65	-0.79
2146	-3.11	-0.05	-0.85	-0.26	-0.16	0.55
6012	0.49	-2.01	-1.51	0.41	-0.29	1.30
6026	-0.26	-0.64	-0.95	-0.15	-0.13	0.31
6075	-----	-----	-----	-----	-----	-----
6142	-1.51	-1.16	-1.69	-1.10	-0.81	-0.77
6185	1.08	1.58	1.53	-0.18	0.15	-0.28
6192	1.58	-0.25	-0.29	-0.71	-0.85	0.23
6203	-0.48	1.26	0.73	0.63	0.46	0.63
6226	1.02	0.80	0.83	0.68	0.40	-0.20
6229	-0.70	-0.64	-1.69	-0.99	-0.55	-1.90
6240	0.27	0.54	0.55	0.30	0.56	0.04
6242	0.02	0.54	1.20	0.68	0.10	0.94
6258	-0.04	0.73	0.92	0.52	0.17	0.67
6299	0.83	0.41	0.83	1.19	1.22	0.23
6307	0.66	0.47	0.83	0.18	0.33	1.20
6321	0.36	0.21	-0.01	-0.09	0.07	-0.16
6363	-----	-----	-----	-----	0.20	-1.70
6373	1.02	-0.12	0.92	0.74	0.99	0.07
6416	0.08	0.93	0.55	0.24	0.33	-0.60
6441	0.80	1.52	-0.07	-0.42	-0.68	0.34
6478	1.61	-0.97	0.92	-0.71	0.53	-----
6510	0.33	-0.18	-0.01	-0.65	-0.78	0.27

Determination of Distillation at 760 mmHg on sample #23005; result in %V/V

lab	method	Vol.250 °C	mark	z(targ)	Vol.350 °C	mark	z(targ)
120		-----		-----	-----		-----
140	ISO3405-automated	35.3		-0.19	95.5		0.02
171	ISO3405-automated	35.7		0.22	95.4		-0.09
206	D7345	36.7		1.26	-----		-----
207	D7345	36.8		1.36	-----		-----
208	D7345	36.3		0.85	-----		-----
209	D7345	36.5		1.05	-----		-----
225		-----		-----	-----		-----
228	D86-manual	37.0		1.57	96.0		0.54
237	D86-manual	35.0		-0.50	95.0		-0.50
238		-----		-----	-----		-----
311	D86-automated	35.4		-0.09	95.4		-0.09
312	ISO3405-automated	35.6		0.12	95.0		-0.50
317	ISO3405-automated	34.8		-0.71	95.0		-0.50
323	ISO3405-automated	35.4		-0.09	95.3		-0.19
328	ISO3405-automated	35.2		-0.30	95.6		0.12
331		-----		-----	-----		-----
333	ISO3405-automated	35.3		-0.19	96.0		0.54
334	ISO3405-automated	36.0		0.53	96.1		0.64
335	ISO3405-automated	34.1		-1.44	94.0		-1.54
337		-----		-----	-----		-----
338	ISO3405-automated	35.5		0.02	95.9		0.43
342	D86-automated	35.5		0.02	95.3		-0.19
343	ISO3405-automated	35.9		0.43	95.5		0.02
345	ISO3405-automated	37		1.57	96		0.54
351	ISO3405-automated	38.77	C,R(0.01)	3.41	94.4		-1.12
360	ISO3405-automated	35.8		0.33	95.5		0.02
365	D86-manual	35.4		-0.09	95.1		-0.40
369	ISO3405-automated	36.0		0.53	95.1		-0.40
370	ISO3405-automated	35.9		0.43	95.1		-0.40
371	ISO3405-automated	34.4		-1.13	94.2		-1.33
372	ISO3405-automated	35.7		0.22	95.8		0.33
381	ISO3405-automated	36.1		0.64	96.0		0.54
391		-----		-----	-----		-----
396	D86-automated	35.2		-0.30	95.6		0.12
398	D86	34.2		-1.33	96.6		1.16
399		-----		-----	-----		-----
404	ISO3405-automated	35.3		-0.19	95.5		0.02
420	ISO3405-automated	35.0		-0.50	94.7		-0.81
431		36.2		0.74	96.2		0.74
432		-----		-----	-----		-----
440		-----		-----	-----		-----
444	D86-automated	35.7		0.22	95.6		0.12
445	ISO3405-automated	35.9		0.43	95.8		0.33
447	IP123-automated	34.9		-0.61	95.4		-0.09
467	ISO3405-automated	35.1		-0.40	95.6		0.12
480	ISO3405-automated	34.3		-1.23	95.1		-0.40
494	D86-automated	35.3		-0.19	94.8		-0.71
495	D86-automated	35.1		-0.40	95.8		0.33
498		-----		-----	-----		-----
541		-----		-----	-----		-----
663	D86-automated	35.4		-0.09	96.1		0.64
671		-----		-----	-----		-----
704		-----		-----	-----		-----
734	D86-automated	34.9		-0.61	95.4		-0.09
736	ISO3405-automated	35.5		0.02	95.6		0.12
752	ISO3405-manual	35.0		-0.50	95.5		0.02
759	ISO3405-manual	36.0		0.53	96.0		0.54
778		-----		-----	-----		-----
779	ISO3405-manual	35.5		0.02	94.5		-1.02
781	ISO3405-automated	35.5		0.02	95.6		0.12
782	D86-manual	36.5		1.05	96.0		0.54
785	ISO3405-automated	35.2		-0.30	95.2		-0.29
798		-----		-----	-----		-----
823	ISO3405-automated	35.4		-0.09	94.9		-0.60
872	ISO3405	36.0		0.53	95.5		0.02
873	D86-manual	35.5		0.02	95.6		0.12
874	ISO3405-manual	35.5		0.02	95.5		0.02
875	ISO3405-automated	35.5		0.02	95.9		0.43
902	ISO3405-automated	36.2		0.74	96.1		0.64
904	D86-automated	36.2		0.74	96.1		0.64
913		-----		-----	-----		-----
914	D86-automated	35.0		-0.50	96.1		0.64
962	D86-automated	36.2		0.74	95.0		-0.50
963	D86-automated	35.2		z-0.30	95.6		0.12

lab	method	Vol.250 °C	mark	z(targ)	Vol.350 °C	mark	z(targ)
971	ISO3405-automated	34.6		-0.92	94.6		-0.92
974	D86-automated	35.6		0.12	95.3		-0.19
995	ISO3405	34.5		-1.02	95.0		-0.50
997	ISO3405	34.5		-1.02	95.0		-0.50
1006		35.3		-0.19	95.9		0.43
1016		-----		-----	-----		-----
1039	D2887a	35.5		0.02	94.8		-0.71
1040	ISO3405-automated	36.7		1.26	96.3		0.85
1059	ISO3405-automated	35.5		0.02	95.6		0.12
1064		34.8		-0.71	93.9		-1.64
1095		34.9		-0.61	96.0		0.54
1097	ISO3405-automated	36.0		0.53	95.8		0.33
1108	D86-automated	36.3		0.85	95.5		0.02
1121	D86-manual	35.9		0.43	94.8		-0.71
1126	ISO3405-automated	35.4		-0.09	95.8		0.33
1131	ISO3405-automated	35.1		-0.40	94.9		-0.60
1134	ISO3405-automated	35.2		-0.30	94.9		-0.60
1140	D86-automated	37.8	R(0.05)	2.40	96.8		1.37
1146		36		0.53	96		0.54
1191	ISO3405-automated	34.5		-1.02	94.8		-0.71
1199		-----		-----	-----		-----
1205	D86-automated	35.0		-0.50	96.1		0.64
1212	ISO3405-automated	34.9		-0.61	94.3		-1.23
1227	D86-automated	35.8		0.33	95.8		0.33
1259	ISO3405-automated	35.5		0.02	96.3		0.85
1275	IP123-automated	36.0		0.53	95.2		-0.29
1286		-----		-----	-----		-----
1299	D86-automated	35.2		-0.30	95		-0.50
1320		-----		-----	-----		-----
1356		-----		-----	-----		-----
1397		34.9		-0.61	95.5		0.02
1399		-----		-----	-----		-----
1438	D86-automated	35.0		-0.50	94.6		-0.92
1498		-----		-----	-----		-----
1556	ISO3405-automated	35.1		-0.40	95.5		0.02
1569	ISO3405-automated	35.3		-0.19	95.9		0.43
1586	D86-automated	36.4		0.95	96.3		0.85
1612	D86-manual	35.0		-0.50	93.5		-2.06
1613	D86-automated	36		0.53	97		1.57
1631	D86	35.5		0.02	95.3		-0.19
1634	ISO3405-automated	35.5		0.02	95.9		0.43
1635	ISO3405-manual	36.0		0.53	96.0		0.54
1636	ISO3405-automated	35.7		0.22	95.7		0.23
1656	IP123-automated	35.5		0.02	95.1		-0.40
1676		34.5		-1.02	95.5		0.02
1681	ISO3405-automated	34.5		-1.02	95.6		0.12
1724	D86-automated	35.3		-0.19	95.3		-0.19
1730		-----		-----	-----		-----
1742	ISO3405-automated	35.4		-0.09	95.6		0.12
1743	ISO3405-automated	36.2		0.74	95.5		0.02
1746	D86-manual	36.0		0.53	95.5		0.02
1776	ISO3405-automated	36.1		0.64	97.3		1.88
1796	D86-automated	35.8		0.33	95.0		-0.50
1807	ISO3405-automated	35.5		0.02	95.6		0.12
1810	D86-automated	35.0		-0.50	95.6		0.12
1811	ISO3405-automated	35.7		0.22	96.3		0.85
1833	ISO3405-automated	36		0.53	95.7		0.23
1849	ISO3405-automated	35.4		-0.09	95.65		0.17
1854	ISO3405-automated	35.8		0.33	96.0		0.54
1857	ISO3405-automated	35.25		-0.24	94.95		-0.55
1858	ISO3405-manual	35.5		0.02	95.5		0.02
1862	ISO3405-automated	34.5		-1.02	94.9		-0.60
1950	ISO3104-manual	35.0		-0.50	95.0		-0.50
1953		35.43		-0.06	95.47		-0.01
1961		-----		-----	-----		-----
1976	ISO3405-automated	35.7		0.22	96.7		1.26
1984	ISO3405-automated	34.65		-0.87	94.85		-0.66
2129	D86-automated	36.4		0.95	96.0		0.54
2130	D86-automated	35.2		-0.30	96.0		0.54
2146		35.9		0.43	95.6		0.12
6012	D86-manual	36.5		1.05	95.5		0.02
6026	ISO3405-manual	37.0		1.57	95.5		0.02
6075		-----		-----	-----		-----
6142	ISO3405-automated	36.6		1.16	96.1		0.64
6185		34.5	C	-1.02	95.35		-0.14
6192	D86	36.0		0.53	96.6		1.16
6203	ISO3405-automated	34.9		-0.61	95.0		-0.50
6226	ISO3405-automated	34.6		-0.92	95.4		-0.09

lab	method	Vol.250 °C	mark	z(targ)	Vol.350 °C	mark	z(targ)
6229	D86-automated	36.6		1.16	95.9		0.43
6240	D86-automated	35.5		0.02	95.3		-0.19
6242	ISO3405-automated	34.8		-0.71	95.3		-0.19
6258	ISO3405-automated	34.9		-0.61	95.3		-0.19
6299	ISO3405-automated	34.9		-0.61	94.6		-0.92
6307	IP123-automated	35.05		-0.45	95.15		-0.34
6321	IP123-automated	35.6		0.12	95.3		-0.19
6363	ISO3405-automated	38.1	R(0.05)	2.71	99.6	R(0.01)	4.27
6373	ISO3405-automated	34.9		-0.61	94.7		-0.81
6416	D86-automated	35.07		-0.43	95.16		-0.33
6441	ISO3405-automated	35.48		-0.01	96.04		0.58
6478		35	C	-0.50	95		-0.50
6510	D86-automated	35.5		0.02	96.0		0.54
	normality	OK			OK		
	n	137			135		
	outliers	3			1		
	mean (n)	35.48			95.48		
	st.dev. (n)	0.619			0.600		
	R(calc.)	1.73			1.68		
	st.dev.(ISO3405-A:19)	0.964			0.964		
	R(ISO3405-A:19)	2.70			2.70		
Compare							
	R(ISO3405-M:19)	2.38			2.18		

Lab 351 first reported 39.0
Lab 6185 first reported 31.1
Lab 6478 first reported 38
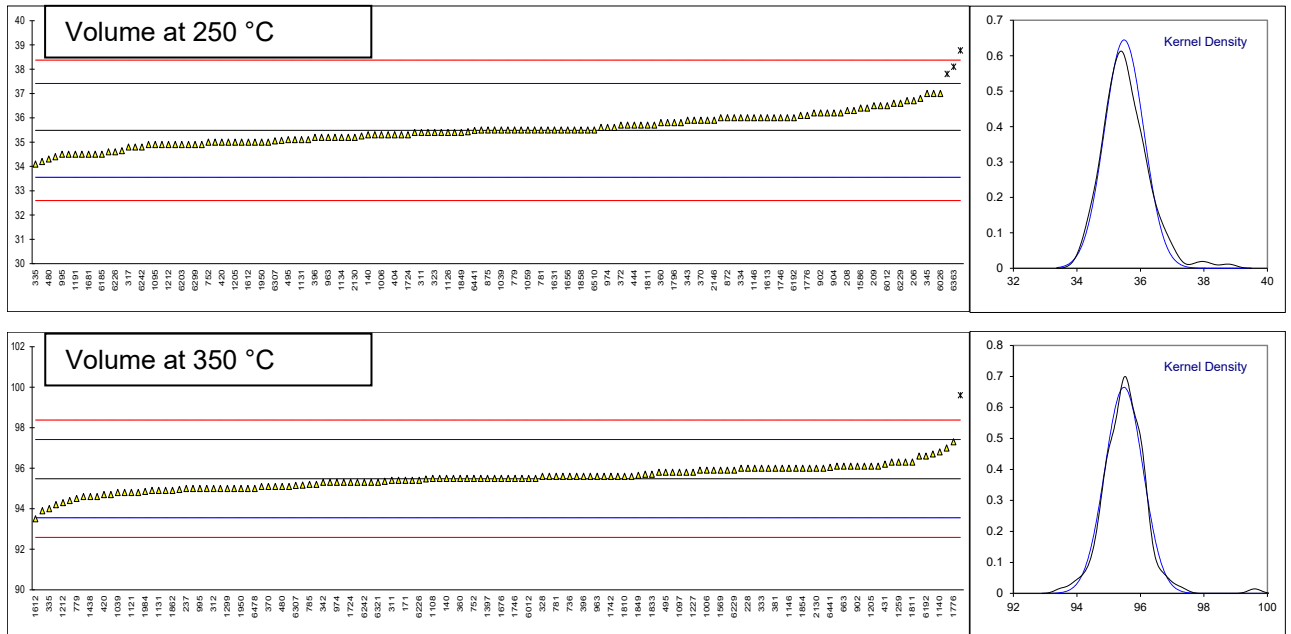
Determination of FAME on sample #23005; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D7371	6.81		-0.24	962	EN14078-A	6.6		-1.41
140		-----		-----	963	EN14078-A	6.5		-1.97
171	EN14078-A	5.92	R(0.01)	-5.20	971		-----		-----
206		-----		-----	974	EN14078-B	6.73		-0.69
207		-----		-----	995		-----		-----
208		-----		-----	997		-----		-----
209		-----		-----	1006	EN14078-A	6.89		0.21
225		-----		-----	1016	EN14078-A	6.44		-2.30
228		-----		-----	1039	EN14078-B	7.05		1.10
237	D7371	7.0		0.82	1040		-----		-----
238		-----		-----	1059	EN14078-B	6.2		-3.64
311	EN14078-B	6.8		-0.30	1064		-----		-----
312	EN14078-B	6.8		-0.30	1095		-----		-----
317		-----		-----	1097	EN14078-B	6.97		0.65
323	EN14078-A	6.9		0.26	1108	EN14078-B	6.99		0.76
328	EN14078-B	6.4		-2.53	1121		-----		-----
331	EN14078-B	7.22		2.05	1126	EN14078	6.831		-0.12
333	EN14078-B	6.8		-0.30	1131	EN14078-B	6.79		-0.35
334	EN14078-B	6.5		-1.97	1134		-----		-----
335	EN14078-B	6.938		0.47	1140	EN14078-B	6.83		-0.13
337	EN14078-B	6.9		0.26	1146		-----		-----
338		-----		-----	1191		-----		-----
342		-----		-----	1199		-----		-----
343	EN14078-A	7.0	C	0.82	1205	D7371	6.8507		-0.01
345		-----		-----	1212	EN14078-A	6.80		-0.30
351	EN14078-B	6.9012		0.27	1227		-----		-----
360	EN14078-B	7.05		1.10	1259	EN14078-B	7.0	C	0.82
365	EN14078-B	7.09		1.32	1275	IP579	7.08		1.27
369	EN14078-B	6.63		-1.24	1286		-----		-----
370	EN14078-B	6.72		-0.74	1299	EN14078-B	6.8		-0.30
371		-----		-----	1320		-----		-----
372	EN14078-B	6.96		0.60	1356	EN14078-A	7.2		1.93
381	EN14078-B	6.94		0.48	1397	EN14078-A	6.7		-0.85
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	EN14078	7.04		1.04	1498		-----		-----
399		-----		-----	1556		-----		-----
404	EN14078-B	6.8		-0.30	1569	EN14078-B	7.1		1.38
420	EN14078-B	7.0		0.82	1586	EN14078-A	7.0	C	0.82
431		-----		-----	1612		-----		-----
432		-----		-----	1613		-----		-----
440		-----		-----	1631		-----		-----
444		-----		-----	1634	EN14078-B	6.9		0.26
445	EN14078-B	7.44		3.27	1635	EN14078-B	6.64		-1.19
447	EN14078-B	6.9		0.26	1636	EN14078-B	7.15		1.66
467	EN14078-A	7.37		2.88	1656	EN14078-A	5.7	C,R(0.01)	-6.43
480	EN14078-A	7.07		1.21	1676	EN14078-B	6.703		-0.84
494	EN14078-B	6.61		-1.36	1681		-----		-----
495	EN14078-A	6.5929		-1.45	1724	EN14078	5.48	R(0.01)	-7.66
498		-----		-----	1730		-----		-----
541		-----		-----	1742		-----		-----
663	EN14078-B	6.81		-0.24	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN14078-A	6.65		-1.13
734		-----		-----	1796		-----		-----
736		-----		-----	1807	EN14078-B	6.7		-0.85
752		-----		-----	1810	EN14078-A	6.7		-0.85
759		-----		-----	1811	EN14078-A	6.7		-0.85
778		-----		-----	1833	EN14078-B	6.1134		-4.12
779		-----		-----	1849		-----		-----
781	EN14078-B	7.0725		1.22	1854	EN14078-B	6.92		0.37
782		-----		-----	1857	EN14078-B	6.84	C	-0.07
785		-----		-----	1858		-----		-----
798		-----		-----	1862		-----		-----
823	EN14078-B	6.9		0.26	1950		-----		-----
872		-----		-----	1953	In house	6.76		-0.52
873	EN14078-B	7.07		1.21	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984	EN14078-B	6.95		0.54
902	EN14078-B	6.6		-1.41	2129	EN14078-B	6.7412		-0.62
904	EN14078-A	6.7		-0.85	2130		-----		-----
913		-----		-----	2146	In house	7.05		1.10
914		-----		-----	6012	EN14078-A	7.16		1.71

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258	EN14078-B	6.9		0.26
6075		-----		-----	6299	EN14078-B	7.04		1.04
6142	EN14078-A	7.1027		1.39	6307	In house	6.6		-1.41
6185	EN14078-A	6.74		-0.63	6321	D8274	7.16		1.71
6192	EN14078	6.8		-0.30	6363	EN14078-B	6.99		0.76
6203	EN14078-B	6.92		0.37	6373	EN14078-B	6.73		-0.69
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441	EN14078-A	6.7611		-0.51
6240	EN14078-B	5.7	R(0.01)	-6.43	6478		-----		-----
6242		-----		-----	6510	EN14078-B	6.7		-0.85

			EN14078-A only:	EN14078-B only:
	normality	suspect	OK	not OK
	n	83	21	51
	outliers	4	2	1
	mean (n)	6.8531	6.8370	6.8480
	st.dev. (n)	0.22792	0.24683	0.23304
	R(calc.)	0.6382	0.6911	0.6525
	st.dev.(EN14078-B:14)	0.17934	-----	0.17920
	R(EN14078-B:14)	0.5022	-----	0.5017
Compare				
	R(EN14078-A:14)	0.3651	0.3643	-----

Lab 343 first reported 6.1
Lab 1259 first reported 8.0
Lab 1586 first reported 8.46
Lab 1656 first reported 6.0
Lab 1857 first reported 5.54

