Results of Proficiency Test
Gasoil (Diesel - EN spec.)
March 2018

CONTENTS

Appendices:

1   INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies (iis) organizes proficiency tests for Gasoil. During the annual proficiency testing program of 2017/2018, it was decided to continue the proficiency tests for the analysis of Gasoil/automotive diesel in accordance with the latest applicable version of EN590 specification.

In total 181 laboratories from 55 different countries registered for participation in the proficiency tests. See appendix 2 for the number of participants per country. For Gasoil (main round) 175 participants from 53 countries did register. For Cetane Number 64 participants from 27 countries, for Total Contamination 110 participants from 38 countries and for Oxidation Stability 72 participants from 29 countries did register. In this report, the results of the 2018 Gasoil proficiency tests are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2   SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were sub contracted to an ISO/IEC 17025 accredited laboratory.
For the main round Gasoil it was decided to send 1.5L Gasoil labelled #18025. For Cetane Number determination it was decided to send 4L Gasoil labelled #18026. For Total Contamination determination it was decided to send 1L (85% filled with Gasoil), labelled #18027 and for Oxidation Stability determination 1L Gasoil labelled #18028. Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1   ACCREDITATION

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

2.2   PROTOCOL

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4). 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

Preparation of samples for the PT on regular Gasoil
A batch of 400 litre Gasoil (automotive diesel) was purchased from the local market. After homogenisation, 200 amber glass bottles of 1L and 200 amber glass bottles of 500 mL were filled and labelled #18025.
The homogeneity of the 1L and 500 mL subsamples was checked by the determination of Density in accordance with ISO 12185 on 10 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #18025-1	841.16
sample #18025-2	841.15
sample #18025-3	841.16
sample #18025-4	841.14
sample #18025-5	841.15
sample #18025-6	841.15
sample #18025-7	841.16
sample #18025-8	841.15
sample #18025-9	841.16
sample #18025-10	841.15

Table 1: homogeneity test results of subsamples #18025

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

	Density at 15°C in kg/m^3
r (observed)	0.02
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 2: evaluation of the repeatability of subsamples #18025

The calculated repeatability was in agreement with 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples #18025 was assumed.

Preparation of samples for the PT on Cetane Number in Gasoil
Another batch of 400 litre was purchased from the local market. After homogenisation, 270 amber glass bottles of 1L were filled and labelled #18026. The homogeneity of the 1L subsamples was checked by the determination of Density in accordance with ISO 12185 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #18026-1	841.19
sample #18026-2	841.19
sample #18026-3	841.19
sample #18026-4	841.19
sample #18026-5	841.19
sample #18026-6	841.18
sample #18026-7	841.19
sample #18026-8	841.19

Table 3: homogeneity test results of subsamples #18026

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

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

Table 4: evaluation of the repeatability of the subsamples #18026

The calculated repeatability was in agreement with 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples #18026 was assumed.

Preparation of samples for the PT on Total Contamination in Gasoil
For the PT on Total Contamination in Gasoil, approx. 200 litre was purchased from the local market. Out of this batch, 131 amber glass bottles of 1L were filled up to approx. 850 ml and labelled #18027. Each bottle was spiked with 1 ml of a freshly prepared and ultrasonically homogenized 12 g/kg Arizona Dust in oil suspension. The addition was checked by weighing each bottle before and after the addition of the spike.

Preparation of samples for the PT on Oxidation Stability in Gasoil
For the PT of Oxidation Stability in Gasoil, approx. 125 litre of Gasoil was obtained from the retain materials from earlier PTs on Gasoil. After homogenisation, 125 amber glass bottles of 1L were filled and labelled #18028. The homogeneity of the 1L subsamples was checked by the determination of Density in accordance with ISO 12185 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #18028-1	832.77
sample #18028-2	832.75
sample #18028-3	832.75
sample #18028-4	832.76
sample #18028-5	832.76
sample #18028-6	832.76
sample #18028-7	832.75
sample #18028-8	832.76

Table 5: homogeneity test results of subsamples #18028

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

	Density at 15°C in kg/m^3
r (observed)	0.02
reference test method	ISO12185:96
0.3*R (reference test method)	0.15

Table 6: evaluation of the repeatability of the subsamples #18028

The calculated repeatability was less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of the subsamples #18028 was assumed.

Depending on the registration, two bottles of regular Gasoil (1*1L and 1*0.5L both labelled #18025) and/or four bottles of Gasoil for Cetane Number (4*1L labelled #18026) and/or one bottle of Gasoil for Total Contamination (1*1L, 85% filled, labelled #18027) and/or one bottle of Gasoil for Oxidation Stability (1*1L labelled #18028) were sent to the participating laboratories on February 21, 2018. An SDS was added to the sample package.

2.5   STABILITY OF THE SAMPLES

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

2.6   ANALYSES

The participants were asked to determine on sample #18025: Acid Number (Total), Ash content, Calculated Cetane Index, Cloud Point, Cold Filter Plugging Point (CFPP), Carbon Residue on 10% residue, Copper Corrosion, Density at 15°C, Distillation (IBP, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250ºC and 350ºC), FAME content, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR, Manganese, Nitrogen, Polycyclic-, Mono-, Di-, Tri+- and Total-Aromatic Hydrocarbons, Pour Point (manual and automated), Sulphur and Water.

The participants were asked to determine on sample #18026: Cetane Number, Derived Cetane Number/Ignition Delay/Air temperature (EN15195) and Derived Cetane Number/ Ignition Delay/Combustion Delay/Chamber Wall Temperature (IP615).

The participants were requested to determine Total Contamination only on sample #18027.

The participants were asked to determine on sample #18028: Oxidation Stability (EN15751) and/or Oxidation Stability (ISO12205) – Filterable Insolubles (A), Adherent Insolubles (B) and Total Insolubles (A+B).

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

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

3   RESULTS

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

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment.

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

3.1   STATISTICS

The protocol followed in the organisation of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

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

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

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

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

3.2   GRAPHICS

In order to visualize the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are on the X-axis.

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

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

3.3   Z-SCORES

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

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

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

The z-scores were calculated in accordance with:

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

The $z_{(target)}$ scores are listed in the result tables of appendix 1.
Absolute values for z<2 are very common and absolute values for z>3 are very rare.

Therefore, the usual interpretation of z-scores is as follows:

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

4   EVALUATION

In this interlaboratory study, no major problems were encountered with the dispatch of the samples. For sample #18025, one participant reported test results after the final reporting date and one other participant did not report any test results at all. For sample #18026, three participants reported test results after the final reporting date and five other participants did not report any test results at all. For sample #18027, five participants did not report any test results at all. For sample #18028, seven participants did not report any test results at all.

In total 180 participants reported 3748 numerical test results. Observed were 77 outlying test results, which is 2.1% of the numerical test results. In proficiency studies, outlier percentages of 3%-7.5% are quite normal.

Not all original data sets proved to have a normal Gaussian distribution. These are referred to as "not OK" or "suspect". The statistical evaluation of these data sets should be used with due care. See also parapgraph 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 where possible and applicable. These methods are also in the tables together with the reported data. The abbreviations, used in these tables, are listed in appendix 3.

In the iis PT reports, ASTM methods are referred to with a number (e.g. D4629) and an added designation for the year that the method was adopted or revised (e.g. D4629:12). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D4629:12(2017)). In the results tables of Appendix 1 only the method number and year of adoption or revision e.g. D4629:12 will be used.

Sample #18025 – Gasoil main round

Acid Number, Total: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D974:14e2. One should keep in mind that ASTM D974 and D664, may or may not give the same test results (see note 2 in ASTM D664 and note 3 in ASTM D974).

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

Cetane Index: One statistical outlier was observed. One participant reported a test result according ASTM D976, a test method that leads to test results that are not equivalent with ISO4264/ASTM D4737 results. Therefore, the test result was excluded from the statistical evaluation.
The calculated reproducibility of the group is smaller in comparison with the reproducibility as found in last year's round: 0.72 vs 1.02.

Cloud Point: This determination was not problematic. No statistical outliers were observed, but one test result was excluded. However, the calculated reproducibility after rejection of the suspect data is in good agreement with the requirements of EN23015:94.

CFPP: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of EN116:15.

Carbon Residue on 10% res.: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ISO10370:14.

Copper Corrosion: This determination was not problematic. All reporting laboratories agreed on a result of 1.

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

Distillation: The automated method was performed by 75% of the participants. This determination was not problematic. In total eleven statistical outliers were observed. All calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of the automated mode of ISO3405:11. However, for the manual mode the calculated reproducibilities after rejection of the statistical outliers are for 10%, 50%, 90% recovered, volume at 250°C and 350°C in agreement with the requirements of ISO3405:11.

FAME content: This determination was very problematic. Nine statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not at all in agreement with EN14078:14 (range A).

Flash Point PMcc: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ISO2719:02.

Kin. visc. 40°C: This determination was problematic for a number of laboratories. Six statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ISO3104:94.

Lubricity: This determination was problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ISO12156:06. Remarkably, the calculated reproducibility is in full agreement with the requirements of ISO12156:06 when the test results of "no correction" were taken into account only.

Manganese: Thirty-nine test results were reported. The participants agreed that the sample was low on Maganese (<0.5 mg/L).

Nitrogen: This determination was very problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with ASTM D4629:12(2017).

Polycyclic-Aromatics: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements EN12916:16. One participant probably made a calculation error, as the reported test result deviates from the sum of the reported test results for Di- and Tri+-Aromatic Hydrocarbons.

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

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

Tri+-Aromatics: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements EN12916:16.

Total Aromatics: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements EN12916:16. Five laboratories probably made a calculation error, as the reported test result deviates from the sum of the reported test results for Mono-, Di- and Tri+-Aromatic Hydrocarbons.

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

Pour Point automated: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with ASTM D5950:14 (3 °C interval).

Sulphur: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ISO20846:11.

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

Sample #18026 – Gasoil Cetane Number

Cetane Number: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ISO5165:17.

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

DCN (D7668): This determination was not problematic. For Derived Cetane Number, Ignition Delay and Combustion Delay in total three statistical outliers were observed. However, for Derived Cetane Number and Combustion Delay the calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of D7668:17. The calculated reproducibilitiy for Ignition Delay is not in agreement with D7668:17.

Sample #18027 – Gasoil Total Contamination

Total Contamination: This determination was problematic. One statistical outlier was observed. The samples were spiked with 12.0 mg/kg Arizona Dust. Therefore, the minimal concentration to be found was known. The laboratories should be able to find at least 5.8 mg/kg [12.0 mg/kg$_{(added\ amount)}$ – 6.2 mg/kg$_{(R\ EN12662)}$]. Three laboratories reported a lower amount than 5.8 mg/kg. Therefore, the test results of these laboratories were excluded from the statistical evaluation. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of EN12662:14.

Sample #18028 – Gasoil Oxidation Stability

Induction Period (EN15751): This determination was very problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with EN15751:14.

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

Adherent Insol. B (ISO12205): This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with ISO12205:95(2012).

Total Insol. A+B (ISO12205): This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with ISO12205:95(2012).
One laboratory probably made a calculation error, as the reported test result deviates from the sum of the reported test results for Filterable Insoluble (A) and Adherent Insoluble (B).

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameters	unit	n	average	2.8 * sd	R (lit)
Acid Number, Total	mgKOH/g	76	0.018	0.026	0.04
Ash content	%M/M	63	0.0008	0.0013	0.005
Cetane index, four variables		131	48.74	0.72	n.a.
Cloud Point	°C	142	-5.6	3.3	4
Cold Filter Plugging Point	°C	140	-9.7	2.3	3.6
Carbon Residue on 10% res.	%M/M	70	0.014	0.016	0.014
Copper Corrosion (3hrs at 50°C)		128	1	n.a.	n.a.
Density at 15°C	kg/m^3	159	841.18	0.21	0.5
IBP	°C	152	167.4	9.4	9.2
10% recovery	°C	155	207.2	4.1	4.6
50% recovery	°C	157	260.4	2.8	3.0
90% recovery	°C	156	337.9	4.9	5.1
95% recovery	°C	158	355.0	6.7	9.1
FBP	°C	150	363.7	5.1	7.1
Volume at 250°C	%V/V	147	42.2	2.0	2.7
Volume at 350°C	%V/V	152	93.8	1.8	2.7
FAME content	%V/V	89	1.37	0.18	0.09
Flash Point PMcc	°C	163	58.8	3.7	4.2
Kinematic Viscosity at 40°C	mm^2/s	144	2.670	0.028	0.030
Lubricity by HFRR	μm	88	324	123	102
Manganese	mg/L	39	<0.5	n.a.	n.a.
Nitrogen	mg/kg	46	49.4	11.6	6.0
Polycyclic-Aromatics	%M/M	76	2.70	1.02	0.96
Mono-Aromatics	%M/M	62	21.58	2.59	2.76
Di-Aromatics	%M/M	66	2.51	0.88	0.83
Tri$^+$-Aromatics	%M/M	62	0.16	0.33	0.54
Total Aromatics	%M/M	60	24.30	2.95	5.27
Pour Point, manual	ºC	86	-23.6	4.8	6.4
Pour Point, automated	ºC	52	-23.4	4.5	6.1
Sulphur	mg/kg	143	7.5	1.8	2.0
Water	mg/kg	144	51.2	27.2	49.2

Table 7: reproducibilities of tests on sample #18025

Parameters	unit	n	average	2.8 * sd	R (lit)
Cetane Number		36	51.8	3.6	4.8
DCN (EN15195)		12	53.0	4.3	2.5
Ignition Delay (EN15195)	ms	11	3.84	0.35	0.20
DCN (D7668)		15	52.1	1.0	1.4
Ignition Delay (D7668)	ms	12	2.91	0.16	0.14
Combustion Delay (D7668)	ms	12	4.56	0.09	0.13

Table 8: reproducibilities of tests on sample #18026

Parameters	unit	n	average	2.8 * sd	R (lit)
Total Contamination	mg/kg	91	13.0	8.5	6.2

Table 9: reproducibilities of tests on sample #18027

Parameters	unit	n	average	2.8 * sd	R (lit)
Oxidation Stability (EN15751)	hrs	31	18.1	7.5	3.8
Oxidation Stability (ISO12205):					
Filterable Insolubles (A)	g/m^3	47	1.33	3.16	5.45
Adherent Insolubles (B)	g/m^3	46	1.67	4.56	5.45
Total Insolubles (A+B)	g/m^3	49	2.81	4.20	7.71

Table 10: reproducibilities of tests on sample #18028

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

4.3   COMPARISON OF THE PROFICIENCY TEST OF MARCH 2018 WITH PREVIOUS PTS.

	March 2018	March 2017	March 2016	March 2015	March 2014
Number of reporting labs	180	174	161	169	162
Number of results reported	3748	3737	4203	3186	3191
Statistical outliers	77	101	121	90	90
Percentage outliers	2.1%	2.7%	2.9%	2.8%	2.8%

Table 11: comparison with previous proficiency tests

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

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

	March 2018	*March 2017*	*March 2016*	*March 2015*	*March 2014*
Acid Number, Total	+	+	+	++	++
Ash content	++	++	++	++	++
Cloud Point	+	+	++	++	++
Cold Filter Plugging Point	+	+	-	+	+
Carbon Residue on 10% res.	+/-	-	--	-	--
Density at 15°C	++	++	+	++	++
Distillation	+	+	+	++	++
FAME content	--	-	-	--	--
Flash Point PMcc	+	+	+	+	++
Kinematic Viscosity at 40°C	+/-	+/-	+/-	+	+/-
Lubricity by HFRR	-	-	+/-	--	--
Manganese	n.e.	n.e.	-	n.e.	n.e.
Nitrogen	--	--	-	--	--
Polycyclic-Aromatics	+/-	+	-	+	+/-
Mono-, Di-, Tri+-Aromatics	+	+	+	++	-
Total Aromatics	+	+	++	n.e.	n.e.
Pour Point	+	+	+	+/-	++
Sulphur	+/-	+/-	+/-	+/-	--
Water	++	++	++	++	++
Cetane Number	+	+	n.e.	n.e.	n.e.
DCN (EN15195)	-	+	n.e.	n.e.	n.e.
Ignition Delay (EN15195)	-	+	n.e.	n.e.	n.e.
DCN (D7668)	+	+/-	n.e.	n.e.	n.e.
Ignition Delay (D7668)	-	-	n.e.	n.e.	n.e.
Combustion Delay (D7668)	+	-	n.e.	n.e.	n.e.
Total Contamination	-	-	+	--	--
Oxidation Stability (EN15751)	--	-	--	--	n.e.
Oxidation Stability (ISO12205):					
Filterable Insolubles (A)	+	+	n.e.	n.e.	n.e.
Adherent Insolubles (B)	+	+	n.e.	n.e.	n.e.
Total Insolubles (A+B)	+	+	n.e.	n.e.	n.e.

Table 12: comparison determinations against the reference test method

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

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

APPENDIX 1

Determination of Acid Number, Total (TAN) on sample #18025; result in mgKOH/g

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D664-A	0.002		-1.12	1082	ISO6619	0.03		0.84
132	D664-A	<0.02		-----	1095	D974	0.02		0.14
140	D974	0.03		0.84	1108	D664-A	0.01		-0.56
171	D974	<0.02		-----	1109	D974	0.023		0.35
212	D664-A	0.04		1.54	1121	D664-A	0.02		0.14
225	D974	0.028		0.70	1126		-----		-----
228	D974	0.0145		-0.25	1134	D664-A	0.08	R(0.01)	4.34
237	D974	0.009191		-0.62	1141		-----		-----
238	D974	0.008		-0.70	1146		-----		-----
273		-----		-----	1150	BDS1752	0.0372	C	1.34
312	D974	0.015		-0.21	1161	D664-A	0.031		0.91
317	D974	<0.02		-----	1167		-----		-----
323	D974	<0.02		-----	1191		-----		-----
331	D664Mod.	<0.05		-----	1199		-----		-----
333		-----		-----	1201	D974	0.01		-0.56
334	D974	<0.02		-----	1205		-----		-----
335		-----		-----	1227	D974	0		-1.26
336		-----		-----	1229		-----		-----
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342	D664-A	0.01		-0.56	1251	D974	0.02		0.14
343		-----		-----	1254	D974	0.0193		0.09
345		-----		-----	1259	D664-A	0.0145		-0.25
351		-----		-----	1266		-----		-----
353		-----		-----	1272		-----		-----
356	D974	0.01		-0.56	1275	IP139	0.0		-1.26
357	D664-A	< 0,1		-----	1286		-----		-----
360	ISO6618	0.014		-0.28	1299	D664-A	0.020		0.14
369	D974	0.015		-0.21	1316		-----		-----
370	D974	0.018		0.00	1318	D664-A	0.011		-0.49
371	D974	0.0178		-0.01	1320		-----		-----
381		-----		-----	1356	D664-A	<0.05		-----
391	D974	0.012		-0.42	1397		-----		-----
398		-----		-----	1428	D664-A	0.019		0.07
399		-----		-----	1430	D974	0.01		-0.56
402	D974	0.014		-0.28	1443		-----		-----
403		-----		-----	1459		-----		-----
420	ISO6618	0.03		0.84	1468	D664-A	<0,1		-----
431		-----		-----	1498		-----		-----
432		-----		-----	1510	D974	0.01		-0.56
440		-----		-----	1528		-----		-----
444		-----		-----	1539		-----		-----
445	D974	<0.02		-----	1556	D664-A	0.047		2.03
447	D974	0.02		0.14	1569	D664-A	0.02		0.14
453	D664-A	0.02		0.14	1586	D664-A	0.03		0.84
485		-----		-----	1613	D974	0.015		-0.21
494	D664-A	0.011		-0.49	1631		-----		-----
541	D974	<0.05		-----	1634		-----		-----
631	D974	0.0101		-0.55	1635		-----		-----
663	D664-A	0.010		-0.56	1654		-----		-----
671		-----		-----	1656		-----		-----
704	D974	0.021		0.21	1681		-----		-----
759		-----		-----	1720	D974	0.01		-0.56
779		-----		-----	1724	D664-A	0.016		-0.14
781	D664-A	0.02		0.14	1730		-----		-----
782		-----		-----	1740	D664-A	0.02		0.14
785		-----		-----	1741	ISO6619	0.015		-0.21
823	D974	0.008		-0.70	1742		-----		-----
842	D974	0.030		0.84	1746	D974	0.02		0.14
873	D974	0.020		0.14	1776		0.04		1.54
874	D664-A	<0.1		-----	1787		-----		-----
875		-----		-----	1792	D664-A	0.028		0.70
902	D664-A	0.026		0.56	1806		-----		-----
904		-----		-----	1807	D664-A	0		-1.26
962	D974	0.031		0.91	1810		-----		-----
963	D974	0.027		0.63	1811		-----		-----
971	D664-A	0.011		-0.49	1832		-----		-----
974	D974	0.015		-0.21	1833	D664-A	0.015		-0.21
995	D974	0.018		0.00	1849		-----		-----
997	D974	0.021		0.21	1854	D664-A	0.02		0.14
1006		-----		-----	1857	D664-A	0.015		-0.21
1026	D974	<0.03		-----	1858	D664-A	0.0101		-0.55
1033		-----		-----	1862	D974	0.018		0.00
1059		-----		-----	1936		-----		-----
1081	D664-A	0.0189		0.06	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	D974	0.018		0.00	6018		-----		-----
1950	D974	0.025		0.49	6028		-----		-----
1953		-----		-----	6049	D974	0.016		-0.14
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057		-----		-----
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986	D664-A	0.018		0.00	6142		-----		-----
2129	D974	0.01167		-0.44	6163		-----		-----
2130	D974	0.010		-0.56	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	OK
n	76
outliers	1
mean (n)	0.0180
st.dev. (n)	0.00915
R(calc.)	0.0256
st.dev.(D974:14e2)	0.01429
R(D974:14e2)	0.04

Lab 1150: first reported 0.372
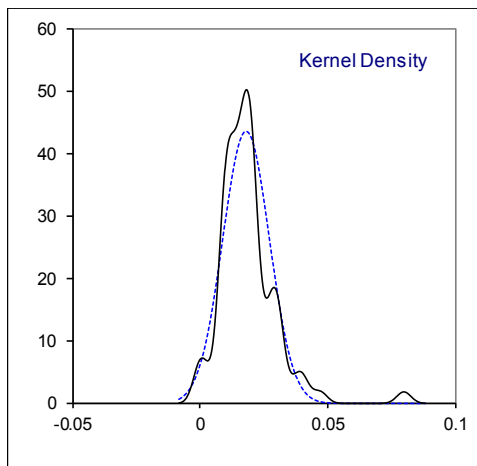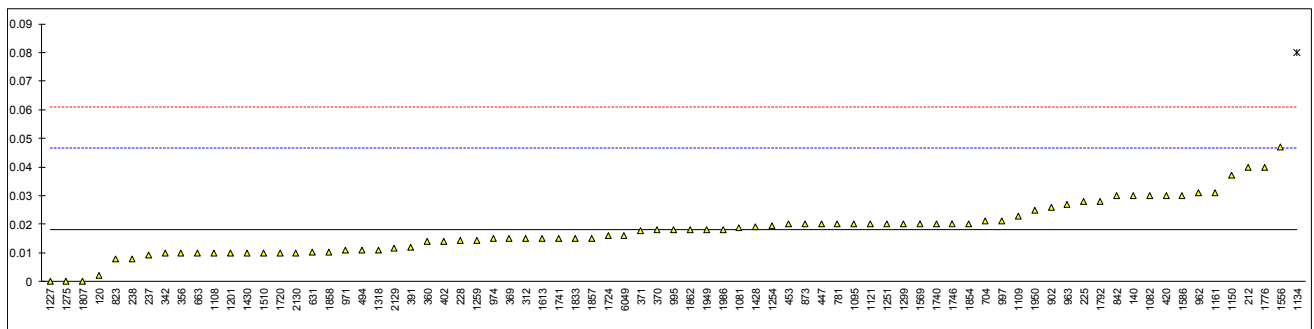
Determination of Ash on sample #18025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D482	0.002		0.66	1082		-----		-----
132	ISO6245	<0.001		-----	1095	ISO6245	<0.001		-----
140	ISO6245	<0.001		-----	1108		-----		-----
171	D482	<0.001		-----	1109	D482	0.0002		-0.35
212	ISO6245	0.001		0.10	1121	ISO6245	0.0011		0.16
225	D482	0.001		0.10	1126		-----		-----
228	D482	0.00149		0.38	1134	IP4	<0.001		-----
237		-----		-----	1141	ISO6245	0.00048		-0.19
238		-----		-----	1146	D482	0.00025		-0.32
273	D482	<0.01		-----	1150	ISO6245	0.0034	R(0.01)	1.45
312		-----		-----	1161	ISO6245	0.00099		0.10
317	ISO6245	<0.001		-----	1167	ISO6245	0.0008		-0.01
323	ISO6245	<0.001		-----	1191		-----		-----
331	ISO6245	<0.001		-----	1199		-----		-----
333		-----		-----	1201	ISO6245	<0.001		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1227		-----		-----
336		-----		-----	1229		-----		-----
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342	ISO6245	0.000		-0.46	1251	ISO6245	0		-0.46
343	ISO6245	0.002		0.66	1254	ISO6245	< 0.001		-----
345	ISO6245	<0.001		-----	1259	ISO6245	0.001		0.10
351	ISO6245	0.0006		-0.12	1266		-----		-----
353	IP4	0.0016		0.44	1272	ISO6245	0.00084		0.01
356	D482	<0.001		-----	1275	IP4	0.001		0.10
357	ISO6245	< 0,001		-----	1286		-----		-----
360	ISO6245	0.0006		-0.12	1299	D482	<0.001		-----
369	ISO6245	<0.001		-----	1316	D482	0.0004		-0.23
370	ISO6245	0.0004		-0.23	1318		-----		-----
371	ISO6245	0.0005		-0.18	1320		-----		-----
381		-----		-----	1356	ISO6245	<0.01		-----
391		-----		-----	1397	ISO6245	<0,001		-----
398		-----		-----	1428	ISO6245	0.0008		-0.01
399		-----		-----	1430	D482	< 0.001		-----
402	ISO6245	0.0012		0.21	1443	ISO6245	0.00178		0.54
403		-----		-----	1459		-----		-----
420	ISO6245	<0,001		-----	1468	ISO6245	<0,0001		-----
431		-----		-----	1498		-----		-----
432		-----		-----	1510	IP4	0.001		0.10
440		-----		-----	1528	ISO6245	0.00084		0.01
444		-----		-----	1539	ISO6245	< 0,001		-----
445	IP4	0.003	R(0.01)	1.22	1556	ISO6245	0		-0.46
447	IP4	<0.001		-----	1569	ISO6245	<0.001		-----
453	IP4	<0.001		-----	1586	D482	0.001		0.10
485		-----		-----	1613	D482	0.002		0.66
494	ISO6245	0.0002		-0.35	1631	ISO6245	<0.001		-----
541	ISO6245	<0.001		-----	1634		-----		-----
631	D482	0.00424	R(0.01)	1.92	1635	ISO6245	0.003	R(0.01)	1.22
663	D482	<0.001		-----	1654	ISO6245	0.00082		0.00
671	D482	0.00039		-0.24	1656	ISO6245	<0.01		-----
704	ISO6245	0.0007		-0.07	1681	ISO6245	0.0015		0.38
759	ISO6245	0.0009		0.05	1720		-----		-----
779	ISO6245	0.001		0.10	1724	D482	0.0005		-0.18
781	ISO6245	0.001		0.10	1730		-----		-----
782		-----		-----	1740	ISO6245	0.001		0.10
785	ISO6245	< 0.001		-----	1741	ISO6245	0.00048		-0.19
823	D482	0.0008		-0.01	1742		-----		-----
842	D482	0.0002		-0.35	1746	D482	0.0010		0.10
873	D482	0.0005		-0.18	1776		-----		-----
874	D482	0.0009		0.05	1787		-----		-----
875	D482	< 0.001		-----	1792	D482	0.0001		-0.40
902	ISO6245	<0,001		-----	1806		-----		-----
904	ISO6245	0.0006		-0.12	1807		-----		-----
962	D482	0.0007		-0.07	1810		-----		-----
963	ISO6245	0.0008		-0.01	1811		-----		-----
971	D482	0.0008		-0.01	1832	ISO6245	0.00044		-0.21
974	D482	0.0007		-0.07	1833	ISO6245	<0.001		-----
995	ISO6245	0.0008		-0.01	1849	ISO6245	0.001		0.10
997	ISO6245	0.0008		-0.01	1854	ISO6245	0.0011		0.16
1006	D482	0.001		0.10	1857	ISO6245	0.0007		-0.07
1026	ISO6245	<0.001		-----	1858		-----		-----
1033		-----		-----	1862		-----		-----
1059	ISO6245	<0,001		-----	1936		-----		-----
1081		-----		-----	1937		-----		-----
1938		-----		-----	6012	ISO6245	<0.001		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1949	ISO6245	0.0009		0.05	6018		-----		-----
1950	ISO6245	0.0006		-0.12	6028		-----		-----
1953		-----		-----	6049	ISO6245	<0.001		-----
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	ISO6245	<0,001		-----
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075	ISO6245	0.0037	R(0.01)	1.61
1986	ISO6245	0.0008		-0.01	6142		-----		-----
2129	ISO6245	0.001		0.10	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	OK
n	63
outliers	5
mean (n)	0.00082
st.dev. (n)	0.000456
R(calc.)	0.00128
st.dev.(ISO6245:01)	0.001786
R(ISO6245:01)	0.005 Range: 0.001 - 0.079 %M/M