Kernel Density
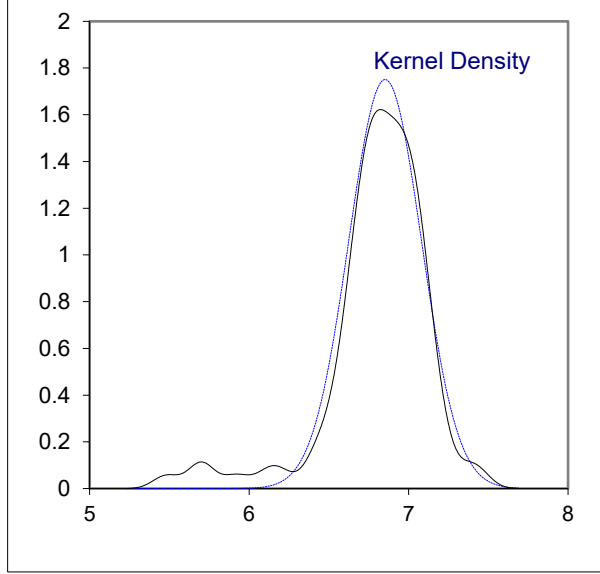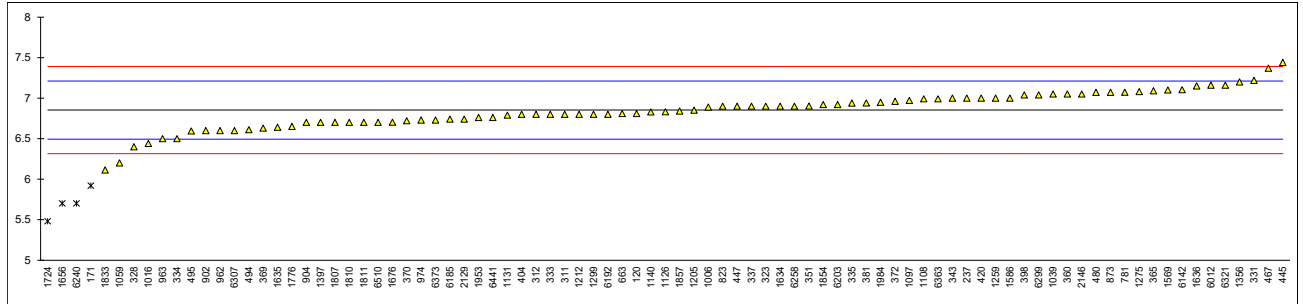
Determination of Flash Point PMcc on sample #23005; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D93-A	56.1		0.04	962	D93-A	55.0		-0.74
140	ISO2719-A	57.0		0.67	963	D93-A	55.0		-0.74
171		-----		-----	971	ISO2719-A	56.0		-0.03
206	D7236	56.5		0.32	974	D93-A	56.0		-0.03
207	D7236	56.5		0.32	995	ISO2719	55.5		-0.39
208	D93-A	56.0		-0.03	997	ISO2719	55.5		-0.39
209	D93-A	55.9		-0.10	1006	D93-A	57.0		0.67
225	D93-A	57.0		0.67	1016		-----		-----
228	D93-A	56.0		-0.03	1039	ISO2719-A	55.5		-0.39
237	D93-A	55.0		-0.74	1040	ISO2719-B	57.5		1.02
238	D93-A	55.5		-0.39	1059	ISO2719-A	55.0		-0.74
311	D93-B	56.0		-0.03	1064		-----		-----
312	ISO2719-A	56.0		-0.03	1095	ISO2719-A	57.0		0.67
317	ISO2719-A	54.5		-1.09	1097	ISO2719-A	57.5		1.02
323	ISO2719-A	56.0		-0.03	1108	D93-A	56.0		-0.03
328	ISO2719-A	58.5		1.72	1121	ISO2719-A	55.52		-0.37
331	D93-A	61	R(0.01)	3.48	1126	ISO2719	54.5		-1.09
333	D93-A	54.5		-1.09	1131	ISO2719-A	56.0		-0.03
334	ISO2719-A	56.0		-0.03	1134	ISO2719-A	57.0		0.67
335	ISO2719-A	55.5		-0.39	1140	D93-A	55.5		-0.39
337	ISO2719-A	59.3	C	2.29	1146	D93-A	55.1		-0.67
338	ISO2719-A	60.0	R(0.05)	2.78	1191	ISO2719-A	56.0		-0.03
342	ISO2719-A	55.5		-0.39	1199		-----		-----
343	D93-A	56		-0.03	1205	D93-A	57.5		1.02
345	ISO2719-B	55.6		-0.32	1212	ISO2719-A	55.5		-0.39
351	ISO2719-A	57.0		0.67	1227	D93-A	56		-0.03
360	ISO2719-A	58.0		1.37	1259	ISO2719-A	55.5		-0.39
365	IP34-A	56.70		0.46	1275	IP34-A	56.0		-0.03
369	ISO2719-A	55.0		-0.74	1286		-----		-----
370	ISO2719-A	56.0		-0.03	1299	D93-A	54.5		-1.09
371	ISO2719-A	55.0		-0.74	1320		-----		-----
372	ISO2719-A	56.0		-0.03	1356	ISO2719-A	56.8		0.53
381	ISO2719-A	56		-0.03	1397	ISO2719-A	57.0		0.67
391		-----		-----	1399		-----		-----
396	D93-A	57		0.67	1438	D93-A	58		1.37
398	ISO2719	55.0		-0.74	1498		-----		-----
399	ISO2719-A	57		0.67	1556	ISO2719-A	57.0		0.67
404	ISO2719-A	55.5		-0.39	1569	ISO2719-B	55.5		-0.39
420	ISO2719-A	55.0		-0.74	1586	ISO2719-A	55.0		-0.74
431	ISO2719-A	55		-0.74	1612	D93-A	56.0		-0.03
432	ISO2719-A	55.5		-0.39	1613	D93-A	54.5		-1.09
440	D93-B	53.0		-2.15	1631	D93	58		1.37
444	D93-A	57.0		0.67	1634	ISO2719-A	56.2		0.11
445	ISO2719-A	56.0		-0.03	1635	ISO2719-A	57.0		0.67
447	IP34-A	56.0		-0.03	1636	ISO2719-A	55.0		-0.74
467	ISO2719-A	56.5		0.32	1656	D93-A	56.5		0.32
480	ISO2719-A	56.0		-0.03	1676		-----		-----
494	ISO2719-A	60.0	R(0.05)	2.78	1681	ISO2719-A	55.0		-0.74
495	D93-A	58.5		1.72	1724	D93-A	56.0		-0.03
498	ISO2719-A	51.88	R(0.05)	-2.93	1730	ISO2719-A	56.0		-0.03
541	D93-A	55.5		-0.39	1742	ISO2719-A	57.0		0.67
663	D93-A	55.5		-0.39	1743	ISO2719-A	56.5		0.32
671	D93-A	54.0		-1.44	1746	D93-A	57.0		0.67
704		-----		-----	1776	ISO2719-A	55.0		-0.74
734	ISO2719-A	56.57		0.37	1796	D93-A	54.5		-1.09
736	ISO2719	55.0		-0.74	1807	ISO2719-A	57.5		1.02
752	ISO2719-A	56.0		-0.03	1810	D93-A	56.0		-0.03
759	ISO2719-A	56.5		0.32	1811	ISO2719-A	56.0		-0.03
778	ISO2719-A	56.5		0.32	1833	ISO2719-A	55.5		-0.39
779	ISO2719-A	56.0		-0.03	1849	ISO2719-A	55.5		-0.39
781	ISO2719-A	56.5		0.32	1854	D93-B	56		-0.03
782	D93-A	56.0		-0.03	1857	ISO2719-A	57.0		0.67
785	ISO2719-A	55.5		-0.39	1858	ISO2719-A	56.0		-0.03
798		-----		-----	1862	ISO2719-A	54.5		-1.09
823	ISO2719-A	55.0		-0.74	1950	ISO2719-A	55.0		-0.74
872	ISO2719-A	56.0		-0.03	1953	ISO2719-A	56.0		-0.03
873	D93-A	56.0		-0.03	1961		-----		-----
874	ISO2719	54.5		-1.09	1976	ISO2719-A	57.5		1.02
875	ISO2719-A	56.0		-0.03	1984	ISO2719-A	56.0		-0.03
902	ISO2719-A	57.0		0.67	2129	IP34-A	54.5		-1.09
904	ISO2719-A	57.0		0.67	2130	D93-A	56.0		-0.03
913		-----		-----	2146		-----		-----
914	D93-A	57.0		0.67	6012	D93-A	58.2		1.51

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	ISO2719-A	57.0		0.67	6258	ISO2719-A	56.5		0.32
6075		-----		-----	6299	ISO2719-A	55.37		-0.48
6142	ISO2719-A	56		-0.03	6307	IP523-B	58.53		1.75
6185	D93-A	55.5		-0.39	6321	IP34-A	55.25		-0.56
6192	ISO2719	55		-0.74	6363	ISO2719-A	56.9		0.60
6203	ISO2719-A	57.0		0.67	6373	D93-A	56.5		0.32
6226	ISO2719-A	54.8		-0.88	6416	D93-A	56.5		0.32
6229	D93-A	58.0		1.37	6441	D93-A	57.0		0.67
6240	D93-A	55.0		-0.74	6478	ISO2719-A	56.9		0.60
6242	ISO2719-A	55.3		-0.53	6510	ISO2719-A	54.6		-1.02

|	
normality	OK
n	146
outliers	4
mean (n)	56.049
st.dev. (n)	1.0178
R(calc.)	2.850
st.dev.(ISO2719-A:16)	1.4212
R(ISO2719-A:16)	3.979

Lab 337 first reported 60.0
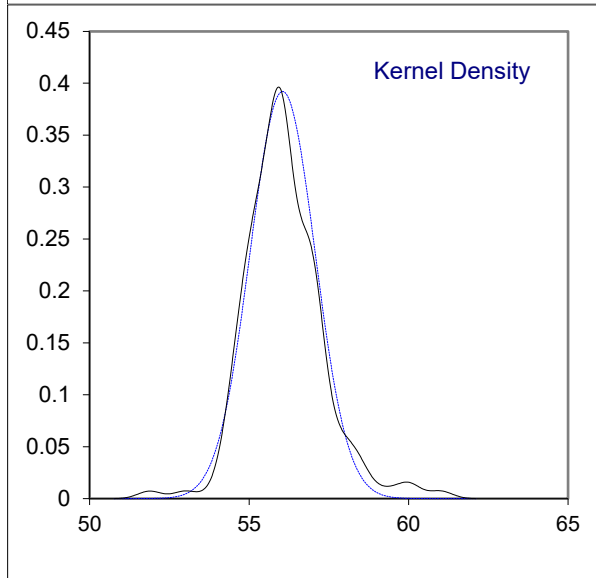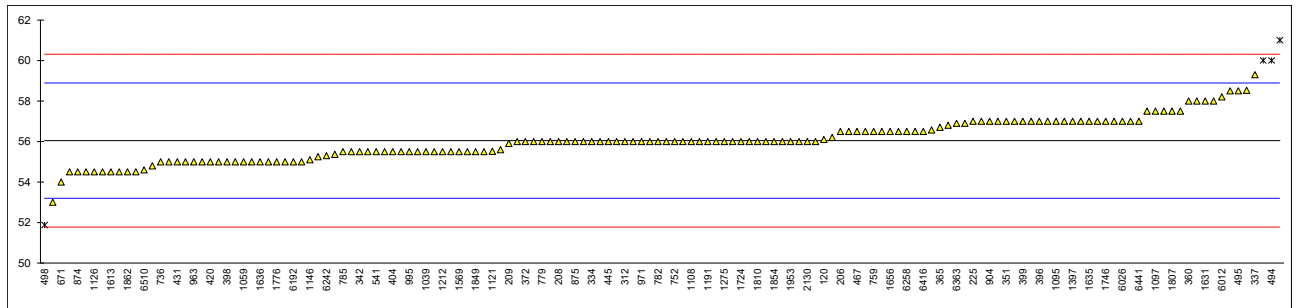
Determination of Kinematic Viscosity at 40 °C on sample #23005; result in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	ISO3104-A	2.629		-1.05	962	D445	2.656		1.49
140	ISO3104-A	3.3951	C,R(0.01)	70.82	963	D445	2.66		1.86
171	ISO3104-A	2.758	R(0.01)	11.05	971	ISO3104-A	2.648		0.73
206		-----		-----	974	D445	2.649		0.83
207		-----		-----	995	ISO3104	2.621		-1.80
208		-----		-----	997	ISO3104	2.630		-0.95
209		-----		-----	1006	D445	2.637		-0.30
225	D445	2.685	R(0.05)	4.21	1016		-----		-----
228	D445	2.629	C	-1.05	1039	ISO3104-B	2.6265		-1.28
237	D445	2.638		-0.20	1040		-----		-----
238		-----		-----	1059	ISO3104-B	2.638		-0.20
311	D445	2.636		-0.39	1064	ISO3104-B	2.638		-0.20
312	ISO3104-A	2.655		1.39	1095	ISO3104-A	2.636		-0.39
317	ISO3104-B	2.639		-0.11	1097	ISO3104-A	2.6387		-0.14
323	ISO3104-B	2.630		-0.95	1108	D7042	2.817	R(0.01)	16.59
328		-----		-----	1121	ISO3104-A	2.644	C	0.36
331		-----		-----	1126		-----		-----
333	D445	2.623		-1.61	1131	ISO3104-B	2.6452		0.47
334	ISO3104-A	2.651		1.02	1134	IP71	2.6228		-1.63
335	ISO3104-A	2.636		-0.39	1140	D445	2.611	R(0.05)	-2.74
337	ISO3104-A	2.646		0.55	1146	D445	2.6339		-0.59
338		-----		-----	1191	ISO3104-A	2.6346		-0.52
342	ISO3104-A	2.6413		0.11	1199		-----		-----
343	ISO3104-B	2.646		0.55	1205	D7042	2.6381		-0.19
345		-----		-----	1212	ISO3104-B	2.6471		0.65
351	ISO3104	2.639		-0.11	1227	D445	2.624		-1.52
360	ISO3104-A	2.650		0.92	1259	ISO3104-A	2.638		-0.20
365	IP71	2.6305		-0.91	1275	IP71	2.634		-0.58
369	ISO3104-A	2.614		-2.45	1286		-----		-----
370	ISO3104-A	2.639		-0.11	1299	D445	2.646		0.55
371	ISO3104-A	2.637		-0.30	1320		-----		-----
372	ISO3104-A	2.632		-0.77	1356	ISO3104-B	2.651		1.02
381	ISO3104-A	2.642		0.17	1397	D7042	2.650		0.92
391		-----		-----	1399		-----		-----
396	D445	2.659	C	1.77	1438	D7042	2.662		2.05
398	ISO3104	2.673		3.08	1498		-----		-----
399		-----		-----	1556	ISO3104-B	2.63360		-0.62
404	D7042	2.608	C,R(0.05)	-3.02	1569	ISO3104-B	2.651		1.02
420	ISO3104-A	2.639		-0.11	1586	ISO3104-A	2.646		0.55
431	ISO3104-A	2.6368		-0.32	1612	D445	2.64568		0.52
432	ISO3104-B	2.636		-0.39	1613	D7042	2.6307		-0.89
440		-----		-----	1631	D445	2.641		0.08
444		-----		-----	1634	ISO3104-A	2.636		-0.39
445	ISO3104-A	2.693	R(0.01)	4.96	1635	ISO3104-A	2.646		0.55
447	IP71	2.638		-0.20	1636	ISO3104-A	2.652	C	1.11
467	ISO3104-A	2.6406		0.04	1656		-----		-----
480		-----		-----	1676		-----		-----
494	ISO3104-A	2.6609		1.94	1681	ISO3104-A	2.6203		-1.86
495	ISO3104-A	2.6569		1.57	1724	D445	2.636		-0.39
498		-----		-----	1730		-----		-----
541	D445	2.626		-1.33	1742	ISO3104-A	2.6411		0.09
663	D445	2.638		-0.20	1743	D7279	2.660		1.86
671	D445	2.61	C,R(0.05)	-2.83	1746	D445	2.637		-0.30
704		-----		-----	1776	ISO3104-A	2.619		-1.99
734		-----		-----	1796	D445	2.634		-0.58
736	ISO3104	2.6366		-0.33	1807	D445	2.627		-1.24
752	ISO3104-A	2.634		-0.58	1810	D445	2.632		-0.77
759	ISO3104-A	2.657		1.58	1811	ISO3104-A	2.634		-0.58
778	ISO3014	2.641		0.08	1833	ISO3104-A	2.635		-0.48
779	ISO3104-A	2.638		-0.20	1849	ISO3104-A	2.635		-0.48
781	ISO3104-A	2.636		-0.39	1854	ISO3104-A	2.642		0.17
782		-----		-----	1857	ISO3104-A	2.6271		-1.23
785	D445	2.632		-0.77	1858	ISO3104-A	2.643		0.27
798		-----		-----	1862	ISO3104-A	2.6328		-0.69
823	ISO3104-A	2.6315		-0.81	1950	ISO3104-A	2.636		-0.39
872	ISO3104	2.642		0.17	1953		-----		-----
873	ISO3104-A	2.645		0.45	1961		-----		-----
874	ISO3104	2.642		0.17	1976	ISO3104-A	2.6278		-1.16
875	ISO3104-B	2.659		1.77	1984	ISO3104-A	2.6387		-0.14
902	ISO3104	2.637		-0.30	2129	D445	2.6355		-0.44
904	D445	2.671	C	2.89	2130	IP71	2.65	C	0.92
913		-----		-----	2146		-----		-----
914	D445	2.6405		0.03	6012	ISO3104-A	2.672		2.99

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258	ISO3104-A	2.629		-1.05
6075		-----		-----	6299	ISO3104-A	2.647		0.64
6142	ISO3104-A	2.622		-1.70	6307	IP71	2.6423		0.20
6185	ISO3104-A	2.640		-0.02	6321	IP71	2.649		0.83
6192	D7042	2.650		0.92	6363		-----		-----
6203	D445	2.609	C,R(0.05)	-2.92	6373		-----		-----
6226	ISO3104-B	2.639		-0.11	6416		-----		-----
6229	D7042	2.66		1.86	6441	ISO3104-B	2.6337		-0.61
6240	ISO3104-A	2.647		0.64	6478	ISO3104-A	2.63		-0.95
6242	ISO3104-A	2.6380		-0.20	6510	ISO3104-A	2.637		-0.30

normality	OK
n	118
outliers	9
mean (n)	2.64017
st.dev. (n)	0.011023
R(calc.)	0.03086
st.dev.(ISO3104:20)	0.010660
R(ISO3104:20)	0.02985

Lab 140 first reported 3.021
Lab 228 first reported 2.682
Lab 396 first reported 2.559
Lab 404 first reported 2.688
Lab 671 first reported 2.71
Lab 904 first reported 2.710
Lab 1121 first reported 2.5149
Lab 1636 first reported 2.592
Lab 2130 first reported 2.678
Lab 6203 first reported 2.689
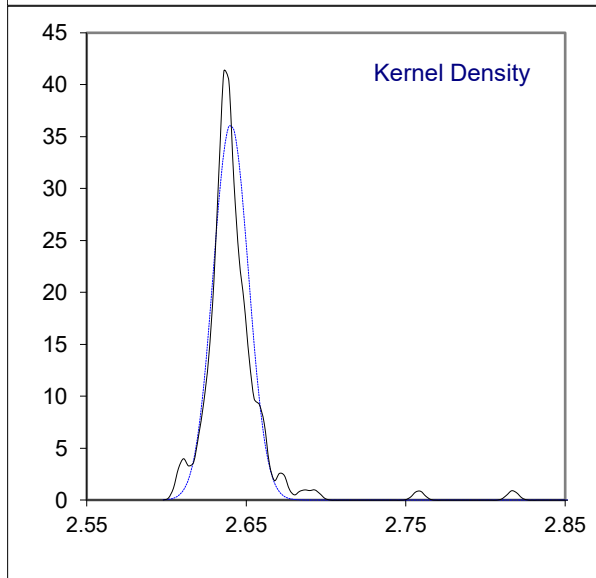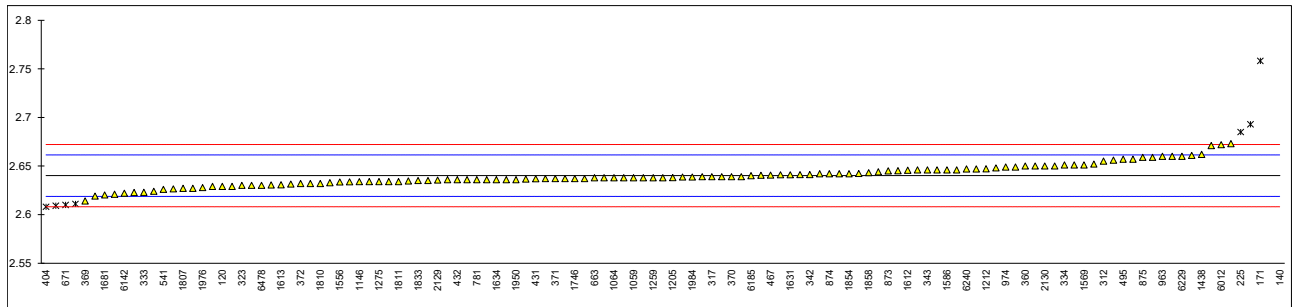
Determination of Lubricity by HFRR at 60 °C on sample #23005; result in µm

lab	method	value	mark	z(targ)	Corr?	lab	method	value	mark	z(targ)	Corr?
120	D6079	195.5		0.19	No	962		-----		-----	
140	ISO12156-1-A	184		-0.21		963	ISO12156-1-A	200		0.35	Yes
171	ISO12156-1-A	191		0.04		971		-----		-----	
206		-----		-----		974	D6079	210		0.70	No
207		-----		-----		995	ISO12159-1-A	192		0.07	
208		-----		-----		997	ISO12156-1-A	192		0.07	
209		-----		-----		1006	D6079	182.5		-0.26	
225		-----		-----		1016	ISO12156-1-A	193		0.11	No
228		-----		-----		1039	ISO12156-1-B	200		0.35	No
237		-----		-----		1040	ISO12156-1-B	191		0.04	No
238		-----		-----		1059	ISO12156-1-A	180		-0.35	No
311	ISO12156-1-A	210		0.70	Yes	1064		-----		-----	
312	ISO12156-1-A	230		1.40	No	1095	ISO12156-1-A	200		0.35	
317		-----		-----		1097		-----		-----	
323	ISO12156-1-B	< 200		-----		1108	ISO12156-1-B	175		-0.52	No
328	ISO12156-1-B	170		-0.70	No	1121		-----		-----	
331		-----		-----		1126		-----		-----	
333		-----		-----		1131	ISO12156-1-A	210		0.70	No
334	ISO12156-1-B	150		-1.40	Yes	1134		-----		-----	
335		-----		-----		1140	IP450	179		-0.38	No
337		-----		-----		1146		-----		-----	
338		-----		-----		1191	ISO12156-1-A	176.5		-0.47	
342	ISO12156-1-B	176		-0.49	No	1199		-----		-----	
343	ISO12156-1	186		-0.14	Yes	1205		-----		-----	
345		-----		-----		1212	ISO12156-1-A	190		0.00	
351		-----		-----		1227		-----		-----	
360	D7688	201		0.39	No	1259	ISO12156-1-B	180		-0.35	No
365		-----		-----		1275	IP450	195	C	0.18	Yes
369	ISO12156-1-B	192		0.07	No	1286		-----		-----	
370	ISO12156-1-B	207		0.60	No	1299	ISO12156-1-B	190		0.00	
371		-----		-----		1320		-----		-----	
372	ISO12156-1-B	160		-1.05	No	1356	ISO12156-1-B	201		0.39	No
381		-----		-----		1397		-----		-----	
391		-----		-----		1399		-----		-----	
396		-----		-----		1438		-----		-----	
398		-----		-----		1498		-----		-----	
399	ISO12156-1-B	195		0.18		1556	ISO12156-1-A	176.0		-0.49	No
404		-----		-----		1569	ISO12156-1-B	190		0.00	Yes
420	ISO12156-1-A	170		-0.70		1586	ISO12156-1-A	182		-0.28	No
431		-----		-----		1612		-----		-----	
432		-----		-----		1613	ISO12156-1-A	229		1.37	No
440		-----		-----		1631		-----		-----	
444		-----		-----		1634		-----		-----	
445	ISO12156-1-A	175		-0.52	No	1635	ISO12156-1-B	180		-0.35	
447	ISO12156-1-B	169		-0.73	No	1636		-----		-----	
467	ISO12156-1-A	208.0		0.63	Yes	1656	ISO12156-1-A	159		-1.08	
480		-----		-----		1676		-----		-----	
494	ISO12156-1-A	175		-0.52	No	1681		-----		-----	
495		-----		-----		1724	ISO12156-1	190		0.00	Yes
498		-----		-----		1730		-----		-----	
541		-----		-----		1742		-----		-----	
663		-----		-----		1743	ISO12156-1-B	194		0.14	No
671	D6079	200.5		0.37		1746	D6079	186.5		-0.12	Yes
704		-----		-----		1776		-----		-----	
734		-----		-----		1796		-----		-----	
736	ISO12156-1	189		-0.03		1807	ISO12156-1-B	180		-0.35	
752		-----		-----		1810	ISO12156-1-A	180		-0.35	
759		-----		-----		1811	ISO12156-1-A	190		0.00	
778		-----		-----		1833	ISO12156-1-A	191		0.04	
779		-----		-----		1849	ISO12156-1-B	198		0.28	No
781	ISO12156-1-B	170		-0.70	No	1854	ISO12156-1-B	181		-0.31	Yes
782		-----		-----		1857	ISO12156-1-B	196.8		0.24	No
785		-----		-----		1858		-----		-----	
798		-----		-----		1862	ISO12156-1-B	231		1.44	No
823	ISO12156-1-A	175		-0.52		1950		-----		-----	
872		-----		-----		1953		-----		-----	
873	ISO12156-1-A	190		0.00		1961		-----		-----	
874		-----		-----		1976	ISO12156-1-A	185.6		-0.15	No
875		-----		-----		1984	ISO12156-1-A	180		-0.35	Yes
902	ISO12156-1	201		0.39	No	2129	ISO12156-1-A	183		-0.24	No
904	ISO12156-1-A	196		0.21	No	2130	IP450	195		0.18	Yes
913		-----		-----		2146		-----		-----	
914	ISO12156-1-A	218		0.98	No	6012		-----		-----	

lab	method	value	mark	z(targ)	Corr?	lab	method	value	mark	z(targ)	Corr?
6026		-----		-----		6258		-----		-----	
6075		-----		-----		6299		-----		-----	
6142	ISO12156-1-A	160		-1.05		6307		-----		-----	
6185		-----		-----		6321	ISO12156-1-B	196		0.21	No
6192		-----		-----		6363		-----		-----	
6203	ISO12156-1-A	206		0.56	Yes	6373		-----		-----	
6226	ISO12156-1-B	190		0.00	No	6416		-----		-----	
6229		-----		-----		6441	D6079	227.5		1.31	Yes
6240		-----		-----		6478		-----		-----	
6242		-----		-----		6510		-----		-----	

```
            normality                  OK
            n                          72
            outliers                   0
            mean (n)                   189.98
            st.dev. (n)                16.226
            R(calc.)                   45.43
            st.dev.(ISO12156-1-A:18)   28.571
            R(ISO12156-1-A:18)         80
Compare
            R(ISO12156-1-B:18)         90
            R(D6079:18)                80
```

Lab 1275 first reported 236

Kernel Density
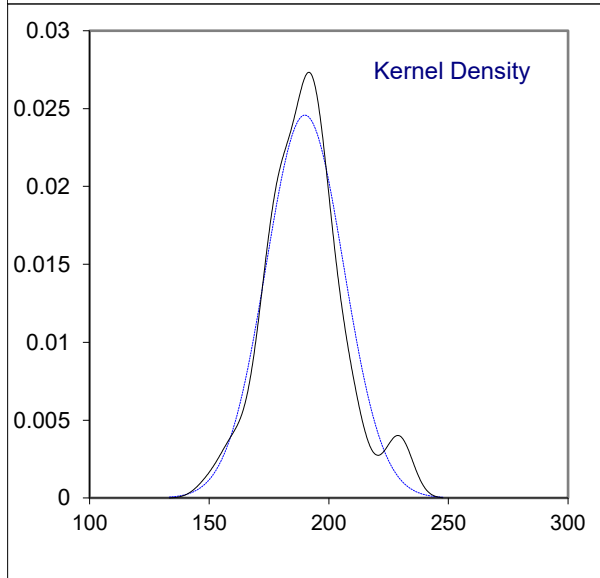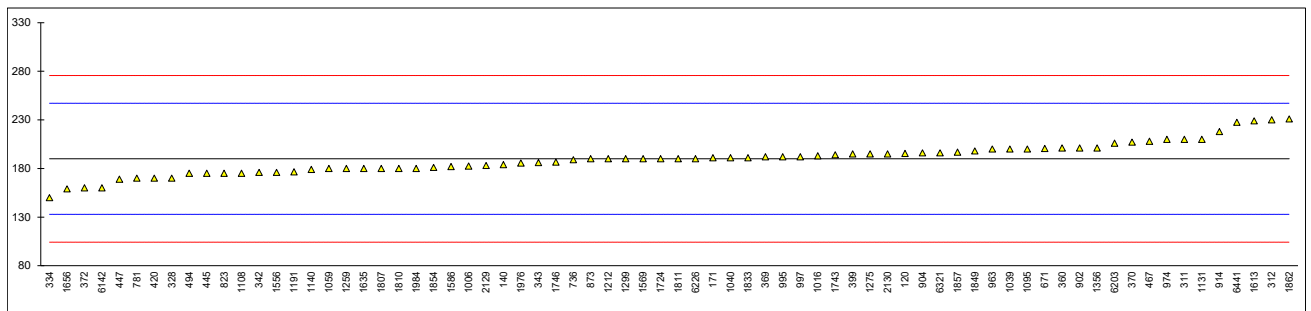
Determination of Manganese as Mn on sample #23005; result in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	D7111	<0.1		-----
140	EN16576	<0.5		-----	963		-----		-----
171	EN16576	<0.5		-----	971	D7111	0.005		-----
206		-----		-----	974	D7111	<0.1		-----
207		-----		-----	995		-----		-----
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	EN16576	0.0232		-----
228		-----		-----	1039		-----		-----
237		-----		-----	1040		-----		-----
238		-----		-----	1059		-----		-----
311		-----		-----	1064		-----		-----
312		-----		-----	1095		-----		-----
317	EN16576	<0.50		-----	1097		-----		-----
323	EN16576	< 0.50		-----	1108		-----		-----
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		-----		-----	1131	EN16576	0.00		-----
334	EN16576	<0.5		-----	1134		-----		-----
335		-----		-----	1140	EN16576	0.01		-----
337		-----		-----	1146		-----		-----
338		-----		-----	1191	D5185	0.008		-----
342		-----		-----	1199		-----		-----
343	EN16576	<0.5		-----	1205		-----		-----
345		-----		-----	1212	EN16576	<0,5		-----
351		-----		-----	1227		-----		-----
360	EN16576	< 0.50		-----	1259		-----		-----
365		-----		-----	1275		-----		-----
369	EN16576	<0.5		-----	1286		-----		-----
370		-----		-----	1299	EN16576	0.1		-----
371		-----		-----	1320	EN16576	< 0.50		-----
372		-----		-----	1356		-----		-----
381	EN16576	<5		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398		-----		-----	1498		-----		-----
399		-----		-----	1556		-----		-----
404		-----		-----	1569	In house	<0.1		-----
420	EN16576	<0,1		-----	1586	EN16576	<0.01		-----
431		-----		-----	1612		-----		-----
432		-----		-----	1613	EN16576	<0.5		-----
440		-----		-----	1631	EN16576	<0.5		-----
444		-----		-----	1634		-----		-----
445	EN16576	<0.1		-----	1635	EN16576	<0.5		-----
447		-----		-----	1636		-----		-----
467	EN16576	<0,5		-----	1656		-----		-----
480		-----		-----	1676		-----		-----
494		-----		-----	1681		-----		-----
495		-----		-----	1724	EN16576	<0.50		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742		-----		-----
663		-----		-----	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776		-----		-----
734		-----		-----	1796		-----		-----
736		-----		-----	1807		-----		-----
752		-----		-----	1810		-----		-----
759		-----		-----	1811		-----		-----
778		-----		-----	1833	EN16576	<0.5		-----
779		-----		-----	1849		-----		-----
781	EN16576	<0.5		-----	1854	D7111	<0.10		-----
782		-----		-----	1857	EN16576	<0.50		-----
785		-----		-----	1858		-----		-----
798		-----		-----	1862	EN16576	<0.50		-----
823	D3831	<0.5		-----	1950		-----		-----
872		-----		-----	1953		-----		-----
873		-----		-----	1961		-----		-----
874	EN16576	<0.5		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902	EN16576	<0.5		-----	2129	D7111	0.0		-----
904	EN16576	<0,5		-----	2130		-----		-----
913		-----		-----	2146		-----		-----
914		-----		-----	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258	EN16576	0.00		-----
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		-----		-----	6321		-----		-----
6192		-----		-----	6363		-----		-----
6203	EN16576	<0.5		-----	6373	EN16576	0.0990		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		<0.1		-----
6240	EN16576	0.0		-----	6478		-----		-----
6242		-----		-----	6510	EN16576	0.00		-----

n	43
mean (n)	<0.5

Determination of Nitrogen on sample #23005; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	D4629	34		-0.50
140	D4629	35		0.05	963	D4629	32.4		-1.39
171		-----		-----	971	D4629	35		0.05
206		-----		-----	974		-----		-----
207		-----		-----	995		-----		-----
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	D4629	36.77		1.04
228		-----		-----	1039	D4629	31.9		-1.67
237		-----		-----	1040	DIN51444	38.07		1.76
238		-----		-----	1059	D4629	34		-0.50
311		-----		-----	1064		-----		-----
312		-----		-----	1095		-----		-----
317	D4629	36		0.61	1097		-----		-----
323	D4629	39		2.28	1108		-----		-----
328	D4629	30		-2.72	1121		-----		-----
331		-----		-----	1126		-----		-----
333	D4629	33		-1.06	1131		-----		-----
334	D4629	34		-0.50	1134		-----		-----
335		-----		-----	1140	D4629	34.0		-0.50
337		-----		-----	1146		-----		-----
338		-----		-----	1191	D4629	35.4		0.28
342		-----		-----	1199		-----		-----
343	D5291	<1000		-----	1205		-----		-----
345		-----		-----	1212	D4629	35.20		0.17
351		-----		-----	1227	D4629	34.6		-0.17
360		-----		-----	1259	D4629	36		0.61
365	D4629	43.11	R(0.05)	4.56	1275	IP379	34.46	C	-0.25
369		-----		-----	1286		-----		-----
370		-----		-----	1299		-----		-----
371		-----		-----	1320		-----		-----
372	D4629	36		0.61	1356		-----		-----
381	D4629	36.6		0.94	1397		-----		-----
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398		-----		-----	1498		-----		-----
399		-----		-----	1556	D4629	35.24		0.19
404		-----		-----	1569	D4629	32.9		-1.11
420		-----		-----	1586	D4629	33.70		-0.67
431		-----		-----	1612		-----		-----
432		-----		-----	1613		-----		-----
440		-----		-----	1631		-----		-----
444		-----		-----	1634		-----		-----
445	D4629	39.2		2.39	1635		-----		-----
447		-----		-----	1636		-----		-----
467		-----		-----	1656		-----		-----
480		-----		-----	1676		-----		-----
494	D4629	39.8		2.72	1681		-----		-----
495	D4629	43.3	R(0.05)	4.66	1724		-----		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742	D4629	34.1		-0.45
663	D4629	34.8		-0.06	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	D4629	34.5		-0.22
734	D4629	35.2		0.17	1796		-----		-----
736	D4629	33.55		-0.75	1807		-----		-----
752		-----		-----	1810		-----		-----
759		-----		-----	1811		-----		-----
778		-----		-----	1833		-----		-----
779		-----		-----	1849		-----		-----
781	D4629	36		0.61	1854		-----	W	-----
782		-----		-----	1857	D4629	35.1		0.11
785		-----		-----	1858		-----		-----
798		-----		-----	1862	D5762	32.6		-1.28
823	D4629	29.5		-3.00	1950		-----		-----
872		-----		-----	1953		-----		-----
873	D4629	34.9		0.00	1961	D4629	37.0		1.16
874	D4629	34.5		-0.22	1976		-----		-----
875	D4629	37		1.16	1984		-----		-----
902		-----		-----	2129		-----		-----
904		-----		-----	2130		-----		-----
913		-----		-----	2146		-----		-----
914		-----		-----	6012		-----		-----

lab	method	Value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	D4629	33.9		-0.56	6258		-----		-----
6075		-----		-----	6299		-----		-----
6142		35.41		0.28	6307		-----		-----
6185		-----		-----	6321		-----		-----
6192		-----		-----	6363		-----		-----
6203	D4629	35		0.05	6373		-----		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240	D4629	35.5		0.33	6478		-----		-----
6242		-----		-----	6510		-----		-----

normality	suspect
n	43
outliers	2
mean (n)	34.902
st.dev. (n)	2.0743
R(calc.)	5.808
st.dev.(D4629:17)	1.8006
R(D4629:17)	5.042

Lab 1275 first reported 42.19
Lab 1854 test result withdrawn, reported 19.4
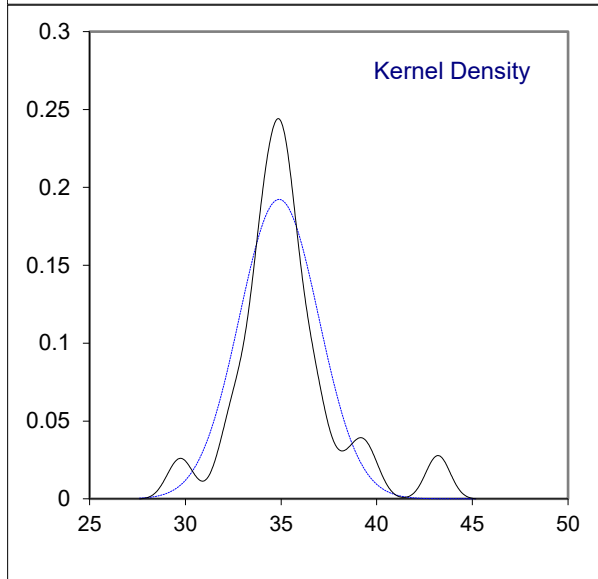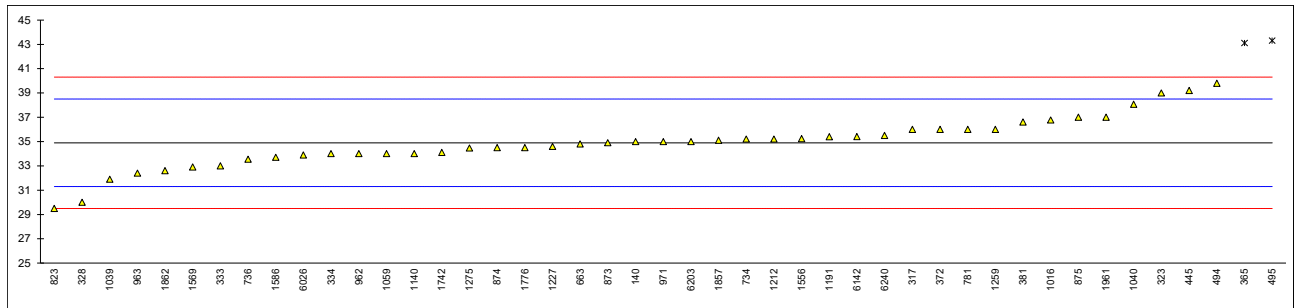
Determination of Polycyclic Aromatic Hydrocarbons [1) on sample #23005; result in %M/M
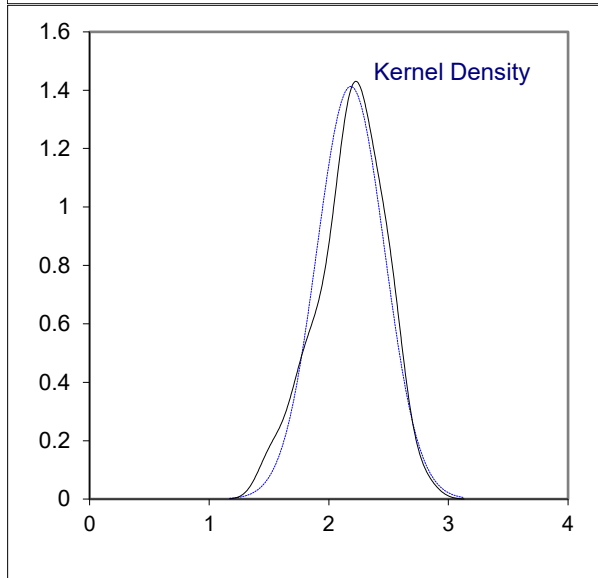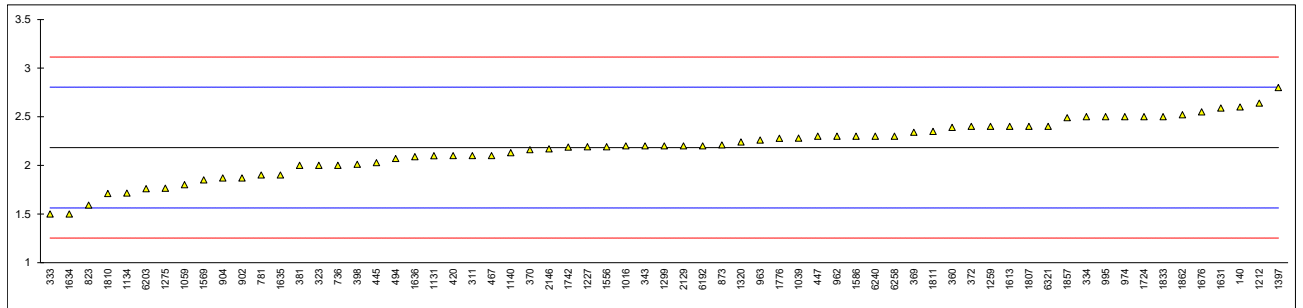
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	IP391	2.3		0.38
140	EN12916	2.6		1.34	963	IP391	2.26		0.25
171		-----		-----	971		-----		-----
206		-----		-----	974	IP391	2.50		1.02
207		-----		-----	995	EN12916	2.50		1.02
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	EN12916	2.20		0.05
228		-----		-----	1039	D6379	2.28		0.31
237		-----		-----	1040		-----		-----
238		-----		-----	1059	EN12916	1.8		-1.23
311	EN12916	2.1		-0.27	1064		-----		-----
312		-----		-----	1095	EN12916	<2.3		-----
317		-----		-----	1097		-----		-----
323	EN12916	2.0		-0.59	1108		-----		-----
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		1.5		-2.20	1131	EN12916	2.098	E	-0.27
334	EN12916	2.5		1.02	1134	IP391	1.715		-1.51
335		-----		-----	1140	IP391	2.13		-0.17
337		-----		-----	1146		-----		-----
338		-----		-----	1191		-----		-----
342		-----		-----	1199		-----		-----
343	EN12916	2.2		0.05	1205		-----		-----
345		-----		-----	1212	EN12916	2.64		1.47
351		-----		-----	1227	EN12916	2.19		0.02
360	EN12916	2.39		0.67	1259	EN12916	2.4		0.70
365		-----		-----	1275	IP391	1.7639	C	-1.35
369	EN12916	2.34		0.51	1286		-----		-----
370	EN12916	2.16		-0.07	1299	EN12916	2.2		0.05
371		-----		-----	1320		2.24		0.18
372	EN12916	2.40		0.70	1356		-----		-----
381		2.0		-0.59	1397	EN12916	2.8		1.99
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	EN12916	2.01		-0.56	1498		-----		-----
399		-----		-----	1556	EN12916	2.19		0.02
404		-----		-----	1569	EN12916	1.85		-1.07
420	EN12916	2.1		-0.27	1586	EN12916	2.3		0.38
431		-----		-----	1612		-----		-----
432		-----		-----	1613	EN12916	2.4		0.70
440		-----		-----	1631	EN12916	2.59		1.31
444		-----		-----	1634	EN12916	1.5	C	-2.20
445	EN12916	2.028		-0.50	1635	EN12916	1.9		-0.91
447	IP391	2.3		0.38	1636	EN12916	2.09		-0.30
467	EN12916	2.10		-0.27	1656		-----		-----
480		-----		-----	1676		2.55		1.18
494	EN12916	2.07		-0.36	1681		-----		-----
495		-----		-----	1724	EN12916	2.5		1.02
498		-----		-----	1730		-----		-----
541		-----		-----	1742	EN12916	2.188		0.02
663		-----		-----	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN12916	2.27832		0.31
734		-----		-----	1796		-----		-----
736	EN12916	2.0		-0.59	1807	EN12916	2.4		0.70
752		-----		-----	1810		1.71		-1.52
759		-----		-----	1811	EN12916	2.35		0.54
778		-----		-----	1833		2.5		1.02
779		-----		-----	1849		-----		-----
781	EN12916	1.9		-0.91	1854		-----		-----
782		-----		-----	1857	EN12916	2.49		0.99
785		-----		-----	1858		-----		-----
798		-----		-----	1862	EN12916	2.52		1.09
823	EN12916	1.59		-1.91	1950		-----		-----
872		-----		-----	1953		-----		-----
873	EN12916	2.21		0.09	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902	EN12916	1.87		-1.01	2129	IP391	2.20		0.05
904	EN12916	1.87		-1.01	2130		-----		-----
913		-----		-----	2146	EN12916	2.17		-0.04
914		-----		-----	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258		2.3		0.38
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		-----		-----	6321	IP391	2.4		0.70
6192	EN12916	2.2		0.05	6363		-----		-----
6203	EN12916	1.76	C	-1.36	6373		-----		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240		2.3		0.38	6478		-----		-----
6242		-----		-----	6510		-----		-----

normality	OK
n	65
outliers	0
mean (n)	2.183
st.dev. (n)	0.2825
R(calc.)	0.791
st.dev.(EN12916:19)	0.3103
R(EN12916:19)	0.869