Kernel Density
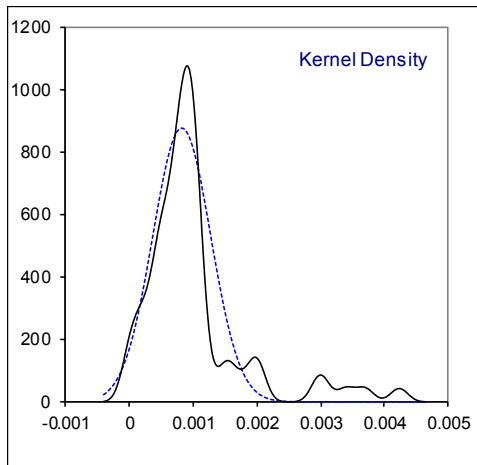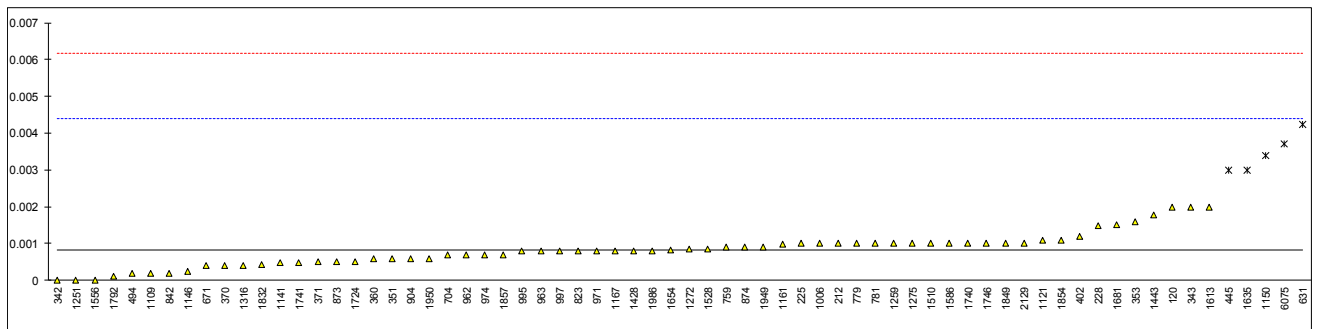
Determination of Calculated Cetane Index, four variables on sample #18025

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4737-A	49.2		-----	1082		-----		-----
132	ISO4264	48.8		-----	1095	ISO4264	48.9		-----
140	ISO4264	48.6		-----	1108	ISO4264	48.8		-----
171	D4737-A	48.7		-----	1109	D4737-A	48.6		-----
212	ISO4264	48.7		-----	1121	IP380	48.8		-----
225	D4737-A	48.5		-----	1126		-----		-----
228	D4737-A	48.2		-----	1134	D4737-A	48.7098		-----
237		-----		-----	1141	ISO4264	48.6		-----
238		-----		-----	1146		-----		-----
273	D4737-A	48.19		-----	1150	ISO4264	48.3		-----
312	ISO4264	49.2		-----	1161	ISO4264	48.73		-----
317	ISO4264	48.8		-----	1167	ISO4264	48.9		-----
323	ISO4264	49.2		-----	1191		-----		-----
331		-----		-----	1199		-----		-----
333		-----		-----	1201	ISO4264	48.9		-----
334	ISO4264	48.7		-----	1205		-----		-----
335	ISO4264	48.9		-----	1227	D976	48.77	ex	-----
336	ISO4264	49.0		-----	1229		-----		-----
337		-----		-----	1233		-----		-----
338	ISO4264	48.5		-----	1237		-----		-----
342	ISO4264	48.9		-----	1251	ISO4264	48.8		-----
343	ISO4264	48.0	E	-----	1254	ISO4264	48.7		-----
345		-----		-----	1259		48.58		-----
351	ISO4264	48.47		-----	1266	ISO4264	48.2		-----
353	IP380	48.87		-----	1272	ISO4264	48.81		-----
356	D4737-A	48.9		-----	1275	IP380	48.6		-----
357	ISO4264	48.68		-----	1286		-----		-----
360	ISO4264	49.23		-----	1299	D4737-A	48.6		-----
369	ISO4264	48.65		-----	1316	D4737-A	48.9		-----
370	ISO4264	48.85		-----	1318	D4737-A	48.5		-----
371	ISO4264	48.7		-----	1320		-----		-----
381	ISO4264	48.5		-----	1356	ISO4264	48	C	-----
391	ISO4264	49		-----	1397	ISO4264	48.9		-----
398		-----		-----	1428	ISO4264	48.7		-----
399		-----		-----	1430	D4737-A	47.9		-----
402	ISO4264	49.3		-----	1443	ISO4264	48.7		-----
403	ISO4264	48.57		-----	1459		-----		-----
420	ISO4264	48.5		-----	1468	ISO4264	48.9		-----
431		-----		-----	1498	D4737-A	48.9		-----
432		-----		-----	1510	IP380	48.5		-----
440		-----		-----	1528	ISO4264	48.84		-----
444		-----		-----	1539	ISO4264	48.6		-----
445	IP380	48.5		-----	1556	ISO4264	48.7		-----
447	IP380	48.9		-----	1569	ISO4264	48.5		-----
453	IP380	48.8		-----	1586	ISO4264	48.5		-----
485	ISO4264	48.6		-----	1613	D4737	48.75		-----
494	ISO4264	48.6		-----	1631	ISO4264	48.8		-----
541	D4737-A	48.81		-----	1634	ISO4264	48.94		-----
631	D4737-A	49.057		-----	1635		-----		-----
663	D4737-A	49.24		-----	1654	ISO4264	49.07		-----
671		-----		-----	1656	ISO4264	48.9		-----
704	D4737-A	48.8		-----	1681	ISO4264	48.77		-----
759	D4737-A	48.9		-----	1720	D4737-B	49.30		-----
779	ISO4264	48.8		-----	1724	IP380	48.86		-----
781	ISO4264	49.0		-----	1730		-----		-----
782	D4737-A	48.56		-----	1740	D4737-A	48.3		-----
785	D4737-A	49.1		-----	1741	ISO4264	48.6		-----
823	D4737-A	48.13		-----	1742		-----		-----
842		-----		-----	1746	ISO4264	48.6		-----
873	ISO4264	48.8		-----	1776	ISO4264	48.4		-----
874	ISO4264	48.7		-----	1787		-----		-----
875	D4737-A	48.5		-----	1792	D4737-A	48.78		-----
902	ISO4264	48.8		-----	1806	ISO4264	47.47	R(0.01)	-----
904	ISO4264	48.5		-----	1807	ISO4264	48.8		-----
962	D4737-A	48.8		-----	1810		-----		-----
963	ISO4264	48.8		-----	1811	ISO4264	48.9		-----
971	D4737-A	48.7		-----	1832		-----		-----
974	D4737-B	48.9		-----	1833	ISO4264	48.8		-----
995	D4737-A	48.6		-----	1849	ISO4264	48.8		-----
997	ISO4264	48.3		-----	1854	D4737-A	48.36		-----
1006	D4737-A	49.3		-----	1857	D4737-A	48.8		-----
1026	ISO4264	48.8		-----	1858	D4737-B	48.9		-----
1033	IP380	48.9		-----	1862	ISO4264	48.6		-----
1059	ISO4264	48.9		-----	1936	ISO4264	48.7		-----
1081	ISO4264	48.7		-----	1937	ISO4264	48.58		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	ISO4264	48.5		-----	6012	ISO4264	48.1		-----
1949	D4737-B	49.0		-----	6018	ISO4264	49.0		-----
1950	D4737-A	48.9		-----	6028	ISO4264	48.6		-----
1953		-----		-----	6049	ISO4264	48.6		-----
1961		-----		-----	6051	ISO4264	49.0		-----
1971		-----		-----	6057	ISO4264	48.8		-----
1976	D4737-A	48.70		-----	6068	ISO4264	48.8		-----
1984	ISO4264	48.820		-----	6075		-----		-----
1986	D4737-B	48.9		-----	6142		-----		-----
2129	IP380	48.8		-----	6163		-----		-----
2130	D4737-A	48.96		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005	ISO4264	48.9		-----					

normality	suspect
n	131
outliers	1 (+1 ex)
mean (n)	48.736
st.dev. (n)	0.2561
R(calc.)	0.717
st.dev.(ISO4264:07)	n.a.
R(ISO4264:07)	n.a.

compare R(iis17G01EN) = 1.019

Lab 343: iis calculated 48.6 (recalculated because distillation results were corrected without correcting CCL)
Lab 1227: test result excluded as test method is not equivalent (different calculation, see §4.1)
Lab 1356: first reported 51

Kernel Density
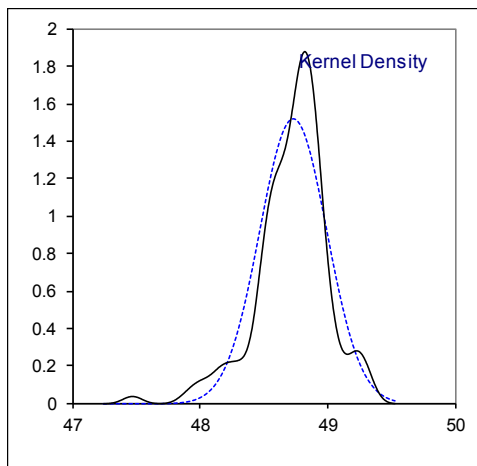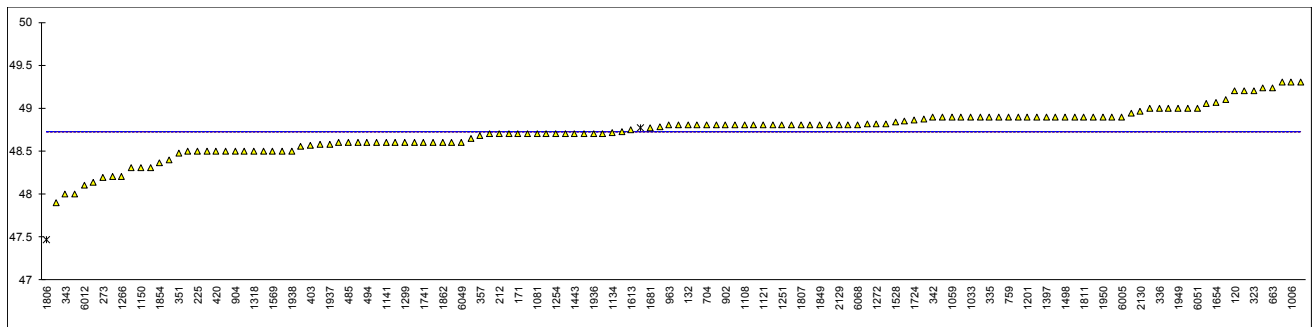
Determination of Cloud Point on sample #18025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5773	-5.3		0.21	1082	D7689	-5.3		0.21
132	D2500	-5		0.42	1095	EN23015	-6		-0.28
140	EN23015	-5		0.42	1108	D5771	-5.7		-0.07
171	D2500	-4		1.12	1109	D5773	-5.4		0.14
212	ISO3015	-9		-2.38	1121	IP219	-7		-0.98
225		-----		-----	1126		-----		-----
228	D2500	-7		-0.98	1134	IP219	-5		0.42
237	D2500	-6		-0.28	1141	ISO3015	-5		0.42
238	D2500	-6		-0.28	1146	D2500	-2.1		2.45
273	D2500	-4		1.12	1150	EN23015	-4		1.12
312	D2500	-6		-0.28	1161	EN23015	-5		0.42
317	D5771	-5		0.42	1167		-----		-----
323	EN23015	-6		-0.28	1191	D5773	-5.3		0.21
331		-----		-----	1199		-----		-----
333	EN23015	-6		-0.28	1201	ISO3015	-5		0.42
334	EN23015	-6		-0.28	1205		-----		-----
335	EN23015	-6		-0.28	1227	D2500	-5.5		0.07
336	EN23015	-6		-0.28	1229	D5771	-4.8		0.56
337		-----		-----	1233	ISO3015	-6		-0.28
338	EN23015	-6		-0.28	1237		-----		-----
342	D2500	-4		1.12	1251	EN23015	-5		0.42
343	EN23015	-5		0.42	1254	EN23015	-6		-0.28
345	D5771	-5.6		0.00	1259	EN23015	-4		1.12
351	D7683	-6		-0.28	1266	EN23015	-4.95		0.46
353	IP219	0	ex	3.92	1272	ISO3015	-2.5		2.17
356	D2500	-7		-0.98	1275	IP219	-4.0		1.12
357	D5771	-6		-0.28	1286		-----		-----
360	EN23015	-5		0.42	1299	D2500	-6		-0.28
369	EN23015	-5		0.42	1316	D5771	-6.0		-0.28
370	EN23015	-6		-0.28	1318	D7689	-6.2		-0.42
371	EN23015	-6		-0.28	1320	EN23015	-5		0.42
381	ISO3015	-4		1.12	1356	ISO3015	-6		-0.28
391	EN23015	-6		-0.28	1397	EN23015	-6		-0.28
398	EN23015	-6		-0.28	1428	D2500	-5		0.42
399	D2500	-3		1.82	1430	D5771	-4		1.12
402	EN23015	-7		-0.98	1443		-----		-----
403	EN23015	-7		-0.98	1459	EN23015	-6.0		-0.28
420	EN23015	-6		-0.28	1468	EN23015	-6		-0.28
431		-----		-----	1498	D2500	-6		-0.28
432		-----		-----	1510	D2500	-2		2.52
440	IP219	-2.0		2.52	1528	EN23015	-6		-0.28
444		-----		-----	1539	ISO3015	-5		0.42
445	IP219	-2		2.52	1556	ISO3015	-6.0		-0.28
447	D2500	-3		1.82	1569	EN23015	-6		-0.28
453	D5773	-5.1		0.35	1586	D5771	-5		0.42
485		-----		-----	1613	D2500	-8		-1.68
494	EN23015	-7		-0.98	1631		-----		-----
541	D5771	-5.5		0.07	1634		-----		-----
631	D2500	-7		-0.98	1635	EN23015	-6		-0.28
663	D2500	-7		-0.98	1654		-----		-----
671	D2500	-6		-0.28	1656	IP219	-5		0.42
704	ISO3015	-6		-0.28	1681	ISO3015	-3.0		1.82
759	EN23015	-6		-0.28	1720	D5773	-5.4		0.14
779	EN23015	-6		-0.28	1724	D2500	-7		-0.98
781	EN23015	-6		-0.28	1730		-----		-----
782	EN23015	-6		-0.28	1740	ISO3015	-6		-0.28
785	D7683	-6		-0.28	1741	ISO3015	-6		-0.28
823	D2500	-5		0.42	1742	ISO3015	-6		-0.28
842	D2500	-7		-0.98	1746	D2500	-6		-0.28
873	D2500	-6		-0.28	1776	EN23015	-5.8		-0.14
874	D2500	-6		-0.28	1787		-----		-----
875	D2500	-6		-0.28	1792	D2500	-7		-0.98
902	EN23015	-6		-0.28	1806	EN23015	-6		-0.28
904	ISO3015	-7		-0.98	1807	EN23015	-3		1.82
962	D2500	-7		-0.98	1810	EN23015	-6		-0.28
963	EN23015	-6		-0.28	1811	EN23015	-6		-0.28
971	D2500	-6		-0.28	1832	ISO3015	-6		-0.28
974	D2500	-6		-0.28	1833	D2500	-6		-0.28
995	EN23015	-6		-0.28	1849		-----		-----
997	EN23015	-7		-0.98	1854	D2500	-6		-0.28
1006		-----		-----	1857	EN23015	-7		-0.98
1026	ISO3015	-5		0.42	1858	D2500	-6		-0.28
1033	D7689	-5.2		0.28	1862	EN23015	-6		-0.28
1059	EN23015	-6		-0.28	1936		-----		-----
1081	D5771	-5.8		-0.14	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012	D2500	-5		0.42
1949	EN23015	-6		-0.28	6018		-----		-----
1950	EN23015	-6		-0.28	6028	D2500	-4		1.12
1953	D7683	-6		-0.28	6049	EN23015	-6		-0.28
1961		-----		-----	6051		-----		-----
1971	ISO3015	-6.0		-0.28	6057	EN23015	-9		-2.38
1976		-----		-----	6068		-----		-----
1984	EN23015	-6		-0.28	6075	EN23015	-5		0.42
1986	ISO3015	-7		-0.98	6142	EN23015	-5.1		0.35
2129	EN23015	-6		-0.28	6163	ISO3015	-5.75		-0.10
2130	EN23015	-5.6		0.00	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005	ISO3015	-6		-0.28					

normality	not OK
n	142
outliers	0 (+1 ex)
mean (n)	-5.60
st.dev. (n)	1.165
R(calc.)	3.26
st.dev.(EN23015:94)	1.429
R(EN23015:94)	4

Lab 353: test result excluded as zero is not a real result
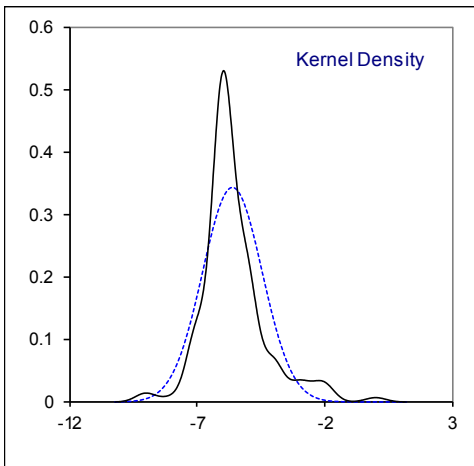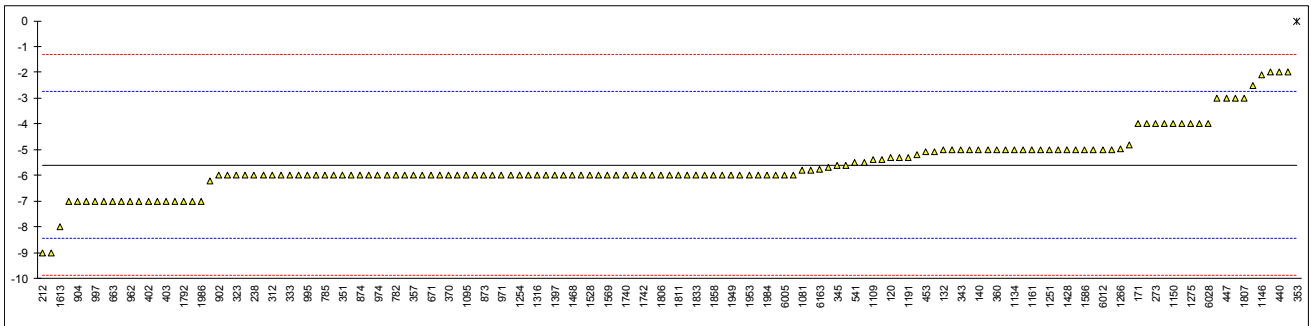
Determination of Cold Filter Plugging Point (CFPP) on sample #18025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D6371	-9		0.55	1082	EN116	-9		0.55
132		-----		-----	1095	EN116	-10		-0.23
140	EN116	-8		1.33	1108	EN116	-11		-1.01
171	D6371	-9		0.55	1109	IP309	-10.0		-0.23
212		-----		-----	1121	IP309	-8		1.33
225		-----		-----	1126		-----		-----
228		-----		-----	1134	EN116	-9		0.55
237		-----		-----	1141	EN116	-8		1.33
238		-----		-----	1146		-----		-----
273	IP309	-11		-1.01	1150	EN116	-9		0.55
312	EN116	-11		-1.01	1161	EN116	-9		0.55
317	EN116	-9		0.55	1167	EN116	-13	R(0.05)	-2.58
323	EN116	-8		1.33	1191	EN116	-10		-0.23
331		-----		-----	1199		-----		-----
333		-----		-----	1201	EN116	-11		-1.01
334	EN116	-9		0.55	1205		-----		-----
335	EN116	-9		0.55	1227	EN116	-9		0.55
336	EN116	-10		-0.23	1229	EN116	-11		-1.01
337		-----		-----	1233	D6371	-9		0.55
338	EN116	-10		-0.23	1237	EN116	-11		-1.01
342	EN116	-8		1.33	1251	EN116	-10		-0.23
343	EN116	-9		0.55	1254	EN116	-10		-0.23
345	EN116	-9		0.55	1259	EN116	-10		-0.23
351		-----		-----	1266	EN116	-9.5		0.16
353	IP309	-8		1.33	1272	EN116	-10.0		-0.23
356	EN116	-9		0.55	1275	IP309	-9		0.55
357	EN116	-9		0.55	1286		-----		-----
360	EN116	-9		0.55	1299	EN116	-10		-0.23
369	EN116	-11		-1.01	1316	EN116	-10.0		-0.23
370	EN116	-10		-0.23	1318	EN116	-10		-0.23
371	EN116	-10		-0.23	1320	EN116	-11		-1.01
381	EN116	-10		-0.23	1356	D6371	-10		-0.23
391	EN116	-11		-1.01	1397	EN116	-11		-1.01
398	EN116	-10		-0.23	1428	EN116	-9		0.55
399		-----		-----	1430	EN116	-9		0.55
402	EN116	-10		-0.23	1443	EN116	-10		-0.23
403	EN116	-10		-0.23	1459	EN116	-10.0		-0.23
420	EN116	-9		0.55	1468	EN116	-11		-1.01
431	EN116	-11		-1.01	1498	D6371	-10		-0.23
432		-----		-----	1510	IP309	-13	R(0.05)	-2.58
440	IP309	-11.0		-1.01	1528	EN116	-10		-0.23
444		-----		-----	1539	EN116	-9		0.55
445	IP309	-10		-0.23	1556	EN116	-9		0.55
447	IP309	-9		0.55	1569	EN116	-10		-0.23
453	IP309	-10		-0.23	1586	EN116	-9		0.55
485		-----		-----	1613	D6371	-10		-0.23
494	EN116	-10		-0.23	1631	EN116	-10		-0.23
541	EN116	-9		0.55	1634	EN116	-10.5		-0.62
631		-----		-----	1635	EN116	-10		-0.23
663	EN116	-8		1.33	1654	EN116	-10		-0.23
671		-----		-----	1656	EN116	-10		-0.23
704	EN116	-9		0.55	1681	EN116	-9.0		0.55
759	EN116	-9		0.55	1720		-----		-----
779	EN116	-11		-1.01	1724	IP309	-10		-0.23
781	EN116	-10		-0.23	1730		-----		-----
782	D6371	-10		-0.23	1740	EN116	-10		-0.23
785	EN116	-9		0.55	1741	EN116	-9		0.55
823	D6371	-10		-0.23	1742	EN116	-11		-1.01
842		-----		-----	1746	D6371	-9		0.55
873	EN116	-9		0.55	1776	EN116	-11		-1.01
874	EN116	-9		0.55	1787		-----		-----
875	EN116	-9		0.55	1792	EN116	-9		0.55
902	EN116	-9		0.55	1806	EN116	-9		0.55
904	EN116	-9		0.55	1807	EN116	-9		0.55
962	IP309	-10		-0.23	1810	EN116	-10		-0.23
963	EN116	-11		-1.01	1811	EN116	-10		-0.23
971	IP309	-10		-0.23	1832		-----		-----
974	IP309	-10		-0.23	1833	EN116	-10		-0.23
995	EN116	-10		-0.23	1849	EN116	-11		-1.01
997	EN116	-10		-0.23	1854	EN116	-9		0.55
1006	D6371	-10		-0.23	1857	EN116	-10		-0.23
1026	EN16329	-9		0.55	1858	IP309	-9		0.55
1033	IP309	-11		-1.01	1862	EN116	-10		-0.23
1059	EN116	-10		-0.23	1936	EN116	-10		-0.23
1081	EN116	-11		-1.01	1937	EN116	-9		0.55

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	EN116	-10		-0.23	6012	EN116	-12.7	R(0.05)	-2.34
1949	EN116	-9		0.55	6018		-----		-----
1950	EN116	-10		-0.23	6028	EN116	-8		1.33
1953	EN116	-9		0.55	6049	EN116	-10		-0.23
1961		-----		-----	6051		-----		-----
1971	EN116	-11		-1.01	6057	EN116	-11		-1.01
1976	EN116	-10		-0.23	6068	EN116	-11		-1.01
1984	EN116	-10		-0.23	6075		-----		-----
1986	EN116	-9		0.55	6142	EN16329	-10		-0.23
2129	EN116	-10		-0.23	6163	EN116	-9.7		0.00
2130	EN116	-9.0		0.55	6170	EN116	-10		-0.23
2146		-----		-----	9057		-----		-----
6005	EN116	-9.0		0.55					

normality	OK
n	140
outliers	3
mean (n)	-9.70
st.dev. (n)	0.811
R(calc.)	2.27
st.dev.(EN116:15)	1.279
R(EN116:15)	3.58

Kernel Density
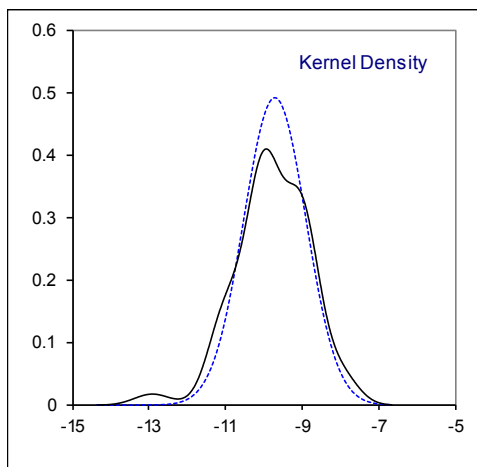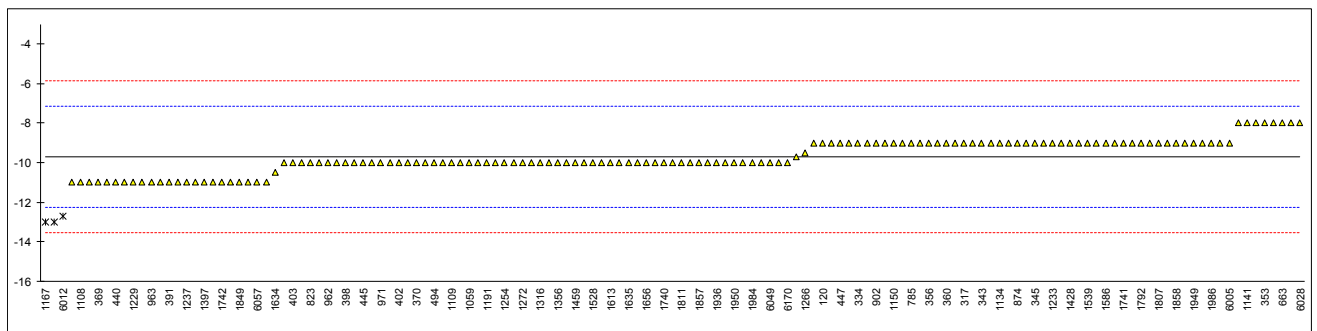
Determination of Carbon Residue (Micro method) on 10% residue on sample #18025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4530	0.01	C	-0.82	1082		-----		-----
132	ISO10370	0.01		-0.82	1095	ISO10370	<0.30		-----
140	ISO10370	<0.10		-----	1108		-----		-----
171	D189	0.01		-0.82	1109	D4530	< 0.1		-----
212	ISO10370	0.03		3.06	1121	ISO10370	0.02		1.12
225	D4530	0.04	R(0.01)	5.01	1126		-----		-----
228		-----		-----	1134	IP398	0.02		1.12
237		-----		-----	1141	ISO10370	0.012		-0.44
238		-----		-----	1146		-----		-----
273	D4530	0.01		-0.82	1150	ISO6615	0.0229		1.68
312		-----		-----	1161	ISO10370	0.02		1.12
317	ISO10370	<0.10		-----	1167	ISO10370	0.02		1.12
323	ISO10370	<0.10	C	-----	1191		-----		-----
331		-----		-----	1199		-----		-----
333		-----		-----	1201	ISO10370	<0.10		-----
334	ISO10370	<0.10		-----	1205		-----		-----
335		-----		-----	1227		0.0266		2.40
336		-----		-----	1229		-----		-----
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342	ISO10370	0.01		-0.82	1251	ISO10370	< 0.1		-----
343	ISO10370	<0,10		-----	1254	ISO10370	0.0102		-0.79
345		-----		-----	1259	ISO10370	0.0097		-0.88
351	ISO10370	0.016		0.34	1266		-----		-----
353	D4530	0.017		0.54	1272		-----		-----
356	D4530	0.01		-0.82	1275	IP398	0.02		1.12
357		-----		-----	1286		-----		-----
360	ISO10370	0.016		0.34	1299	D4530	0.02		1.12
369	ISO10370	0.0068		-1.45	1316	ISO10370	0.013		-0.24
370	ISO10370	0.013		-0.24	1318		-----		-----
371		-----		-----	1320		-----		-----
381		-----		-----	1356	ISO10370	0.01		-0.82
391		-----		-----	1397	ISO10370	<0,01		-----
398		-----		-----	1428	ISO10370	0.010		-0.82
399		-----		-----	1430		-----		-----
402	ISO10370	0.0096		-0.90	1443	ISO10370	<0,10		-----
403		-----		-----	1459		-----		-----
420		0.02		1.12	1468	ISO10370	0.01		-0.82
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	ISO10370	0.0082		-1.17
444		-----		-----	1539	ISO10370	0.01		-0.82
445	IP398	0.01		-0.82	1556	ISO10370	0.012		-0.44
447	IP398	<0.10		-----	1569	ISO10370	<0.10		-----
453	IP398	<0.01		-----	1586	ISO10370	0.01		-0.82
485		-----		-----	1613	D189	0.002		-2.38
494	ISO10370	< 0,10		-----	1631	ISO10370	<0.1		-----
541		-----		-----	1634		-----		-----
631	D4530	0.0062		-1.56	1635	ISO10370	0.019		0.93
663	D4530	0.02		1.12	1654		-----		-----
671	D4530	0.01943		1.01	1656	ISO10370	<0.1		-----
704	ISO10370	<0.10		-----	1681	D189	0.017		0.54
759		-----		-----	1720		-----		-----
779		-----		-----	1724	D4530	<0,1		-----
781	ISO10370	<0.10		-----	1730		-----		-----
782		-----		-----	1740	ISO10370	0.010		-0.82
785	ISO10370	< 0.10		-----	1741	ISO10370	0.013		-0.24
823	D4530	0.03		3.06	1742	ISO10370	0.04	R(0.01)	5.01
842	D189	0.0153		0.21	1746		-----		-----
873	D4530	0.02		1.12	1776		-----		-----
874	D4530	0.015		0.15	1787		-----		-----
875	D4530	< 0.1		-----	1792	ISO10370	0.01		-0.82
902	ISO10370	<0,1		-----	1806		-----		-----
904	ISO10370	0.019		0.93	1807		-----		-----
962	D189	0.012		-0.44	1810		-----		-----
963	ISO10370	0.018		0.73	1811		-----		-----
971	D4530	0.014		-0.05	1832		0.0117		-0.49
974	D4530	0.0098		-0.86	1833	ISO10370	<0.1		-----
995	IP398	0.018		0.73	1849	ISO10370	<0,1		-----
997	ISO10370	0.022		1.51	1854	ISO10370	0.01		-0.82
1006		-----		-----	1857	ISO10370	0.02		1.12
1026	ISO10370	<0.01		-----	1858	D4530	0.014		-0.05
1033		-----		-----	1862	ISO10370	0.015		0.15
1059	ISO10370	<0,01		-----	1936		-----		-----
1081	ISO10370	0.01		-0.82	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012	D189	0.022		1.51
1949	ISO10370	0.0129		-0.26	6018		-----		-----
1950	ISO10370	0.016		0.34	6028	ISO10370	0.01		-0.82
1953		-----		-----	6049	ISO10370	0.011		-0.63
1961		-----		-----	6051		-----		-----
1971	ISO10370	<0,10		-----	6057	ISO10370	<0,10		-----
1976	ISO10370	0.0145		0.05	6068	ISO10370	0.01		-0.82
1984		-----		-----	6075	ISO10370	0.011		-0.63
1986	ISO10370	<0.10		-----	6142		-----		-----
2129	ISO10370	0.01		-0.82	6163		-----		-----
2130	ISO10370	0.006		-1.60	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	OK
n	70
outliers	2
mean (n)	0.01424
st.dev. (n)	0.005578
R(calc.)	0.01562
st.dev.(ISO10370:14)	0.005143
R(ISO10370:14)	0.01440