1) Definition from EN12916: %Polycyclic Aromatic Hydrocarbons = sum of %di and %tri+ Aromatic Hydrocarbons

Lab 1275 first reported 12.499
Lab 1634 first reported 1.3
Lab 6203 first reported 1.31
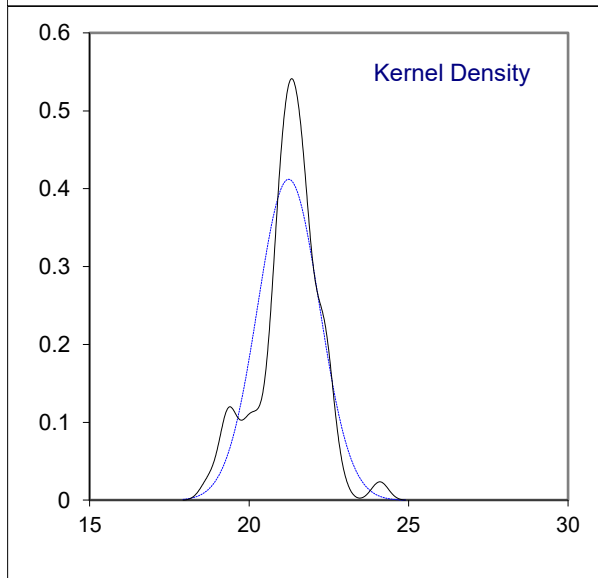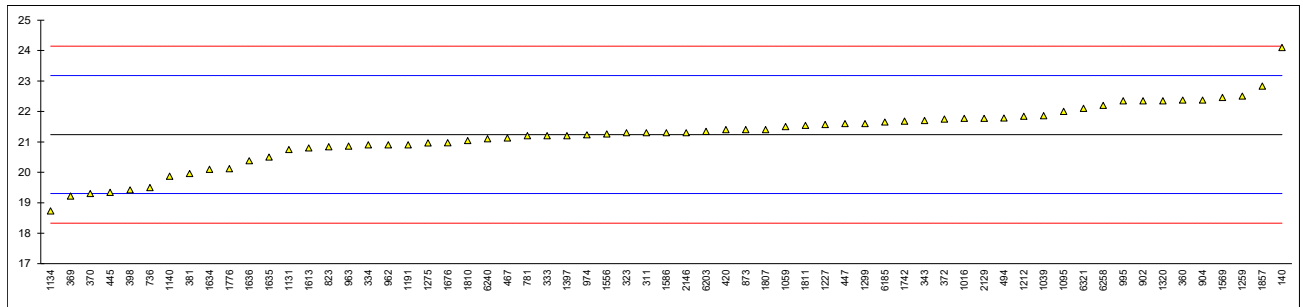Lab 1131 calculation difference, iis calculated 1.803

Determination of Mono Aromatic Hydrocarbons on sample #23005; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	IP391	20.9		-0.35
140	EN12916	24.1	C	2.95	963	IP391	20.86		-0.39
171		-----		-----	971		-----		-----
206		-----		-----	974	IP391	21.23		-0.01
207		-----		-----	995	EN12916	22.35		1.15
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	EN12916	21.77		0.55
228		-----		-----	1039	D6379	21.86		0.64
237		-----		-----	1040		-----		-----
238		-----		-----	1059	EN12916	21.5		0.27
311	EN12916	21.3		0.06	1064		-----		-----
312		-----		-----	1095	EN12916	22.0		0.79
317		-----		-----	1097		-----		-----
323	EN12916	21.3		0.06	1108		-----		-----
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		21.2		-0.04	1131	EN12916	20.747		-0.51
334	EN12916	20.9		-0.35	1134	IP391	18.732		-2.59
335		-----		-----	1140	IP391	19.87		-1.41
337		-----		-----	1146		-----		-----
338		-----		-----	1191	EN12916	20.902		-0.35
342		-----		-----	1199		-----		-----
343	EN12916	21.7		0.48	1205		-----		-----
345		-----		-----	1212	EN12916	21.84		0.62
351		-----		-----	1227	EN12916	21.57		0.34
360	EN12916	22.37		1.17	1259	EN12916	22.5		1.30
365		-----		-----	1275	IP391	20.9665	C	-0.28
369	EN12916	19.22	C	-2.08	1286		-----		-----
370	EN12916	19.3		-2.00	1299	EN12916	21.6		0.37
371		-----		-----	1320		22.35		1.15
372	EN12916	21.75		0.53	1356		-----		-----
381		19.96		-1.32	1397	EN12916	21.2		-0.04
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	EN12916	19.42		-1.88	1498		-----		-----
399		-----		-----	1556	EN12916	21.26		0.02
404		-----		-----	1569	EN12916	22.46		1.26
420	EN12916	21.4		0.17	1586	EN12916	21.3		0.06
431		-----		-----	1612		-----		-----
432		-----		-----	1613	EN12916	20.8		-0.45
440		-----		-----	1631		-----		-----
444		-----		-----	1634	EN12916	20.1		-1.17
445	EN12916	19.342		-1.96	1635	EN12916	20.5		-0.76
447	IP391	21.6		0.37	1636	EN12916	20.38		-0.89
467	EN12916	21.13		-0.11	1656		-----		-----
480		-----		-----	1676		20.97		-0.28
494	EN12916	21.78		0.56	1681		-----		-----
495		-----		-----	1724		-----		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742	EN12916	21.68		0.46
663		-----		-----	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN12916	20.11594		-1.16
734		-----		-----	1796		-----		-----
736	EN12916	19.5		-1.79	1807	EN12916	21.4	C	0.17
752		-----		-----	1810		21.04		-0.20
759		-----		-----	1811	EN12916	21.54		0.31
778		-----		-----	1833		-----		-----
779		-----		-----	1849		-----		-----
781	EN12916	21.2		-0.04	1854		-----		-----
782		-----		-----	1857	EN12916	22.83		1.64
785		-----		-----	1858		-----		-----
798		-----		-----	1862		-----		-----
823	EN12916	20.84		-0.41	1950		-----		-----
872		-----		-----	1953		-----		-----
873	EN12916	21.4		0.17	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902	EN12916	22.35		1.15	2129	IP391	21.77		0.55
904	EN12916	22.37		1.17	2130		-----		-----
913		-----		-----	2146	EN12916	21.3		0.06
914		-----		-----	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258		22.2		0.99
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		21.65		0.42	6321	IP391	22.1		0.89
6192		-----		-----	6363		-----		-----
6203	EN12916	21.34	C	0.10	6373		-----		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240		21.1		-0.14	6478		-----		-----
6242		-----		-----	6510		-----		-----

normality	OK
n	63
outliers	0
mean (n)	21.238
st.dev. (n)	0.9679
R(calc.)	2.710
st.dev.(EN12916:19)	0.9694
R(EN12916:19)	2.714

Lab 140 first reported 25.5
Lab 369 first reported 17.91
Lab 1275 first reported 43.732
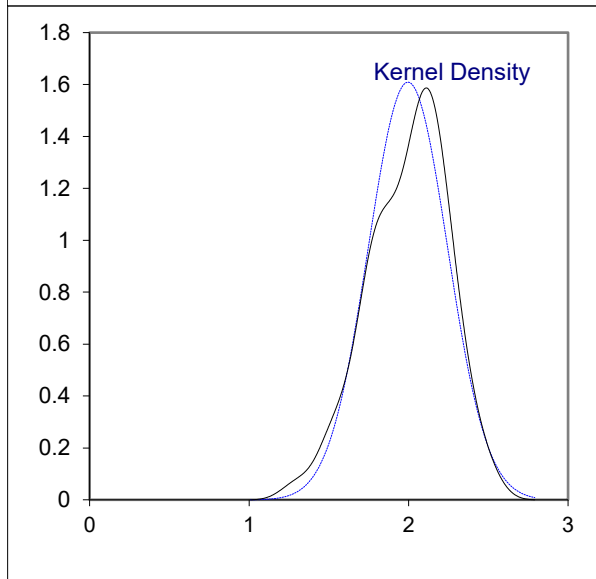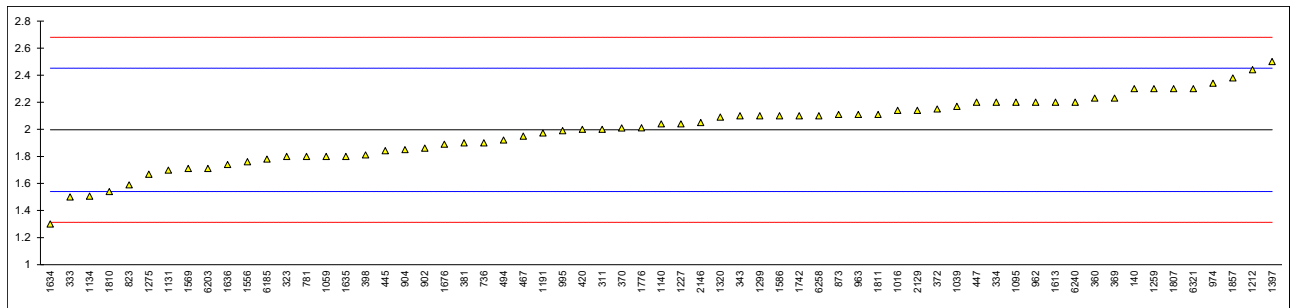Lab 1807 first reported 23.7
Lab 6203 first reported 18.89

Kernel Density

Determination of Di Aromatic Hydrocarbons on sample #23005; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	IP391	2.2		0.89
140	EN12916	2.3		1.33	963	IP391	2.11		0.50
171		-----		-----	971		-----		-----
206		-----		-----	974	IP391	2.34		1.51
207		-----		-----	995	EN12916	1.99		-0.03
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	EN12916	2.14		0.63
228		-----		-----	1039	D6379	2.17		0.76
237		-----		-----	1040		-----		-----
238		-----		-----	1059	EN12916	1.8		-0.86
311	EN12916	2.0		0.02	1064		-----		-----
312		-----		-----	1095	EN12916	2.2		0.89
317		-----		-----	1097		-----		-----
323	EN12916	1.8		-0.86	1108		-----		-----
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		1.5		-2.18	1131	EN12916	1.698		-1.31
334	EN12916	2.2		0.89	1134	IP391	1.506		-2.15
335		-----		-----	1140	IP391	2.04		0.19
337		-----		-----	1146		-----		-----
338		-----		-----	1191	EN12916	1.973		-0.10
342		-----		-----	1199		-----		-----
343	EN12916	2.1		0.45	1205		-----		-----
345		-----		-----	1212	EN12916	2.44		1.95
351		-----		-----	1227	EN12916	2.04		0.19
360	EN12916	2.23		1.03	1259	EN12916	2.3		1.33
365		-----		-----	1275	IP391	1.6684	C	-1.44
369	EN12916	2.23		1.03	1286		-----		-----
370	EN12916	2.01		0.06	1299	EN12916	2.1		0.45
371		-----		-----	1320		2.09		0.41
372	EN12916	2.15		0.67	1356		-----		-----
381		1.9		-0.42	1397	EN12916	2.5		2.21
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	EN12916	1.81		-0.82	1498		-----		-----
399		-----		-----	1556	EN12916	1.76		-1.04
404		-----		-----	1569	EN12916	1.71		-1.26
420	EN12916	2.0		0.02	1586	EN12916	2.1		0.45
431		-----		-----	1612		-----		-----
432		-----		-----	1613	EN12916	2.2		0.89
440		-----		-----	1631		-----		-----
444		-----		-----	1634	EN12916	1.3		-3.06
445	EN12916	1.842		-0.68	1635	EN12916	1.8		-0.86
447	IP391	2.2		0.89	1636	EN12916	1.74		-1.13
467	EN12916	1.95		-0.20	1656		-----		-----
480		-----		-----	1676		1.89		-0.47
494	EN12916	1.92		-0.34	1681		-----		-----
495		-----		-----	1724		-----		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742	EN12916	2.10		0.45
663		-----		-----	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN12916	2.01058		0.06
734		-----		-----	1796		-----		-----
736	EN12916	1.9		-0.42	1807	EN12916	2.3		1.33
752		-----		-----	1810		1.54		-2.00
759		-----		-----	1811	EN12916	2.11		0.50
778		-----		-----	1833		-----		-----
779		-----		-----	1849		-----		-----
781	EN12916	1.8		-0.86	1854		-----		-----
782		-----		-----	1857	EN12916	2.38		1.68
785		-----		-----	1858		-----		-----
798		-----		-----	1862		-----		-----
823	EN12916	1.59		-1.78	1950		-----		-----
872		-----		-----	1953		-----		-----
873	EN12916	2.11		0.50	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902	EN12916	1.86		-0.60	2129	IP391	2.14		0.63
904	EN12916	1.85		-0.64	2130		-----		-----
913		-----		-----	2146	EN12916	2.05		0.24
914		-----		-----	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258		2.1		0.45
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		1.78		-0.95	6321	IP391	2.3		1.33
6192		-----		-----	6363		-----		-----
6203	EN12916	1.71	C	-1.26	6373		-----		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240		2.2		0.89	6478		-----		-----
6242		-----		-----	6510		-----		-----

normality	OK
n	63
outliers	0
mean (n)	1.996
st.dev. (n)	0.2479
R(calc.)	0.694
st.dev.(EN12916:19)	0.2278
R(EN12916:19)	0.638

Lab 1275 first reported 11.283
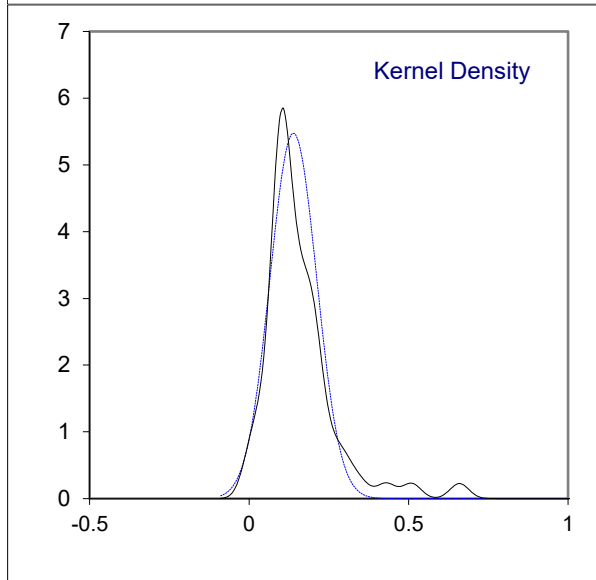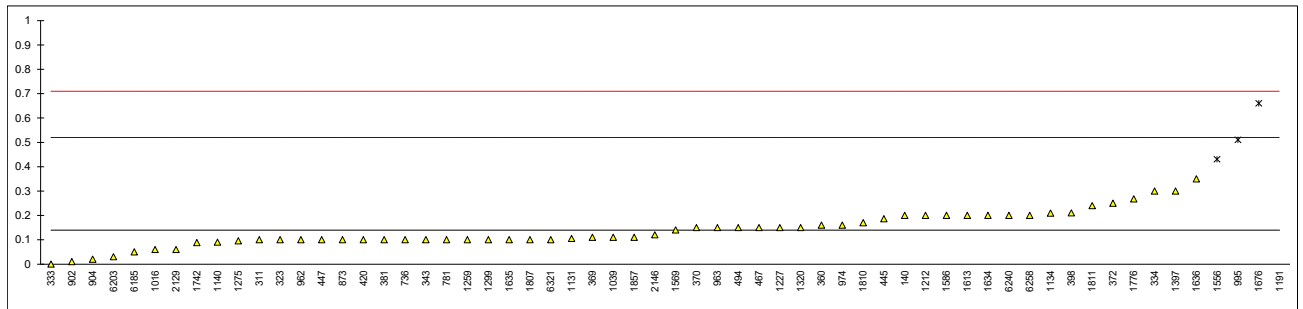Lab 6203 first reported 1.30

Determination of Tri⁺ Aromatic Hydrocarbons on sample #23005; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	IP391	0.1		-0.21
140	EN12916	0.2		0.32	963	IP391	0.15		0.06
171		-----		-----	971		-----		-----
206		-----		-----	974	IP391	0.16		0.11
207		-----		-----	995	EN12916	0.51	R(0.01)	1.95
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	EN12916	0.06		-0.42
228		-----		-----	1039	D6379	0.11		-0.15
237		-----		-----	1040		-----		-----
238		-----		-----	1059	EN12916	<0,1		-----
311	EN12916	0.1		-0.21	1064		-----		-----
312		-----		-----	1095	EN12916	<0.1		-----
317		-----		-----	1097		-----		-----
323	EN12916	0.1		-0.21	1108		-----		-----
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		0.0		-0.73	1131	EN12916	0.105	C	-0.18
334	EN12916	0.3		0.84	1134	IP391	0.209		0.37
335		-----		-----	1140	IP391	0.09		-0.26
337		-----		-----	1146		-----		-----
338		-----		-----	1191	EN12916	2.2	C,R(0.01)	10.83
342		-----		-----	1199		-----		-----
343	EN12916	0.1		-0.21	1205		-----		-----
345		-----		-----	1212	EN12916	0.20		0.32
351		-----		-----	1227	EN12916	0.15		0.06
360	EN12916	0.16		0.11	1259	EN12916	0.1		-0.21
365		-----		-----	1275	IP391	0.0955	C	-0.23
369	EN12916	0.11		-0.15	1286		-----		-----
370	EN12916	0.15		0.06	1299	EN12916	0.1		-0.21
371		-----		-----	1320		0.15		0.06
372	EN12916	0.25		0.58	1356		-----		-----
381		0.1		-0.21	1397	EN12916	0.3		0.84
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	EN12916	0.21		0.37	1498		-----		-----
399		-----		-----	1556	EN12916	0.43	R(0.05)	1.53
404		-----		-----	1569	EN12916	0.14		0.00
420	EN12916	0.1		-0.21	1586	EN12916	0.2		0.32
431		-----		-----	1612		-----		-----
432		-----		-----	1613	EN12916	0.2		0.32
440		-----		-----	1631		-----		-----
444		-----		-----	1634	EN12916	0.2	C	0.32
445	EN12916	0.186		0.25	1635	EN12916	0.1		-0.21
447	IP391	0.1		-0.21	1636	EN12916	0.35		1.11
467	EN12916	0.15		0.06	1656		-----		-----
480		-----		-----	1676		0.66	R(0.01)	2.74
494	EN12916	0.15		0.06	1681		-----		-----
495		-----		-----	1724		-----		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742	EN12916	0.088		-0.27
663		-----		-----	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN12916	0.267736		0.68
734		-----		-----	1796		-----		-----
736	EN12916	0.1		-0.21	1807	EN12916	0.1		-0.21
752		-----		-----	1810		0.17		0.16
759		-----		-----	1811	EN12916	0.24		0.53
778		-----		-----	1833		-----		-----
779		-----		-----	1849		-----		-----
781	EN12916	0.1		-0.21	1854		-----		-----
782		-----		-----	1857	EN12916	0.11		-0.15
785		-----		-----	1858		-----		-----
798		-----		-----	1862		-----		-----
823	EN12916	<0.1		-----	1950		-----		-----
872		-----		-----	1953		-----		-----
873	EN12916	0.10		-0.21	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902	EN12916	0.01		-0.68	2129	IP391	0.06		-0.42
904	EN12916	0.02		-0.63	2130		-----		-----
913		-----		-----	2146	EN12916	0.12		-0.10
914		-----		-----	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258		0.2		0.32
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		0.05		-0.47	6321	IP391	0.1		-0.21
6192		-----		-----	6363		-----		-----
6203	EN12916	0.03		-0.57	6373		-----		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240		0.2		0.32	6478		-----		-----
6242		-----		-----	6510		-----		-----

normality	OK
n	56
outliers	4
mean (n)	0.139
st.dev. (n)	0.0729
R(calc.)	0.204
st.dev.(EN12916:19)	0.1902
R(EN12916:19)	0.533

Lab 1131 first reported 0.399
Lab 1191 first reported 4.205
Lab 1275 first reported 1.216
Lab 1634 first reported 0.0

Determination of Total Aromatic Hydrocarbons on sample #23005; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	IP391	23.2		-0.23
140	EN12916	27.1	E,R(0.05)	3.48	963	IP391	23.12		-0.31
171		-----		-----	971		-----		-----
206		-----		-----	974	IP391	23.73		0.27
207		-----		-----	995		-----		-----
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016	EN12916	23.93		0.46
228		-----		-----	1039	D6379	24.15		0.67
237		-----		-----	1040		-----		-----
238		-----		-----	1059	EN12916	23.4		-0.04
311	EN12916	23.4		-0.04	1064		-----		-----
312		-----		-----	1095	EN12916	<24.3		-----
317		-----		-----	1097		-----		-----
323	EN12916	23.2		-0.23	1108		-----		-----
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		22.7		-0.71	1131	EN12916	22.844	E	-0.57
334	EN12916	23.6	E	0.15	1134	IP391	1.051	E,R(0.01)	-21.34
335		-----		-----	1140	IP391	21.99		-1.39
337		-----		-----	1146		-----		-----
338		-----		-----	1191	EN12916	25.107		1.58
342		-----		-----	1199		-----		-----
343	EN12916	23.9		0.43	1205		-----		-----
345		-----		-----	1212	EN12916	24.48		0.99
351		-----		-----	1227	EN12916	23.76		0.30
360	EN12916	24.76		1.25	1259	EN12916	24.9		1.39
365		-----		-----	1275	IP391	22.7304	C	-0.68
369	EN12916	21.56	C	-1.80	1286		-----		-----
370	EN12916	21.46		-1.89	1299	EN12916	23.8		0.34
371		-----		-----	1320		24.59		1.09
372	EN12916	24.15		0.67	1356		-----		-----
381		21.96		-1.41	1397	EN12916	24.0		0.53
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398	EN12916	23.45	E	0.01	1498		-----		-----
399		-----		-----	1556	EN12916	23.45		0.01
404		-----		-----	1569	EN12916	24.32		0.83
420	EN12916	23.5		0.05	1586	EN12916	23.6		0.15
431		-----		-----	1612		-----		-----
432		-----		-----	1613	EN12916	23.2		-0.23
440		-----		-----	1631		-----		-----
444		-----		-----	1634	EN12916	21.6	C	-1.76
445	EN12916	21.37		-1.98	1635	EN12916	22.4		-0.99
447	IP391	23.9		0.43	1636	EN12916	22.47		-0.93
467	EN12916	23.23		-0.20	1656		-----		-----
480		-----		-----	1676		-----		-----
494	EN12916	23.85		0.39	1681		-----		-----
495		-----		-----	1724		-----		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742	EN12916	23.87		0.41
663		-----		-----	1743		-----		-----
671		-----		-----	1746		-----		-----
704		-----		-----	1776	EN12916	22.39426		-1.00
734		-----		-----	1796		-----		-----
736	EN12916	21.5		-1.85	1807	EN12916	26.1	E	2.53
752		-----		-----	1810		22.75		-0.66
759		-----		-----	1811	EN12916	23.89		0.43
778		-----		-----	1833		-----		-----
779		-----		-----	1849		-----		-----
781	EN12916	23.1		-0.33	1854		-----		-----
782		-----		-----	1857	EN12916	25.32		1.79
785		-----		-----	1858		-----		-----
798		-----		-----	1862		-----		-----
823	EN12916	22.43		-0.97	1950		-----		-----
872		-----		-----	1953		-----		-----
873	EN12916	23.61		0.16	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902	EN12916	24.22		0.74	2129	IP391	23.97		0.50
904		-----		-----	2130		-----		-----
913		-----		-----	2146	EN12916	23.4		-0.04
914		-----		-----	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258		24.5		1.01
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		23.48		0.03	6321	IP391	24.5		1.01
6192		-----		-----	6363		-----		-----
6203	EN12916	23.10	C	-0.33	6373		-----		-----
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441		-----		-----
6240		23.4		-0.04	6478		-----		-----
6242		-----		-----	6510		-----		-----

normality	OK
n	57
outliers	2
mean (n)	23.444
st.dev. (n)	1.0025
R(calc.)	2.807
st.dev.(EN12916:19)	1.0494
R(EN12916:19)	2.938

Lab 369 first reported 20.25
Lab 1275 first reported 56.232
Lab 1634 first reported 21.54
Lab 6203 first reported 20.12
Lab 140 calculation difference, iis calculated 26.6 (or 28.0 before correcting Mono Aromatics)
Lab 334 calculation difference, iis calculated 23.4
Lab 398 calculation difference, iis calculated 21.44
Lab 1131 calculation difference, iis calculated 22.55
Lab 1134 calculation difference, iis calculated 20.447
Lab 1807 calculation difference, iis calculated 23.8 (or 26.1 before correcting Mono Aromatics)

Kernel Density
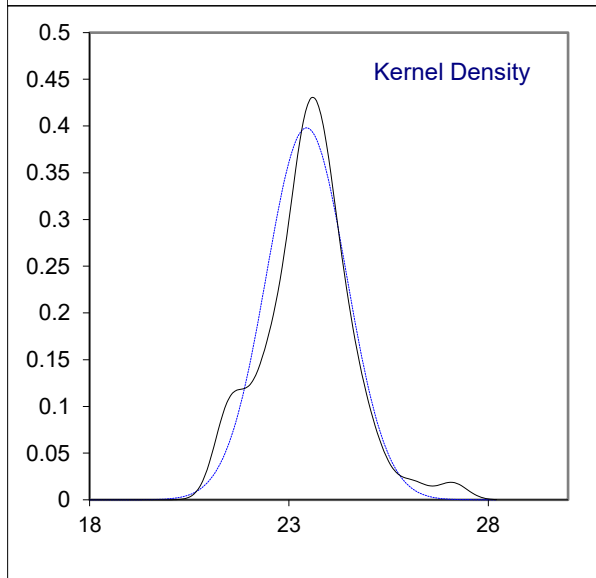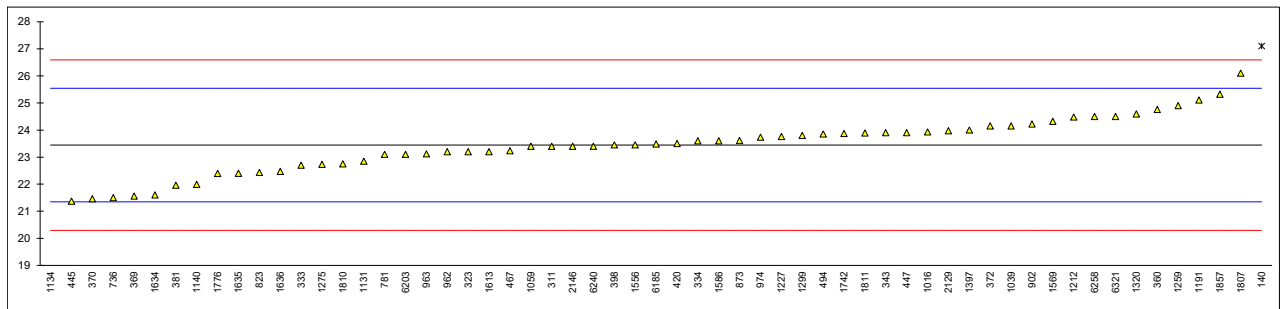
Determination of Pour Point Manual on sample #23005; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	D97	-12		-0.04
140	ISO3016-manual	-12		-0.04	963	ISO3016-manual	-12.0		-0.04
171	ISO3016-manual	-12		-0.04	971	ISO3016-manual	-12		-0.04
206		-----		-----	974	D97	-12		-0.04
207		-----		-----	995	ISO3016	-12		-0.04
208		-----		-----	997	ISO3016	-12		-0.04
209		-----		-----	1006	D97	-9		0.89
225		-----		-----	1016		-----		-----
228	D97	-12.0		-0.04	1039	ISO3016-automated	-12		-0.04
237	D97	-15		-0.97	1040		-----		-----
238		-----		-----	1059	ISO3016-automated	-12		-0.04
311	D97	-12		-0.04	1064		-----		-----
312		-----		-----	1095		-----		-----
317		-----		-----	1097	NF T60-105	-12		-0.04
323	ISO3016-manual	-12		-0.04	1108		-----		-----
328	ISO3016-automated	-12		-0.04	1121	ISO3016-manual	-8.7		0.99
331		-----		-----	1126		-----		-----
333		-----		-----	1131		-----		-----
334	ISO3016-automated	-12		-0.04	1134	ISO3016-manual	-18	R(0.01)	-1.91
335	ISO3016-automated	-12		-0.04	1140		-----		-----
337		-----		-----	1146	D97	-9		0.89
338		-----		-----	1191		-----		-----
342	ISO3016-manual	-12		-0.04	1199		-----		-----
343	ISO3016-automated	-12		-0.04	1205		-----		-----
345		-----		-----	1212	ISO3016-manual	-12		-0.04
351		-----		-----	1227	D97	-9		0.89
360	D97	-12		-0.04	1259	ISO3016-manual	-12		-0.04
365	IP15	-12		-0.04	1275	IP15	-12		-0.04
369	ISO3016-manual	-12		-0.04	1286		-----		-----
370	ISO3016-manual	-12		-0.04	1299	D97	-9		0.89
371	ISO3016-manual	-12		-0.04	1320		-----		-----
372	ISO3016-manual	-9		0.89	1356	ISO3016-manual	-18	R(0.01)	-1.91
381		-----		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396	ISO3016-manual	-18	R(0.01)	-1.91	1438		-----		-----
398	ISO3016	-36	R(0.01)	-7.51	1498		-----		-----
399	ISO3016-manual	-15		-0.97	1556		-----		-----
404	ISO3016-automated	-9		0.89	1569		-----		-----
420		-----		-----	1586	ISO3016-manual	-9		0.89
431		-----		-----	1612	D97	-12		-0.04
432		-----		-----	1613	D97-manual	-12.0		-0.04
440		-----		-----	1631		-----		-----
444		-----		-----	1634		-----		-----
445	ISO3016-automated	-12		-0.04	1635		-----		-----
447	IP15	-9		0.89	1636		-----		-----
467	ISO3016-manual	-12		-0.04	1656	IP15	-15		-0.97
480		-----		-----	1676		-----		-----
494		-----		-----	1681	ISO3016-manual	-12		-0.04
495	ISO3016-manual	-18	R(0.01)	-1.91	1724	ISO3016	-12		-0.04
498		-----		-----	1730		-----		-----
541		-----		-----	1742	ISO3016-automated	-12		-0.04
663	D97	-12		-0.04	1743		-----		-----
671	D97	-18.0	R(0.01)	-1.91	1746		-----		-----
704		-----		-----	1776		-----		-----
734		-----		-----	1796	D97	-12		-0.04
736	ISO3016-manual	-12		-0.04	1807		-----		-----
752	ISO3016-manual	-15		-0.97	1810		-----		-----
759	ISO3016-manual	-12		-0.04	1811		-----		-----
778	ISO3016-manual	-12		-0.04	1833	D97	-12		-0.04
779	ISO3016-manual	-12		-0.04	1849		-----		-----
781	ISO3016-manual	-12		-0.04	1854	ISO3016-manual	-12		-0.04
782	ISO3016-manual	-12		-0.04	1857	ISO3016-manual	-12		-0.04
785	ISO3016-manual	-12.0		-0.04	1858	ISO3016-manual	-12		-0.04
798		-----		-----	1862	ISO3016-manual	-12		-0.04
823	ISO3016-automated	-12		-0.04	1950	ISO3016-manual	-12		-0.04
872	ISO3016	-12		-0.04	1953		-----		-----
873	ISO3016-manual	-12		-0.04	1961		-----		-----
874	ISO3016-manual	-12		-0.04	1976	ISO3016-automated	-12		-0.04
875	ISO3016	-12		-0.04	1984	ISO3016-manual	-15		-0.97
902	ISO3016-manual	-12		-0.04	2129	ISO3016-manual	-12		-0.04
904	ISO3016-manual	-12		-0.04	2130		-----		-----
913		-----		-----	2146		-----		-----
914	D97	-12		-0.04	6012	D97	-13		-0.35

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	ISO3016-manual	-12		-0.04	6258	ISO3016-manual	-12		-0.04
6075		-----		-----	6299		-----		-----
6142		-----		-----	6307		-----		-----
6185		-----		-----	6321		-----		-----
6192	ISO3016	-30	R(0.01)	-5.64	6363		-----		-----
6203	D97	-12		-0.04	6373	D97	-12		-0.04
6226		-----		-----	6416		-----		-----
6229		-----		-----	6441	D97	-13.0		-0.35
6240		-----		-----	6478		-----		-----
6242	ISO3016-manual	-11.7		0.05	6510		-----		-----

|	
normality	not OK
n	80
outliers	7
mean (n)	-11.87
st.dev. (n)	1.276
R(calc.)	3.57
st.dev.(ISO3016:19)	3.214
R(ISO3016:19)	9

Kernel Density
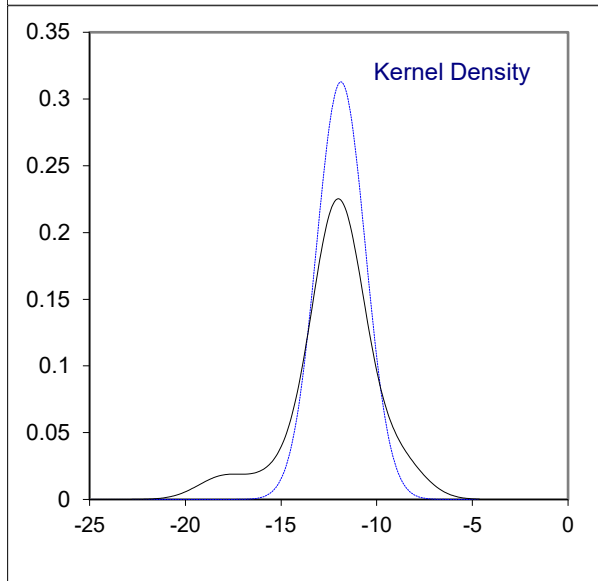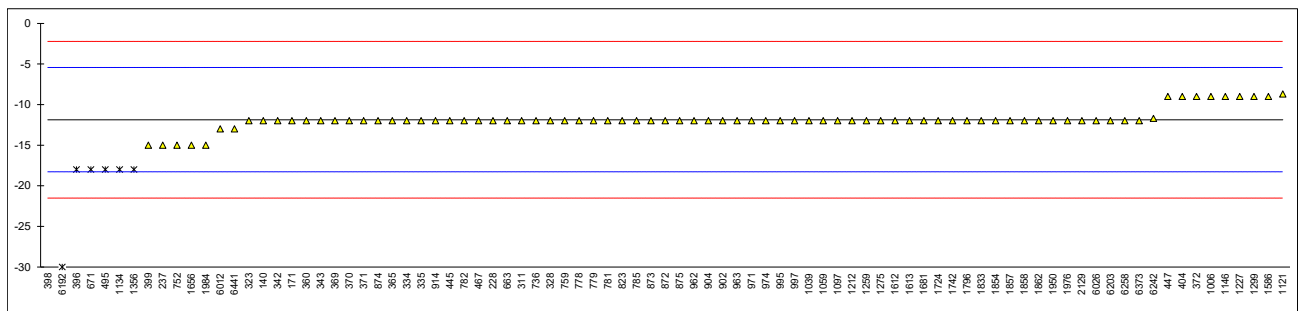
Determination of Pour Point Automated 3 °C interval on sample #23005; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5950	-9.0		1.24	962	D5950	-12		-0.14
140		-----		-----	963	D5950	-12.0		-0.14
171	D5950	-12		-0.14	971		-----		-----
206		-----		-----	974		-----		-----
207		-----		-----	995		-----		-----
208		-----		-----	997		-----		-----
209		-----		-----	1006		-----		-----
225		-----		-----	1016		-----		-----
228		-----		-----	1039		-----		-----
237		-----		-----	1040		-----		-----
238		-----		-----	1059		-----		-----
311		-----		-----	1064		-----		-----
312	D5950	-9		1.24	1095		-----		-----
317	D6749	-12		-0.14	1097		-----		-----
323	D5950	-12		-0.14	1108	D5950	-9		1.24
328		-----		-----	1121		-----		-----
331		-----		-----	1126		-----		-----
333		-----		-----	1131		-----		-----
334		-----		-----	1134		-----		-----
335		-----		-----	1140	D5950	-12		-0.14
337		-----		-----	1146		-----		-----
338		-----		-----	1191	D5950	-12		-0.14
342		-----		-----	1199		-----		-----
343		-----		-----	1205		-----		-----
345		-----		-----	1212	D7346	-12		-0.14
351	D6749	-9		1.24	1227		-----		-----
360		-----		-----	1259		-----		-----
365		-----		-----	1275		-----		-----
369		-----		-----	1286		-----		-----
370		-----		-----	1299		-----		-----
371		-----		-----	1320		-----		-----
372	D5950	-9		1.24	1356		-----		-----
381		-----		-----	1397		-----		-----
391		-----		-----	1399		-----		-----
396		-----		-----	1438		-----		-----
398		-----		-----	1498		-----		-----
399		-----		-----	1556		-----		-----
404		-----		-----	1569	D5950	-12		-0.14
420	D6749	-11		0.32	1586	D5950	-12		-0.14
431		-----		-----	1612	D97	-12		-0.14
432		-----		-----	1613		-----		-----
440		-----		-----	1631		-----		-----
444		-----		-----	1634		-----		-----
445		-----		-----	1635	D7346	-12		-0.14
447		-----		-----	1636		-----		-----
467	D6892	-12		-0.14	1656		-----		-----
480		-----		-----	1676		-----		-----
494	D5950	-18	R(0.05)	-2.90	1681		-----		-----
495	D6892	-18	R(0.05)	-2.90	1724		-----		-----
498		-----		-----	1730		-----		-----
541		-----		-----	1742		-----		-----
663		-----		-----	1743		-15		-1.52
671		-----		-----	1746		-----		-----
704		-----		-----	1776	D5950	-12		-0.14
734	D6749	-11		0.32	1796		-----		-----
736		-----		-----	1807		-----		-----
752		-----		-----	1810	D5950	-15		-1.52
759		-----		-----	1811	D5950	-15		-1.52
778		-----		-----	1833	D5950	-12		-0.14
779		-----		-----	1849		-----		-----
781	D5950	-9		1.24	1854		-----		-----
782		-----		-----	1857		-----		-----
785	D6749	-9.0		1.24	1858		-----		-----
798		-----		-----	1862		-----		-----
823	D5950	-12		-0.14	1950		-----		-----
872		-----		-----	1953	D6749	-13		-0.60
873		-----		-----	1961		-----		-----
874		-----		-----	1976		-----		-----
875		-----		-----	1984		-----		-----
902		-----		-----	2129	D5950	-12		-0.14
904		-----		-----	2130		-----		-----
913		-----		-----	2146		-----		-----
914	D5950	-12		-0.14	6012		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026		-----		-----	6258		-----		-----
6075		-----		-----	6299	NF T60-105	-12		-0.14
6142	D5950	-12		-0.14	6307		-----		-----
6185	D6749	-12		-0.14	6321		-----		-----
6192		-----		-----	6363		-----		-----
6203		-----		-----	6373	D5950	-12		-0.14
6226	D5950	-12		-0.14	6416		-----		-----
6229		-----		-----	6441	D6892	-13.0		-0.60
6240	D5950	-12		-0.14	6478		-----		-----
6242		-----		-----	6510	D5950	-12		-0.14

normality	OK
n	39
outliers	2
mean (n)	-11.69
st.dev. (n)	1.542
R(calc.)	4.32
st.dev.(D5950:14R20)	2.179
R(D5950:14R20)	6.1