Lab 120 first reported 0.091
Lab 323 first reported 0.07
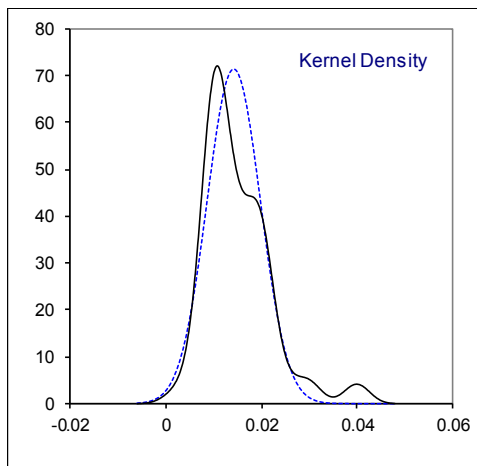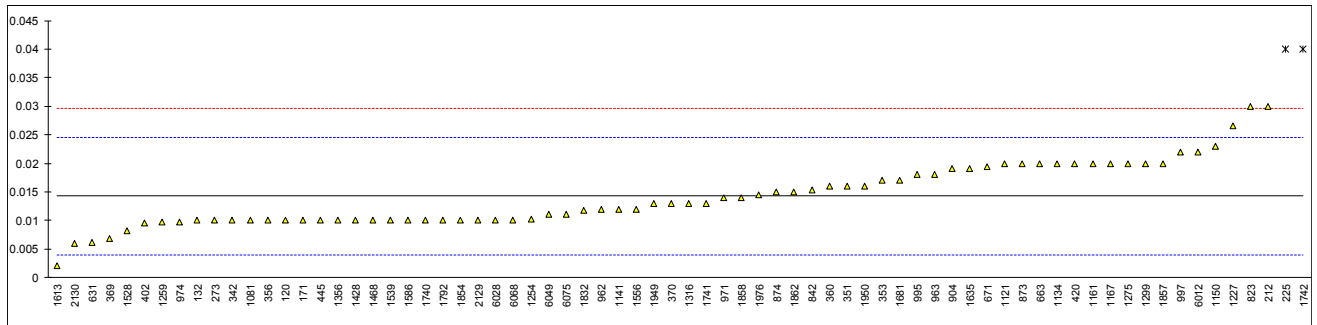
Determination of Copper Corrosion, 3 hrs at 50°C on sample #18025

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D130	1A		-----	1082		-----		-----
132	ISO2160	1a		-----	1095	ISO2160	1a		-----
140	ISO2160	1a		-----	1108	ISO2160	1		-----
171	D130	1a		-----	1109	D130	1a		-----
212	D130	1a		-----	1121	IP154	1a		-----
225	D130	1a		-----	1126		-----		-----
228	D130	1a		-----	1134	D130	1a		-----
237	D130	1		-----	1141	ISO2160	class 1		-----
238	D130	1A		-----	1146		-----		-----
273	D130	1a		-----	1150	ISO2160	1a		-----
312		-----		-----	1161	ISO2160	1A		-----
317	D130	1A		-----	1167	ISO2160	1A		-----
323	ISO2160	1A		-----	1191		-----		-----
331		-----		-----	1199		-----		-----
333		-----		-----	1201	D130	1a		-----
334		-----		-----	1205		-----		-----
335	ISO2160	1b		-----	1227	D130	1A		-----
336	ISO2160	1		-----	1229		-----		-----
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342	ISO2160	1A		-----	1251	ISO2160	1a		-----
343	ISO2160	1a		-----	1254	D130	1a		-----
345	D130	1A		-----	1259	ISO2160	1A		-----
351	D130	1a		-----	1266	ISO2160	1		-----
353	IP154	1a		-----	1272	ISO2160	1a		-----
356	D130	1A		-----	1275	IP154	1		-----
357	ISO2160	1a		-----	1286		-----		-----
360	ISO2160	1A		-----	1299	D130	1A		-----
369	ISO2160	1A		-----	1316	D130	1a		-----
370	ISO2160	1A		-----	1318	D130	1a		-----
371	ISO2160	1a		-----	1320		-----		-----
381	ISO2160	1		-----	1356		-----		-----
391	D130	1a		-----	1397	ISO2160	1		-----
398		-----		-----	1428	ISO2160	1A		-----
399		-----		-----	1430	D130	1a		-----
402	ISO2160	clasa 1		-----	1443	ISO2160	1a		-----
403	ISO2160	cls 1		-----	1459		-----		-----
420		-----		-----	1468	ISO2160	1a		-----
431		-----		-----	1498		-----		-----
432		-----		-----	1510	IP154	1A		-----
440	IP154	1A		-----	1528	ISO2160	1a		-----
444		-----		-----	1539	ISO2160	1a		-----
445	IP154	1a		-----	1556	ISO2160	Class 1		-----
447	D130	1a		-----	1569	ISO2160	1a		-----
453	IP154	1A		-----	1586	D130	1a		-----
485	ISO2160	1		-----	1613	D130	1a		-----
494	ISO2160	1a		-----	1631	ISO2160	1		-----
541	D130	1a		-----	1634	ISO2160	1a		-----
631	D130	1a		-----	1635	ISO2160	1a		-----
663	D130	1a		-----	1654	ISO2160	1A		-----
671	D130	1A		-----	1656	IP154	1a		-----
704	ISO2160	1a		-----	1681	ISO2160	1a		-----
759		-----		-----	1720		-----		-----
779	ISO2160	1a		-----	1724	D130	1a		-----
781	D130	1a		-----	1730		-----		-----
782		-----		-----	1740	ISO2160	1A		-----
785	D130	1a		-----	1741	ISO2160	1A		-----
823	D130	1a		-----	1742		-----		-----
842	D130	1a		-----	1746	D130	1A		-----
873	D130	1A		-----	1776		-----		-----
874	D130	1a		-----	1787		-----		-----
875	D130	1a		-----	1792	D130	1A		-----
902	ISO2160	1a		-----	1806		-----		-----
904	D130	1a		-----	1807	D130	1a		-----
962	D130	1A		-----	1810		-----		-----
963	D130	1a		-----	1811		-----		-----
971	D130	1a		-----	1832	ISO2160	1A		-----
974	D130	1a		-----	1833	D130	1		-----
995	D130	1a		-----	1849	ISO2160	1A		-----
997	D130	1a		-----	1854	D130	1A		-----
1006	D130	1a		-----	1857	D130	1 a		-----
1026	ISO2160	1A		-----	1858	D130	1a		-----
1033	IP154	1a		-----	1862	ISO2160	1A		-----
1059	ISO2160	1a		-----	1936		-----		-----
1081	D130	1a		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012	D130	1A		-----
1949	D130	1a		-----	6018	ISO2160	1a		-----
1950	D130	1a		-----	6028	ISO2160	1a		-----
1953	ISO2160	Class 1A		-----	6049	D130	1a		-----
1961	ISO2160	1a		-----	6051	D130	1A		-----
1971	ISO2160	1		-----	6057	D130	1A		-----
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075	ISO2160	1a		-----
1986	D130	1A		-----	6142		-----		-----
2129	D130	1a		-----	6163		-----		-----
2130	IP154	1a		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005	ISO2160	1a		-----					

	n	128
	mean (n)	1 (1a)

Determination of Density at 15 °C on sample #18025; result in kg/m³

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D4052	840.8	R(0.01)	-2.14	1082	ISO12185	841.2		0.10
132	D4052	841.2		0.10	1095	ISO12185	841.2		0.10
140	D4052	841.4		1.22	1108	ISO12185	841.15		-0.18
171	D4052	841.2		0.10	1109	D4052	841.16		-0.13
212	ISO12185	841.3		0.66	1121	ISO12185	841.1		-0.46
225	D4052	841.1		-0.46	1126	ISO12185	841.14		-0.24
228	D4052	841.3		0.66	1134	IP365	841.4		1.22
237	D4052	841.2	C	0.10	1141	ISO12185	841.2		0.10
238	D4052	841.1		-0.46	1146	D4052	841.18		-0.01
273	D4052	840.8	R(0.01)	-2.14	1150	ISO12185	841.17		-0.07
312	ISO12185	841.1		-0.46	1161	ISO12185	841.09		-0.52
317	ISO12185	841.1		-0.46	1167	ISO12185	841.2		0.10
323	ISO12185	841.0		-1.02	1191	ISO12185	841.1		-0.46
331	ISO12185	841.2		0.10	1199		-----		-----
333	ISO12185	841.2		0.10	1201	ISO12185	841.1		-0.46
334	ISO12185	841.2		0.10	1205	ISO12185	841.22		0.21
335	ISO12185	841.2		0.10	1227	D4052	841.2		0.10
336	ISO12185	840.9	R(0.05)	-1.58	1229	ISO12185	841.2		0.10
337	ISO12185	841.3		0.66	1233	ISO12185	840.8	R(0.01)	-2.14
338	ISO12185	841.2		0.10	1237	ISO12185	841.0		-1.02
342	D4052	841.2		0.10	1251	ISO12185	841.1		-0.46
343	ISO12185	841.2		0.10	1254	ISO12185	841.14		-0.24
345	ISO12185	841.3		0.66	1259	ISO12185	841.3		0.66
351	ISO12185	841.18		-0.01	1266	ISO3675	841.800	R(0.01)	3.46
353	IP365	841.2		0.10	1272	ISO12185	841.173		-0.05
356	D4052	841.2		0.10	1275	IP365	841.1		-0.46
357	ISO12185	841.17		-0.07	1286	ISO12185	841.171		-0.06
360	ISO12185	841.2		0.10	1299	D4052	841.2		0.10
369	ISO12185	841.2		0.10	1316	D4052	841.1		-0.46
370	ISO12185	841.1		-0.46	1318	D4052	841.19		0.04
371	ISO12185	841.1		-0.46	1320	ISO12185	841.2		0.10
381	ISO12185	841.15		-0.18	1356	ISO12185	841.3		0.66
391	ISO12185	841.0		-1.02	1397	ISO12185	841.1		-0.46
398	ISO12185	841.18		-0.01	1428	ISO12185	841.2		0.10
399	D4052	841.2		0.10	1430	D4052	842.5	C, R(0.01)	7.38
402	ISO3675	841.23		0.27	1443	ISO12185	841.19		0.04
403	ISO12185	841.16		-0.13	1459	ISO12185	841.15		-0.18
420	ISO12185	841.0		-1.02	1468	ISO12185	841.2		0.10
431	ISO12185	841.13		-0.29	1498	D4052	841.2	C	0.10
432	ISO12185	841.29		0.60	1510	D4052	841.2		0.10
440	D4052	841.3		0.66	1528	ISO12185	841.17		-0.07
444		-----		-----	1539	ISO12185	841.16		-0.13
445	IP365	841.1		-0.46	1556	ISO12185	841.19		0.04
447	D4052	841.1		-0.46	1569		-----		-----
453	IP365	841.2		0.10	1586	D4052	841.2		0.10
485	ISO12185	841.1		-0.46	1613	D4052	841.0		-1.02
494	ISO12185	841.2		0.10	1631	ISO12185	841.2		0.10
541	ISO12185	841.20		0.10	1634	ISO12185	841.184		0.01
631	D4052	841.21		0.15	1635	ISO12185	841.0		-1.02
663	D4052	841.01		-0.97	1654	ISO12185	841.218		0.20
671	D4052	841.1		-0.46	1656	D4052	841.0		-1.02
704	ISO12185	841.08		-0.57	1681	ISO12185	841.2		0.10
759	ISO12185	841.2		0.10	1720	D4052	841.2		0.10
779	ISO12185	841.2		0.10	1724	D4052	841.2		0.10
781	ISO12185	841.2		0.10	1730	ISO12185	841.18		-0.01
782	D4052	841.2		0.10	1740	ISO12185	841.2		0.10
785	ISO12185	841.1		-0.46	1741	ISO12185	841.1		-0.46
823	D4052	841.25		0.38	1742	ISO12185	841.1		-0.46
842	D4052	841.16		-0.13	1746	D4052	841.3		0.66
873	D4052	841.2		0.10	1776	ISO12185	841.3		0.66
874	ISO12185	841.1		-0.46	1787		-----		-----
875	D4052	841.2		0.10	1792	ISO12185	841.2		0.10
902	ISO12185	841.2		0.10	1806	ISO3675	841.6	R(0.01)	2.34
904	ISO12185	841.3		0.66	1807	ISO12185	841.2		0.10
962	D4052	841.3		0.66	1810	ISO12185	841.1		-0.46
963	ISO12185	841.2		0.10	1811	ISO12185	841.0		-1.02
971	D4052	841.2		0.10	1832	ISO12185	841.2		0.10
974	D4052	841.2		0.10	1833	ISO12185	841.1		-0.46
995	ISO12185	841.3		0.66	1849	ISO12185	841.3		0.66
997	ISO12185	841.2		0.10	1854	ISO12185	841.3		0.66
1006	D4052	841.2		0.10	1857	ISO12185	841.2		0.10
1026	D4052	841.2		0.10	1858	D4052	841.2		0.10
1033	IP365	841.3		0.66	1862	ISO12185	841.2		0.10
1059	ISO12185	841.2		0.10	1936	ISO12185	841.2		0.10
1081	D4052	841.18		-0.01	1937	ISO12185	841.2		0.10

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	ISO12185	841.2		0.10	6012	ISO3675	840.9	R(0.05)	-1.58
1949	ISO12185	841.24		0.32	6018	ISO12185	841.2		0.10
1950	ISO12185	841.2		0.10	6028	ISO12185	840.8	R(0.01)	-2.14
1953	In house	840.6	R(0.01)	-3.26	6049	ISO12185	841.2		0.10
1961		-----		-----	6051	ISO12185	841.2		0.10
1971	ISO12185	841.14		-0.24	6057	ISO12185	841.2		0.10
1976	ISO12185	841.2		0.10	6068	ISO12185	841.2		0.10
1984	ISO12185	841.1		-0.46	6075	ISO12185	841.28		0.55
1986	ISO12185	841.23		0.27	6142	ISO12185	841.2		0.10
2129	D4052	841.1		-0.46	6163	ISO12185	841.301		0.66
2130	ISO12185	841.2		0.10	6170	ISO3675	840.7	R(0.01)	-2.70
2146	ISO12185	841.19		0.04	9057	D4052	841.3		0.66
6005	ISO12185	841.2		0.10					

normality	OK
n	159
outliers	11
mean (n)	841.18
st.dev. (n)	0.075
R(calc.)	0.21
st.dev.(ISO12185:96)	0.179
R(ISO12185:96)	0.5

Lab 237: reported 0.8412 kg/m^3
Lab 1430: first reported 842.3
Lab 1498: first reported 840.6
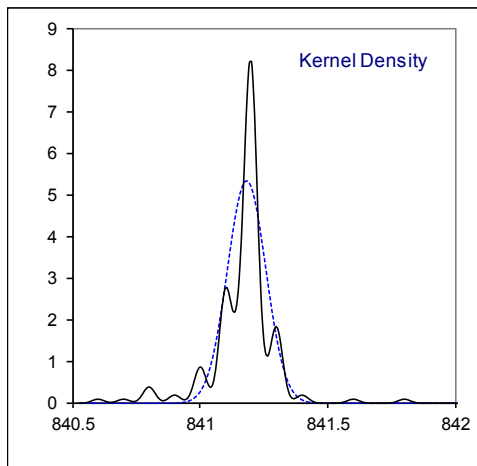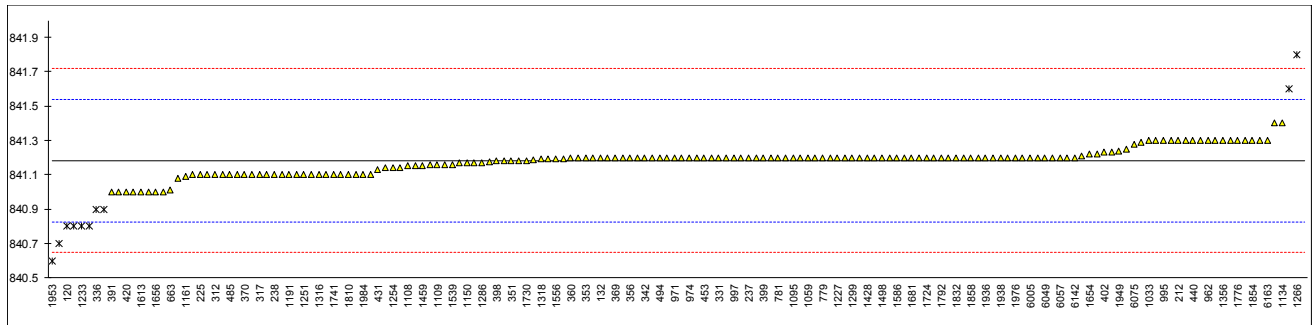
Determination of Distillation on sample #18025; result in °C

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
120	D86-automated	171.3	208.9	261.1	338.9	356.1	364.2	41.7	93.4
132	D86-automated	166.7	208.2	260.8	337.9	354.7	361.8	41.6	93.6
140	ISO3405-automated	164.7	207.3	260.0	337.1	353.6	356.5 R5	42.6	95.1
171	D86-automated	162.3	207.3	260.4	337.6	354.2	364.0	43.1	94.6
212		170.9 C	208.5	259.8	341.5	360.7	364.9	43.5	93.8
225	D86-manual	170.5	206.0	259.5	337.5	356.0	361.0	43.5	94.0
228	D86-manual	162.0	205.0	258.0	339.0	357.0	362.0	44.0	94.0
237	D86-manual	164.0	201.0 R1	258.0	334.0	350.0	363.0	45.0 R5	95.0
238	D86-manual	170.0	210.0	261.0	338.0	356.0	365.0	42.0	93.5
273	D86-automated	167.6 C	204.3	258.2	335.2	351.2	356.1 C,R5	-----	-----
312	ISO3405-automated	168.9	208.3	262.4	338.6	355.6	363.3	41.1	93.6
317	D86-automated	165.5	207.0	260.5	338.2	354.9	363.1	43.2	94.0
323	ISO3405-automated	173.2	209.5	261.3	338.5	356.0	361.2	41.8	93.7
331		-----	-----	-----	-----	-----	-----	-----	-----
333		-----	-----	-----	-----	-----	-----	-----	-----
334	ISO3405-automated	165.2	206.6	260.5	339.0	356.4	363.9	42.1	93.4
335		-----	-----	-----	-----	-----	-----	-----	-----
336		173.1	208.4	260.8	339.0	356.4	365.3	42.1	93.3
337		-----	-----	-----	-----	-----	-----	-----	-----
338	ISO3405-automated	164.9	209.2	259.5	335.6	351.1	364.5	43.0	94.7
342	D86-automated	168.2	207.9	261.3	340.1	358.1	363.6	41.7	92.9
343	ISO3405-automated	164.9	205.3 C	260.7	337.3	353.2	365.5	41.9	93.8
345	D86-automated	166.74	205.86	259.98	336.22	352.86	362.5	43	94
351	ISO3405-automated	165.6	204.8	260.0	338.1	357.4	365.3	42.7	93.6
353	D86-automated	167.1	206.4	261.6	341.1	358.4	364.8	41.5	92.6
356	D86-automated	169.0	207.3	261.2	339.2	356.3	364.6	42.0	93.6
357	ISO3405-automated	167.1	206.3	260.7	337.2	353.4	363.3	42.1	94.1
360	ISO3405-automated	168.9	209.8	262.4	341.2	359.3	364.0	40.9	92.7
369	ISO3405-automated	167.7	207.6	259.7	339.3	357.5	363.3	42.5	93.5
370	ISO3405-automated	167.9	208.9	260.0	340.1	356.3	364.4	42.4	93.5
371	ISO3405-automated	167.5	207.1	260.4	337.0	353.9	363.4	42.7	93.7
381	ISO3405-automated	163.5	205.2	259.9	336.5	353.2	366.1	42.6	94.2
391	ISO3405-automated	170.5	207.9	261.3	337.6	354.6	365.7	41.3	93.9
398	ISO3405-automated	169.1	209.8	260.1	337.1	353.7	362.8	42.1	94.0
399	D86-automated	162.4	207.0	259.7	336.7	352.5	365.2	40.9	92.4
402	ISO3405-automated	169.4	209.6	262.4	340.4	358.1	363.2	40.8	92.5
403	ISO3405-automated	164.5	205.6	260.1	339.9	356.7	363.2	42.5	93.1
420	ISO3405-automated	160.7	206.1	259.2	337.5	355.6	359.7	43.2	93.7
431		167.5	205.5	260.5	339.2	358.3	363.4	42	93
432		-----	-----	-----	-----	-----	-----	-----	-----
440	IP123-manual	169.0	207.0	259.0	339.0	356.0	366.5	44.0	94.0
444		-----	-----	-----	-----	-----	-----	-----	-----
445	IP123-automated	160.5	205.5	259.4	337.6	355.3	363.1	42.7	93.7
447	D86-automated	167	208.4	260.7	339.1	356.2	364.9	42.1	93.3
453	IP123-automated	169.7	206.7	261.2	338.8	356.8	364.9	42.0	93.3
485		169.40	207.65	259.35	333.85	349.65	356.55 R5	42.85	95.10
494	ISO3405-automated	160.55	206.05	260.05	337.15	354.95	363.20	42.45	93.80
541	ISO3405-automated	168.35	207.40	260.95	337.65	354.35	363.0	41.30	93.70
631	D86-manual	172.0	208.0	262.0	340.0	357.0	365.0	42.0	93.5
663	D86-automated	173.55	210.20	261.70	337.65	354.10	362.90	41.60	94.35
671		-----	-----	-----	-----	-----	-----	-----	-----
704	ISO3405-manual	169.5	208.0	260.0	339.5	356.5	364.5	42.0	93.0
759	ISO3405-manual	167.5	207.5	261.0	340.5	357.5	367.5	42.5	93.0
779	ISO3405-manual	169.0	207.5	261.5	338.5	357.0	365.5	42.0	94.0
781	ISO3405-automated	168.1	209.0	260.9	338.8	356.7	363.6	41.9	93.4
782	D86-manual	169.0	207.0	259.5	338.0	354.5	364.0	42.5	93.5
785	ISO3405-automated	170.8	208.9	261.8	339.0	356.0	365.9	41.1	93.5
823	D86-automated	164.9	205.6	258.0	335.1	351.6	363.0	44.1	94.8
842		167.5	205.0	259.0	337.5	353.5	365.0	42.5	94.0
873	D86-manual	167.0	206.5	261.5	338.0	356.0	363.5	43.0	93.5
874	ISO3405-manual	167.5	205.5	261.0	340.5	359.0	363.5	42.0	93.0
875	D86-manual	164.5	206.0	259.5	339.0	358.0	363.0	43.0	93.5
902	ISO3405-automated	165.7	207.4	260.8	338.9	356.6	363.8	41.6	93.4
904	ISO3405-automated	166.8	205.3	260.3	337.3	354.1	363.8	42.2	94.0
962	D86-automated	168.1	208.0	260.7	336.5	353.7	362.9	41.8	94.0
963	ISO3405-automated	167.4	207.5	260.6	337.5	354.8	364.1	41.9	93.8
971	D86-automated	160.5	206.8	260.3	338.5	355.8	363.0	42.6	93.6
974	D86-automated	168.6	208.2	261.0	339.5	356.6	363.1	41.79	93.31
995	ISO3405-manual	171.0	205.5	260.5	338.5	355.5	363.0	42.5	93.5
997		169.0	204.5	259.0	337.5	354.0	364.0	43.5	94.0
1006	D86-automated	172.1	209.8	262.8	339.0	356.4	367.2	-----	-----
1026	ISO3405-automated	171.6	208.0	260.6	337.9	354.9	364.7	41.7	93.7
1033	IP123-automated	165.2	207.8	261.3	338.3	355.4	362.1	-----	-----
1059	ISO3405-automated	167.8	208.4	260.7	338.8	356.4	363.9	42.0	93.4

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
1081	D86-automated	163.8	207.2	260.6	336.9	353.5	365.9	42.10	94.17
1082	ISO3405-automated	169.7	208.6	260.3	338.1	354.3	361.5	42.0	93.8
1095	ISO3405-automated	169.4	208.4	261.0	336.8	353.2	363.2	-----	-----
1108	ISO3405-automated	169.2	206.8	261.0	339.8	357.2	364.0	41.8	93.0
1109	D86-automated	169.9	207.9	259.6	333.6	348.6	357.8	42.5	95.3
1121	ISO3405-manual	160.5	207.0	260.5	342.0	362.5	366.0	45.0 R5	92.5
1126	STP577	172.4	210.3	263.8	337.9	356.9	368.6	39.4 R5	93.1
1134	D86-automated	162.6	207.2	260.8	338.2	355.1	364.7	41.9	93.6
1141	ISO3405-automated	167.7	206.9	260.3	335.4	350.6	364.0	42.2	94.8
1146	D86-automated	168.2	206.5	260.0	337.5	354.1	365.0	43	94
1150	ISO3405-automated	165.50	204.20	259.05	337.05	353.45	361.95	43.20	94.05
1161	D86-automated	160.8	205.7	261.0	337.9	354.2	361.3	41.3	93.9
1167	ISO3405-automated	156.3	204.2	263.0	337.8	354.3	362.0	40.0	94.0
1191	ISO3405-automated	169.5	208.1	261.5	338.9	356.4	364.0	41.6	93.4
1199		-----	-----	-----	-----	-----	-----	-----	-----
1201	ISO3405-automated	166.2	207.7	260.7	339.0	355.9	365.2	41.8	93.5
1205	D86-automated	171.8	209.6	261.0	334.7	349.8	359.8	41.3	95.1
1227	D86-automated	172.1	209.3	261.6	338.7	356.1	365.8	41.8	93.5
1229	ISO3405-automated	167.2	207.4	260.4	338.9	357.2	363.8	42.0	93.3
1233		-----	-----	-----	-----	-----	-----	-----	-----
1237	ISO3405-automated	164.1	207.4	260.1	336.4	352.0	360.9	42.0	94.5
1251	ISO3405-automated	170.6	207.3	260.6	338.1	356.0	365.1	41.9	93.6
1254	ISO3405-automated	167.0	207.0	260.2	336.8	353.9	363.1	42.6	94.1
1259	ISO3405-automated	167.5	207.5	259.9	335.0	350.3	364.3	43.0	95.2
1266	D86-automated	169.3	207.2	259.7	339.5	356.7	363.2	42.5	93.3
1272	ISO3405-automated	169.2	207.8	260.5	338.3	355.4	365.5	41.5	93.6
1275	IP123-automated	161.1	206.4	259.9	338.7	356.8	361.8	42.6	93.3
1286		-----	-----	-----	-----	-----	-----	-----	-----
1299	D86-automated	168.2	206.1	260.0	337.8	355.5	363.9	43.0	93.7
1316	D86-automated	163.9	207.9	261.4	341.0	360.2	363.8	41.9	92.5
1318	D86-automated	159.3	206.1	259.6	337.7	352.8	362.2	43.6	94.3
1320		-----	-----	-----	-----	-----	-----	-----	-----
1356		-----	208 C	259 C	329 C, R1	-----	-----	-----	-----
1397	ISO3405-automated	167.9	208.1	261.2	336.6	353.5	364.1	41.4	94.0
1428		169.9	206.2	260.7	336.1	352.2	363.4	41.9	94.5
1430	D86-automated	169	203.8 C	258.6	335.8 C	352.6 C	359.3	-----	-----
1443		166.0	206.0	261.0	339.0	355.0	366.0	42.0	93.5
1459	ISO3405-automated	168.7	208.0	260.4	333.1	349.8	357.6	42.0	95.0
1468	D86-automated	167.4	207.4	261.1	338.8	356.5	364.1	42.4	94.0
1498	D86-automated	169.7	207.9	261.1	340.3	359.1	365.3	43	94
1510	D86-automated	165.5	205.9	259.6	335.9	352.0	363.6	42.6	94.5
1528	D86-automated	168.7	207.7	260.8	339.6	357.5	365.4	41.7	93.2
1539	ISO3405-automated	162.5	205.7	260.3	338.4	356.6	362.7	42.9	93.4
1556	ISO3405-automated	167.1	206.6	260.6	337.5	354.5	363.7	42.1	93.9
1569		-----	-----	-----	-----	-----	-----	-----	-----
1586	D86-automated	165.7	205.9	259.5	337.2	354.2	364.0	42.7	93.9
1613	D86-automated	167.3	207.7	260.5	336.5	352.2	364.6	42	94.5
1631		-----	-----	-----	-----	353.4	-----	43.0	94.2
1634	ISO3405-automated	168.9	208.6	261.1	338.1	354.9	364.5	41.65	93.7 C
1635	ISO3405-automated	171.4	206.7	260.6	338.5	356.0	365.3	41.8	93.5
1654		-----	-----	-----	-----	355.9	-----	41.8	93.5
1656	D86-automated	170.2	208.5	260.2	336.4	352.7	365.1	42.4	93.2
1681	ISO3405-automated	167.6	207.2	260.8	337.5	353.9	365.0	42.0	93.8
1720	D86-automated	164.3	211.3	261.6	339.3	356.7	365.4	41.3	93.2
1724	D86-automated	172.7	209.8	259.8	335.6	352.6	359.4	42.1	94.4
1730		-----	-----	-----	-----	-----	-----	-----	-----
1740	ISO3405-automated	166.4	204.6	259.3	336.3	352.8	363.8	43	94.2
1741	ISO3405-automated	166.9	207.0	260.0	336.0	353.0	364.1	42.2	94.2
1742	ISO3405-automated	165.0	207.7	261.5	339.0	356.8	364.6	41.3	93.3
1746	D86-manual	166.0	207.5	260.5	338.0	353.0	366.5	42.5	94.0
1776	ISO3405-automated	164.5	204.2	259.0	337.9	356.0	361.7	43.0	93.5
1787		-----	-----	-----	-----	-----	-----	-----	-----
1792	ISO3405-automated	167.2	207.4	260.6	339.4	356.9	364.4	42.2	93.3
1806	ISO3405-manual	164	198 C, R1	258 C	333	351	361	45 R5	95
1807	ISO3405-automated	173.4	208.6	260.1	336.5	353.0	364.5	42.2	94.2
1810	D86-automated	167.2	207.5	260.1	338	354.7	364.7	42.4	93.8
1811	D86-automated	169.6	208.5	260.7	335.0	350.6	359.6	41.8	94.8
1832	ISO3405-automated	168.0	207.5	261.2	337.7	355.1	363.3	43.6	95.6
1833		-----	207.7	259.3	336.9	353.6	364.0	42.8	94.1
1849	ISO3405-automated	167.6	207.5	260.6	337.9	355.0	365.5	41.9	93.8
1854	ISO3405-automated	166.6	205.1	259.5	337.1	354.5	363.9	-----	-----
1857	ISO3405-automated	169.0	208.0	260.6	340.1	357.4	365.2	41.4	93.1
1858	D86-manual	169.0	208.2	260.0	338.8	356.8	364.3	41.3	93.3
1862	ISO3405-manual	171.0	208.0	260.0	340.0	355.5	365.0	42.0	93.5
1936		-----	207.2	260.3	338.4	353.1	-----	42.8	94.2
1937		-----	205.50	259.40	336.25	352.7	-----	42.95	94.25
1938		-----	206.1	259.8	336.5	353.1	-----	43.2	94.5
1949	ISO3405-manual	170.0	208.0	260.5	340.5	357.5	364.5	42.1	93.2

lab	method	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol. 250°C	Vol. 350°C
1950	ISO3405-manual	170.0	208.0	261.0	339.0	357.0	364.0	42.0	93.0
1953		170.1	205.8	258.2	334.1	350.0	363.3	48.41 R1	95
1961		-----	-----	-----	-----	-----	-----	-----	-----
1971	ISO3405-automated	164.4	206.0	260.0	337.7	355.0	359.5	42.4	93.8
1976	ISO3405-automated	169.3	207.6	260.4	336.0	351.8	364.0	42.3	94.6
1984	ISO3405-automated	168.75	206.55	261.0	338.65	355.95	364.65	42.25	93.85
1986	ISO3405-manual	168.5	207.5	260.0	340.5	357.5	364.0	42.5	93.0
2129	ISO3405-automated	173.9	206.8	260.6	338.1	354.8	365.7	41.9	93.7
2130	ISO3405-automated	170.7	208.5	261.3	337.6	355.0	361.6	41.7	93.8
2146		173.5	204.8	261.3	342.1	359.6	361.7	41.5	92.3
6005	ISO3405-automated	167.4	207.9	261.4	338.7	356.2	364.8	41.6	93.5
6012	D86-manual	159.4	202.9	258.0	336.2	355.2	358.7	42.3 C	94.0
6018	ISO3405-automated	170.7	208.4	261.3	339.7	357.5	365.3	41.7	93.2
6028	ISO3405-automated	166.8	206.8	258.8	332.6	347.8	362.8	42.9	95.6
6049		169.0	207.1	260.0	336.8	352.9	359.7	42.8	94.2
6051	ISO3405-manual	170.0	208.0	262.0	341.0	358.0	366.0	40.0	92.5
6057	ISO3405-automated	170.7	208.0	260.7	337.9	355.7	365.1	42.1	93.7
6068	ISO3405-automated	168.6	208.3	260.4	336.9	354.9	361.8	42.0	93.8
6075	ISO3405-automated	157.3	205.3	259.8	337.9	355.7	363.6	42.9	93.7
6142		162.5	206.3	259.9	338.2	355.1	363.2	42.6	94.0
6163	ISO3405-automated	168.1	207.4	260.3	337.0	353.3	363.5	42.0	94.2
6170	ISO3405-manual	166.5	205.0	258.5	335.5	352.5	363.0	44.5	95.0
9057		-----	-----	-----	-----	-----	-----	-----	-----
normality		OK	OK	OK	OK	OK	suspect	suspect	OK
n		152	155	157	156	158	150	147	152
outliers		0	2	0	1	0	3	5	0
mean (n)		167.43	207.19	260.40	337.89	354.95	363.68	42.23	93.79
st.dev. (n)		3.345	1.451	0.990	1.754	2.401	1.814	0.719	0.640
R(calc.)		9.37	4.06	2.77	4.91	6.72	5.08	2.01	1.79
st.dev.(ISO3405-automated:11)		3.289	1.628	1.061	1.810	3.245	2.536	0.964	0.964
R(ISO3405-automated:11)		9.21	4.56	2.97	5.07	9.09	7.1	2.7	2.7
compare									
R(ISO3405-manual:11)		6.50	4.27	3.97	4.59	5.23	3.83	2.87	2.27

Lab 212: first reported 180.2
Lab 273: first reported 157.6 and 355.1 respectively
Lab 343: first reported 197.6
Lab 1356: first reported 220, 272 and 345 respectively
Lab 1430: first reported: 2017.1, 330.5 and 344.5 respectively
Lab 1634: first reported 354.85
Lab 1806: first reported 200 and 256 respectively
Lab 6012: first reported 45.3

FBP

Kernel Density

Vol. at 250 °C

Kernel Density

Vol. at 350 °C

Kernel Density
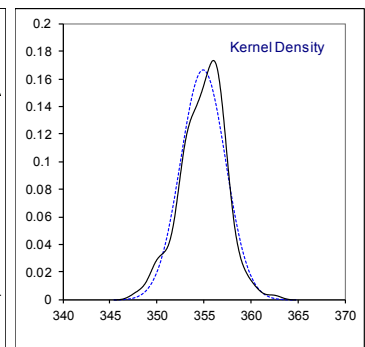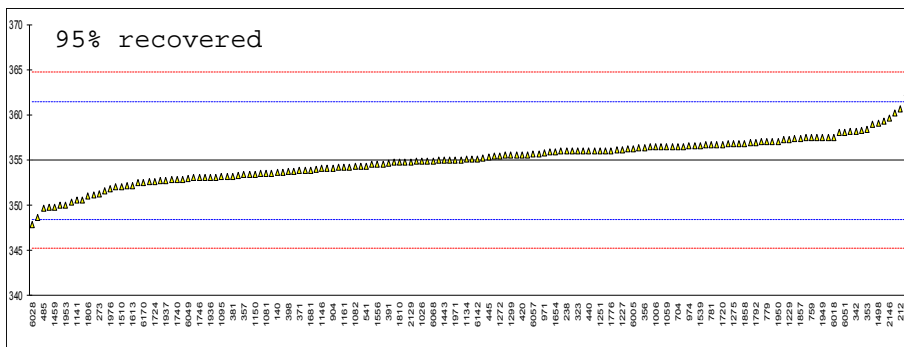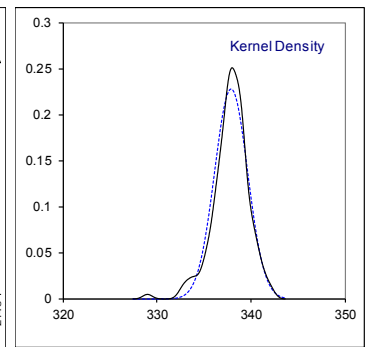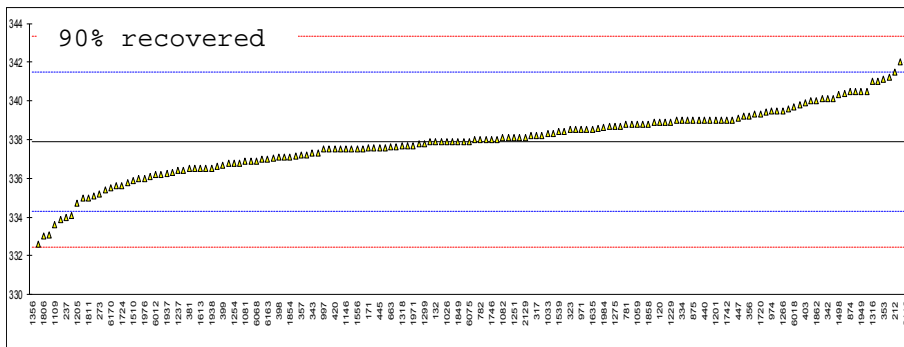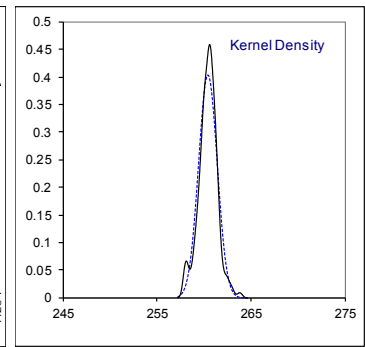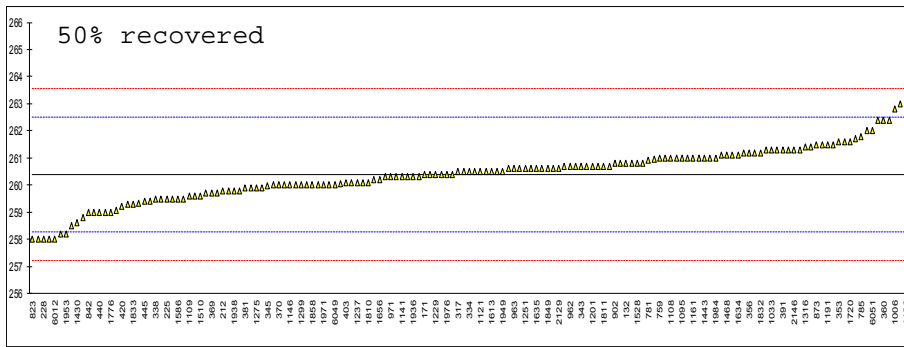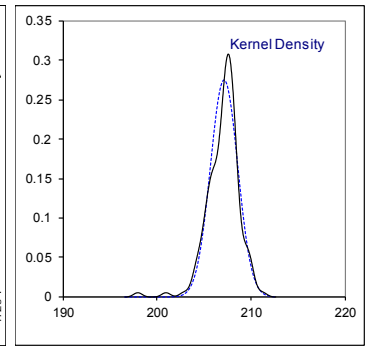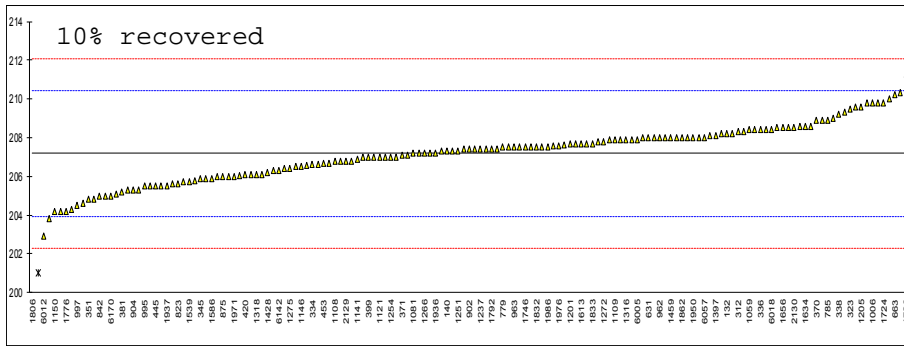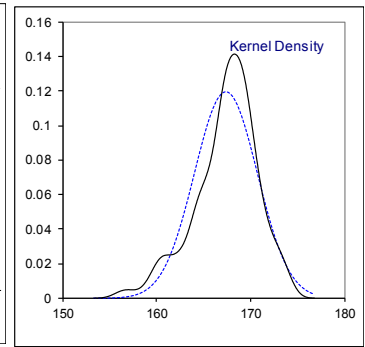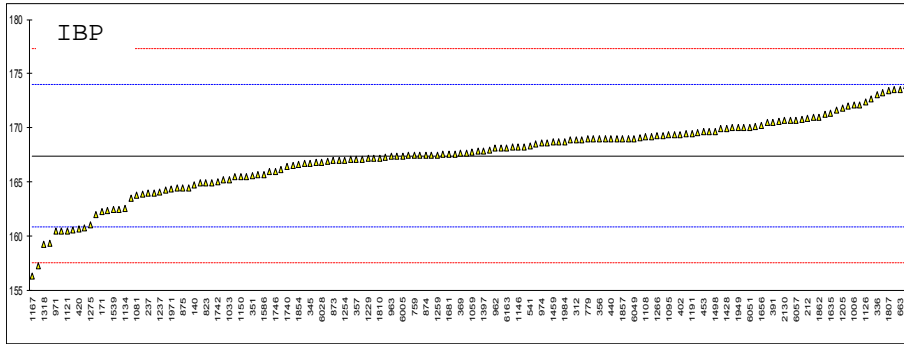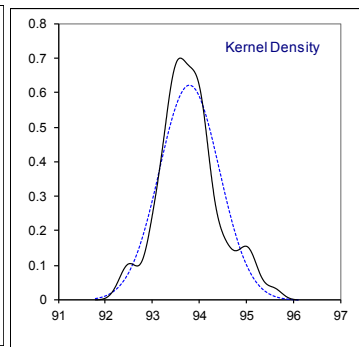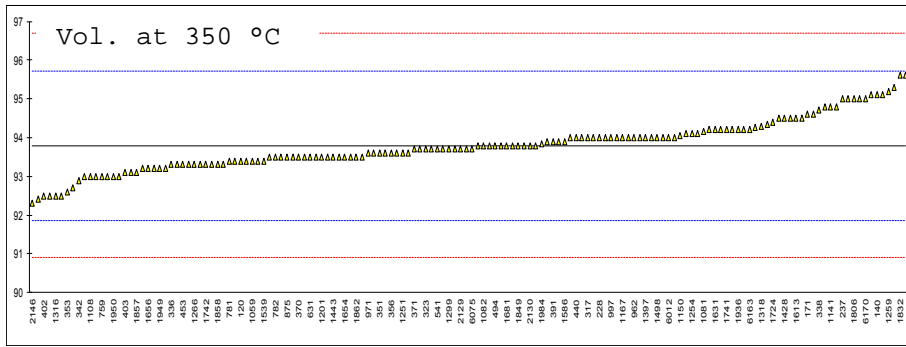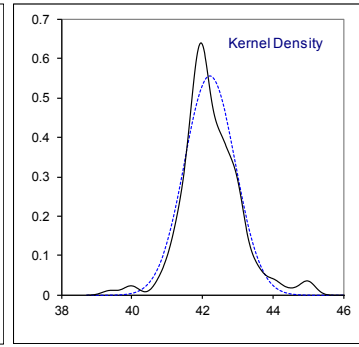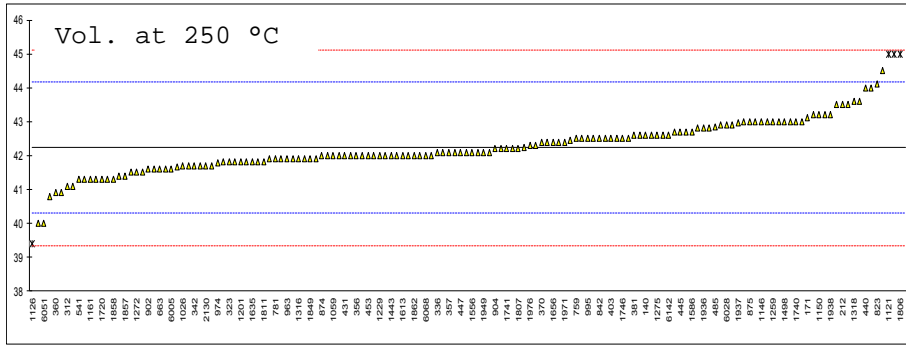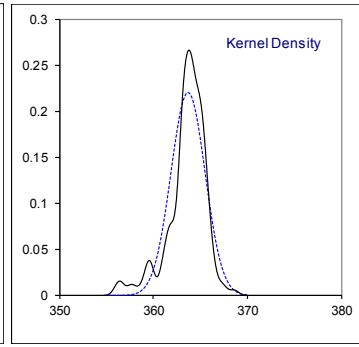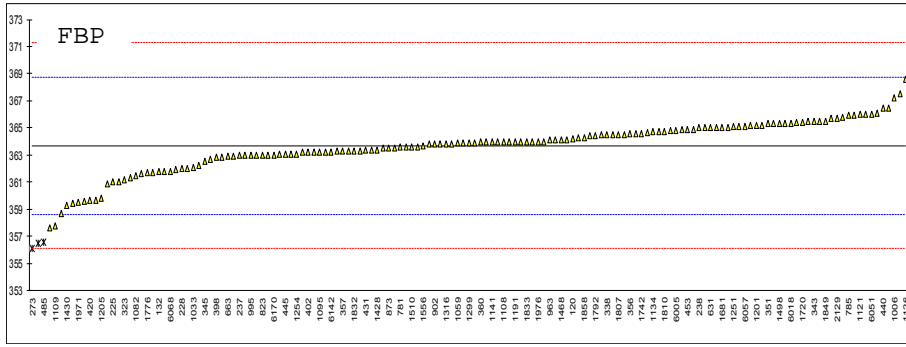
z-scores Distillation on sample #18025

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
120	1.18	1.05	0.66	0.56	0.35	0.20	-0.55	-0.41
132	-0.22	0.62	0.38	0.01	-0.08	-0.74	-0.65	-0.20
140	-0.83	0.07	-0.37	-0.44	-0.42	-2.83	0.38	1.36
171	-1.56	0.07	0.00	-0.16	-0.23	0.12	0.90	0.84
212	1.06	0.80	-0.56	1.99	1.77	0.48	1.32	0.01
225	0.93	-0.73	-0.84	-0.22	0.32	-1.06	1.32	0.22
228	-1.65	-1.35	-2.26	0.61	0.63	-0.66	1.84	0.22
237	-1.04	-3.80	-2.26	-2.15	-1.53	-0.27	2.87	1.25
238	0.78	1.73	0.57	0.06	0.32	0.52	-0.24	-0.30
273	0.05	-1.78	-2.07	-1.49	-1.16	-2.99	-----	-----
312	0.45	0.68	1.89	0.39	0.20	-0.15	-1.17	-0.20
317	-0.59	-0.12	0.10	0.17	-0.02	-0.23	1.01	0.22
323	1.75	1.42	0.85	0.34	0.32	-0.98	-0.45	-0.10
331	-----	-----	-----	-----	-----	-----	-----	-----
333	-----	-----	-----	-----	-----	-----	-----	-----
334	-0.68	-0.36	0.10	0.61	0.45	0.08	-0.13	-0.41
335	-----	-----	-----	-----	-----	-----	-----	-----
336	1.72	0.74	0.38	0.61	0.45	0.64	-0.13	-0.51
337	-----	-----	-----	-----	-----	-----	-----	-----
338	-0.77	1.23	-0.84	-1.26	-1.19	0.32	0.80	0.94
342	0.23	0.44	0.85	1.22	0.97	-0.03	-0.55	-0.93
343	-0.77	-1.16	0.29	-0.33	-0.54	0.72	-0.34	0.01
345	-0.21	-0.82	-0.39	-0.92	-0.64	-0.47	0.80	0.22
351	-0.56	-1.47	-0.37	0.12	0.75	0.64	0.49	-0.20
353	-0.10	-0.49	1.14	1.77	1.06	0.44	-0.76	-1.24
356	0.48	0.07	0.76	0.72	0.42	0.36	-0.24	-0.20
357	-0.10	-0.55	0.29	-0.38	-0.48	-0.15	-0.13	0.32
360	0.45	1.60	1.89	1.83	1.34	0.12	-1.38	-1.13
369	0.08	0.25	-0.66	0.78	0.79	-0.15	0.28	-0.30
370	0.14	1.05	-0.37	1.22	0.42	0.28	0.18	-0.30
371	0.02	-0.06	0.00	-0.49	-0.32	-0.11	0.49	-0.10
381	-1.19	-1.22	-0.47	-0.77	-0.54	0.95	0.38	0.42
391	0.93	0.44	0.85	-0.16	-0.11	0.79	-0.96	0.11
398	0.51	1.60	-0.28	-0.44	-0.39	-0.35	-0.13	0.22
399	-1.53	-0.12	-0.66	-0.66	-0.76	0.60	-1.38	-1.44
402	0.60	1.48	1.89	1.39	0.97	-0.19	-1.48	-1.34
403	-0.89	-0.98	-0.28	1.11	0.54	-0.19	0.28	-0.72
420	-2.05	-0.67	-1.13	-0.22	0.20	-1.57	1.01	-0.10
431	0.02	-1.04	0.10	0.72	1.03	-0.11	-0.24	-0.82
432	-----	-----	-----	-----	-----	-----	-----	-----
440	0.48	-0.12	-1.32	0.61	0.32	1.11	1.84	0.22
444	-----	-----	-----	-----	-----	-----	-----	-----
445	-2.11	-1.04	-0.94	-0.16	0.11	-0.23	0.49	-0.10
447	-0.13	0.74	0.29	0.67	0.38	0.48	-0.13	-0.51
453	0.69	-0.30	0.76	0.50	0.57	0.48	-0.24	-0.51
485	0.60	0.28	-0.99	-2.23	-1.63	-2.81	0.64	1.36
494	-2.09	-0.70	-0.33	-0.41	0.00	-0.19	0.23	0.01
541	0.28	0.13	0.52	-0.13	-0.19	-0.27	-0.96	-0.10
631	1.39	0.50	1.51	1.17	0.63	0.52	-0.24	-0.30
663	1.86	1.85	1.23	-0.13	-0.26	-0.31	-0.65	0.58
671	-----	-----	-----	-----	-----	-----	-----	-----
704	0.63	0.50	-0.37	0.89	0.48	0.32	-0.24	-0.82
759	0.02	0.19	0.57	1.44	0.79	1.50	0.28	-0.82
779	0.48	0.19	1.04	0.34	0.63	0.72	-0.24	0.22
781	0.20	1.11	0.48	0.50	0.54	-0.03	-0.34	-0.41
782	0.48	-0.12	-0.84	0.06	-0.14	0.12	0.28	-0.30
785	1.02	1.05	1.32	0.61	0.32	0.87	-1.17	-0.30
823	-0.77	-0.98	-2.26	-1.54	-1.03	-0.27	1.94	1.04
842	0.02	-1.35	-1.32	-0.22	-0.45	0.52	0.28	0.22
873	-0.13	-0.42	1.04	0.06	0.32	-0.07	0.80	-0.30
874	0.02	-1.04	0.57	1.44	1.25	-0.07	-0.24	-0.82
875	-0.89	-0.73	-0.84	0.61	0.94	-0.27	0.80	-0.30
902	-0.53	0.13	0.38	0.56	0.51	0.05	-0.65	-0.41
904	-0.19	-1.16	-0.09	-0.33	-0.26	0.05	-0.03	0.22
962	0.20	0.50	0.29	-0.77	-0.39	-0.31	-0.45	0.22
963	-0.01	0.19	0.19	-0.22	-0.05	0.16	-0.34	0.01
971	-2.11	-0.24	-0.09	0.34	0.26	-0.27	0.38	-0.20
974	0.36	0.62	0.57	0.89	0.51	-0.23	-0.46	-0.50
995	1.09	-1.04	0.10	0.34	0.17	-0.27	0.28	-0.30
997	0.48	-1.65	-1.32	-0.22	-0.29	0.12	1.32	0.22
1006	1.42	1.60	2.27	0.61	0.45	1.39	-----	-----
1026	1.27	0.50	0.19	0.01	-0.02	0.40	-0.55	-0.10
1033	-0.68	0.37	0.85	0.23	0.14	-0.62	-----	-----
1059	0.11	0.74	0.29	0.50	0.45	0.08	-0.24	-0.41

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
1081	-1.10	0.01	0.19	-0.55	-0.45	0.87	-0.13	0.39
1082	0.69	0.87	-0.09	0.12	-0.20	-0.86	-0.24	0.01
1095	0.60	0.74	0.57	-0.60	-0.54	-0.19	-----	-----
1108	0.54	-0.24	0.57	1.06	0.69	0.12	-0.45	-0.82
1109	0.75	0.44	-0.75	-2.37	-1.96	-2.32	0.28	1.56
1121	-2.11	-0.12	0.10	2.27	2.33	0.91	2.87	-1.34
1126	1.51	1.91	3.21	0.01	0.60	1.94	-2.93	-0.72
1134	-1.47	0.01	0.38	0.17	0.05	0.40	-0.34	-0.20
1141	0.08	-0.18	-0.09	-1.38	-1.34	0.12	-0.03	1.04
1146	0.23	-0.42	-0.37	-0.22	-0.26	0.52	0.80	0.22
1150	-0.59	-1.84	-1.27	-0.46	-0.46	-0.68	1.01	0.27
1161	-2.02	-0.92	0.57	0.01	-0.23	-0.94	-0.96	0.11
1167	-3.38	-1.84	2.46	-0.05	-0.20	-0.66	-2.31	0.22
1191	0.63	0.56	1.04	0.56	0.45	0.12	-0.65	-0.41
1199	-----	-----	-----	-----	-----	-----	-----	-----
1201	-0.37	0.31	0.29	0.61	0.29	0.60	-0.45	-0.30
1205	1.33	1.48	0.57	-1.76	-1.59	-1.53	-0.96	1.36
1227	1.42	1.30	1.14	0.45	0.35	0.83	-0.45	-0.30
1229	-0.07	0.13	0.00	0.56	0.69	0.05	-0.24	-0.51
1233	-----	-----	-----	-----	-----	-----	-----	-----
1237	-1.01	0.13	-0.28	-0.82	-0.91	-1.10	-0.24	0.73
1251	0.96	0.07	0.19	0.12	0.32	0.56	-0.34	-0.20
1254	-0.13	-0.12	-0.18	-0.60	-0.32	-0.23	0.38	0.32
1259	0.02	0.19	-0.47	-1.60	-1.43	0.24	0.80	1.46
1266	0.57	0.01	-0.66	0.89	0.54	-0.19	0.28	-0.51
1272	0.54	0.37	0.10	0.23	0.14	0.72	-0.76	-0.20
1275	-1.92	-0.49	-0.47	0.45	0.57	-0.74	0.38	-0.51
1286	-----	-----	-----	-----	-----	-----	-----	-----
1299	0.23	-0.67	-0.37	-0.05	0.17	0.08	0.80	-0.10
1316	-1.07	0.44	0.95	1.72	1.62	0.05	-0.34	-1.34
1318	-2.47	-0.67	-0.75	-0.10	-0.66	-0.59	1.42	0.53
1320	-----	-----	-----	-----	-----	-----	-----	-----
1356	-----	0.50	-1.32	-4.91	-----	-----	-----	-----
1397	0.14	0.56	0.76	-0.71	-0.45	0.16	-0.86	0.22
1428	0.75	-0.61	0.29	-0.99	-0.85	-0.11	-0.34	0.73
1430	0.48	-2.08	-1.69	-1.15	-0.72	-1.73	-----	-----
1443	-0.43	-0.73	0.57	0.61	0.01	0.91	-0.24	-0.30
1459	0.39	0.50	0.00	-2.65	-1.59	-2.40	-0.24	1.25
1468	-0.01	0.13	0.66	0.50	0.48	0.16	0.18	0.22
1498	0.69	0.44	0.66	1.33	1.28	0.64	0.80	0.22
1510	-0.59	-0.79	-0.75	-1.10	-0.91	-0.03	0.38	0.73
1528	0.39	0.31	0.38	0.94	0.79	0.68	-0.55	-0.61
1539	-1.50	-0.92	-0.09	0.28	0.51	-0.39	0.70	-0.41
1556	-0.10	-0.36	0.19	-0.22	-0.14	0.01	-0.13	0.11
1569	-----	-----	-----	-----	-----	-----	-----	-----
1586	-0.53	-0.79	-0.84	-0.38	-0.23	0.12	0.49	0.11
1613	-0.04	0.31	0.10	-0.77	-0.85	0.36	-0.24	0.73
1631	-----	-----	-----	-----	-0.48	-----	0.80	0.42
1634	0.45	0.87	0.66	0.12	-0.02	0.32	-0.60	-0.10
1635	1.21	-0.30	0.19	0.34	0.32	0.64	-0.45	-0.30
1654	-----	-----	-----	-----	0.29	-----	-0.45	-0.30
1656	0.84	0.80	-0.18	-0.82	-0.69	0.56	0.18	-0.61
1681	0.05	0.01	0.38	-0.22	-0.32	0.52	-0.24	0.01
1720	-0.95	2.52	1.14	0.78	0.54	0.68	-0.96	-0.61
1724	1.60	1.60	-0.56	-1.26	-0.72	-1.69	-0.13	0.63
1730	-----	-----	-----	-----	-----	-----	-----	-----
1740	-0.31	-1.59	-1.03	-0.88	-0.66	0.05	0.80	0.42
1741	-0.16	-0.12	-0.37	-1.04	-0.60	0.16	-0.03	0.42
1742	-0.74	0.31	1.04	0.61	0.57	0.36	-0.96	-0.51
1746	-0.43	0.19	0.10	0.06	-0.60	1.11	0.28	0.22
1776	-0.89	-1.84	-1.32	0.01	0.32	-0.78	0.80	-0.30
1787	-----	-----	-----	-----	-----	-----	-----	-----
1792	-0.07	0.13	0.19	0.83	0.60	0.28	-0.03	-0.51
1806	-1.04	-5.65	-2.26	-2.70	-1.22	-1.06	2.87	1.25
1807	1.82	0.87	-0.28	-0.77	-0.60	0.32	-0.03	0.42
1810	-0.07	0.19	-0.28	0.06	-0.08	0.40	0.18	0.01
1811	0.66	0.80	0.29	-1.60	-1.34	-1.61	-0.45	1.04
1832	0.17	0.19	0.76	-0.10	0.05	-0.15	1.42	1.87
1833	-----	0.31	-1.03	-0.55	-0.42	0.12	0.59	0.32
1849	0.05	0.19	0.19	0.01	0.01	0.72	-0.34	0.01
1854	-0.25	-1.28	-0.84	-0.44	-0.14	0.08	-----	-----
1857	0.48	0.50	0.19	1.22	0.75	0.60	-0.86	-0.72
1858	0.48	0.62	-0.37	0.50	0.57	0.24	-0.96	-0.51
1862	1.09	0.50	-0.37	1.17	0.17	0.52	-0.24	-0.30
1936	-----	0.01	-0.09	0.28	-0.57	-----	0.59	0.42
1937	-----	-1.04	-0.94	-0.91	-0.69	-----	0.75	0.47
1938	-----	-0.67	-0.56	-0.77	-0.57	-----	1.01	0.73
1949	0.78	0.50	0.10	1.44	0.79	0.32	-0.13	-0.61