Kernel Density
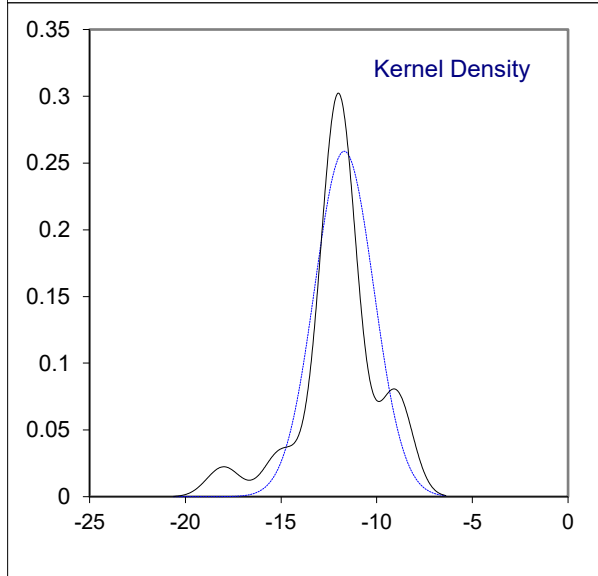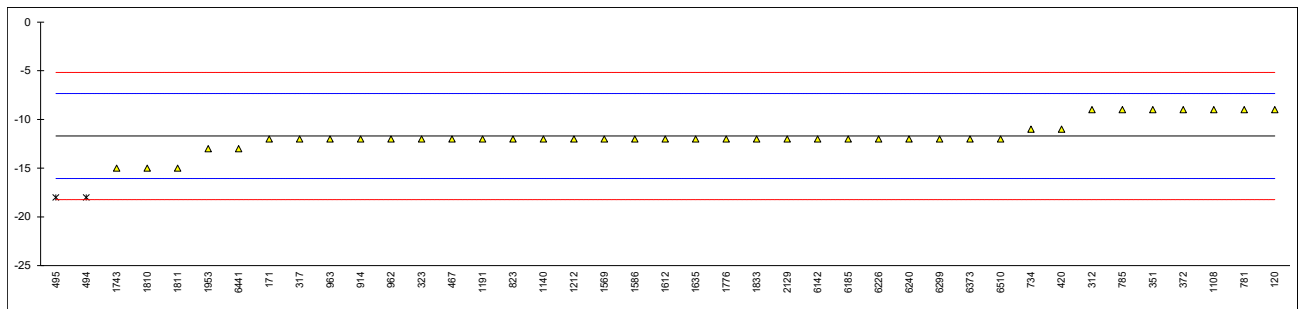
Determination of Sulfur on sample #23005; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D7039	9.10		0.14	962	D5453	8.2		-1.04
140	ISO20846	9.5		0.67	963	ISO20846	8.9		-0.12
171	ISO20846	9.1		0.14	971	ISO20846	9.23		0.32
206		-----		-----	974	D5453	9.0		0.01
207		-----		-----	995	ISO20846	9.0		0.01
208		-----		-----	997	ISO20846	9.0		0.01
209		-----		-----	1006	D5453	9.2		0.28
225		-----		-----	1016	ISO20846	9.30		0.41
228	D2622	7.0	DG(0.05)	-2.62	1039	ISO20884	8.8		-0.25
237	D5453	10		1.33	1040	ISO20846	10.395		1.85
238		-----		-----	1059	ISO20846	8.4		-0.78
311	ISO20846	8.3		-0.91	1064	ISO20846	9.54	C	0.72
312		-----		-----	1095	ISO20846	9.2		0.28
317	ISO20846	9.7		0.93	1097	D5453	9.85		1.13
323	ISO20846	9.2		0.28	1108	D5453	7.778		-1.60
328		-----		-----	1121	ISO20846	8.35		-0.84
331		-----		-----	1126	ISO20846	8.8		-0.25
333	D5453	9.0		0.01	1131	ISO20846	8.893		-0.13
334	ISO20846	8.6		-0.51	1134	IP490	8.16		-1.09
335	ISO20846	9.489		0.66	1140	D5453	9.4		0.54
337	ISO20846	9.7		0.93	1146		-----		-----
338		-----		-----	1191	ISO20846	8.83		-0.21
342		-----		-----	1199	ISO20884	7.94		-1.38
343		-----		-----	1205	ISO20846	9.41		0.55
345	ISO20846	9.2	C	0.28	1212	ISO20846	9.36		0.49
351	ISO20846	7.96		-1.36	1227	D5453	9		0.01
360	ISO20846	8.94		-0.07	1259	ISO20846	8.9		-0.12
365	IP490	9.614		0.82	1275	IP490	10.67		2.21
369	ISO20846	9.14		0.20	1286		-----		-----
370	ISO20846	8.9		-0.12	1299	ISO20884	9.9		1.20
371	ISO20846	9.44		0.59	1320		-----		-----
372	ISO20846	9.1		0.14	1356	ISO8754	<300		-----
381	ISO20846	9.0		0.01	1397	ISO20846	9.5		0.67
391		-----		-----	1399		-----		-----
396	ISO20846	9.1		0.14	1438	D4294	9.8	C	1.07
398	ISO20846	8.92		-0.09	1498		-----		-----
399	ISO20846	8.9		-0.12	1556	ISO20884	8.4		-0.78
404	ISO20846	8.2		-1.04	1569	ISO20846	8.4		-0.78
420	ISO20846	10.4		1.86	1586	ISO20846	9.5		0.67
431		-----		-----	1612	D4294	<20		-----
432		-----		-----	1613	D5453	9.1		0.14
440		-----		-----	1631	D5453	9		0.01
444		-----		-----	1634	ISO20846	9.7		0.93
445	ISO20846	8.99		0.00	1635		-----		-----
447	IP490	9.14		0.20	1636	ISO20846	9.25		0.34
467	ISO20846	9.51		0.68	1656	IP490	9.4		0.54
480	ISO20846	8.72		-0.36	1676	ISO20846	8.658		-0.44
494	ISO20846	9.6		0.80	1681	ISO13032	8.5		-0.65
495	ISO20846	6.97	DG(0.05)	-2.66	1724	D5453	8.8		-0.25
498		-----		-----	1730	ISO20846	9.04		0.07
541	ISO20846	7.7		-1.70	1742	ISO20846	9.7		0.93
663	D5453	9.2		0.28	1743	ISO20846	7.9		-1.44
671	D7039	7.82		-1.54	1746	D7039	8.1		-1.17
704		-----		-----	1776	ISO20846	8.3		-0.91
734	D5453	9.1		0.14	1796		-----		-----
736	ISO20846	8.54		-0.59	1807	ISO20846	8.59		-0.53
752		-----		-----	1810	D5453	9.3		0.41
759		-----		-----	1811	ISO20846	9.8		1.07
778	ISO20884	8.4		-0.78	1833	ISO20846	8.54		-0.59
779	ISO20884	9.3		0.41	1849	ISO20846	8.39		-0.79
781	ISO20846	7.9		-1.44	1854	ISO20846	9.00		0.01
782	ISO20884	8.85		-0.18	1857	ISO20846	8.83		-0.21
785	ISO20884	8.8		-0.25	1858	ISO20846	8.12		-1.15
798		-----		-----	1862	D2622	8.76		-0.30
823	D5453	9.0		0.01	1950	ISO20884	8.8		-0.25
872	ISO20846	8.8		-0.25	1953	D4294	7.34		-2.17
873	ISO20846	8.7		-0.38	1961		-----		-----
874	ISO20846	8.9		-0.12	1976		-----		-----
875	ISO20846	9.6		0.80	1984	ISO20846	8.55		-0.58
902	ISO20846	9.4		0.54	2129		-----		-----
904	ISO20846	9.2		0.28	2130	D5453	8.9		-0.12
913		-----		-----	2146	ISO20846	10.5		1.99
914	D5453	8.2		-1.04	6012	ISO20846	8.9		-0.12

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	ISO20846	8.8		-0.25	6258	ISO20846	8.7		-0.38
6075		-----		-----	6299	ISO20846	9.0		0.01
6142	ISO20846	9.24		0.33	6307		-----		-----
6185	D5453	9.85		1.13	6321	ISO20846	8.5		-0.65
6192	ISO20846	8.8		-0.25	6363	ISO13032	9.9		1.20
6203	D5453	9.00		0.01	6373	ISO20846	8.9		-0.12
6226		-----		-----	6416	D5453	9.789		1.05
6229		-----		-----	6441	ISO20846	8.53		-0.61
6240	ISO20846	9.1		0.14	6478	ISO20884	8.24		-0.99
6242		-----		-----	6510	ISO20846	9.8		1.07

normality	OK
n	124
outliers	2
mean (n)	8.9903
st.dev. (n)	0.60130
R(calc.)	1.6836
st.dev.(ISO20846:19)	0.75961
R(ISO20846:19)	2.1269

Lab 345 first reported 6.386
Lab 1064 first reported 6.13
Lab 1438 first reported 11.8
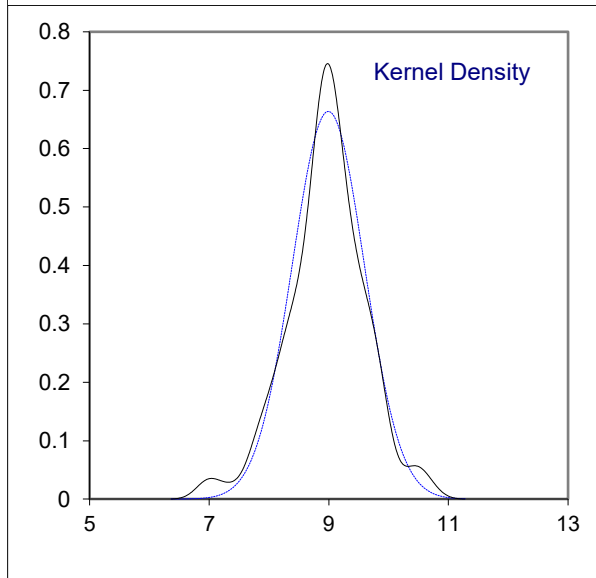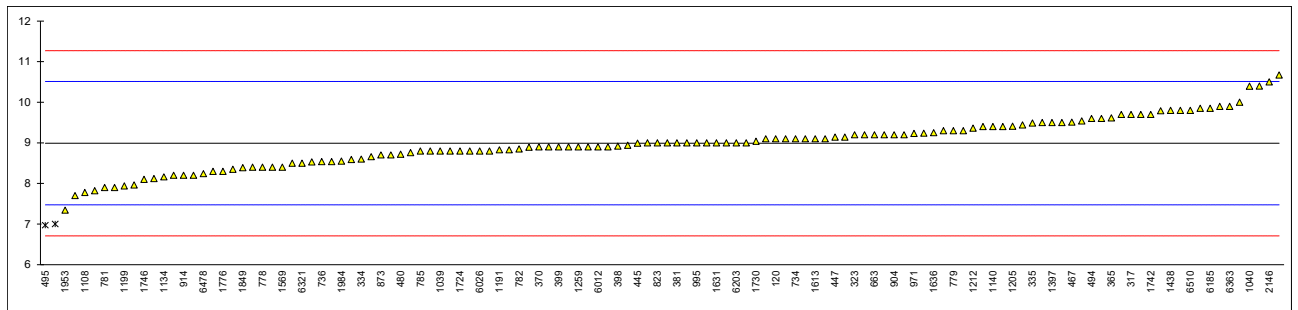
Determination of Water on sample #23005; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	962	D6304-A:16e1	66		0.21
140	ISO12937	129	C,R(0.01)	3.46	963	ISO12937	70		0.41
171	ISO12937	120	R(0.01)	3.00	971	D6304-A:20	71.3		0.48
206		-----		-----	974	D6304-A:20	70		0.41
207		-----		-----	995	ISO12937	58		-0.21
208		-----		-----	997	ISO12937	57		-0.26
209		-----		-----	1006	D6304-A:20	70		0.41
225		-----		-----	1016	ISO12937	79.63		0.91
228		-----		-----	1039	ISO12937	60		-0.11
237	D6304-C:16e1	58		-0.21	1040	ISO12937	68.4		0.33
238		-----		-----	1059	ISO12937	60		-0.11
311	ISO12937	60		-0.11	1064		-----		-----
312	ISO12937	60		-0.11	1095	ISO12937	70		0.41
317	ISO12937	60		-0.11	1097		-----		-----
323	ISO12937	60		-0.11	1108	ISO12937	61.8		-0.01
328	ISO12937	60		-0.11	1121	ISO12937	56		-0.31
331	D6304-C:20	58.07		-0.20	1126		-----		-----
333	ISO12937	70		0.41	1131	ISO12937	49		-0.67
334	ISO12937	60		-0.11	1134	ISO12937	67.5		0.28
335	ISO12937	49.8		-0.63	1140	IP438	134	R(0.01)	3.72
337	ISO12937	69.1		0.37	1146	D6304-B:20	44		-0.93
338	ISO12937	62.6		0.03	1191	ISO12937	69		0.36
342	ISO12937	67.5		0.28	1199		-----		-----
343	ISO12937	53		-0.47	1205		-----		-----
345	ISO12937	65		0.15	1212	ISO12937	63.4		0.07
351	ISO12937	62.0		0.00	1227	D6304-A:20	64		0.10
360	ISO12937	65.6		0.18	1259	ISO12937	60		-0.11
365	IP438	57.55		-0.23	1275	IP438	57.466		-0.24
369	ISO12937	53		-0.47	1286		-----		-----
370	ISO12937	58.8		-0.17	1299	ISO12937	70		0.41
371	ISO12937	61.34		-0.04	1320		-----		-----
372	ISO12937	51.3		-0.55	1356	D6304-A:20	<200		-----
381	ISO12937	62		0.00	1397		-----		-----
391		-----		-----	1399		-----		-----
396	D6304-A:20	70		0.41	1438		-----		-----
398	ISO12937	64		0.10	1498		-----		-----
399	ISO12937	61		-0.05	1556	ISO12937	73		0.57
404	ISO12937	55.2		-0.35	1569	ISO12937	70		0.41
420	ISO12937	60		-0.11	1586	ISO12937	73		0.57
431		-----		-----	1612		-----		-----
432		-----		-----	1613	D6304-A	58.7		-0.17
440		-----		-----	1631		-----		-----
444		-----		-----	1634	ISO12937	56		-0.31
445	ISO12937	64.9		0.15	1635	ISO12937	58.7		-0.17
447	IP438	61		-0.05	1636	ISO12937	60.3		-0.09
467	ISO12937	54.5		-0.39	1656	IP438	69		0.36
480	ISO12937	60.0		-0.11	1676		-----		-----
494	ISO12937	81		0.98	1681	ISO12937	76		0.72
495	ISO12937	57.0		-0.26	1724	D6304-A:20	50		-0.62
498	ISO12937	81.45		1.00	1730	ISO12937	64.0		0.10
541	D6304-A:20	65		0.15	1742	ISO12937	57.1		-0.26
663	D6304-A:20	66		0.21	1743	ISO12937	50		-0.62
671	E203	30	C,R(0.01)	-1.66	1746	D6304-A:16e1	53		-0.47
704		-----		-----	1776	ISO12937	60		-0.11
734	ISO12937	58.0		-0.21	1796		-----		-----
736	ISO12937	71		0.46	1807	ISO12937	60		-0.11
752		-----		-----	1810	ISO12937	62		0.00
759	ISO12937	52		-0.52	1811	ISO12937	60		-0.11
778	ISO12937	46		-0.83	1833	ISO12937	70		0.41
779	ISO12937	60		-0.11	1849	ISO12937	56		-0.31
781	ISO12937	68		0.31	1854	D6304-C:16e1	64.0		0.10
782		-----		-----	1857	ISO12937	53.9		-0.42
785	ISO12937	65		0.15	1858	ISO12937	58.5		-0.18
798		-----		-----	1862	IP438	52.5		-0.49
823	ISO12937	64		0.10	1950	IP438	56		-0.31
872	ISO12937	54		-0.42	1953	ISO12937	54.11		-0.41
873	ISO12937	57		-0.26	1961	ISO12937	67		0.26
874	ISO12937	64		0.10	1976	ISO12937	61.52		-0.03
875	ISO12937	72		0.52	1984	ISO12937	67.5		0.28
902	ISO12937	60.3		-0.09	2129	IP439	61		-0.05
904	ISO12937	59.3		-0.14	2130	IP438	53.4		-0.45
913		-----		-----	2146		-----		-----
914	D6304-A:20	61.0		-0.05	6012	ISO12937	62.64		0.03

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
6026	IP438	60		-0.11	6258	ISO12937	67		0.26
6075		-----		-----	6299	ISO12937	64		0.10
6142	ISO12937	99	R(0.01)	1.91	6307		-----		-----
6185	E203	69.8075		0.40	6321	IP438	56.7		-0.28
6192	ISO12937	60.9		-0.06	6363	ISO12937	79		0.88
6203	ISO12937	55		-0.36	6373	ISO12937	66		0.21
6226	ISO12937	66.0		0.21	6416		-----		-----
6229	ISO6296	100	R(0.01)	1.96	6441	ISO12937	57		-0.26
6240	ISO12937	60		-0.11	6478	ISO12937	49.6		-0.64
6242	ISO12937	82.3		1.05	6510	ISO12937	66.1		0.21

normality	OK
n	122
outliers	6
mean (n)	62.033
st.dev. (n)	7.3041
R(calc.)	20.452
st.dev.(ISO12937:00)	19.3443
R(ISO12937:00)	54.164

Lab 140 first reported 90
Lab 671 first reported 0.0112%M/M

Kernel Density
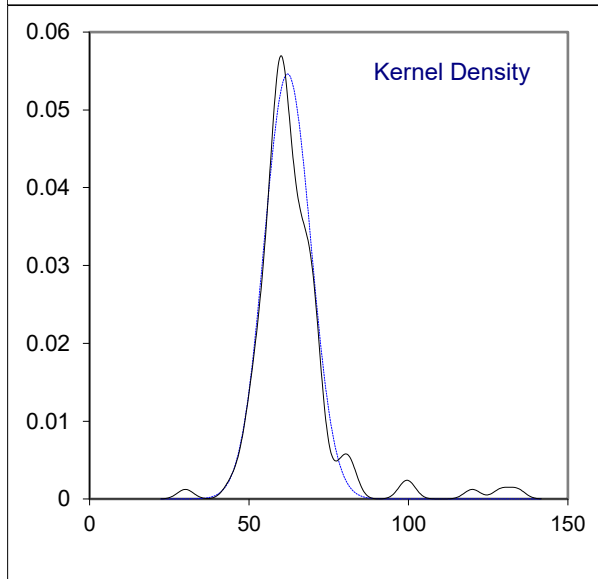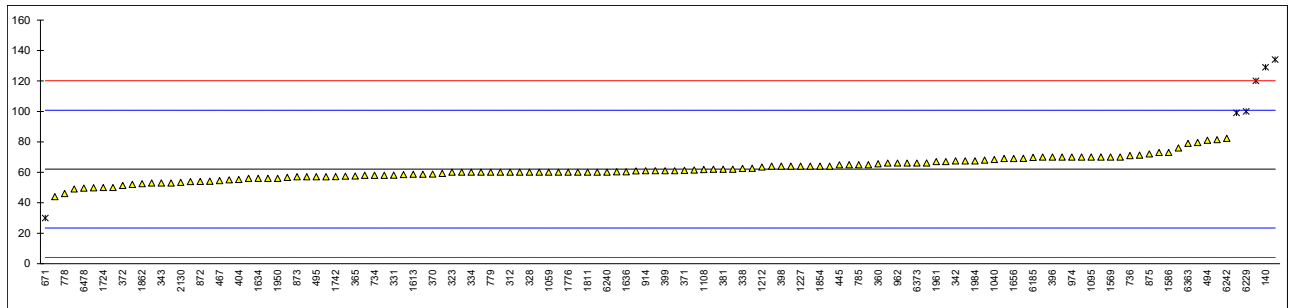
Determination of Cetane Number on sample #23006;

lab	method	value	mark	z(targ)	remarks
120	D613	51.23	C	-0.93	First reported 56.04
140	D613	53.9		0.78	
171	ISO5165	54.7		1.29	
206	FTIR	52.6		-0.05	
207	FTIR	53.0		0.20	
209	FTIR	52.7		0.01	
312	ISO5165	52.2		-0.31	
323	ISO5165	52.9		0.14	
328		-----		-----	
333	D613	52.5		-0.12	
334		-----		-----	
343		-----		-----	
360	ISO5165	52.34		-0.22	
370	ISO5165	52.2		-0.31	
381	D613	52.7		0.01	
420	ISO5165	52.9		0.14	
444	D613	53.0	C	0.20	First reported 50.4
445		-----		-----	
447	D613	52.0		-0.43	
494		-----		-----	
736	ISO5165	53.14		0.29	
754	ISO5165	53.29		0.39	
904		-----		-----	
1039		-----		-----	
1059		-----		-----	
1095		-----		-----	
1108		-----		-----	
1131	ISO5165	52.87		0.12	
1134		-----		-----	
1191		-----		-----	
1212	ISO5165	52.1		-0.37	
1259	ISO5165	53.4		0.46	
1275		-----		-----	
1299	D613	51.7		-0.63	
1356	ISO5165	53		0.20	
1399		-----		-----	
1556		-----		-----	
1586		-----		-----	
1613	D613	52.2		-0.31	
1631		-----		-----	
1636	ISO5165	52.78		0.06	
1776		-----		-----	
1807		-----		-----	
1833	ISO5165	51.07		-1.03	
1857	ISO5165	52.25		-0.28	
1862	ISO5165	53.7		0.65	
1976		-----		-----	
6075		-----		-----	
6142		-----		-----	
6203	ISO5165	52.7		0.01	
6240		-----		-----	
6258		-----		-----	
6321		-----		-----	
6373		-----		-----	
6416		-----		-----	