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP	Vol 250ºC	Vol 350ºC
1950	0.78	0.50	0.57	0.61	0.63	0.12	-0.24	-0.82
1953	0.81	-0.85	-2.07	-2.09	-1.53	-0.15	6.41	1.25
1961	-----	-----	-----	-----	-----	-----	-----	-----
1971	-0.92	-0.73	-0.37	-0.10	0.01	-1.65	0.18	0.01
1976	0.57	0.25	0.00	-1.04	-0.97	0.12	0.07	0.84
1984	0.40	-0.39	0.57	0.42	0.31	0.38	0.02	0.06
1986	0.33	0.19	-0.37	1.44	0.79	0.12	0.28	-0.82
2129	1.97	-0.24	0.19	0.12	-0.05	0.79	-0.34	-0.10
2130	0.99	0.80	0.85	-0.16	0.01	-0.82	-0.55	0.01
2146	1.85	-1.47	0.85	2.33	1.43	-0.78	-0.76	-1.55
6005	-0.01	0.44	0.95	0.45	0.38	0.44	-0.65	-0.30
6012	-2.44	-2.64	-2.26	-0.93	0.08	-1.97	0.07	0.22
6018	0.99	0.74	0.85	1.00	0.79	0.64	-0.55	-0.61
6028	-0.19	-0.24	-1.50	-2.92	-2.20	-0.35	0.70	1.87
6049	0.48	-0.06	-0.37	-0.60	-0.63	-1.57	0.59	0.42
6051	0.78	0.50	1.51	1.72	0.94	0.91	-2.31	-1.34
6057	0.99	0.50	0.29	0.01	0.23	0.56	-0.13	-0.10
6068	0.36	0.68	0.00	-0.55	-0.02	-0.74	-0.24	0.01
6075	-3.08	-1.16	-0.56	0.01	0.23	-0.03	0.70	-0.10
6142	-1.50	-0.55	-0.47	0.17	0.05	-0.19	0.38	0.22
6163	0.20	0.13	-0.09	-0.49	-0.51	-0.07	-0.24	0.42
6170	-0.28	-1.35	-1.79	-1.32	-0.76	-0.27	2.35	1.25
9057	-----	-----	-----	-----	-----	-----	-----	-----

Determination of FAME content on sample #18025; result in %V/V

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D7371	1.275		-2.82	1082	EN14078	1.38		0.39
132		-----		-----	1095	EN14078	1.30		-2.06
140	EN14078	1.40		1.01	1108	EN14078	1.30	C	-2.06
171		-----		-----	1109		-----		-----
212		-----		-----	1121		-----		-----
225		-----		-----	1126	EN14078	1.497		3.98
228		-----		-----	1134	EN14078	1.415		1.47
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150	EN14078	1.2473		-3.67
312	EN14078	1.27	C	-2.98	1161	EN14078	1.44		2.23
317		-----		-----	1167	EN14078	1.391		0.73
323	EN14078	1.42		1.62	1191		-----		-----
331	EN14078	1.30		-2.06	1199		-----		-----
333		-----		-----	1201	EN14078	1.356		-0.34
334	EN14078	1.38		0.39	1205	In house	1.4653		3.01
335	EN14078	1.36		-0.22	1227		-----		-----
336	EN14078	1.40		1.01	1229		-----		-----
337		-----		-----	1233	EN14078	5.23	R(0.01)	118.44
338	EN14078	1.6225	R(0.05)	7.83	1237	EN14078	1.345		-0.68
342		-----		-----	1251	EN14078	1.259		-3.32
343	EN14078	1.704	C, R(0.05)	10.33	1254	EN14078	1.348		-0.59
345		-----		-----	1259	EN14078	1.16	R(0.05)	-6.35
351	EN14078	1.324	C	-1.32	1266	EN14078	2.8	R(0.01)	43.93
353	EN14078	1.633	R(0.05)	8.15	1272	EN14078	1.40		1.01
356	EN14078	1.06	R(0.05)	-9.42	1275	EN14078	1.333	C	-1.05
357		-----		-----	1286		-----		-----
360	EN14078	1.35		-0.53	1299	EN14078	1.28		-2.67
369	EN14078	1.33		-1.14	1316	EN14078	1.41		1.31
370	EN14078	1.43		1.93	1318		-----		-----
371		-----		-----	1320	EN14078	1.39		0.70
381	EN14078	1.39		0.70	1356	D7371	0	ex	-41.92
391		-----		-----	1397	EN14078	1.41		1.31
398		-----		-----	1428	EN14078	1.33		-1.14
399		-----		-----	1430		1.2		-5.12
402	EN14078	1.43		1.93	1443	EN14078	1.37		0.09
403	EN14078	1.42		1.62	1459	EN14078	1.35		-0.53
420	EN14078	1.33		-1.14	1468	EN14078	1.40		1.01
431		-----		-----	1498		-----		-----
432	EN14078	1.45		2.54	1510		-----		-----
440		-----		-----	1528	EN14078	1.467		3.06
444		-----		-----	1539		-----		-----
445	EN14078	1.43		1.93	1556	EN14078	1.3607		-0.20
447	EN14078	1.30		-2.06	1569		-----		-----
453		-----		-----	1586	EN14078	1.35		-0.53
485	EN14078	1.37		0.09	1613		-----		-----
494	EN14078	1.363		-0.13	1631	EN14078	1.37		0.09
541		-----		-----	1634	EN14078	1.41		1.31
631	EN14078	1.39	C	0.70	1635	EN14078	1.36		-0.22
663	EN14078	1.426		1.81	1654		-----		-----
671		-----		-----	1656	EN14078	1.4		1.01
704	EN14078	1.39		0.70	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	EN14078	1.32		-1.44
781	EN14078	1.32		-1.44	1730		-----		-----
782		-----		-----	1740	EN14078	1.38		0.39
785		-----		-----	1741	EN14078	1.342		-0.77
823	EN14078	1.13	R(0.05)	-7.27	1742		-----		-----
842		-----		-----	1746		-----		-----
873	EN14078	1.40		1.01	1776	EN14078	1.4		1.01
874		-----		-----	1787		-----		-----
875		-----		-----	1792	EN14078	1.38		0.39
902	EN14078	1.39		0.70	1806	EN14078	1.33		-1.14
904	EN14078	1.39		0.70	1807	EN14078	1.37		0.09
962		-----		-----	1810	EN14078	1.4		1.01
963	EN14078	1.40		1.01	1811	EN14078	1.28		-2.67
971		-----		-----	1832		-----		-----
974	EN14078	1.35		-0.53	1833	EN14078	1.31		-1.75
995		-----		-----	1849		-----		-----
997		-----		-----	1854	EN14078	1.40		1.01
1006	EN14078	1.42		1.62	1857	EN14078	1.37		0.09
1026	EN14078	1.4		1.01	1858		-----		-----
1033		-----		-----	1862	EN14078	1.37		0.09
1059	EN14078	1.35		-0.53	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN14078	1.31		-1.75	6018		-----		-----
1950		-----		-----	6028	EN14078	1.6	C	7.14
1953	In house	1.55		5.61	6049	EN14078	1.37		0.09
1961	EN14078	1.23		-4.20	6051		-----		-----
1971	EN14078	1.35	C	-0.53	6057	EN14078	1.38		0.39
1976	EN14078	1.357		-0.31	6068		-----		-----
1984	EN14078	1.303		-1.97	6075		-----		-----
1986		-----		-----	6142	EN14078	1.113	R(0.05)	-7.79
2129	EN14078	1.34	C	-0.83	6163	EN14078	< 3		-----
2130	EN14078	1.35		-0.53	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005	EN14078	1.20		-5.12					

			EN14078 only
normality	not OK		not OK
n	89		86
outliers	9 (+1 ex)		9
mean (n)	1.367		1.365
st.dev. (n)	0.0644		0.0606
R(calc.)	0.180		0.170
st.dev.(EN14078:14)	0.0326		0.0326
R(EN14078:14)	0.091	Range A	0.091

Lab 312: first reported 0.18
Lab 343: first reported 1.58
Lab 351: first reported 1.184
Lab 631: first reported 1.02
Lab 1108: first reported 1.1
Lab 1275: first reported 0.971
Lab 1356: test result excluded as zero is not a real result
Lab 1971: first reported1.15
Lab 2129: first reported 1.614
Lab 6028: first reported 1.8

Kernel Density
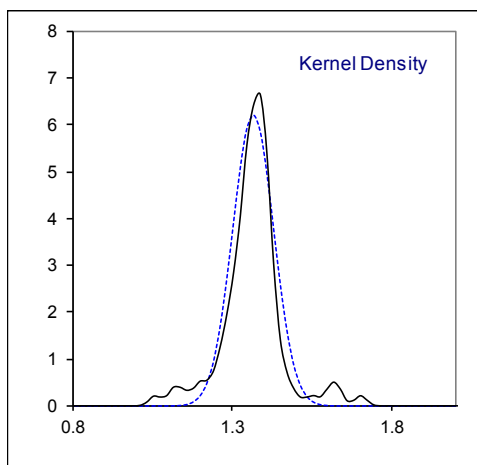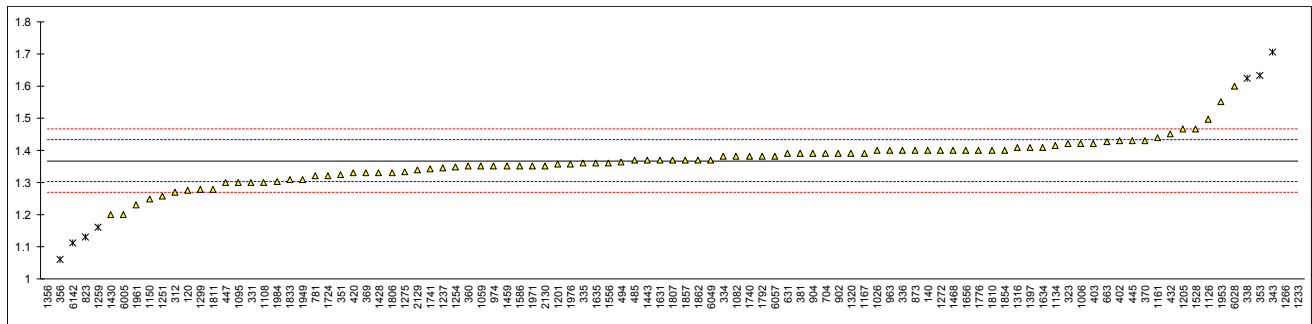
Determination of Flash Point PMcc on sample #18025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D93-A	59		0.13	1082	ISO2719-A	59.0		0.13
132	ISO2719-A	57.8		-0.67	1095	ISO2719-A	59.0		0.13
140	ISO2719-A	60		0.80	1108	ISO2719-A	58.5		-0.20
171	D93-A	59.0		0.13	1109	D93-A	58.0		-0.54
212	ISO2719-A	63.0	C	2.81	1121	ISO2719-A	58.5		-0.20
225	D93-A	56.0		-1.88	1126	ISO2719-A	60.0		0.80
228	D93-A	59.0325		0.15	1134	D93-A	58.5		-0.20
237	D93-A	59.0		0.13	1141	ISO2719-A	59.5		0.47
238		-----		-----	1146	D93-A	58.0		-0.54
273	D93-A	58		-0.54	1150	ISO2719-B	57		-1.21
312	D93-A	58.5		-0.20	1161	ISO2719-A	57.0		-1.21
317	ISO2719-A	59.5		0.47	1167	ISO2719-A	58.0		-0.54
323	ISO2719-A	58.0		-0.54	1191	ISO2719-A	58.5		-0.20
331	D93-A	60.3		1.00	1199		-----		-----
333	ISO2719	57.5		-0.87	1201	ISO2719-A	57.5		-0.87
334	ISO2719-A	59..0		-----	1205	D93-A	56.5		-1.54
335	ISO2719-A	60		0.80	1227	D93-A	58.8		0.00
336	ISO2719-A	59.5		0.47	1229	ISO2719-A	59.0		0.13
337		-----		-----	1233	ISO2719-A	61.0		1.47
338	D93-A	61.5		1.81	1237	ISO2719-A	58.5		-0.20
342	ISO2719-A	56.5		-1.54	1251	ISO2719-A	60.0		0.80
343	D93-A	58.5		-0.20	1254	ISO2719-A	57.8		-0.67
345	ISO2719-B	58		-0.54	1259	ISO2719-A	60.5		1.14
351	ISO2719-A	58.50		-0.20	1266	ISO2719-A	58.6		-0.14
353	IP34-A	59.5		0.47	1272	ISO2719-A	58.5		-0.20
356	D93-A	62.0		2.14	1275	IP34-A	59.5		0.47
357	ISO2719-A	59.5		0.47	1286	ISO2719-A	58.67		-0.09
360	ISO2719-A	59.0		0.13	1299	D93-A	59.5		0.47
369	ISO2719-A	58.0		-0.54	1316	D93-A	58.5		-0.20
370	ISO2719-A	58.0		-0.54	1318	D93-A	57.0		-1.21
371	ISO2719-A	57.5		-0.87	1320		-----		-----
381	ISO2719-A	58.0		-0.54	1356	ISO2719-A	68	C, R(0.01)	6.17
391	ISO2719-A	59		0.13	1397	ISO2719-A	57.5		-0.87
398	ISO2719-A	60	C	0.80	1428	ISO2719-A	57.5		-0.87
399	D93-A	60.0		0.80	1430	D93-A	61.5		1.81
402	ISO2719-A	59.0		0.13	1443	ISO2719-A	57.5		-0.87
403	ISO2719-A	57.5		-0.87	1459	ISO2719-A	58.00		-0.54
420	ISO2719-A	59.0		0.13	1468	ISO2719-A	60.5		1.14
431	ISO2719-A	58		-0.54	1498	D93-A	58.5		-0.20
432	ISO2719-A	59.0		0.13	1510	IP34-A	58		-0.54
440	IP34-A	59.4		0.40	1528	ISO2719-A	58		-0.54
444		-----		-----	1539	ISO2719-A	59.5		0.47
445	IP34-A	59.0		0.13	1556	ISO2719-A	59.5		0.47
447	ISO2719-A	59.5		0.47	1569		-----		-----
453	IP34-A	58.0		-0.54	1586	ISO2719-A	59.0		0.13
485	ISO2719-A	59.0		0.13	1613	D93-A	57.5		-0.87
494		-----		-----	1631	ISO2719-A	60.0		0.80
541	ISO2719-A	56.00		-1.88	1634	ISO2719-A	59.6		0.53
631	D93-A	55.0		-2.55	1635	ISO2719-A	59.0		0.13
663	D93-A	58.8		0.00	1654	ISO2719-A	58.5		-0.20
671	D93-A	58.0		-0.54	1656	D93-A	61.5		1.81
704	ISO2719-A	59.8		0.67	1681	ISO2719-A	58.5		-0.20
759	ISO2719-A	59.0		0.13	1720	D93-A	62.0		2.14
779	ISO2719-A	58.0		-0.54	1724	D93-A	60		0.80
781	ISO2719-A	58.0		-0.54	1730	ISO2719	59.0		0.13
782	ISO2719-A	59.0		0.13	1740	ISO2719-A	59.5		0.47
785	ISO2719-A	56.6		-1.48	1741	ISO2719-A	59		0.13
823	D93-A	58.0		-0.54	1742	ISO2719-A	58.5		-0.20
842	D93-A	58.0		-0.54	1746	D93-A	61.0		1.47
873	D93-A	58.0		-0.54	1776	ISO2719-A	58.0		-0.54
874	ISO2719-A	59.0		0.13	1787		-----		-----
875	D93-A	58.0		-0.54	1792	ISO2719-A	59.0		0.13
902	ISO2719-A	61.0		1.47	1806	ISO2719-A	58		-0.54
904	ISO2719-A	60.0		0.80	1807	ISO2719-A	62.0		2.14
962	D93-A	59.0		0.13	1810	ISO2719-A	57.0		-1.21
963	ISO2719-A	60.0		0.80	1811	ISO2719-A	58.0		-0.54
971	D93-A	60.0		0.80	1832	ISO2719-A	57.5		-0.87
974	D93-A	60.0		0.80	1833	ISO2719-A	60.0		0.80
995	ISO2719-A	57.5		-0.87	1849	ISO2719-A	58		-0.54
997	ISO2719-A	57.0		-1.21	1854	ISO2719-A	58.5		-0.20
1006	D93-A	57.0		-1.21	1857	ISO2719-A	59.5		0.47
1026	ISO2719-A	58.5		-0.20	1858	D93-A	59.0		0.13
1033	IP34-A	57.5		-0.87	1862	ISO2719-A	57.0		-1.21
1059	ISO2719-A	59.0		0.13	1936	ISO2719-A	59.0		0.13
1081	D93-A	60.3		1.00	1937	ISO2719-A	60		0.80

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	ISO2719-A	59		0.13	6012	D93-A	57.4		-0.94
1949	ISO2719-A	59.0		0.13	6018	ISO2719-A	61.0		1.47
1950	D93-A	58.0		-0.54	6028	ISO2719-A	59.0		0.13
1953	ISO2719-A	58.5		-0.20	6049	ISO2719-A	58.5		-0.20
1961		-----		-----	6051	ISO2719-A	57.0		-1.21
1971	ISO2719-A	59.0		0.13	6057	ISO2719-A	62.0		2.14
1976	ISO2719-A	60.0		0.80	6068	ISO2719-A	58.5		-0.20
1984	ISO2719-A	58.25		-0.37	6075	ISO2719-A	62.0		2.14
1986	ISO2719-A	59.0		0.13	6142	ISO2719-A	59.5		0.47
2129	ISO2719-A	56.5		-1.54	6163	ISO2719-A	56.8		-1.34
2130	ISO2719-A	59.0		0.13	6170	ISO2719-A	60.5		1.14
2146		-----		-----	9057	D93-A	58		-0.54
6005	ISO2719-A	59.0		0.13					

normality	OK
n	163
outliers	1
mean (n)	58.80
st.dev. (n)	1.308
R(calc.)	3.66
st.dev.(ISO2719:16)	1.491
R(ISO2719:16)	4.18

Lab 212: first reported 70
Lab 398: first reported 65
Lab 1356: first reported 64
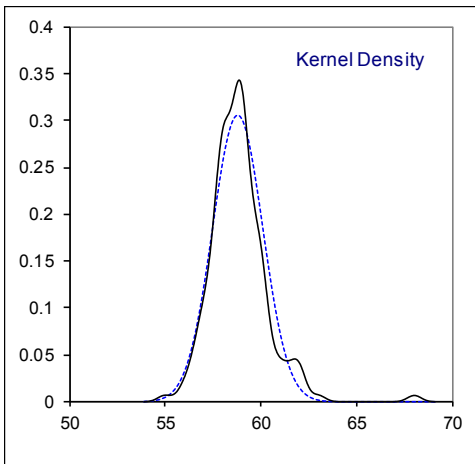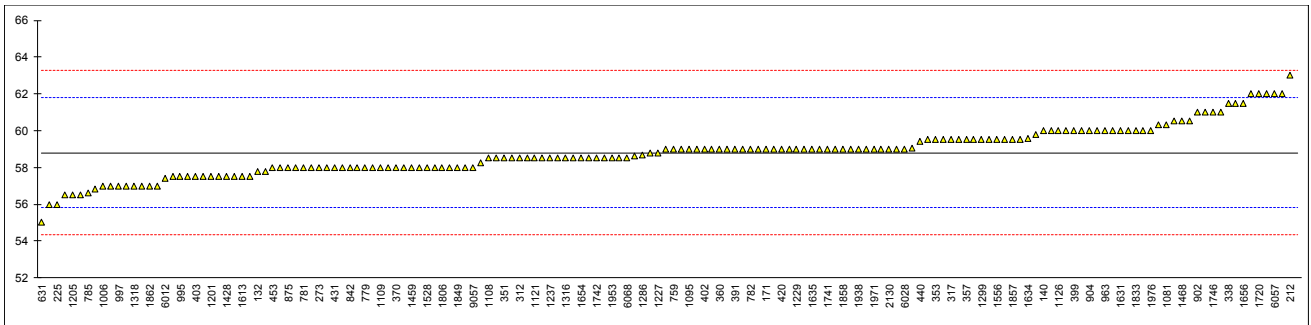
Determination of Kinematic Viscosity at 40°C on sample #18025; result in mm^2/s

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D445	2.674		0.41	1082	ISO3104	2.6668		-0.26
132	ISO3104	3.003	R(0.01)	31.02	1095	ISO3104	2.672		0.22
140	ISO3104	2.683		1.24	1108	ISO3104	2.668		-0.15
171	D445	2.668		-0.15	1109	D445	2.6576		-1.12
212	ISO3104	2.679	C	0.87	1121	ISO3104	2.661		-0.80
225	D445	2.682		1.15	1126		-----		-----
228	D445	2.685		1.43	1134	IP71	2.6674		-0.21
237	D445	2.661		-0.80	1141		-----		-----
238		-----		-----	1146	D445	2.6647		-0.46
273	D445	2.665		-0.43	1150	ISO3104	2.6091	C, R(0.01)	-5.63
312	D445	2.669		-0.06	1161	ISO3104	2.647		-2.11
317	ISO3104	2.680		0.96	1167	ISO3104	2.669		-0.06
323	ISO3104	2.663		-0.62	1191	ISO3104	2.670		0.03
331		-----		-----	1199		-----		-----
333	ISO3104	2.666		-0.34	1201	ISO3104	2.667		-0.25
334	ISO3104	2.677		0.68	1205	ISO3104	2.672		0.22
335	ISO3104	2.670		0.03	1227	D445	2.6657		-0.37
336		-----		-----	1229	ISO3104	2.680		0.96
337		-----		-----	1233	ISO3104	2.670		0.03
338	ISO3104	2.6828		1.22	1237		-----		-----
342	ISO3104	2.677		0.68	1251	ISO3104	2.663		-0.62
343	ISO3104	2.6793		0.90	1254	ISO3104	2.6645		-0.48
345	ISO3104	2.6728	C	0.29	1259	ISO3104	2.667	C	-0.25
351	ISO3104	2.671		0.13	1266	ISO3104	2.6565		-1.22
353	IP71	2.6716		0.18	1272	ISO3104	2.6591		-0.98
356	D445	2.670		0.03	1275	IP71	2.669		-0.06
357	ISO3104	2.683		1.24	1286		-----		-----
360	ISO3104	2.6766		0.65	1299	D445	2.670		0.03
369	ISO3104	2.654		-1.46	1316	D445	2.663		-0.62
370	ISO3104	2.668		-0.15	1318	D7042	2.6658		-0.36
371	ISO3104	2.6650		-0.43	1320		-----		-----
381	D445	2.682		1.15	1356	ISO3104	2.671		0.13
391	ISO3104	2.675		0.50	1397	D7042	2.672		0.22
398	ISO3104	2.648		-2.01	1428	ISO3104	2.669		-0.06
399		-----		-----	1430	D445	2.670		0.03
402	ISO3104	2.674		0.41	1443	ISO3104	2.6826		1.21
403		-----		-----	1459	D7042	2.6653		-0.40
420	ISO3104	2.652		-1.64	1468	ISO3104	2.672		0.22
431	ISO3104	2.6646		-0.47	1498	D445	2.670		0.03
432	ISO3104	2.671		0.13	1510	D445	2.668		-0.15
440	D445	2.667		-0.25	1528	ISO3104	2.6764		0.63
444		-----		-----	1539	ISO3104	2.673		0.31
445	IP71	2.669		-0.06	1556	ISO3104	2.6688		-0.08
447	D445	2.692		2.08	1569		-----		-----
453	IP71	2.664		-0.53	1586	D445	2.667		-0.25
485	ISO3104	2.6666		-0.28	1613	D445	2.8687	R(0.01)	18.52
494	ISO3104	2.6609		-0.81	1631	ISO3104	2.668		-0.15
541	ISO3104	2.6535		-1.50	1634	ISO3104	2.669		-0.06
631	D445	2.6550		-1.36	1635	ISO3104	2.226	C, R(0.01)	-41.28
663	D445	2.6657		-0.37	1654	ISO3104	2.6684		-0.12
671	D445	2.66		-0.90	1656	D445	2.648	C	-2.01
704	ISO3104	2.6776		0.74	1681	ISO3104	2.6852		1.45
759	ISO3104	2.6577		-1.11	1720	D7042	2.708	C, R(0.05)	3.57
779	ISO3104	2.680		0.96	1724	D445	2.667		-0.25
781	ISO3104	2.669		-0.06	1730		-----		-----
782		-----		-----	1740	ISO3104	2.674		0.41
785	ISO3104	2.666		-0.34	1741	ISO3104	2.6485		-1.97
823	D445	2.6683		-0.13	1742	ISO3104	2.635		-3.22
842	D445	2.6582		-1.07	1746	D445	2.660		-0.90
873	D445	2.672		0.22	1776	ISO3104	2.675		0.50
874	D445	2.674		0.41	1787		-----		-----
875	D445	2.683		1.24	1792	ISO3104	2.666		-0.34
902	ISO3104	2.691		1.99	1806	ISO3104	2.668		-0.15
904	ISO3104	2.699		2.73	1807	ISO3104	2.660		-0.90
962	D445	2.659		-0.99	1810	ISO3104	2.701		2.92
963	ISO3104	2.669		-0.06	1811	ISO3104	2.669		-0.06
971	D445	2.674		0.41	1832	ISO3104	2.6702		0.05
974	D445	2.679		0.87	1833		-----		-----
995	ISO3104	2.6698		0.01	1849	ISO3104	2.668		-0.15
997	ISO3104	2.6799	C	0.95	1854	ISO3104	2.673		0.31
1006	D445	2.6684	C	-0.12	1857	ISO3104	2.679		0.87
1026	ISO3104	2.660		-0.90	1858	D445	2.6728		0.29
1033		-----	W	-----	1862	ISO3104	2.677		0.68
1059	ISO3104	2.655		-1.36	1936	ISO3104	2.668		-0.15
1081	D445	2.673		0.31	1937	ISO3104	2.670		0.03

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	ISO3104	2.6606		-0.84	6012	ISO3104	2.656		-1.27
1949	ISO3104	2.6703		0.06	6018		-----		-----
1950	ISO3104	2.670		0.03	6028	ISO3104	2.671		0.13
1953		-----		-----	6049	ISO3104	2.671		0.13
1961		-----		-----	6051	ISO3104	2.674		0.41
1971	ISO3104	2.678		0.78	6057	ISO3104	2.698		2.64
1976	ISO3104	2.6640		-0.53	6068	ISO3104	2.667		-0.25
1984	ISO3104	2.656		-1.27	6075	ISO3104	2.667		-0.25
1986	ISO3104	2.678		0.78	6142	ISO3104	2.674		0.41
2129	ISO3104	2.6705		0.08	6163	ISO3104	2.67386		0.39
2130		2.692		2.08	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005	ISO3104	2.612	R(0.01)	-5.36					

normality	suspect
n	144
outliers	6
mean (n)	2.6696
st.dev. (n)	0.00991
R(calc.)	0.0277
st.dev.(ISO3104:94)	0.01075
R(ISO3104:94)	0.0301

Lab 212: first reported 2.769
Lab 345: first reported 2.995
Lab 997: first reported 2.7099
Lab 1006: first reported 2.6084
Lab 1033: first reported 3.361
Lab 1150: first reported 2.6291
Lab 1259: first reported 2.797
Lab 1635: first reported 2.726
Lab 1656: first reported 2.558
Lab 1720: first reported 2.605