normality	suspect	
n	28	
outliers	0	
mean (n)	52.681	
st.dev. (n)	0.7613	
R(calc.)	2.132	
st.dev.(ISO5165:20)	1.5661	
R(ISO5165:20)	4.385	
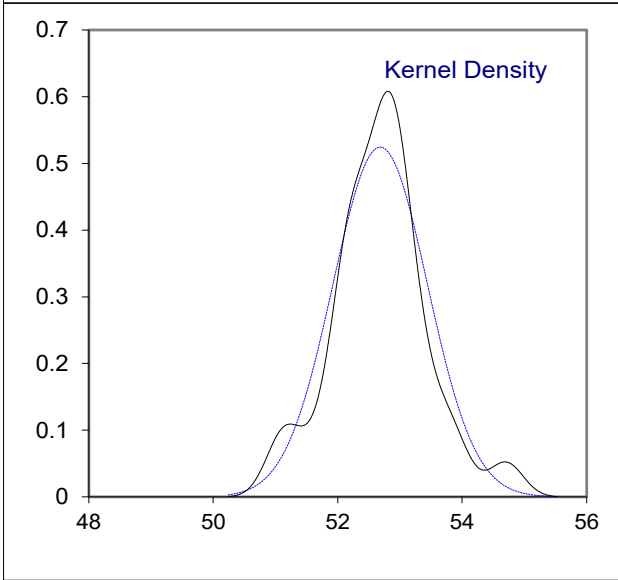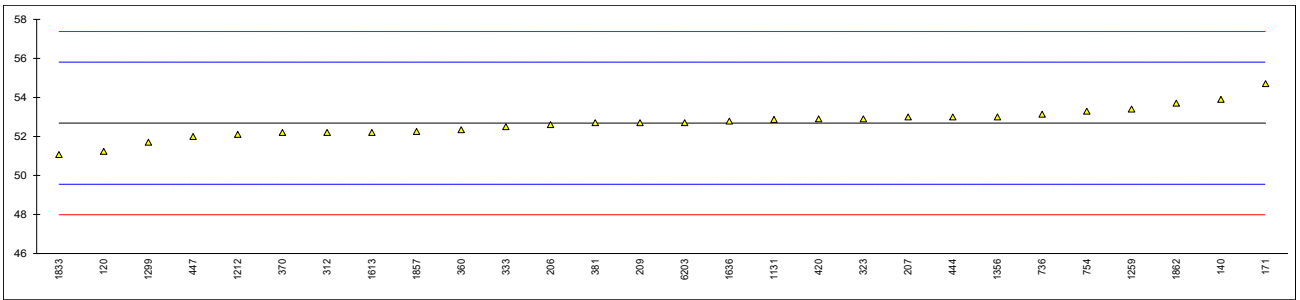
Determination of Derived Cetane Number (EN15195) on sample #23006;

lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	Air Temp. (°C)	mark
120		-----		-----	-----		-----	-----	
140		-----		-----	-----		-----	-----	
171		-----		-----	-----		-----	-----	
206		-----		-----	-----		-----	-----	
207		-----		-----	-----		-----	-----	
209		-----		-----	-----		-----	-----	
312		-----		-----	-----		-----	-----	
323		-----		-----	-----		-----	-----	
328		-----		-----	-----		-----	-----	
333		-----		-----	-----		-----	-----	
334		-----		-----	-----		-----	-----	
343		-----		-----	-----		-----	-----	
360		-----		-----	-----		-----	-----	
370		-----		-----	-----		-----	-----	
381		-----		-----	-----		-----	-----	
420		-----		-----	-----		-----	-----	
444		-----		-----	-----		-----	-----	
445	IP498	53.36		0.55	3.816		-0.44	582.5	
447		-----		-----	-----		-----	-----	
494	EN15195	52.3		-0.65	-----		-----	-----	
736		-----		-----	-----		-----	-----	
754		-----		-----	-----		-----	-----	
904		-----		-----	-----		-----	-----	
1039		-----		-----	-----		-----	-----	
1059		-----		-----	-----		-----	-----	
1095	EN15195	53.2		0.36	-----		-----	-----	
1108		-----		-----	-----		-----	-----	
1131		-----		-----	-----		-----	-----	
1134	IP498	52.79		-0.10	3.861		0.19	580.3	
1191	EN15195	52.7394		-0.16	3.865		0.25	-----	
1212		-----		-----	-----		-----	-----	
1259		-----		-----	-----		-----	-----	
1275		-----		-----	-----		-----	-----	
1299		-----		-----	-----		-----	-----	
1356		-----		-----	-----		-----	-----	
1399		-----		-----	-----		-----	-----	
1556		-----		-----	-----		-----	-----	
1586		-----		-----	-----		-----	-----	
1613		-----		-----	-----		-----	-----	
1631		-----		-----	-----		-----	-----	
1636		-----		-----	-----		-----	-----	
1776		-----		-----	-----		-----	-----	
1807		-----		-----	-----		-----	-----	
1833		-----		-----	-----		-----	-----	
1857		-----		-----	-----		-----	-----	
1862		-----		-----	-----		-----	-----	
1976		-----		-----	-----		-----	-----	
6075		-----		-----	-----		-----	-----	
6142		-----		-----	-----		-----	-----	
6203		-----		-----	-----		-----	-----	
6240		-----		-----	-----		-----	-----	
6258		-----		-----	-----		-----	-----	
6321		-----		-----	-----		-----	-----	
6373		-----		-----	-----		-----	-----	
6416		-----		-----	-----		-----	-----	

normality	unknown		unknown	
n	5		3	
outliers	0		0	
mean (n)	52.878		3.8473	
st.dev. (n)	0.4174		0.02721	
R(calc.)	1.169		0.0762	
st.dev.(EN15195:14)	0.8842		0.07197	
R(EN15195:14)	2.476		0.2015	

DCN (EN15195)

ID (EN15195)
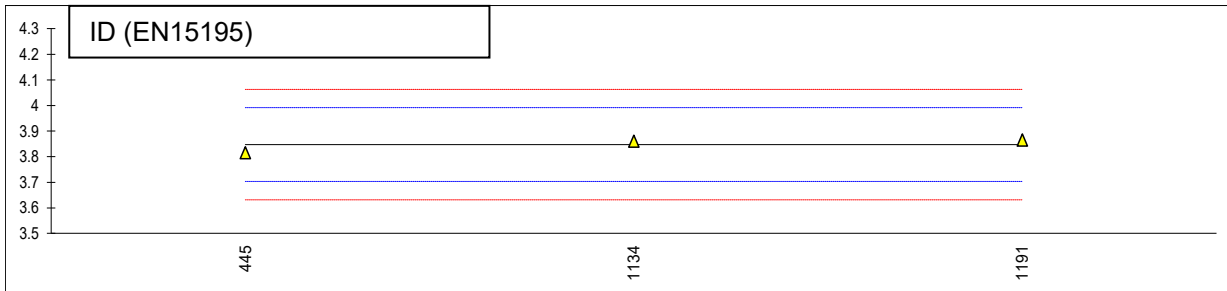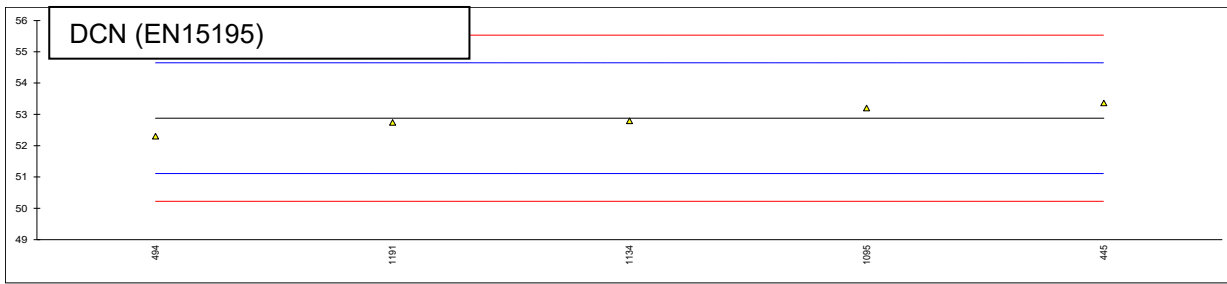
Determination of Derived Cetane Number (EN16715) on sample #23006;

Lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	CD (ms)	mark	z(targ)	W. T. (°C)	mark
120		-----		-----	-----		-----	-----		-----	-----	
140		-----		-----	-----		-----	-----		-----	-----	
171		-----		-----	-----		-----	-----		-----	-----	
206		-----		-----	-----		-----	-----		-----	-----	
207		-----		-----	-----		-----	-----		-----	-----	
209		-----		-----	-----		-----	-----		-----	-----	
312		-----		-----	-----		-----	-----		-----	-----	
323		-----		-----	-----		-----	-----		-----	-----	
328		-----		-----	-----		-----	-----		-----	-----	
333		-----		-----	-----		-----	-----		-----	-----	
334		-----		-----	-----		-----	-----		-----	-----	
343	D7668	52.4	E	-1.12	3.07		2.05	4.5		0.55	593.20	
360		-----		-----	-----		-----	-----		-----	-----	
370		-----		-----	-----		-----	-----		-----	-----	
381		-----		-----	-----		-----	-----		-----	-----	
420		-----		-----	-----		-----	-----		-----	-----	
444		-----		-----	-----		-----	-----		-----	-----	
445		-----		-----	-----		-----	-----		-----	-----	
447		-----		-----	-----		-----	-----		-----	-----	
494		-----		-----	-----		-----	-----		-----	-----	
736		-----		-----	-----		-----	-----		-----	-----	
754		-----		-----	-----		-----	-----		-----	-----	
904		-----		-----	-----		-----	-----		-----	-----	
1039	EN16715	53.0		0.02	2.82		-2.65	4.48		0.12	604.94	
1059	EN16715	53.1		0.21	2.9766		0.29	4.4789		0.10	597.23	
1095		-----		-----	-----		-----	-----		-----	-----	
1108	D7668	53.90		1.72	2.8526		-2.04	4.4063		-1.48	602.2	
1131	EN16715	52.70	E	-0.55	2.8863		-1.41	4.3776		-2.10	600.41	
1134		-----		-----	-----		-----	-----		-----	-----	
1191	EN16715	51.99		-1.89	3.0297		1.29	4.5733		2.15	-----	
1212		-----		-----	-----		-----	-----		-----	-----	
1259		-----		-----	-----		-----	-----		-----	-----	
1275	IP615	53.32		0.62	2.9498		-0.21	4.4567		-0.39	583.56	
1299	D7668	54.3		2.47	3.00		0.73	4.38		-2.05	593	
1356		-----		-----	-----		-----	-----		-----	-----	
1399		-----		-----	-----		-----	-----		-----	-----	
1556	EN16715	53.27		0.53	3.0251		1.21	4.4643		-0.22	581.19	
1586	D7668	52.7		-0.55	3.0361		1.41	4.5102		0.77	-----	
1613		-----		-----	-----		-----	-----		-----	-----	
1631		-----		-----	-----		-----	-----		-----	-----	
1636		-----		-----	-----		-----	-----		-----	-----	
1776		-----		-----	-----		-----	-----		-----	-----	
1807		-----		-----	-----		-----	-----		-----	-----	
1833		-----		-----	-----		-----	-----		-----	-----	
1857		-----		-----	-----		-----	-----		-----	-----	
1862		-----		-----	-----		-----	-----		-----	-----	
1976	EN16715	52.94		-0.10	2.9325		-0.54	4.4870		0.27	602.01	
6075		-----		-----	-----		-----	-----		-----	-----	
6142	D7668	53.42		0.81	2.997		0.68	4.451		-0.51	600.31	
6203		-----		-----	-----		-----	-----		-----	-----	
6240		-----		-----	-----		-----	-----		-----	-----	
6258	EN16715	53.25		0.49	2.8690		-1.73	4.4579		-0.36	598.83	
6321		-----		-----	-----		-----	-----		-----	-----	
6373	EN16715	51.58		-2.67	3.01		0.92	4.62		3.16	590.98	
6416		-----		-----	-----		-----	-----		-----	-----	
	normality	OK			OK			OK				
	n	14			14			14				
	outliers	0			0			0				
	mean (n)	52.991			2.96105			4.47451				
	st.dev. (n)	0.7073			0.077670			0.066380				
	R(calc.)	1.980			0.21748			0.18586				
	st.dev.(EN16715:15)	0.5291			0.053129			0.046049				
	R(EN16715:15)	1.481			0.14876			0.12894				

Lab 343 calculation different, iis calculated 52.9
Lab 1131 calculation different, iis calculated 54.30

DCN (EN16715)

Ignition Delay (EN16715)

Combustion Delay (EN16715)
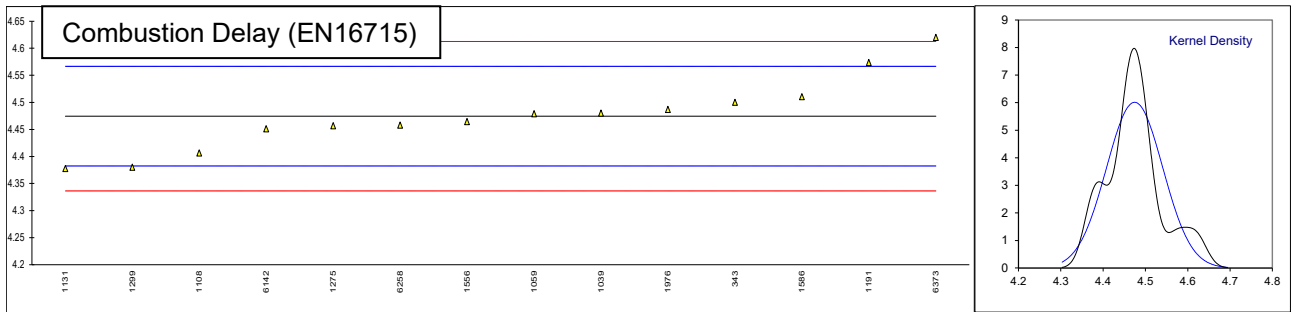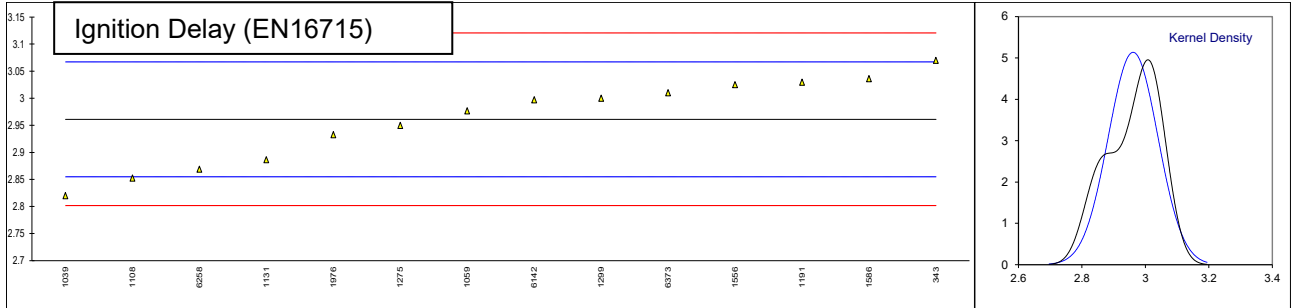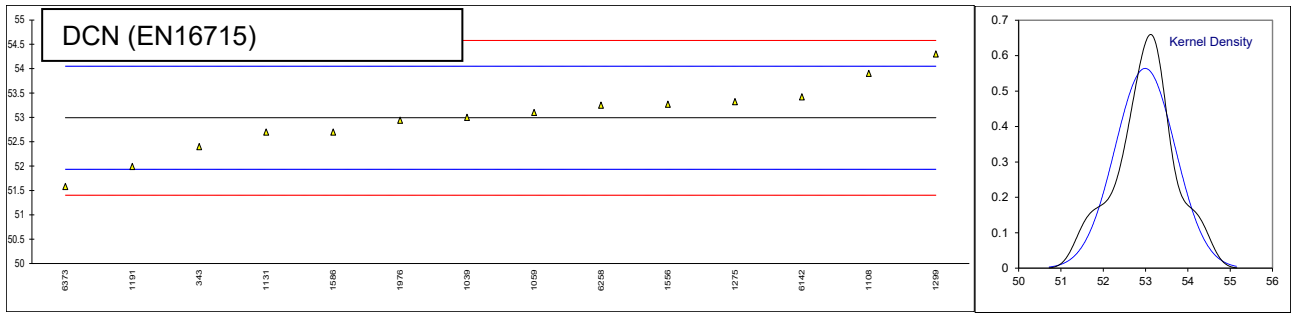
Determination of Indicated Cetane Number (ICN) on sample #23006;

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
171		-----		-----	
206		-----		-----	
207		-----		-----	
209		-----		-----	
312		-----		-----	
323		-----		-----	
328		-----		-----	
333		-----		-----	
334		-----		-----	
343		-----		-----	
360		-----		-----	
370		-----		-----	
381		-----		-----	
420		-----		-----	
444		-----		-----	
445		-----		-----	
447		-----		-----	
494		-----		-----	
736		-----		-----	
754		-----		-----	
904		-----		-----	
1039		-----		-----	
1059		-----		-----	
1095		-----		-----	
1108		-----		-----	
1131		-----		-----	
1134		-----		-----	
1191		-----		-----	
1212		-----		-----	
1259		-----		-----	
1275		-----		-----	
1299		-----		-----	
1356		-----		-----	
1399		-----		-----	
1556		-----		-----	
1586		-----		-----	
1613		-----		-----	
1631		-----		-----	
1636		-----		-----	
1776	EN17155	52.5		-0.45	
1807	EN17155	53.57		0.92	
1833		-----		-----	
1857		-----		-----	
1862		-----		-----	
1976		-----		-----	
6075		-----		-----	
6142		-----		-----	
6203	EN17155	52.7		-0.20	
6240		-----		-----	
6258		-----		-----	
6321	EN17155	52.65		-0.26	
6373		-----		-----	
6416		-----		-----	

|	
normality	unknown
n	4
outliers	0
mean (n)	52.855
st.dev. (n)	0.4842
R(calc.)	1.356
st.dev.(EN17155:18)	0.7806
R(EN17155:18)	2.186
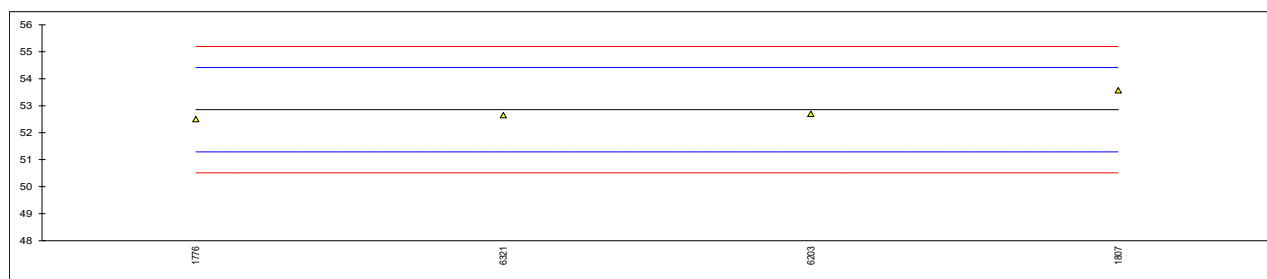
Determination of Total Contamination on sample #23007; result in mg/kg

lab	method	Total C.	mark	z(targ)	complete	vol. filtered (mL)	stopped (min)	remarks
120		-----		-----		-----	-----	
140	EN12662:2014	5.5	C,R(0.05)	-7.75	Yes	300	-----	First reported <12
171	EN12662:2014	24.5		-1.96	Yes	300	-----	
311	EN12662:2014	37		1.84		300	15	
312	EN12662:2014	35		1.23	Yes	300	-----	
317	EN12662:2014	38.0		2.15	Yes	300	-----	
323	EN12662:2014	21.8		-2.78	Yes	300	-----	
328		-----		-----		-----	-----	
331	EN12662:2014	>30		-----	Yes	300	-----	
334	EN12662	>30.0		-----		300	-----	
335	EN12662:2014	29.5		-0.44	Yes	-----	-----	
337	EN12662:2014	29.0		-0.59	Yes	300	0.5	
343	EN12662:2014	23.9		-2.14	Yes	-----	-----	
345	EN12662:2014	20.2		-3.27		-----	-----	
351	EN12662:2014	31.63		0.21	Yes	300	-----	
360	EN12662:2014	31.40		0.14	Yes	300	-----	
365	IP440	31.153		0.06	Yes	405	-----	
369	EN12662:2014	29.9		-0.32	Yes	300	9	
370	EN12662:2014	35.5		1.39	Yes	300	660	
371	EN12662:2014	34.37		1.04	Yes	300	-----	
372	EN12662:2014	24.6		-1.93	Yes	270	30	
381	EN12662:2008	40		2.76	Yes	300	-----	
391		-----		-----		-----	-----	
396		-----		-----		-----	-----	
398		-----		-----		-----	-----	
399	EN12662:2014	37.0		1.84	Yes	300	-----	
404	EN12662:2014	31.4		0.14	Yes	300	7	
420	EN12662:2014	40.84		3.01	Yes	300	-----	
445	IP440	35.34		1.34		300	-----	
447	IP440	36.2		1.60	Yes	300	-----	
467	EN12662:2014	32.51		0.48	Yes	300	-----	
494	EN12662:2014	5.0	R(0.05)	-7.90	Yes	-----	-----	
663	EN12662:2014	28.0		-0.90	Yes	300	-----	
704		-----		-----		-----	-----	
736	EN12662:2014	20.5		-3.18	Yes	300	7	
750		-----		-----		-----	-----	
779	EN12662	43.8		3.91	Yes	-----	-----	
781	EN12662	31.9		0.29	Yes	-----	-----	
785	EN12662:2014	28.6		-0.71	Yes	300	4	
823	EN12662:2014	16		-4.55	Yes	300	<1	
873	EN12662	32.50		0.47	Yes	300	-----	
874	EN12662:2014	30.4		-0.17	Yes	300	20	
875	EN12662	32.0		0.32	Yes	300	<30	
963	EN12662:2014	16.6		-4.37	Yes	300	-----	
974	IP440	30.1		-0.26	Yes	300	5	
1006	EN12662:2014	31.7		0.23	Yes	300	5	
1016	EN12662:2014	22.03		-2.71	Yes	294	-----	
1039	EN12662:2014	39.5		2.60	Yes	295	13	
1059	EN12662:2014	34.0		0.93	Yes	-----	-----	
1064	EN12662:2014	31.4		0.14	No	300	-----	
1079	EN12662:2014	28.92		-0.62	Yes	-----	-----	
1095	EN12662:2014	>30		-----		-----	-----	
1108		-----		-----		-----	-----	
1131	EN12662:2014	27.845		-0.94	Yes	300	-----	
1134		-----		-----		-----	-----	
1191	EN12662:2014	37.2029		1.91		307.8	-----	
1212	EN12662:2014	20.19		-3.27	Yes	350	3.24	
1299	EN12662:2014	15.0		-4.85	Yes	300	-----	
1399		-----		-----		-----	-----	
1510	EN12662:2014	32.3		0.41		293	-----	
1556	EN12662:2014	31.3		0.11	Yes	300	4.6	
1586	EN12662:1998	36		1.54	Yes	300	-----	
1613	EN12662	>30		-----	Yes	300	-----	
1631		-----		-----		-----	-----	
1634	EN12662:2014	30.4		-0.17	Yes	300	-----	
1636		-----		-----		-----	-----	
1681	EN12662:2014	38.49		2.30	Yes	300	15.51	
1724		-----		-----		-----	-----	
1807	EN12662:2014	32.5		0.47	Yes	-----	-----	
1833	EN12662:2014	25.25		-1.73		-----	-----	
1849	EN12662:2014	35.33		1.33	Yes	-----	-----	

lab	method	Total C.	mark	z(targ)	complete	vol. filtered (mL)	stopped (min)	remarks
1854	EN12662:2014	35.5		1.39	Yes	300	12	
1857	EN12662:2014	32.34		0.42	Yes	300	<30	
1961	EN12662:2014	23.55		-2.25	Yes	300	-----	
1976	EN12662:1998	32.75		0.55		300	-----	
1984	EN12662:2014	31.7		0.23		-----	-----	
2129	EN12662:2014	29.79		-0.35	Yes	460	-----	
2130		-----	W	-----		-----	-----	withdrawn, rep.56.09
6012	EN12662:2014	32.3		0.41	Yes	300	-----	
6026	EN12662	29.1		-0.56	Yes	-----	-----	
6075		-----		-----		-----	-----	
6203	EN12662:2014	30.2		-0.23		300	5.21	
6242	EN12662:2014	37.12		1.88	Yes	300	-----	
6321	IP440	29.1		-0.56	Yes	300	-----	
6373	EN12662:2014	46.50		4.74	Yes	-----	-----	

normality	OK
n	64
outliers	2
mean (n)	30.945
st.dev. (n)	6.3733
R(calc.)	17.845
st.dev.(EN12662:14)	3.2851
R(EN12662:14)	9.198