Kernel Density
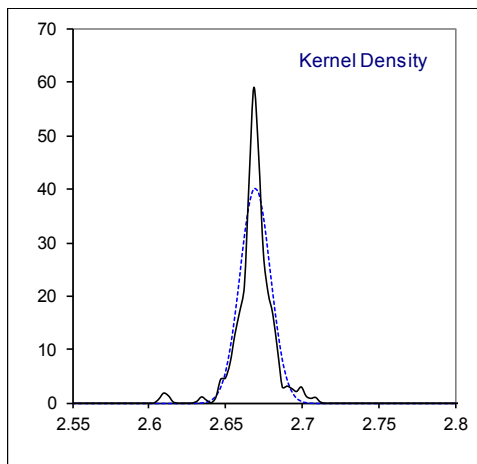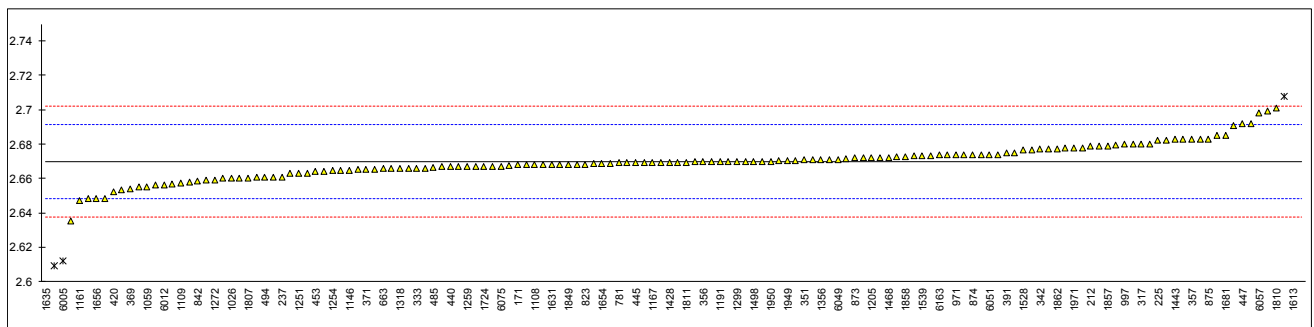
Determination of Lubricity by HFRR at 60 °C on sample #18025; result in µm

lab	method	value	mark	z(targ)	corrected	remarks
120	D6079	308		-0.44	NO	
132	ISO12156-1 (2006)	398		2.03	YES	
140	ISO12156-1 (2006)	316		-0.22	NO	
171	D6079	490	R(0.05)	4.56		
212		-----		-----		
225		-----		-----		
228		-----		-----		
237		-----		-----		
238		-----		-----		
273		-----		-----		
312	ISO12156-1(2016)	290		-0.93	NO	
317		-----		-----		
323	ISO12156-1 (2006)	320		-0.11	NO	
331		-----		-----		
333		-----		-----		
334	ISO12156-1 (2006)	300		-0.66	NO	
335	ISO12156-1 (2006)	305		-0.52	NO	
336	ISO12156-1 (2006)	300		-0.66	NO	
337		-----		-----		
338		-----		-----		
342		-----		-----		
343	ISO12156-1 (2006)	246		-2.14		
345		-----		-----		
351		-----		-----		
353		-----		-----		
356	ISO12156-1 (2006)	292		-0.88	NO	
357		-----		-----		
360	ISO12156-1(2016)	360		0.99	NO	
369	ISO12156-1 (2006)	340		0.44	NO	
370	ISO12156-1 (2006)	314		-0.28	NO	
371		-----		-----		
381		-----		-----		
391	ISO12156-1 (2006)	343		0.52	YES	
398		-----		-----		
399		-----		-----		
402	ISO12156-1 (2006)	305		-0.52	YES	
403	D6079	325.5		0.04	NO	
420	ISO12156-1 (2006)	360		0.99	YES	
431		-----		-----		
432		-----		-----		
440		-----		-----		
444		-----		-----		
445	IP450	305		-0.52	NO	
447	ISO12156-1 (2006)	311		-0.36	NO	
453	ISO12156-1 (2006)	382		1.59	NO	
485		-----		-----		
494	ISO12156-1 (2006)	350		0.71	NO	
541		-----		-----		
631	D7688	280		-1.21		
663		-----		-----		
671		-----		-----		
704	ISO12156-1(2016)	280		-1.21	NO	
759		-----		-----		
779		-----		-----		
781	ISO12156-1(2016)	354		0.82	NO	
782		-----		-----		
785		-----		-----		
823	ISO12156-1 (2006)	293		-0.85	YES	
842		-----		-----		
873	ISO12156-1 (2006)	345		0.57	NO	
874		-----		-----		
875		-----		-----		
902	ISO12156-1 (2006)	361		1.01	YES	
904	ISO12156-1 (2006)	288		-0.99	NO	
962		-----		-----		
963	ISO12156-1 (2006)	355		0.85	YES	
971		-----		-----		
974	ISO12156-1 (2006)	360		0.99	YES	
995	ISO12156-1 (2006)	306.5		-0.48		
997		-----		-----		

lab	method	value	mark	z(targ)	corrected	remarks
1006	D6079	420.5		2.65		
1026	ISO12156-1 (2006)	300		-0.66	YES	
1033		-----		-----		
1059	ISO12156-1(2016)	400		2.08	NO	
1081	ISO12156-1 (2006)	286		-1.04	NO	
1082	ISO12156-1 (2006)	321		-0.08	NO	
1095	ISO12156-1 (2006)	403		2.17		
1108	ISO12156-1 (2006)	371		1.29	YES	
1109	IP450	341		0.47	YES	
1121		-----		-----		
1126		-----		-----		
1134	ISO12156-1 (2006)	401		2.11	YES	
1141		-----		-----		
1146		-----		-----		
1150		-----		-----		
1161	ISO12156-1 (2006)	359.0		0.96		
1167	ISO12156-1 (2006)	301		-0.63	YES	
1191	ISO12156-1 (2006)	307		-0.47	NO	
1199		-----		-----		
1201	ISO12156-1 (2006)	268.0		-1.54	NO	
1205		-----		-----		
1227		-----		-----		
1229	ISO12156-1 (2006)	339		0.41	NO	
1233	ISO12156-1 (2006)	276		-1.32	YES	
1237		-----		-----		
1251	ISO12156-1 (2006)	325.5		0.04	NO	
1254	ISO12156-1 (2006)	355		0.85	NO	
1259	ISO12156-1 (2006)	240		-2.31	NO	
1266		-----		-----		
1272	ISO12156-1 (2006)	233.0		-2.50	YES	
1275	IP450	324		0.00	YES	
1286		-----		-----		
1299	ISO12156-1 (2006)	395		1.95	YES	
1316	ISO12156-1 (2006)	211		-3.10	NO	
1318	ISO12156-1 (2006)	382		1.59	NO	
1320	ISO12156-1 (2006)	297		-0.74	NO	
1356	ISO12156-1 (2006)	407		2.28		
1397	ISO12156-1 (2006)	370		1.26	YES	
1428		229		-2.61	NO	
1430		-----		-----		
1443	ISO12156-1(2016)	282.5	C	-1.14		first reported 182.5
1459		-----		-----		
1468	ISO12156-1 (2006)	329		0.14	YES	
1498		-----		-----		
1510		-----		-----		
1528		313.5		-0.29	NO	
1539	ISO12156-1 (2006)	398		2.03	NO	
1556	ISO12156-1(2016)	290.0		-0.93	NO	
1569		-----		-----		
1586	ISO12156-1 (2006)	332		0.22	YES	
1613	D6079	337.0		0.36	NO	
1631	ISO12156-1 (2006)	304		-0.55	NO	
1634		-----		-----		
1635	ISO12156-1 (2006)	309		-0.41		
1654		-----		-----		
1656		-----		-----		
1681		-----		-----		
1720		-----		-----		
1724	IP450	320		-0.11	NO	
1730		-----		-----		
1740	ISO12156-1(2016)	331		0.19	NO	
1741	ISO12156-1(2016)	280		-1.21	NO	
1742		-----		-----		
1746		-----		-----		
1776	ISO12156-1 (2006)	256		-1.87	NO	
1787		-----		-----		
1792	ISO12156-1 (2006)	330		0.16	NO	
1806		-----		-----		
1807	ISO12156-1 (2006)	310		-0.39		
1810		349		0.68	NO	
1811	ISO12156-1 (2006)	354.5		0.84		
1832		-----		-----		
1833	ISO12156-1 (2006)	321		-0.08	NO	
1849	ISO12156-1 (2006)	335		0.30		
1854	ISO12156-1 (2006)	334		0.27		

lab	method	value	mark	z(targ)	corrected	remarks
1857	ISO12156-1 (2006)	338		0.38		
1858		-----		-----		
1862	ISO12156-1 (2006)	328		0.11	YES	
1936		-----		-----		
1937		-----		-----		
1938		-----		-----		
1949	ISO12156-1 (2006)	256		-1.87	YES	
1950		-----		-----		
1953		-----		-----		
1961		-----		-----		
1971		-----		-----		
1976		-----		-----		
1984	ISO12156-1(2016)	263.75		-1.66	NO	
1986		-----		-----		
2129	IP450	346		0.60	NO	
2130	IP450	403		2.17	YES	
2146		-----		-----		
6005		-----		-----		
6012		-----		-----		
6018		-----		-----		
6028	ISO12156-1 (2006)	333		0.25	NO	
6049		-----		-----		
6051		-----		-----		
6057	ISO12156-1 (2006)	281		-1.18	NO	
6068		-----		-----		
6075	ISO12156-1(2017)	334.5		0.29	NO	
6142	ISO12156-1 (2006)	363		1.07	YES	
6163		-----		-----		
6170		-----		-----		
9057		-----		-----		

			"YES" only	"NO" only
normality	OK		OK	OK
n	88		24	50
outliers	1		0	0
mean (n)	324.054		337.417	314.675
st.dev. (n)	43.9045		45.4570	39.3893
R(calc.)	122.933		127.280	110.290
st.dev.(ISO12156:06)	36.4286		36.4286	36.4286
R(ISO12156:06)	102		102	102
compare				
R(ISO12156-A:16)	80			
R(ISO12156-B:16)	90			
R(D7688:11)	90			
R(D6079:11)	80			

Kernel Density
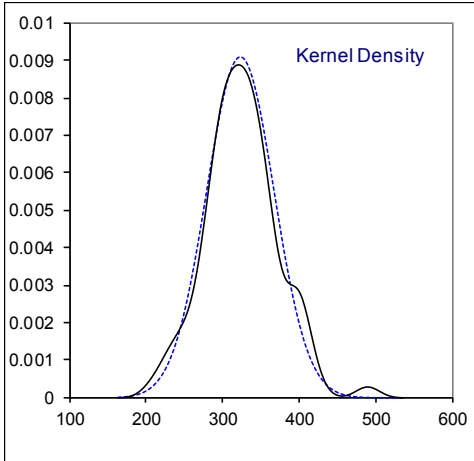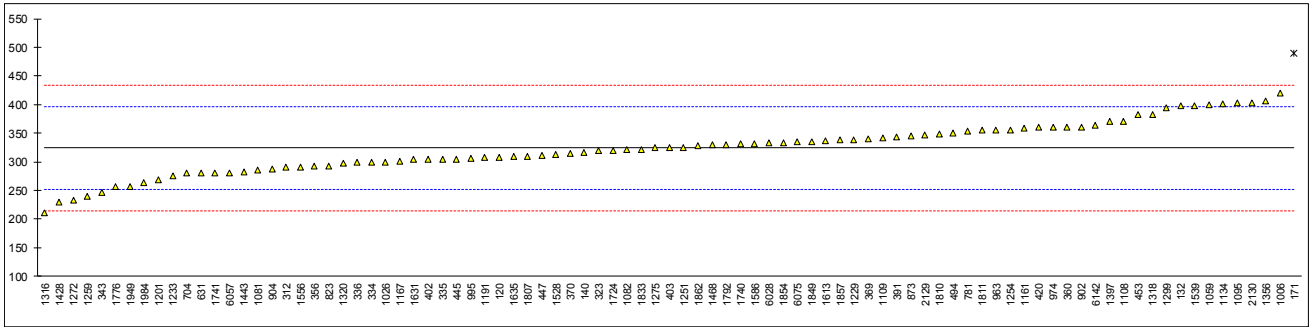
Determination of Manganese as Mn on sample #18025; result in mg/L

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D7111	0.003		-----	1082				-----
132		-----		-----	1095		-----		-----
140		-----		-----	1108		-----		-----
171		-----		-----	1109		-----		-----
212		-----		-----	1121		-----		-----
225		-----		-----	1126		-----		-----
228		-----		-----	1134		-----		-----
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	EN16576	<0,5		-----	1161		-----		-----
317		-----		-----	1167	EN16576	<0.5		-----
323	EN16576	<0.50		-----	1191	D5185	0.01		-----
331	In house	<5		-----	1199		-----		-----
333		-----		-----	1201	EN16576	0.08		-----
334		-----		-----	1205		-----		-----
335		-----		-----	1227		-----		-----
336		-----		-----	1229		-----		-----
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251	EN16576	0.01		-----
343		-----		-----	1254		-----		-----
345		-----		-----	1259		-----		-----
351		-----		-----	1266		-----		-----
353		-----		-----	1272	EN16576	<1,0		-----
356	EN16576	Below 0.50		-----	1275		-----		-----
357		-----		-----	1286		-----		-----
360	EN16576	<0.50		-----	1299		-----		-----
369		-----		-----	1316		-----		-----
370		-----		-----	1318		-----		-----
371		-----		-----	1320		< 2,0		-----
381	EN16576	<0,5		-----	1356		-----		-----
391		-----		-----	1397		-----		-----
398		-----		-----	1428	EN16576	<0,5		-----
399		-----		-----	1430		-----		-----
402		-----		-----	1443	EN16576	<0,5		-----
403	EN16576	<0.5		-----	1459		-----		-----
420	EN16576	<0,1		-----	1468	EN16576	<0,5		-----
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	IP592	0.01038		-----
444		-----		-----	1539		-----		-----
445	EN16576	<0.2		-----	1556		-----		-----
447		-----		-----	1569		-----		-----
453		-----		-----	1586	EN16576	<0.20		-----
485		-----		-----	1613		-----		-----
494	EN16576	< 0,5		-----	1631	EN16576	<0.5		-----
541		-----		-----	1634		-----		-----
631	D3831	0.0699		-----	1635		-----		-----
663		-----		-----	1654		-----		-----
671		-----		-----	1656	EN16576	<1		-----
704	EN16576	< 0.5		-----	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	EN16576	0.05		-----
781	EN16576	<0.50		-----	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	EN16576	< 0.80		-----
823		-----		-----	1742		-----		-----
842		-----		-----	1746		-----		-----
873		-----		-----	1776		-----		-----
874	EN16576	<0.5		-----	1787		-----		-----
875		-----		-----	1792		-----		-----
902		-----		-----	1806		-----		-----
904		-----		-----	1807		-----		-----
962		-----		-----	1810		-----		-----
963	EN16576	<0.5		-----	1811		-----		-----
971	D7111	<0.1		-----	1832		-----		-----
974		-----		-----	1833	EN16576	<0.5		-----
995		-----		-----	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	EN16576	0.06		-----
1026		-----		-----	1858		-----		-----
1033		-----		-----	1862	EN16576	0.039		-----
1059		-----		-----	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN16576	< 0.5		-----	6018		-----		-----
1950		-----		-----	6028		-----		-----
1953		-----		-----	6049	EN16576	0.07		-----
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057		-----		-----
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986	D3831	<0.25		-----	6142		-----		-----
2129	D7111	0.017		-----	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	n.a.	
n	39	
outliers	n.a.	
mean (n)	<0.5	
st.dev. (n)	n.a.	
R(calc.)	n.a.	
st.dev.(EN16576:14)	n.a.	
R(EN16576:14)	n.a.	application range: 0.5 – 7.0 mg/L

Determination of Nitrogen on sample #18025; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1082	D4629	47		-1.11
132	D4629	53		1.68	1095		-----		-----
140	D4629	57		3.54	1108	D5762	46.0		-1.57
171	D4629	50		0.29	1109	D4629	52		1.22
212		-----		-----	1121		-----		-----
225		-----		-----	1126		-----		-----
228		-----		-----	1134		-----		-----
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	D4629	53.4		1.87	1161		-----		-----
317		-----		-----	1167		-----		-----
323	D4629	43		-2.96	1191	D4629	46.7		-1.25
331		-----		-----	1199		-----		-----
333	D4629	51		0.75	1201	D4629	48.9		-0.22
334	D4629	31	R(0.01)	-8.54	1205		-----		-----
335		-----		-----	1227	D4629	50.25		0.40
336		-----		-----	1229	D4629	47		-1.11
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251	D4629	52.75		1.56
343		-----		-----	1254		-----		-----
345		-----		-----	1259	D4629	58		4.00
351		-----		-----	1266		-----		-----
353		-----		-----	1272		-----		-----
356		-----		-----	1275	IP379	48.4	C	-0.46
357		-----		-----	1286		-----		-----
360		-----		-----	1299		-----		-----
369		-----		-----	1316		-----		-----
370		-----		-----	1318		-----		-----
371		-----		-----	1320	D4629	47.47		-0.89
381		-----		-----	1356		-----		-----
391		-----		-----	1397		-----		-----
398		-----		-----	1428		-----		-----
399	D4629	48.5		-0.41	1430		-----		-----
402	D4629	46.3		-1.43	1443		-----		-----
403	D4629	46.35		-1.41	1459		-----		-----
420	D4629	44.4		-2.31	1468	D4629	50.35		0.45
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528		-----		-----
444		-----		-----	1539		-----		-----
445	D4629	48.7		-0.32	1556	D4629	51.78		1.11
447		-----		-----	1569		-----		-----
453		-----		-----	1586	D4629	38.62		-5.00
485		-----		-----	1613		-----		-----
494	D4629	49.4		0.01	1631		-----		-----
541		-----		-----	1634		-----		-----
631		-----		-----	1635		-----		-----
663	D4629	48.8		-0.27	1654		-----		-----
671		-----		-----	1656	D4629	58.2		4.10
704	D4629	49.8		0.19	1681		-----		-----
759		-----		-----	1720	D4629	50.0	C	0.29
779		-----		-----	1724		-----		-----
781	D4629	53.3		1.82	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	D4629	39.0		-4.82
823	D4629	49.7		0.15	1742	D4629	46		-1.57
842		-----		-----	1746	D4629	48.0		-0.64
873		-----		-----	1776	ISO3734	55.9		3.03
874		-----		-----	1787		-----		-----
875	D4629	54.2		2.24	1792		-----		-----
902		-----		-----	1806		-----		-----
904		-----		-----	1807		-----		-----
962		-----		-----	1810		-----		-----
963	D4629	50		0.29	1811		-----		-----
971	D4629	52.8		1.59	1832		-----		-----
974		-----		-----	1833		-----		-----
995		-----		-----	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	D4629	51.1		0.80
1026	D4629	50.20		0.38	1858	D4629	48.7		-0.32
1033		-----		-----	1862	D4629	49.6		0.10
1059		-----		-----	1936		-----		-----
1081	D4629	42.8		-3.06	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	D4629	50.73		0.63	6018		-----		-----
1950		-----		-----	6028		-----		-----
1953		-----		-----	6049		-----		-----
1961	D4629	46.45		-1.36	6051		-----		-----
1971		-----		-----	6057		-----		-----
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986		-----		-----	6142		-----		-----
2129		-----		-----	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	OK
n	46
outliers	1
mean (n)	49.38
st.dev. (n)	4.156
R(calc.)	11.64
st.dev.(D4629:12)	2.153
R(D4629:12)	6.03

Lab 1275: first reported 62
Lab 1720: first reported 38
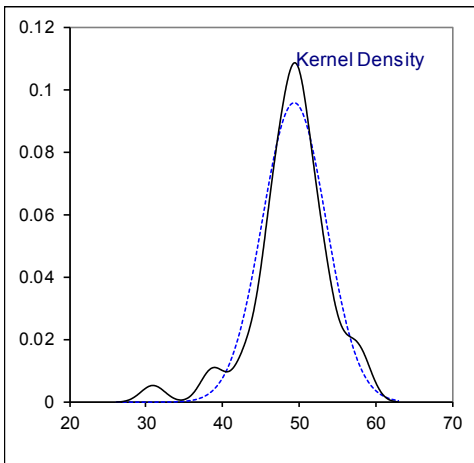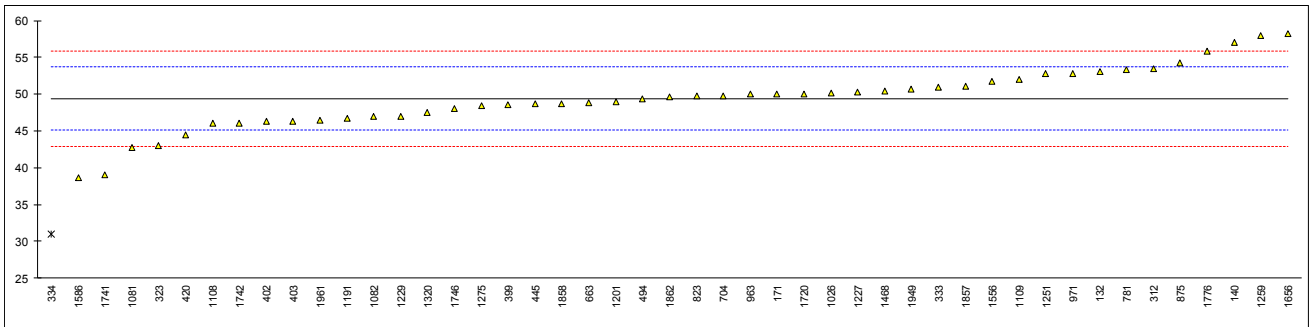
Determination of Polycyclic-Aromatic Hydrocarbons on sample #18025; result in %M/M
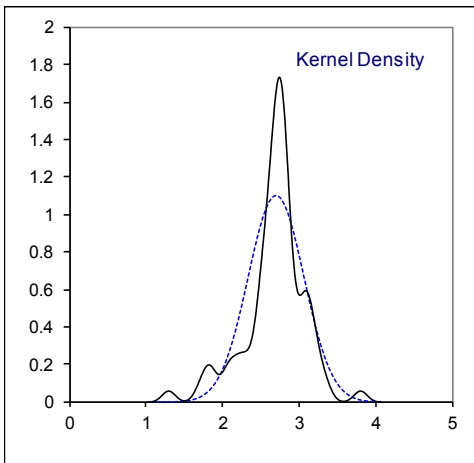
lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1082		2.81		0.32
132		-----		-----	1095		2.6		-0.29
140		-----		-----	1108	EN12916	2.6		-0.29
171	EN12916	1.8		-2.61	1109	IP391	3.02		0.93
212		-----		-----	1121		-----		-----
225		-----		-----	1126		3.2		1.46
228		-----		-----	1134	IP391	1.713		-2.86
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	EN12916	3.28		1.69	1161	EN12916	2.3		-1.16
317		-----		-----	1167	EN12916	3.12		1.22
323	EN12916	2.8		0.29	1191	EN12916	3.17		1.37
331		-----		-----	1199		-----		-----
333	EN12916	2.3		-1.16	1201	IP391	2.97		0.79
334		-----		-----	1205		-----		-----
335		-----		-----	1227	EN12916	2.84		0.41
336		-----		-----	1229	EN12916	3.8		3.20
337		-----		-----	1233		-----		-----
338		-----		-----	1237	EN12916	2.54		-0.46
342		-----		-----	1251		-----		-----
343	EN12916	2.8		0.29	1254		-----		-----
345		-----		-----	1259	EN12916	2.5		-0.58
351		-----		-----	1266	EN12916	1.3	R(0.05)	-4.06
353		-----		-----	1272	EN12916	2.12		-1.68
356	IP391	2.6		-0.29	1275	IP391	2.9		0.58
357		-----		-----	1286		-----		-----
360	EN12916	2.84		0.41	1299	EN12916	2.6		-0.29
369	EN12916	2.85		0.44	1316		-----		-----
370		-----		-----	1318	EN12916	2.773		0.22
371		-----		-----	1320		2.79		0.27
381	EN12916	2.67	C	-0.08	1356		-----		-----
391		-----		-----	1397	EN12916	1.86		-2.44
398		-----		-----	1428	EN12916	2.49		-0.61
399	EN12916	2.7		0.00	1430		-----		-----
402	EN12916	3.21		1.48	1443		2.7		0.00
403	EN12916	3.07		1.08	1459	EN12916	2.70		0.00
420	EN12916	2.7		0.00	1468	EN12916	3.06		1.05
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	EN12916	2.38		-0.93
444		-----		-----	1539		-----		-----
445	IP391	2.74		0.12	1556		2.66		-0.11
447	IP391	2.8		0.29	1569		-----		-----
453	IP391	2.8		0.29	1586	EN12916	2.7		0.00
485		-----		-----	1613	IP391	2.9		0.58
494	EN12916	2.79		0.27	1631	EN12916	2.93		0.67
541		-----		-----	1634		-----		-----
631		-----		-----	1635		2.2		-1.45
663		-----		-----	1654		-----		-----
671		-----		-----	1656	IP391	2.7		0.00
704	EN12916	2.69		-0.03	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	IP391	2.8		0.29
781	EN12916	2.56		-0.40	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	EN12916	2.729		0.09
823	IP391	2.73		0.09	1742	EN12916	3.1		1.17
842		-----		-----	1746		-----		-----
873		2.80		0.29	1776	EN12916	2.07322		-1.82
874		-----		-----	1787		-----		-----
875		-----		-----	1792	EN12916	2.22		-1.39
902	EN12916	2.79		0.27	1806	EN12916	2.7		0.00
904		2.65		-0.14	1807		-----		-----
962		-----		-----	1810	EN12916	2.5		-0.58
963	EN12916	2.51		-0.55	1811	EN12916	2.53		-0.49
971		-----		-----	1832		-----		-----
974	IP391	2.74		0.12	1833	EN12916	2.7		0.00
995	EN12916	2.04		-1.91	1849	EN12916	2.8		0.29
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	EN12916	3.11	E	1.19
1026		-----		-----	1858		-----		-----
1033		-----		-----	1862		2.8		0.29
1059	EN12916	2.7		0.00	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN12916	2.6		-0.29	6018		-----		-----
1950		-----		-----	6028	EN12916	3.07		1.08
1953		-----		-----	6049	EN12916	2.46		-0.69
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	EN12916	3.1		1.17
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986		-----		-----	6142		-----		-----
2129	EN12916	1.850		-2.46	6163		3.35		1.89
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	suspect
n	76
outliers	1
mean (n)	2.699
st.dev. (n)	0.3632
R(calc.)	1.017
st.dev.(EN12916:16)	0.3444
R(EN12916:16)	0.964

Lab 381: first reported 2.91
Lab 1857: iis calculated 2.75
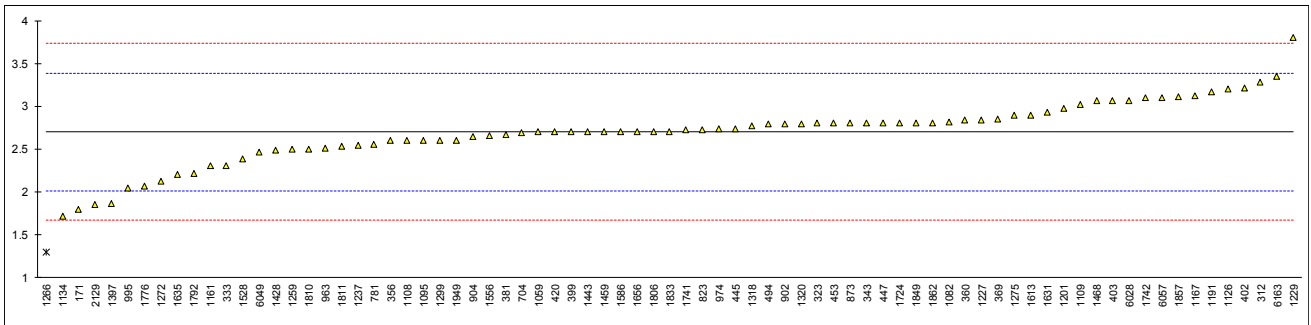
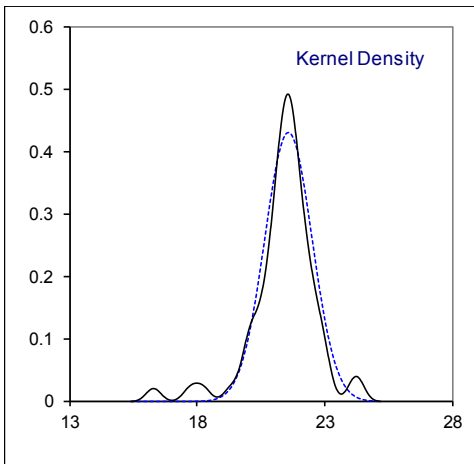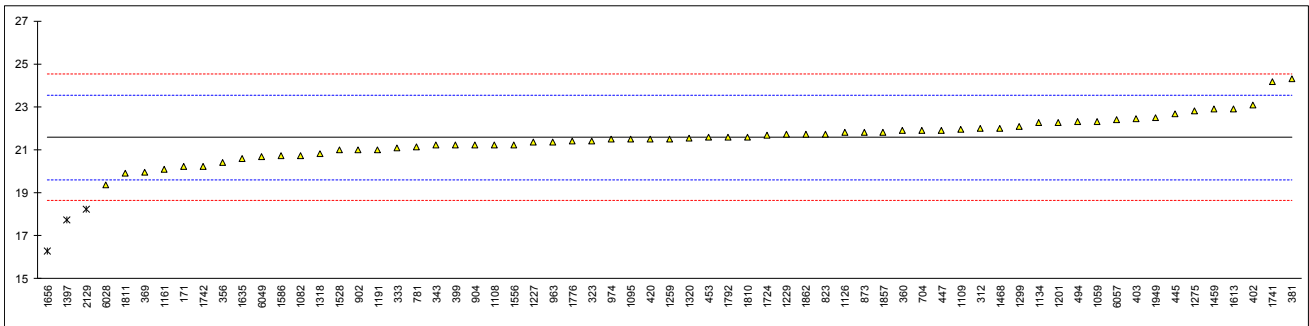## Determination of Mono-Aromatic Hydrocarbons on sample #18025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1082		20.71		-0.88
132		-----		-----	1095		21.5		-0.08
140		-----		-----	1108	EN12916	21.2		-0.38
171	EN12916	20.2		-1.40	1109	IP391	21.96		0.39
212		-----		-----	1121		-----		-----
225		-----		-----	1126		21.8		0.22
228		-----		-----	1134	IP391	22.253		0.68
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	EN12916	22.0	C	0.43	1161	EN12916	20.1		-1.50
317		-----		-----	1167		-----		-----
323	EN12916	21.4		-0.18	1191	EN12916	21.01		-0.58
331		-----		-----	1199		-----		-----
333	EN12916	21.1		-0.49	1201	IP391	22.28		0.71
334		-----		-----	1205		-----		-----
335		-----		-----	1227	EN12916	21.36		-0.22
336		-----		-----	1229	EN12916	21.7		0.12
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251		-----		-----
343	EN12916	21.2		-0.38	1254		-----		-----
345		-----		-----	1259	EN12916	21.5		-0.08
351		-----		-----	1266		-----		-----
353		-----		-----	1272		-----		-----
356	IP391	20.4		-1.20	1275	IP391	22.8		1.24
357		-----		-----	1286		-----		-----
360	EN12916	21.88		0.30	1299	EN12916	22.1		0.53
369	EN12916	19.96		-1.64	1316		-----		-----
370		-----		-----	1318	EN12916	20.814		-0.78
371		-----		-----	1320		21.53		-0.05
381	EN12916	24.31	C	2.77	1356		-----		-----
391		-----		-----	1397	EN12916	17.75	C, R(0.05)	-3.88
398		-----		-----	1428		-----		-----
399	EN12916	21.2		-0.38	1430		-----		-----
402	EN12916	23.09		1.53	1443		-----		-----
403	EN12916	22.46		0.89	1459	EN12916	22.90		1.34
420	EN12916	21.5		-0.08	1468	EN12916	22.01		0.44
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	EN12916	20.99		-0.60
444		-----		-----	1539		-----		-----
445	IP391	22.68		1.11	1556		21.23		-0.35
447	IP391	21.9		0.32	1569		-----		-----
453	IP391	21.6		0.02	1586	EN12916	20.7		-0.89
485		-----		-----	1613	IP391	22.9		1.34
494	EN12916	22.29		0.72	1631		-----		-----
541		-----		-----	1634		-----		-----
631		-----		-----	1635		20.6		-0.99
663		-----		-----	1654		-----		-----
671		-----		-----	1656	IP391	16.3	C, R(0.01)	-5.35
704	EN12916	21.90		0.32	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	IP391	21.67		0.09
781	EN12916	21.13		-0.46	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	EN12916	24.153		2.61
823	IP391	21.72		0.14	1742	EN12916	20.2		-1.40
842		-----		-----	1746		-----		-----
873		21.80		0.22	1776	EN12916	21.39260		-0.19
874		-----		-----	1787		-----		-----
875		-----		-----	1792	EN12916	21.6		0.02
902	EN12916	21.0		-0.59	1806		-----		-----
904		21.2		-0.38	1807		-----		-----
962		-----		-----	1810	EN12916	21.6		0.02
963	EN12916	21.37		-0.21	1811	EN12916	19.91		-1.69
971		-----		-----	1832		-----		-----
974	IP391	21.48		-0.10	1833		-----		-----
995		-----		-----	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	EN12916	21.8		0.22
1026		-----		-----	1858		-----		-----
1033		-----		-----	1862		21.7		0.12
1059	EN12916	22.3		0.73	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN12916	22.5		0.93	6018		-----		-----
1950		-----		-----	6028	EN12916	19.34		-2.27
1953		-----		-----	6049	EN12916	20.67		-0.92
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	EN12916	22.4		0.83
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986		-----		-----	6142		-----		-----
2129	EN12916	18.240	R(0.05)	-3.38	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	suspect
n	62
outliers	3
mean (n)	21.580
st.dev. (n)	0.9245
R(calc.)	2.588
st.dev.(EN12916:16)	0.9870
R(EN12916:16)	2.764

Lab 312: first reported 26.39
Lab 381: first reported 31.18
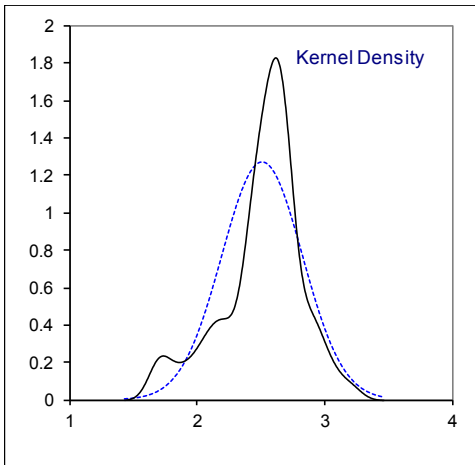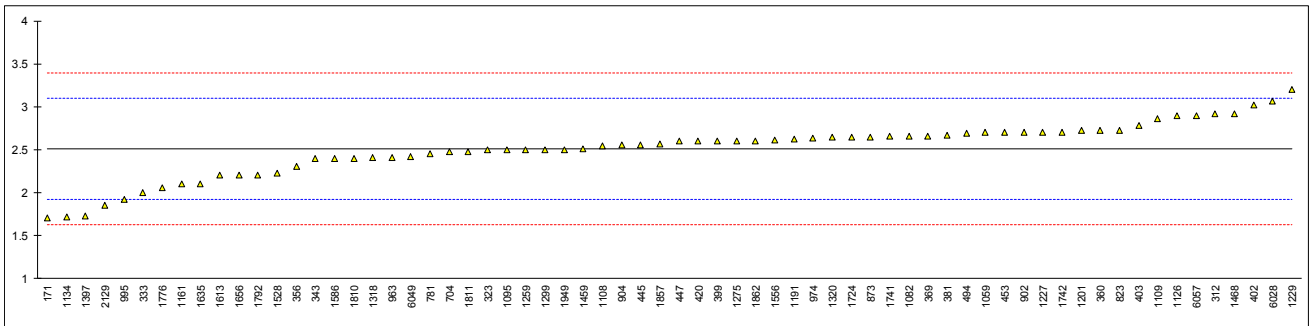Lab 1397: first reported 15.35
Lab 1656: first reported 15.5

Kernel Density

Determination of Di-Aromatic Hydrocarbons on sample #18025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1082		2.66		0.50
132		-----		-----	1095		2.5		-0.04
140		-----		-----	1108	EN12916	2.54		0.10
171	EN12916	1.7		-2.75	1109	IP391	2.86		1.18
212		-----		-----	1121		-----		-----
225		-----		-----	1126		2.9		1.32
228		-----		-----	1134	IP391	1.713		-2.71
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	EN12916	2.92		1.39	1161	EN12916	2.1		-1.40
317		-----		-----	1167		-----		-----
323	EN12916	2.5		-0.04	1191	EN12916	2.62		0.37
331		-----		-----	1199		-----		-----
333	EN12916	2.0		-1.74	1201	IP391	2.72		0.71
334		-----		-----	1205		-----		-----
335		-----		-----	1227	EN12916	2.70		0.64
336		-----		-----	1229	EN12916	3.2		2.34
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251		-----		-----
343	EN12916	2.4		-0.38	1254		-----		-----
345		-----		-----	1259	EN12916	2.5		-0.04
351		-----		-----	1266		-----		-----
353		-----		-----	1272		-----		-----
356	IP391	2.3		-0.72	1275	IP391	2.6		0.30
357		-----		-----	1286		-----		-----
360	EN12916	2.73		0.74	1299	EN12916	2.5		-0.04
369	EN12916	2.66		0.50	1316		-----		-----
370		-----		-----	1318	EN12916	2.404		-0.36
371		-----		-----	1320		2.64		0.44
381	EN12916	2.67	C	0.54	1356		-----		-----
391		-----		-----	1397	EN12916	1.73		-2.65
398		-----		-----	1428		-----		-----
399	EN12916	2.6		0.30	1430		-----		-----
402	EN12916	3.02		1.73	1443		-----		-----
403	EN12916	2.78		0.91	1459	EN12916	2.51		0.00
420	EN12916	2.6		0.30	1468	EN12916	2.92		1.39
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	EN12916	2.23		-0.96
444		-----		-----	1539		-----		-----
445	IP391	2.56		0.17	1556		2.61		0.34
447	IP391	2.6		0.30	1569		-----		-----
453	IP391	2.7		0.64	1586	EN12916	2.4		-0.38
485		-----		-----	1613	IP391	2.2		-1.06
494	EN12916	2.69		0.61	1631		-----		-----
541		-----		-----	1634		-----		-----
631		-----		-----	1635		2.1		-1.40
663		-----		-----	1654		-----		-----
671		-----		-----	1656	IP391	2.2		-1.06
704	EN12916	2.48		-0.11	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	IP391	2.64		0.44
781	EN12916	2.45		-0.21	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	EN12916	2.658		0.50
823	IP391	2.73		0.74	1742	EN12916	2.7		0.64
842		-----		-----	1746		-----		-----
873		2.65		0.47	1776	EN12916	2.05975		-1.53
874		-----		-----	1787		-----		-----
875		-----		-----	1792	EN12916	2.2		-1.06
902	EN12916	2.70		0.64	1806		-----		-----
904		2.55		0.13	1807		-----		-----
962		-----		-----	1810	EN12916	2.4		-0.38
963	EN12916	2.41		-0.34	1811	EN12916	2.48		-0.11
971		-----		-----	1832		-----		-----
974	IP391	2.63		0.40	1833		-----		-----
995	EN12916	1.92		-2.01	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	EN12916	2.57		0.20
1026		-----		-----	1858		-----		-----
1033		-----		-----	1862		2.6		0.30
1059	EN12916	2.7		0.64	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN12916	2.5		-0.04	6018		-----		-----
1950		-----		-----	6028	EN12916	3.06		1.86
1953		-----		-----	6049	EN12916	2.42		-0.31
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	EN12916	2.9		1.32
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986		-----		-----	6142		-----		-----
2129	EN12916	1.850		-2.25	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	OK
n	66
outliers	0
mean (n)	2.511
st.dev. (n)	0.3144
R(calc.)	0.880
st.dev.(EN12916:16)	0.2945
R(EN12916:16)	0.825

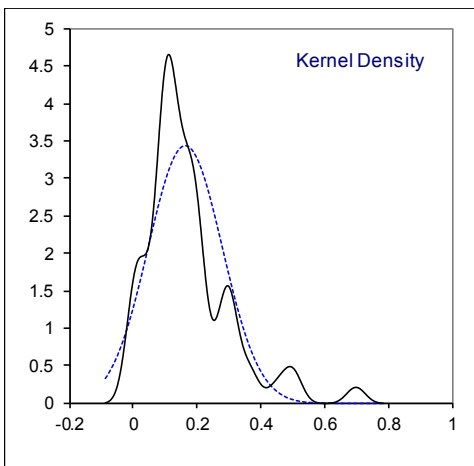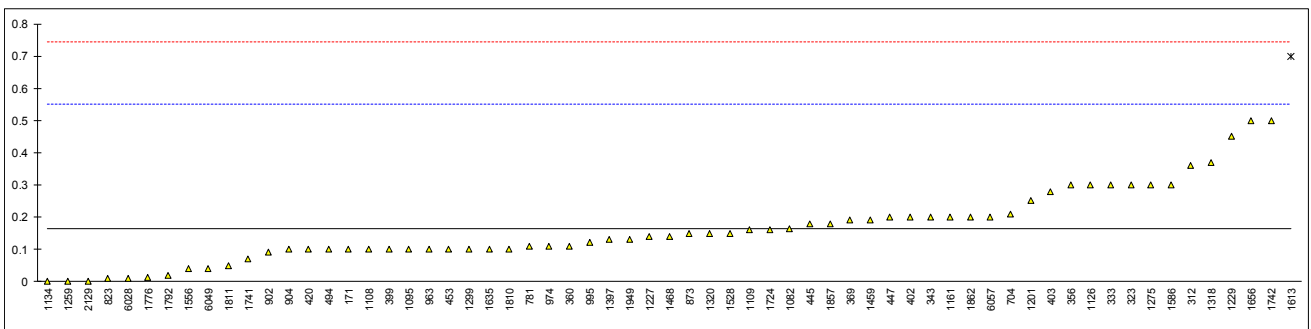Lab 381: first reported 291

Kernel Density

Determination of Tri⁺-Aromatic Hydrocarbons on sample #18025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1082		0.163		0.00
132		-----		-----	1095		0.1		-0.33
140		-----		-----	1108	EN12916	0.1		-0.33
171	EN12916	0.1		-0.33	1109	IP391	0.16		-0.02
212		-----		-----	1121		-----		-----
225		-----		-----	1126		0.3		0.70
228		-----		-----	1134	IP391	0		-0.84
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	EN12916	0.36		1.01	1161	EN12916	0.2		0.19
317		-----		-----	1167		-----		-----
323	EN12916	0.3		0.70	1191		-----		-----
331		-----		-----	1199		-----		-----
333	EN12916	0.3		0.70	1201	IP391	0.25		0.45
334		-----		-----	1205		-----		-----
335		-----		-----	1227	EN12916	0.14		-0.12
336		-----		-----	1229	EN12916	0.45		1.48
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251		-----		-----
343	EN12916	0.2		0.19	1254		-----		-----
345		-----		-----	1259	EN12916	0.0		-0.84
351		-----		-----	1266		-----		-----
353		-----		-----	1272		-----		-----
356	IP391	0.3		0.70	1275	IP391	0.3		0.70
357		-----		-----	1286		-----		-----
360	EN12916	0.11		-0.27	1299	EN12916	0.1		-0.33
369	EN12916	0.19		0.14	1316		-----		-----
370		-----		-----	1318	EN12916	0.369		1.06
371		-----		-----	1320		0.15		-0.07
381	EN12916	<0.1	C	-----	1356		-----		-----
391		-----		-----	1397	EN12916	0.13		-0.17
398		-----		-----	1428		-----		-----
399	EN12916	0.1		-0.33	1430		-----		-----
402	EN12916	0.20		0.19	1443		-----		-----
403	EN12916	0.28		0.60	1459	EN12916	0.19		0.14
420	EN12916	0.1		-0.33	1468	EN12916	0.14		-0.12
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	EN12916	0.15		-0.07
444		-----		-----	1539		-----		-----
445	IP391	0.18		0.09	1556		0.04		-0.64
447	IP391	0.2		0.19	1569		-----		-----
453	IP391	0.1		-0.33	1586	EN12916	0.3		0.70
485		-----		-----	1613	IP391	0.7	R(0.01)	2.77
494	EN12916	0.10		-0.33	1631		-----		-----
541		-----		-----	1634		-----		-----
631		-----		-----	1635		0.1		-0.33
663		-----		-----	1654		-----		-----
671		-----		-----	1656	IP391	0.5		1.74
704	EN12916	0.21		0.24	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	IP391	0.16		-0.02
781	EN12916	0.11		-0.27	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	EN12916	0.071		-0.48
823	IP391	0.01		-0.79	1742	EN12916	0.5		1.74
842		-----		-----	1746		-----		-----
873		0.15		-0.07	1776	EN12916	0.0135		-0.77
874		-----		-----	1787		-----		-----
875		-----		-----	1792	EN12916	0.02		-0.74
902	EN12916	0.09		-0.38	1806		-----		-----
904		0.1		-0.33	1807		-----		-----
962		-----		-----	1810	EN12916	0.1		-0.33
963	EN12916	0.10		-0.33	1811	EN12916	0.05		-0.58
971		-----		-----	1832		-----		-----
974	IP391	0.11		-0.27	1833		-----		-----
995	EN12916	0.12		-0.22	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	EN12916	0.18		0.09
1026		-----		-----	1858		-----		-----
1033		-----		-----	1862		0.2		0.19
1059	EN12916	<0,1		-----	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN12916	0.13		-0.17	6018		-----		-----
1950		-----		-----	6028	EN12916	0.01		-0.79
1953		-----		-----	6049	EN12916	0.04		-0.64
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	EN12916	0.2		0.19
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986		-----		-----	6142		-----		-----
2129	EN12916	0.0		-0.84	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

normality	not OK
n	62
outliers	1
mean (n)	0.163
st.dev. (n)	0.1163
R(calc.)	0.326
st.dev.(EN12916:16)	0.1940
R(EN12916:16)	0.543

Lab 381: first reported <0.01

Kernel Density

Determination of Total Aromatic Hydrocarbons on sample #18025; result in %M/M

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120		-----		-----	1082		23.52		-0.41
132		-----		-----	1095		24.1		-0.11
140		-----		-----	1108	EN12916	23.8		-0.27
171	EN12916	22.0		-1.22	1109	IP391	25.00		0.37
212		-----		-----	1121		-----		-----
225		-----		-----	1126		25.0		0.37
228		-----		-----	1134	IP391	24.731	E	0.23
237		-----		-----	1141		-----		-----
238		-----		-----	1146		-----		-----
273		-----		-----	1150		-----		-----
312	EN12916	29.66	E, R(0.05)	2.85	1161	EN12916	22.4		-1.01
317		-----		-----	1167		-----		-----
323	EN12916	24.2		-0.05	1191	EN12916	24.19		-0.06
331		-----		-----	1199		-----		-----
333	EN12916	23.4		-0.48	1201	IP391	25.24		0.50
334		-----		-----	1205		-----		-----
335		-----		-----	1227	EN12916	24.20		-0.05
336		-----		-----	1229	EN12916	25.5		0.64
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251		-----		-----
343	EN12916	23.9		-0.21	1254		-----		-----
345		-----		-----	1259	EN12916	24.0		-0.16
351		-----		-----	1266		-----		-----
353		-----		-----	1272		-----		-----
356	IP391	23.0		-0.69	1275	IP391	25.7		0.74
357		-----		-----	1286		-----		-----
360	EN12916	24.72		0.22	1299	EN12916	24.7		0.21
369	EN12916	22.81		-0.79	1316		-----		-----
370		-----		-----	1318	EN12916	23.59		-0.38
371		-----		-----	1320		24.32		0.01
381	EN12916	26.98	C	1.42	1356		-----		-----
391		-----		-----	1397	EN12916	20.07	E, C, R(0.05)	-2.25
398		-----		-----	1428		-----		-----
399	EN12916	23.9		-0.21	1430		-----		-----
402	EN12916	26.31		1.07	1443		-----		-----
403	EN12916	25.52		0.65	1459	EN12916	25.59		0.68
420		-----		-----	1468	EN12916	25.09		0.42
431		-----		-----	1498		-----		-----
432		-----		-----	1510		-----		-----
440		-----		-----	1528	EN12916	23.37		-0.49
444		-----		-----	1539		-----		-----
445	IP391	25.42		0.59	1556		23.89		-0.22
447	IP391	24.7		0.21	1569		-----		-----
453	IP391	24.4		0.05	1586	EN12916	23.4		-0.48
485		-----		-----	1613	IP391	25.8		0.80
494	EN12916	25.07		0.41	1631		-----		-----
541		-----		-----	1634		-----		-----
631		-----		-----	1635		22.8		-0.80
663		-----		-----	1654		-----		-----
671		-----		-----	1656	IP391	19.7	E, C, R(0.05)	-2.44
704	EN12916	24.59		0.15	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724	IP391	24.47		0.09
781	EN12916	23.69		-0.32	1730		-----		-----
782		-----		-----	1740		-----		-----
785		-----		-----	1741	EN12916	26.882		1.37
823	IP391	24.45		0.08	1742	EN12916	23.3		-0.53
842		-----		-----	1746		-----		-----
873		24.60		0.16	1776	EN12916	23.46582		-0.44
874		-----		-----	1787		-----		-----
875		-----		-----	1792	EN12916	23.82		-0.26
902	EN12916	23.79		-0.27	1806		-----		-----
904		23.85		-0.24	1807		-----		-----
962		-----		-----	1810	EN12916	24.1		-0.11
963	EN12916	23.88		-0.22	1811	EN12916	22.44		-0.99
971		-----		-----	1832		-----		-----
974	IP391	24.22		-0.04	1833		-----		-----
995		-----		-----	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857	EN12916	24.55		0.13
1026		-----		-----	1858		-----		-----
1033		-----		-----	1862		24.5		0.11
1059	EN12916	25.0		0.37	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	EN12916	25.13		0.44	6018		-----		-----
1950		-----		-----	6028	EN12916	22.41		-1.00
1953		-----		-----	6049	EN12916	23.14		-0.62
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	EN12916	25.5		0.64
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075		-----		-----
1986		-----		-----	6142		-----		-----
2129	EN12916	20.090	R(0.05)	-2.24	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005		-----		-----					

|	
normality	OK
n	60
outliers	4
mean (n)	24.301
st.dev. (n)	1.0543
R(calc.)	2.952
st.dev.(EN12916:16)	1.8835
R(EN12916:16)	5.274

Lab 312: iis calculated 25.28
Lab 381: first reported 34.09
Lab 1134: iis calculated 23.966
Lab 1191: iis calculated 23.63 (only Mono- and Di-Aromatic Hydrocarbons were reported)
Lab 1397: iis calculated 19.61, first reported 17.21
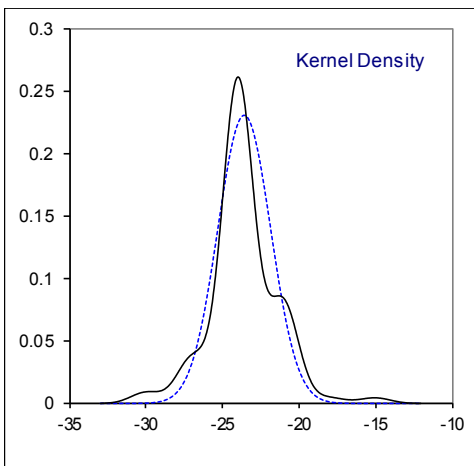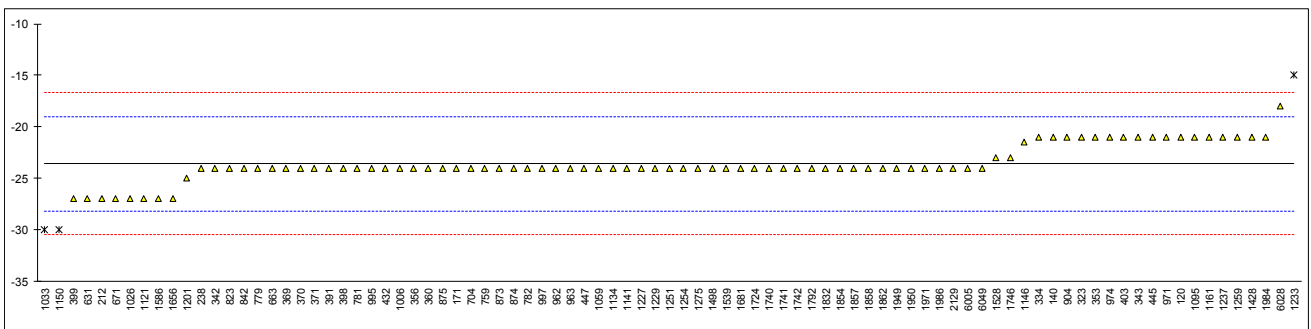Lab 1656: iis calculated 19.0, first reported 18.2
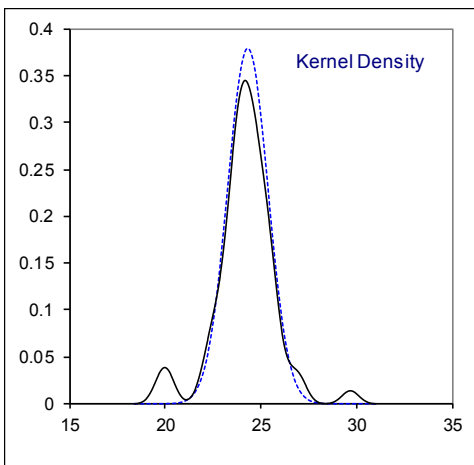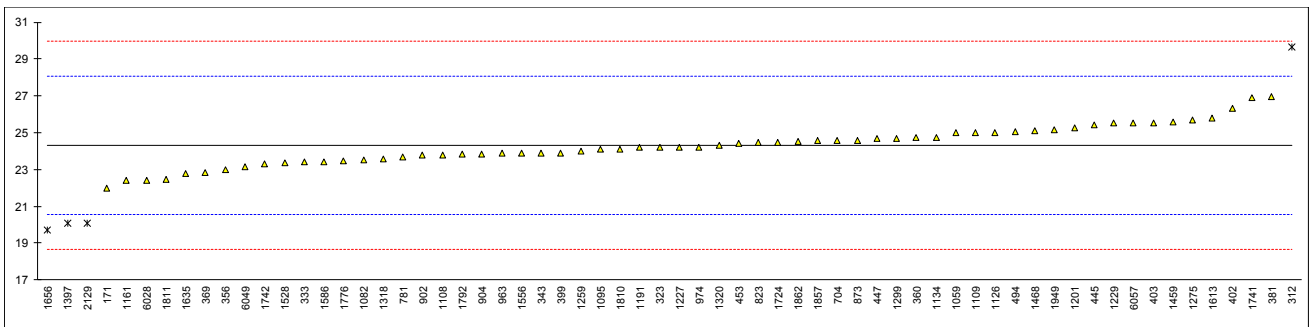
Determination of Pour Point, Manual on sample #18025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D97	-21		1.12	1082		-----		-----
132		-----		-----	1095	ISO3016	-21		1.12
140	ISO3016	-21		1.12	1108		-----		-----
171	D97	-24		-0.18	1109		-----		-----
212	ISO3016	-27		-1.49	1121	ISO3016	-27		-1.49
225		-----		-----	1126		-----		-----
228	D97	<-21		-----	1134	IP15	-24		-0.18
237	D97	<-21.0		-----	1141	ISO3016	-24		-0.18
238	D97	-24		-0.18	1146	D97	-21.5		0.90
273	D97	<-24		-----	1150	ISO3016	-30	R(0.05)	-2.80
312		-----		-----	1161	ISO3016	-21		1.12
317		-----		-----	1167		-----		-----
323	ISO3016	-21		1.12	1191		-----		-----
331		-----		-----	1199		-----		-----
333		-----		-----	1201	D97	-25		-0.62
334	ISO3016	-21		1.12	1205		-----		-----
335		-----		-----	1227	D97	-24		-0.18
336		-----		-----	1229	ISO3016	-24		-0.18
337		-----		-----	1233	ISO3016	-15	R(0.01)	3.73
338		-----		-----	1237	ISO3016	-21		1.12
342	ISO3016	-24		-0.18	1251	ISO3016	-24		-0.18
343	ISO3016	-21		1.12	1254	D97	-24		-0.18
345		-----		-----	1259	ISO3016	-21		1.12
351		-----		-----	1266		-----		-----
353	IP15	-21		1.12	1272		-----		-----
356	D97	-24		-0.18	1275	IP15	-24		-0.18
357		-----		-----	1286		-----		-----
360	ISO3016	-24		-0.18	1299		-----		-----
369	ISO3016	-24		-0.18	1316		-----		-----
370	ISO3016	-24		-0.18	1318		-----		-----
371	ISO3016	-24		-0.18	1320		-----		-----
381		-----		-----	1356	ISO3016	<-34	False neg?	<-4.54
391	ISO3016	-24		-0.18	1397		-----		-----
398	ISO3016	-24		-0.18	1428	ISO3016	-21		1.12
399	D97	-27	C	-1.49	1430		-----		-----
402		-----		-----	1443		-----		-----
403	D97	-21		1.12	1459		-----		-----
420		-----		-----	1468		-----		-----
431		-----		-----	1498	D97	-24		-0.18
432	ISO3016	-24		-0.18	1510		-----		-----
440		-----		-----	1528	D97	-23		0.25
444		-----		-----	1539	ISO3016	-24		-0.18
445	IP15	-21		1.12	1556		-----		-----
447	D97	-24		-0.18	1569		-----		-----
453		-----		-----	1586	D97	-27		-1.49
485		-----		-----	1613	D97	<-24		-----
494		-----		-----	1631		-----		-----
541		-----		-----	1634		-----		-----
631	D97	-27		-1.49	1635		-----		-----
663	D97	-24		-0.18	1654		-----		-----
671	D97	-27.0		-1.49	1656	IP15	-27		-1.49
704	ISO3016	-24		-0.18	1681	ISO3016	-24.0		-0.18
759	ISO3016	-24		-0.18	1720		-----		-----
779	ISO3016	-24		-0.18	1724	D97	-24		-0.18
781	ISO3016	-24		-0.18	1730		-----		-----
782	ISO3016	-24		-0.18	1740	ISO3016	-24		-0.18
785		-----		-----	1741	ISO3016	-24		-0.18
823	D97	-24		-0.18	1742	ISO3016	-24		-0.18
842	D97	-24		-0.18	1746	D97	-23		0.25
873	D97	-24		-0.18	1776		-----		-----
874	D97	-24		-0.18	1787		-----		-----
875	D97	-24		-0.18	1792	ISO3016	-24		-0.18
902		-----		-----	1806		-----		-----
904	ISO3016	-21		1.12	1807		-----		-----
962	D97	-24		-0.18	1810		-----		-----
963	ISO3016	-24		-0.18	1811		-----		-----
971	D97	-21		1.12	1832	ISO3016	-24		-0.18
974	D97	-21		1.12	1833		-----		-----
995	ISO3016	-24		-0.18	1849		-----		-----
997	ISO3016	-24		-0.18	1854	ISO3016	-24		-0.18
1006	D97	-24		-0.18	1857	ISO3016	-24		-0.18
1026	D97	-27		-1.49	1858	D97	-24		-0.18
1033	IP15	-30	R(0.05)	-2.80	1862	ISO3016	-24		-0.18
1059	ISO3016	-24		-0.18	1936		-----		-----
1081		-----		-----	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012		-----		-----
1949	ISO3016	-24		-0.18	6018		-----		-----
1950	ISO3016	-24		-0.18	6028	D97	-18		2.43
1953		-----		-----	6049	ISO3016	-24		-0.18
1961		-----		-----	6051		-----		-----
1971	ISO3016	-24		-0.18	6057		-----		-----
1976		-----		-----	6068		-----		-----
1984	ISO3016	-21		1.12	6075		-----		-----
1986	ISO3016	-24		-0.18	6142		-----		-----
2129	ISO3016	-24		-0.18	6163		-----		-----
2130		-----		-----	6170		-----		-----
2146		-----		-----	9057		-----		-----
6005	ISO3016	-24		-0.18					

|	
normality	OK
n	86
outliers	3
mean (n)	-23.58
st.dev. (n)	1.731
R(calc.)	4.85
st.dev.(ISO3016:94)	2.296
R(ISO3016:94)	6.43

Lab 399: first reported -3

Determination of Pour Point, Automated, 3 °C interval on sample #18025; result in °C