Kernel Density
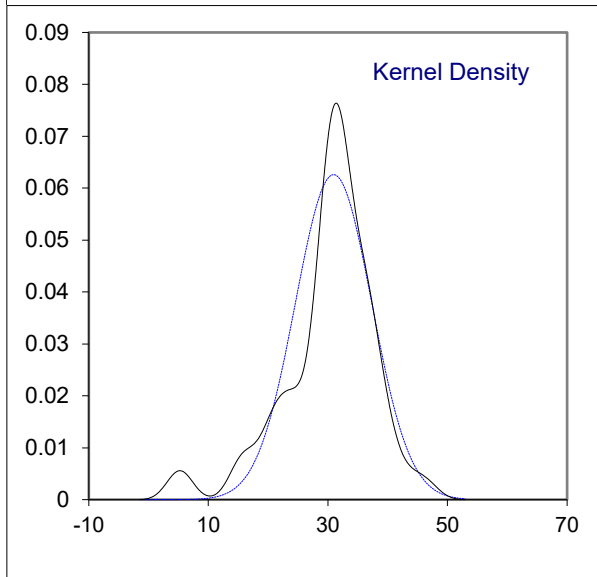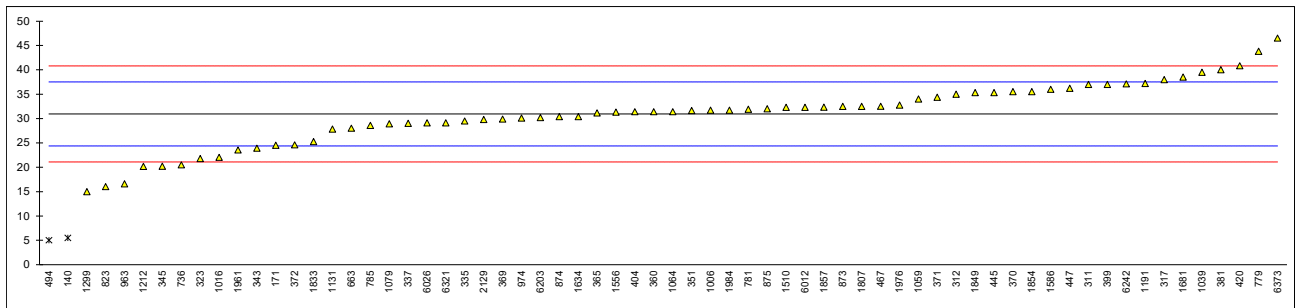
Determination of Oxidation Stability Induction period on sample #23008; results in hours

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
171	EN15751	42.1		2.29	
311	EN15751	37.2		0.40	
323	EN15751	38.1		0.74	
334	EN15751	27.2		-3.46	
342		-----		-----	
343	EN15751	40.7		1.75	
351		-----		-----	
360		-----		-----	
369		-----		-----	
370		-----		-----	
372		-----		-----	
391		-----		-----	
420	EN15751	32.9		-1.26	
445		-----		-----	
447	EN15751	>20		-----	
467		-----		-----	
494	EN15751	36.0		-0.07	
671		-----		-----	
750		-----		-----	
781		-----		-----	
823		-----		-----	
873		-----		-----	
874		-----		-----	
962	EN15751	16	R(0.05)	-7.78	Reported as aging time. Not capable to test Induction Period
963		-----		-----	
974		16	R(0.05)	-7.78	Reported as aging time. Not capable to test Induction Period
1006	EN15751	35.2		-0.37	
1016		-----		-----	
1059	EN15751	42.3	C	2.36	First reported >48.0
1079	EN15751	30.68		-2.12	
1095	EN15751	44.5		3.21	
1131		-----		-----	
1191		-----		-----	
1212	EN15751	43.2		2.71	
1299	EN15751	30.4		-2.23	
1399		-----		-----	
1459	EN15751	39.63		1.33	
1556		-----		-----	
1586	EN15751	36.7		0.20	
1613	D2274	16	R(0.05)	-7.78	
1631		-----		-----	
1681		-----		-----	
1724	EN15751	28.0		-3.15	
1807	EN15751	33.2		-1.15	
1833		-----		-----	
1849		-----		-----	
1857		-----		-----	
1984		-----		-----	
2129	EN15751	36.81		0.25	
2130	EN15751	>20		-----	
6075		-----		-----	
6203	EN15751	32.95		-1.24	
6299	EN15751	34.04	C	-0.82	First reported 21.95
6321	EN15751	37.77		0.62	
6373		-----		-----	

normality	OK	
n	21	
outliers	3	
mean (n)	36.170	
st.dev. (n)	4.8893	
R(calc.)	13.690	
st.dev.(EN15751:14)	2.5924	
R(EN15751:14)	7.259	

Kernel Density
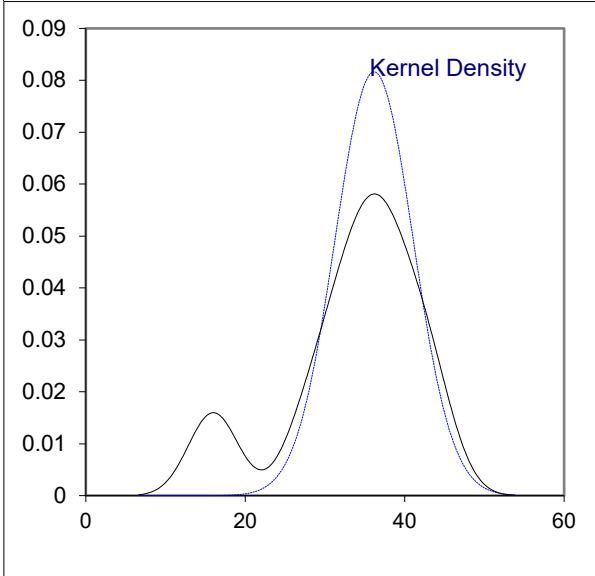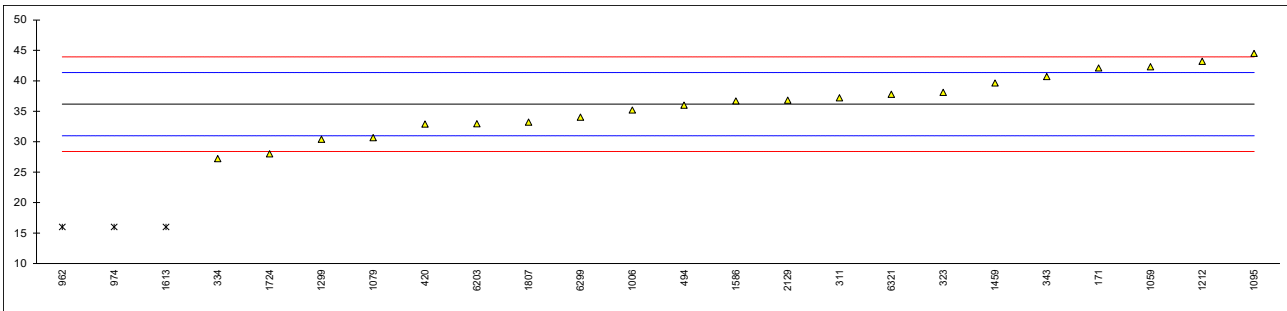
Determination of Oxidation Stability Insolubles on sample #23008; results in g/m^3

lab	method	Filterable (A)	mark	z(targ)	Adherent (B)	mark	z(targ)	Total (A+B)	mark	z(targ)
120		-----		-----	-----		-----	-----		-----
140	ISO12205	2		0.26	1		-0.79	3		-0.56
171	ISO12205	0		-0.64	0		-1.24	<1		-----
311		-----		-----	-----		-----	-----		-----
323	ISO12205	2		0.26	24	R(0.01)	9.56	26	R(0.01)	6.76
334	ISO12205	1		-0.19	0		-1.24	1		-1.19
342	ISO12205	0		-0.64	1		-0.79	1		-1.19
343		-----		-----	-----		-----	-----		-----
351		-----		-----	-----		-----	-----		-----
360	ISO12205	1.0		-0.19	2.3		-0.20	3.3		-0.46
369	ISO12205	0.29		-0.51	0.58		-0.98	0.87		-1.23
370	ISO12205	2.3		0.39	1.8		-0.43	4.1		-0.21
372	ISO12205	1.4		-0.01	0.8		-0.88	2.2		-0.81
391		-----		-----	-----		-----	-----		-----
420	ISO12205	0.86		-0.26	0.86		-0.85	1.72		-0.96
445	ISO12205	<1		-----	<1		-----	<1		-----
447	ISO12205	2.9		0.66	2.0		-0.34	4.9		0.05
467	ISO12205	0.86		-0.26	0.86		-0.85	1.71		-0.97
494	ISO12205	1.1		-0.15	0.9		-0.83	2.0		-0.87
671	D2274	4.6		1.43	4.3		0.70	8.9		1.32
750		-----		-----	-----		-----	-----		-----
781	ISO12205	0.86		-0.26	8.57		2.62	9.43		1.49
823		-----		-----	-----		-----	-----		-----
873	ISO12205	0.9		-0.24	7.9		2.32	8.8		1.29
874	ISO12205	0.8		-0.28	6.9		1.87	7.7		0.94
962		-----		-----	-----		-----	0.4		-1.38
963		-----		-----	-----		-----	3.0		-0.56
974	D2274	4		1.16	1		-0.79	5		0.08
1006	D2274	1		-0.19	3	C	0.11	4	C	-0.24
1016	ISO12205	0.3		-0.51	9		2.81	9.4		1.48
1059	ISO12205	0.0		-0.64	0.286		-1.11	0.286		-1.42
1079	ISO12205	0.9		-0.24	1.1		-0.74	2.0		-0.87
1095		-----		-----	-----		-----	<3		-----
1131	ISO12205	4.715		1.48	0.29		-1.11	5.01		0.08
1191		-----		-----	-----		-----	3.4		-0.43
1212		-----		-----	-----		-----	-----		-----
1299		-----		-----	-----		-----	1		-1.19
1399		-----		-----	-----		-----	-----		-----
1459		-----		-----	-----		-----	-----		-----
1556		-----		-----	-----		-----	-----		-----
1586		-----		-----	-----		-----	13	C	2.63
1613	D2274	1.3		-0.06	1.0		-0.79	2.3		-0.78
1631		-----		-----	-----		-----	-----		-----
1681	ISO12205	0.29		-0.51	8.00		2.36	8.3		1.13
1724	ISO12205	18.29	R(0.01)	7.59	0.28		-1.11	18.57	R(0.05)	4.40
1807	ISO12205	0		-0.64	2.3		-0.20	2		-0.87
1833		-----		-----	-----		-----	2		-0.87
1849		-----		-----	-----		-----	-----		-----
1857	ISO12205	3.0		0.71	6.0	C	1.46	9.0	C	1.35
1984	ISO12205	7.3	R(0.05)	2.64	0		-1.24	7.3		0.81
2129	ISO12205	1.1		-0.15	6.0		1.46	7.1		0.75
2130		-----		-----	-----		-----	-----		-----
6075		-----		-----	-----		-----	-----		-----
6203	ISO12205	2		0.26	5.6	C	1.28	13.1	E	2.66
6299		-----		-----	-----		-----	-----		-----
6321	ISO12205	6.3	R(0.05)	2.19	1.7		-0.47	8.0		1.03
6373		-----		-----	-----		-----	-----		-----
	normality	suspect			suspect			OK		
	n	29			31			35		
	outliers	3			1			2		
	mean (n)	1.430			2.752			4.749		
	st.dev. (n)	1.3172			2.9091			3.6192		
	R(calc.)	3.688			8.146			10.134		
	st.dev.(ISO12205:95)	2.2222			2.2222			3.1427		
	R(ISO12205:95)	6.222			6.222			8.800		

Lab 1006 first reported 12, 13
Lab 1586 first reported 3
Lab 1857 first reported 8.0, 11.0
Lab 6203 first reported 11.1. Total for (A)+(B) was not corrected to 7.6 (after correction of Adherent (B) by participant)
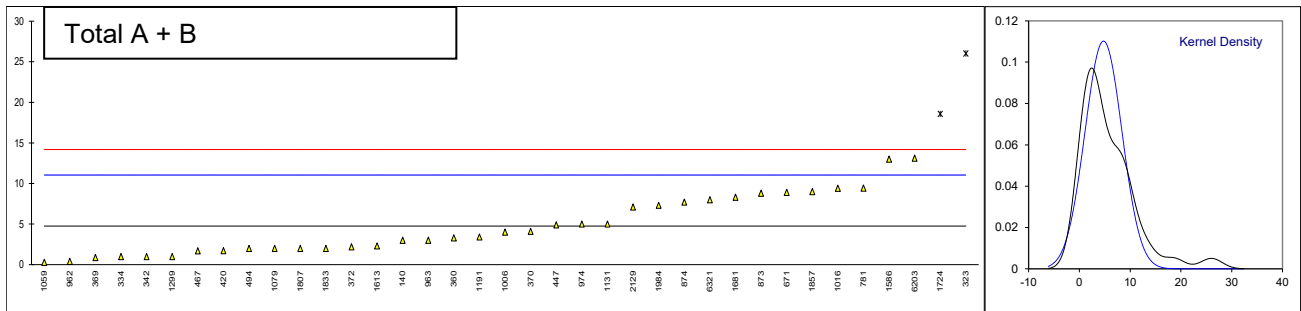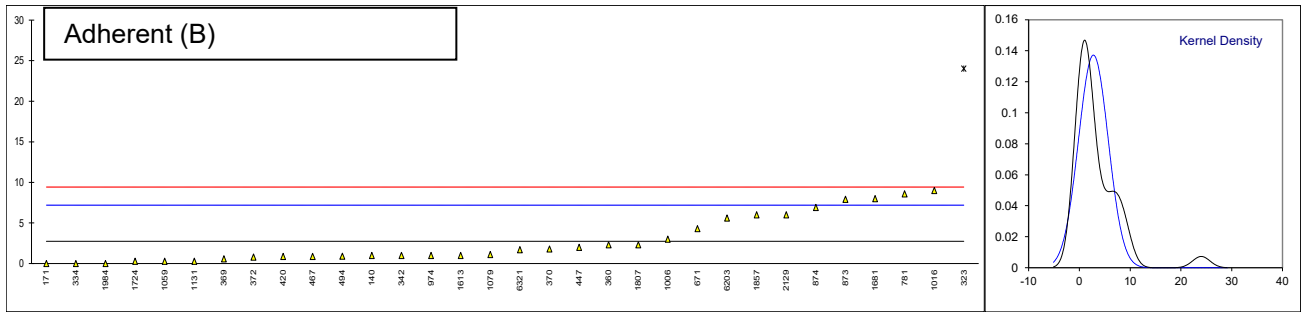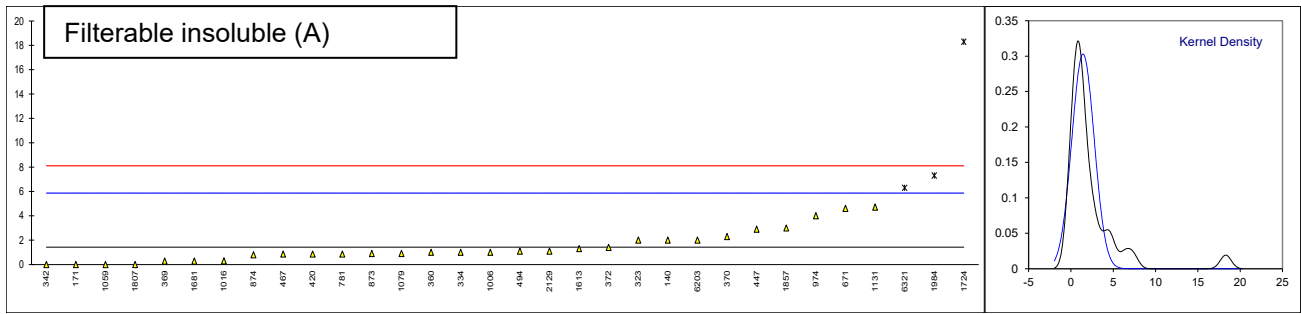
APPENDIX 2

Number of participants per country

  1 lab in ALGERIA
  1 lab in ARGENTINA
  3 labs in AUSTRIA
  4 labs in BELGIUM
  1 lab in BOSNIA and HERZEGOVINA
  1 lab in BULGARIA
  2 labs in CHILE
  1 lab in COTE D'IVOIRE
  3 labs in CROATIA
  3 labs in CZECH REPUBLIC
  1 lab in ESTONIA
  3 labs in FINLAND
12 labs in FRANCE
  2 labs in GEORGIA
  5 labs in GERMANY
  5 labs in GREECE
  1 lab in GUAM
  1 lab in HONG KONG
  2 labs in INDIA
  2 labs in IRELAND
  1 lab in ISRAEL
  6 labs in ITALY
  1 lab in JORDAN
  2 labs in KAZAKHSTAN
  1 lab in KOREA, Republic of
  2 labs in LATVIA
  2 labs in LITHUANIA
  1 lab in MALTA
  1 lab in MARTINIQUE
  4 labs in MOROCCO
  7 labs in NETHERLANDS
  1 lab in NIGER
  2 labs in NIGERIA
  1 lab in NORTH MACEDONIA, Republic of
  1 lab in NORWAY
  2 labs in POLAND
  5 labs in PORTUGAL
  3 labs in ROMANIA
20 labs in RUSSIAN FEDERATION
  2 labs in SAUDI ARABIA
  1 lab in SERBIA
  1 lab in SLOVAKIA
  1 lab in SLOVENIA
  1 lab in SOUTH AFRICA
11 labs in SPAIN
  5 labs in SWEDEN
  1 lab in TAIWAN
  1 lab in THAILAND
  1 lab in TOGO
  6 labs in TURKEY
  2 labs in UNITED ARAB EMIRATES
17 labs in UNITED KINGDOM
  3 labs in UNITED STATES OF AMERICA

APPENDIX 3

Abbreviations

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

Literature

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3   ISO5725 parts 1-6:94
4   ISO13528:05
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6   W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)
7   P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)
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9   Analytical Methods Committee, Technical Brief, No 4, January 2001
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11   W. Horwitz and R. Albert, J. AOAC Int, 79.3, 589-621, (1996)
12   Bernard Rosner, Percentage Points for a Generalized ESD Many-Outlier Procedure, Technometrics, 25(2), 165-172, (1983)
13   iis memo 1904; Precision data of Calculated Cetane Index Four Variables in Gasoil, www.iisnl.com