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5949	-21		1.11	1082	D5950	-24		-0.26
132		-----		-----	1095		-----		-----
140	D5949	-21		1.11	1108		-----		-----
171	D5950	-24		-0.26	1109		-----		-----
212		-----		-----	1121		-----		-----
225		-----		-----	1126		-----		-----
228		-----		-----	1134		-----		-----
237		-----		-----	1141		-----		-----
238		-----		-----	1146	D6892	-24.0		-0.26
273		-----		-----	1150		-----		-----
312	D5950	-21		1.11	1161	D6749	-21		1.11
317	D6749	-21		1.11	1167		-----		-----
323	D5950	-24		-0.26	1191	D5950	-27		-1.64
331	D5950	-21		1.11	1199		-----		-----
333		-----		-----	1201	D5950	-24		-0.26
334		-----		-----	1205		-----		-----
335	D5950	-24		-0.26	1227		-----		-----
336	D5950	-24		-0.26	1229		-----		-----
337		-----		-----	1233		-----		-----
338		-----		-----	1237		-----		-----
342		-----		-----	1251		-----		-----
343		-----		-----	1254	D5950	-24		-0.26
345		-----		-----	1259		-----		-----
351	D6749	-21		1.11	1266	D5950	-22.5		0.43
353		-----		-----	1272		-----		-----
356		-----		-----	1275	In house	-24.0		-0.26
357	D5950	-24		-0.26	1286		-----		-----
360	D5950	-24		-0.26	1299	D97	-24		-0.26
369		-----		-----	1316	D5950	-26.0		-1.18
370		-----		-----	1318	D7346	-27.0		-1.64
371		-----		-----	1320		-----		-----
381		-----		-----	1356		-----		-----
391		-----		-----	1397	D5950	-24		-0.26
398		-----		-----	1428	D5950	-21		1.11
399		-----		-----	1430	D5950	-24		-0.26
402		-----		-----	1443		-----		-----
403		-----		-----	1459	In house	-24.0		-0.26
420	D6749	-21		1.11	1468		-----		-----
431		-----		-----	1498		-----		-----
432	D5950	-25		-0.72	1510		-----		-----
440		-----		-----	1528		-----		-----
444		-----		-----	1539		-----		-----
445		-----		-----	1556		-----		-----
447		-----		-----	1569		-----		-----
453		-----		-----	1586	D5950	-24		-0.26
485		-----		-----	1613		-----		-----
494	D6892	-24		-0.26	1631		-----		-----
541	D5950	-24		-0.26	1634		-----		-----
631		-----		-----	1635	D5950	-24.0		-0.26
663		-----		-----	1654		-----		-----
671		-----		-----	1656		-----		-----
704		-----		-----	1681		-----		-----
759		-----		-----	1720		-----		-----
779		-----		-----	1724		-----		-----
781	D5950	-24		-0.26	1730		-----		-----
782		-----		-----	1740		-----		-----
785	D6749	-21		1.11	1741	ISO3016	-21	ex	1.11
823	D5950	-24		-0.26	1742		-----		-----
842		-----		-----	1746		-----		-----
873		-----		-----	1776	D5950	-24		-0.26
874		-----		-----	1787		-----		-----
875		-----		-----	1792		-----		-----
902	D5950	-21		1.11	1806		-----		-----
904		-----		-----	1807		-----		-----
962		-----		-----	1810		-----		-----
963	D5950	-24		-0.26	1811	D5950	-23		0.20
971		-----		-----	1832		-----		-----
974		-----		-----	1833	D5950	-24		-0.26
995		-----		-----	1849		-----		-----
997		-----		-----	1854		-----		-----
1006		-----		-----	1857		-----		-----
1026	D5950	-24		-0.26	1858		-----		-----
1033	D7346	-26.00		-1.18	1862		-----		-----
1059		-----		-----	1936		-----		-----
1081	D5950	-23		0.20	1937		-----		-----

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938		-----		-----	6012	D97	-21		1.11
1949		-----		-----	6018		-----		-----
1950		-----		-----	6028		-----		-----
1953	D6749	-24		-0.26	6049		-----		-----
1961		-----		-----	6051		-----		-----
1971		-----		-----	6057	D5950	-24		-0.26
1976		-----		-----	6068		-----		-----
1984		-----		-----	6075	NFT60-105	-24		-0.26
1986		-----		-----	6142	IP15	-21		1.11
2129	D5950	-24		-0.26	6163		-----		-----
2130	D5950	-24		-0.26	6170		-----		-----
2146		-----		-----	9057	D5950	-25.8		-1.09
6005		-----		-----					

normality	OK	
n	52	
outliers	1	
mean (n)	-23.43	
st.dev. (n)	1.624	
R(calc.)	4.55	
st.dev.(D5950:14)	2.179	
R(D5950:14)	6.1	3 °C interval

Lab 1741: test result excluded as reported method is a manual method

Kernel Density
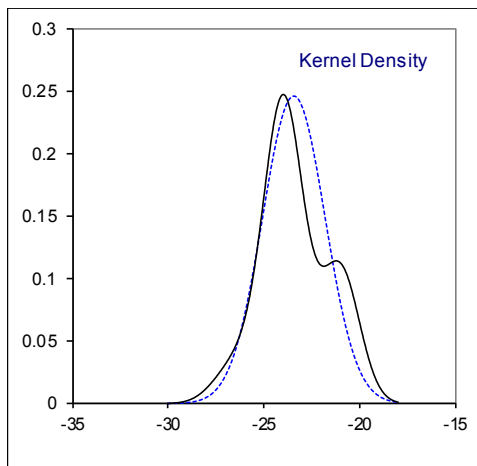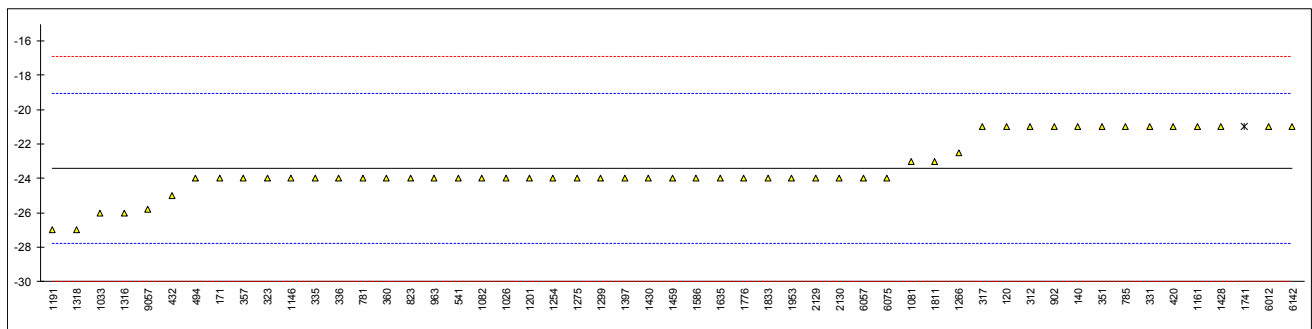
Determination of Sulphur on sample #18025; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	D5453	9		2.16	1082		-----		-----
132	D5453	10	R(0.05)	3.58	1095	ISO20846	7.9		0.58
140	ISO20846	7.2		-0.42	1108	ISO20846	7.96		0.67
171	D5453	7.3		-0.27	1109	D7039	6.86		-0.90
212		-----		-----	1121	ISO20846	7.51		0.03
225		-----		-----	1126	ISO20846	7.2		-0.42
228		-----		-----	1134	IP490	7.78		0.41
237	D5453	5.5		-2.85	1141	ISO20846	7.76		0.38
238		-----		-----	1146		-----		-----
273	D5453	7.0		-0.70	1150	ISO20884	5.387		-3.01
312	D5453	7.1		-0.56	1161	ISO20846	8.50		1.44
317	D5453	7.8		0.44	1167	ISO20846	8.23		1.06
323	ISO20846	6.7		-1.13	1191	ISO20846	7.75		0.37
331		-----		-----	1199	ISO20884	7.45		-0.06
333	ISO20846	8.3		1.16	1201	ISO20846	7.6		0.15
334	ISO20846	7.9		0.58	1205	ISO20846	7.23		-0.37
335	ISO20846	6.8		-0.99	1227	D5453	7.11		-0.55
336	ISO20846	7.2		-0.42	1229	ISO20846	8.6		1.58
337		-----		-----	1233		-----		-----
338	ISO20846	8.1		0.87	1237	ISO20846	7.62		0.18
342		-----		-----	1251	ISO20846	8.14		0.93
343	ISO20846	7.5		0.01	1254	ISO20846	7.438		-0.08
345	ISO20846	7.93		0.63	1259	D5453	6.7		-1.13
351	ISO20846	8.29		1.14	1266	ISO20846	7.45		-0.06
353		-----		-----	1272	ISO20846	7.9		0.58
356	ISO20846	7.4		-0.13	1275	IP490	8.2		1.01
357	ISO20846	8.3		1.16	1286		-----		-----
360	ISO20846	8.16		0.96	1299	ISO20884	7.4		-0.13
369	ISO20846	7.3		-0.27	1316	ISO13032	8.2		1.01
370	ISO20846	7.62		0.18	1318	D5453	7.21		-0.40
371	D5453	7.57		0.11	1320	ISO20846	7.19		-0.43
381	ISO20846	7.8		0.44	1356	ISO8754	<0.03	False neg?	<-10.66
391	ISO20846	7.7		0.30	1397	ISO20846	7.07		-0.60
398		-----		-----	1428	ISO20846	7.1		-0.56
399	D5453	6.3		-1.70	1430		-----		-----
402	ISO20846	8.41		1.31	1443	ISO20884	6.9		-0.85
403	ISO20846	8.28		1.13	1459	ISO8754	7.4		-0.13
420	ISO20846	7.6		0.15	1468	ISO20846	6.3		-1.70
431		-----		-----	1498	D5453	8.0		0.73
432		-----		-----	1510		-----		-----
440	D5453	7.1		-0.56	1528	ISO20846	8.05		0.80
444		-----		-----	1539	ISO20846	7.6		0.15
445	IP490	7.09		-0.57	1556	ISO20884	7.3		-0.27
447	D5453	7.9		0.58	1569		-----		-----
453	ISO20846	7.4		-0.13	1586	ISO20846	6.0		-2.13
485	ISO20846	7.61		0.17	1613	D5453	7.78		0.41
494	ISO20846	7.34		-0.22	1631	ISO20846	7.5		0.01
541	ISO20846	7.66		0.24	1634	ISO20846	7.035		-0.65
631	D4294	8.061		0.81	1635	ISO20846	6.5		-1.42
663	D5453	7.71		0.31	1654	ISO20846	7.25		-0.35
671	D5453	8.4		1.30	1656	D5453	6.4		-1.56
704	ISO20846	7.78		0.41	1681	ISO13032	6.2		-1.85
759		-----		-----	1720	D5453	7.0		-0.70
779	ISO20846	8.0		0.73	1724	D5453	7.4		-0.13
781	ISO20846	6.9		-0.85	1730	ISO20846	7.14		-0.50
782	ISO20884	7.4		-0.13	1740	ISO20846	6.8		-0.99
785	ISO20846	7.182		-0.44	1741	ISO20846	8.01		0.74
823	D5453	9.42		2.76	1742	ISO20846	8.6		1.58
842	D4294	<100		-----	1746	D5453	8.0		0.73
873	ISO20846	7.65		0.23	1776	ISO20846	7.8		0.44
874	D2622	7.1		-0.56	1787		-----		-----
875	ISO20846	6.5		-1.42	1792	ISO13032	7.2		-0.42
902	ISO20846	7.9		0.58	1806		-----		-----
904	ISO20846	7.7		0.30	1807	ISO20846	7.2		-0.42
962		-----		-----	1810		7.9		0.58
963	ISO20846	7.47		-0.03	1811	ISO20846	8.05		0.80
971	D5453	7.34		-0.22	1832	ISO20846	7.730		0.34
974		-----		-----	1833	ISO20846	7.6		0.15
995	ISO20846	6.7		-1.13	1849	ISO20846	7.7		0.30
997	ISO20846	6.8		-0.99	1854	ISO20846	7.4		-0.13
1006	D5453	7.3		-0.27	1857	ISO20846	7.5		0.01
1026	ISO20846	7.8	C	0.44	1858	ISO20846	7.625		0.19
1033		-----		-----	1862	ISO20846	7.6		0.15
1059	ISO20846	6.6		-1.27	1936	ISO20846	7.0		-0.70
1081	ISO20846	6.74		-1.07	1937	ISO20846	7.3		-0.27

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	ISO20846	7.2		-0.42	6012	ISO20846	6.4		-1.56
1949	ISO20846	7.92		0.61	6018	ISO20846	7.3		-0.27
1950	ISO20884	8.0		0.73	6028	ISO20846	8.2		1.01
1953	ISO13032	8		0.73	6049	ISO20846	8.0		0.73
1961		-----		-----	6051		-----		-----
1971	ISO20846	8.24		1.07	6057	ISO20846	7.4		-0.13
1976	ISO20846	6.3		-1.70	6068	ISO20884	7.7		0.30
1984	ISO20846	7.488		-0.01	6075	ISO20846	7.17		-0.46
1986	ISO13032	7.8		0.44	6142	ISO20846	9.12		2.33
2129	ISO20846	7.29		-0.29	6163	ISO20846	8.16115		0.96
2130	ISO20846	7.6		0.15	6170	ISO20846	6.61		-1.26
2146	ISO20846	7.6		0.15	9057		-----		-----
6005		-----		-----					

normality	suspect
n	143
outliers	1
mean (n)	7.492
st.dev. (n)	0.6355
R(calc.)	1.780
st.dev.(ISO20846:11)	0.6997
R(ISO20846:11)	1.959

Lab 1026: first reported 9.69

Kernel Density
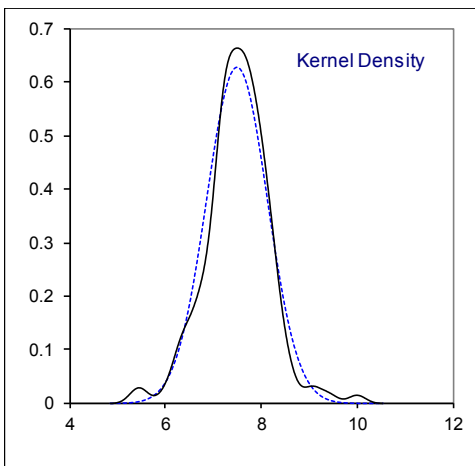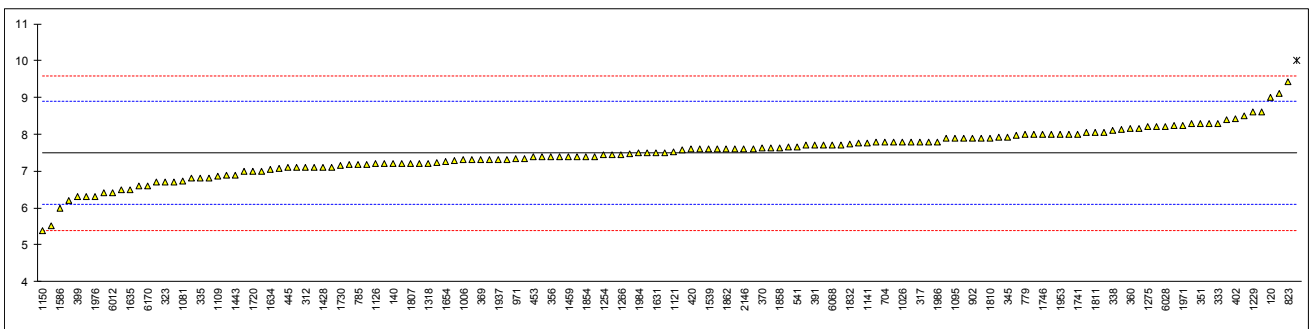
Determination of Water content KF on sample #18025; result in mg/kg

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
120	E1064	66	C	0.85	1082	ISO12937	49		-0.12
132	D6304	53		0.10	1095	ISO12937	60		0.50
140	ISO12937	41		-0.58	1108	ISO12937	56.4		0.30
171	D6304	77		1.47	1109	D6304	47		-0.24
212		-----		-----	1121	IP438	62.6		0.65
225	D6304	63.67		0.71	1126		-----		-----
228		-----		-----	1134	IP438	44.54		-0.38
237	D6304	62.68		0.66	1141	ISO12937	37.980		-0.75
238		-----		-----	1146	D6304	39	C	-0.69
273	D6304	56.3		0.29	1150	ISO12937	38		-0.75
312	ISO12937	80		1.64	1161	ISO12937	49.205		-0.11
317	ISO12937	50		-0.07	1167	ISO12937	52.6		0.08
323	ISO12937	40		-0.64	1191	ISO12937	51		-0.01
331	D6304	49.8		-0.08	1199		-----		-----
333	ISO12937	65		0.79	1201	ISO12937	50		-0.07
334	ISO12937	50		-0.07	1205		-----		-----
335	ISO12937	50		-0.07	1227	D6304	49.6		-0.09
336	ISO12937	70		1.07	1229	ISO12937	69		1.02
337	ISO12937	52.4		0.07	1233		-----		-----
338	ISO12937	46.59		-0.26	1237	ISO12937	52.8		0.09
342	ISO12937	56.0		0.28	1251	ISO12937	30		-1.20
343	ISO12937	30		-1.20	1254	ISO12937	46.55		-0.26
345	ISO12937	52.8		0.09	1259	ISO12937	40		-0.64
351	ISO12937	48		-0.18	1266	ISO12937	53.64		0.14
353	IP438	76		1.41	1272		-----		-----
356	E1064	45		-0.35	1275	IP438	50		-0.07
357	ISO12937	60		0.50	1286		-----		-----
360	ISO12937	53.9		0.16	1299	ISO12937	50		-0.07
369	ISO12937	43		-0.46	1316	ISO12937	34		-0.98
370	ISO12937	59		0.45	1318	D6304	33.6		-1.00
371	ISO12937	48.4		-0.16	1320	ISO12937	40.6		-0.60
381	ISO12937	42		-0.52	1356	D6304	<200	C	-----
391	ISO12937	60		0.50	1397	ISO12937	41		-0.58
398		-----		-----	1428	ISO12937	54		0.16
399		-----		-----	1430	D6304	48		-0.18
402	ISO12937	55.1		0.22	1443		-----		-----
403	ISO12937	55.1		0.22	1459	ISO12937	40.0		-0.64
420	ISO12937	60		0.50	1468	ISO12937	42		-0.52
431		-----		-----	1498		-----		-----
432	D6304	52.5		0.08	1510	IP438	53		0.10
440	IP438	50.69		-0.03	1528	ISO12937	50.03		-0.06
444		-----		-----	1539	ISO12937	44		-0.41
445	IP439	57.6		0.37	1556	ISO12937	42		-0.52
447	IP438	64		0.73	1569		-----		-----
453	IP438	55		0.22	1586	D6304	51		-0.01
485	ISO12937	42.0		-0.52	1613	D6304	50.70		-0.03
494	ISO12937	44.7		-0.37	1631	ISO12937	47.0		-0.24
541	ISO12937	50.5		-0.04	1634	ISO12937	44.0		-0.41
631	D6304	52		0.05	1635		-----		-----
663	D6304	57.7		0.37	1654	ISO12937	51.39		0.01
671		-----		-----	1656	ISO12937	69		1.02
704	ISO12937	54.4		0.18	1681	ISO12937	59.5		0.47
759	ISO12937	40.9		-0.58	1720		-----		-----
779	ISO12937	43		-0.46	1724	D6304	64		0.73
781	ISO12937	40.8		-0.59	1730		-----		-----
782		-----		-----	1740	ISO12937	47		-0.24
785	ISO12937	44.3635		-0.39	1741	ISO12937	44.9		-0.36
823	ISO12937	58.6		0.42	1742		-----		-----
842	E203	56		0.28	1746		-----		-----
873	D6304	62		0.62	1776	ISO12937	21		-1.72
874	D6304	53		0.10	1787		-----		-----
875	ISO12937	45		-0.35	1792	ISO12937	51		-0.01
902	ISO12937	51		-0.01	1806		-----		-----
904	ISO12937	50.8		-0.02	1807	ISO12937	52		0.05
962	D6304	60		0.50	1810		53		0.10
963	ISO12937	55		0.22	1811	ISO12937	46		-0.29
971	D6304	58.6		0.42	1832	ISO12937	43.328		-0.45
974	D6304	59		0.45	1833	ISO12937	60		0.50
995	D6304	34.41		-0.95	1849	ISO12937	51		-0.01
997	D6304	29		-1.26	1854	D6304	51		-0.01
1006		-----		-----	1857	ISO12937	55		0.22
1026	D6304	41		-0.58	1858	IP438	56		0.28
1033	IP438	49.781		-0.08	1862	ISO12937	50		-0.07
1059	ISO12937	50		-0.07	1936	ISO12937	51		-0.01
1081	ISO12937	55.0179		0.22	1937	ISO12937	51.5		0.02

lab	method	value	mark	z(targ)	lab	method	value	mark	z(targ)
1938	ISO12937	48		-0.18	6012	ISO12937	54.375		0.18
1949		-----		-----	6018	ISO12937	50		-0.07
1950	IP439	50		-0.07	6028	ISO12937	65		0.79
1953	ISO12937	58.14		0.40	6049	ISO12937	50.6		-0.03
1961	ISO12937	57.5		0.36	6051		-----		-----
1971	ISO12937	43.84		-0.42	6057	ISO12937	52		0.05
1976	ISO12937	44.30		-0.39	6068	ISO12937	66		0.85
1984	ISO12937	39.5		-0.66	6075	ISO12937	45.5		-0.32
1986	IP439	60		0.50	6142	ISO12937	66		0.85
2129	IP439	49		-0.12	6163	ISO12937	37.76		-0.76
2130	ISO12937	80		1.64	6170	ISO12937	41.4		-0.56
2146		-----		-----	9057	D6304	0.052	R(0.01)	-2.91
6005	ISO12937	50		-0.07					

normality	suspect
n	144
outliers	1
mean (n)	51.156
st.dev. (n)	9.7010
R(calc.)	27.163
st.dev.(ISO12937:00)	17.5667
R(ISO12937:00)	49.187

Lab 120: first reported 0.00655
Lab 1146: first reported 0.0039
Lab 1356: first reported <0.02

Kernel Density
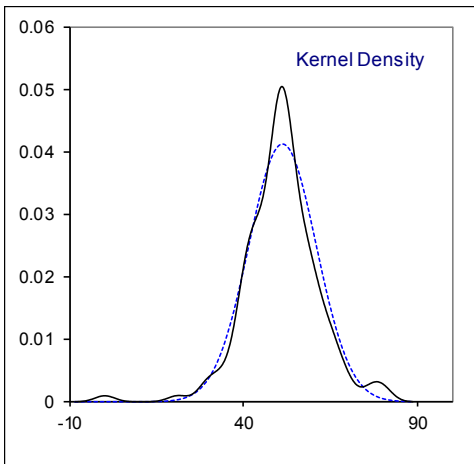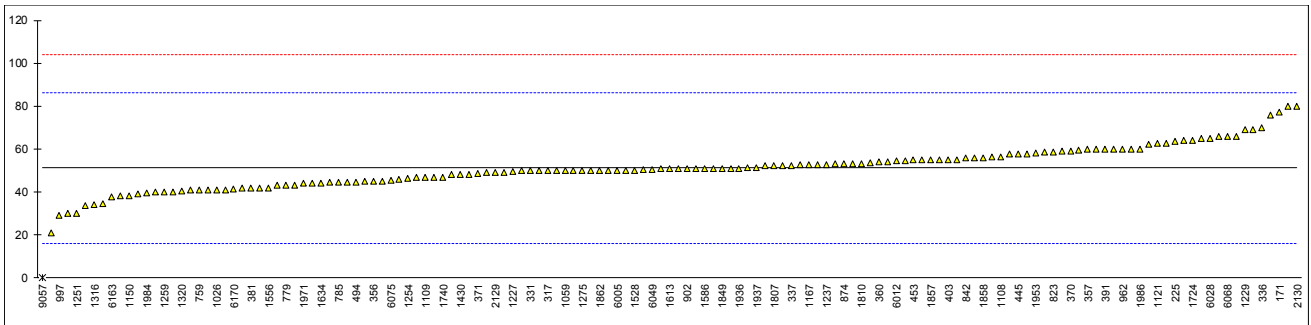
Determination of Cetane Number on sample #18026;

lab	method	value	mark	z(targ)	remarks
120	D613	52.6		0.46	
140	D613	49.8		-1.17	
171	D613	51.8		0.00	
312	D613	51.1		-0.41	
323	ISO5165	52.1		0.17	
333	ISO5165	54.3		1.45	
334	ISO5165	54.0		1.28	
336		-----		-----	
343		-----		-----	
356		-----		-----	
360	ISO5165	51.74		-0.04	
370	ISO5165	53.2		0.81	
381	D613	52.4		0.35	
402	ISO5165	51.1		-0.41	
403	ISO5165	51.25		-0.32	
420	ISO5165	52.1		0.17	
444	D613	49.18		-1.53	
445	IP41	55.3		2.04	
447	D613	50.0		-1.05	
453		-----		-----	
494		-----		-----	
753	ISO5165	53.94		1.24	
904		-----		-----	
1026	ISO5165	51.5		-0.18	
1059		-----		-----	
1081		-----		-----	
1082	ISO5165	51.6		-0.12	
1095		-----		-----	
1134		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191		-----		-----	
1201		-----		-----	
1229		-----		-----	
1251		-----		-----	
1259	ISO5165	50.56		-0.73	
1272	INH-41401	52.8		0.58	
1275		-----		-----	
1299	D613	52.1		0.17	
1300	ISO5165	51.75		-0.03	
1428	ISO5165	51.1		-0.41	
1528	D613	51.28		-0.31	
1549	INH-4/07	51.6		-0.12	
1550	INH-4/07	51.69		-0.07	
1556		-----		-----	
1586		-----		-----	
1613	D613	53.2		0.81	
1635		-----		-----	
1689	GB/T386	52.3		0.29	
1724	D613	50.6		-0.70	
1741	ISO5165	50.61		-0.70	
1776		-----		-----	
1792	ISO5165	51.45		-0.21	
1807		-----		-----	
1810		-----		-----	
1811	ISO5165	51.0		-0.47	
1857	ISO5165	52.2		0.23	
1862	ISO5165	51.4		-0.24	
6028	ISO5165	50.4		-0.82	
6049		-----		-----	
6057		-----		-----	
6075		-----		-----	
6142		-----		-----	
6170		-----		-----	

|			
normality	OK		
n	36		
outliers	0		
mean (n)	51.81		
st.dev. (n)	1.289		
R(calc.)	3.61		
st.dev.(ISO5165:17)	1.714		
R(ISO5165:17)	4.8		compare R(D613:16a) = 4.28

Kernel Density
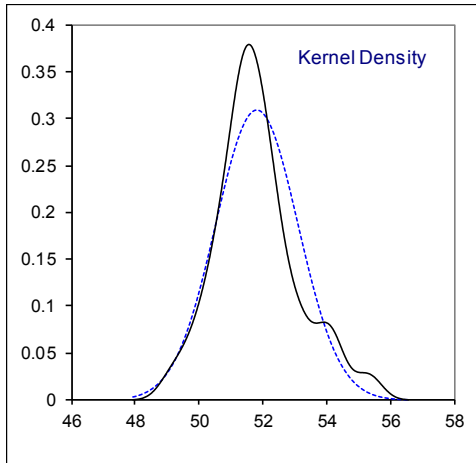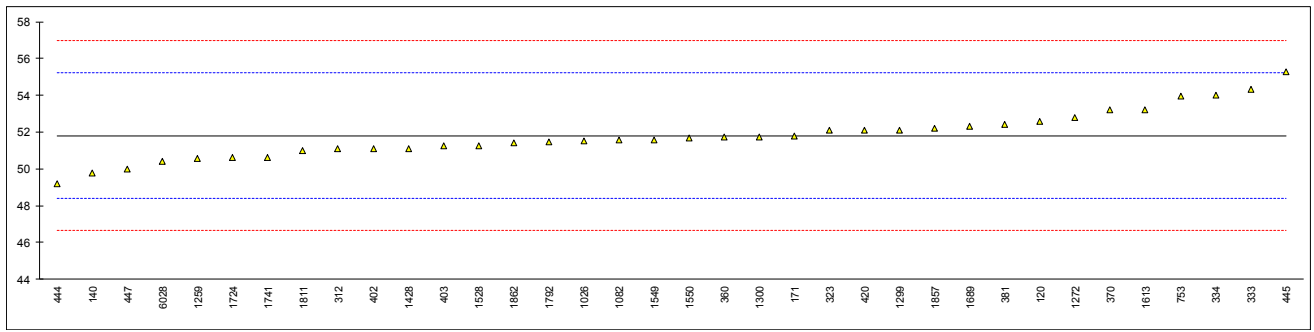
Determination of Derived Cetane Number (EN15195) on sample #18026;

lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	Air Temp. (°C)
120		-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----
171		-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----
333		-----		-----	-----		-----	-----
334		-----		-----	-----		-----	-----
336		-----		-----	-----		-----	-----
343		-----		-----	-----		-----	-----
356		-----		-----	-----		-----	-----
360		-----		-----	-----		-----	-----
370		-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----
402		-----		-----	-----		-----	-----
403		-----		-----	-----		-----	-----
420		-----		-----	-----		-----	-----
444		-----		-----	-----		-----	-----
445	IP498	52.15		-0.98	3.913		1.02	580.5
447		-----		-----	-----		-----	-----
453	IP498	53.42		0.45	3.811		-0.40	543.5
494		-----		-----	-----		-----	-----
753		-----		-----	-----		-----	-----
904	EN15195	53.59		0.64	3.798		-0.58	586.8
1026		-----		-----	-----		-----	-----
1059		-----		-----	-----		-----	-----
1081		-----		-----	-----		-----	-----
1082		-----		-----	-----		-----	-----
1095	EN15195	54.60		1.78	3.72		-1.67	-----
1134		-----		-----	-----		-----	-----
1161	EN15195	52.07		-1.07	3.92		1.11	585.2
1167	EN15195	52.76		-0.30	3.863		0.32	----- *)
1191	EN15195	52.11		-1.03	3.916		1.06	552
1201	EN15195	56.4		3.81	3.59		-3.48	579
1229	EN15195	52.9		-0.14	3.8525		0.17	564.3
1251		-----		-----	-----		-----	-----
1259		-----		-----	-----		-----	-----
1272		-----		-----	-----		-----	-----
1275		-----		-----	-----		-----	-----
1299		-----		-----	-----		-----	-----
1300		-----		-----	-----		-----	-----
1428		-----		-----	-----		-----	-----
1528		-----		-----	-----		-----	-----
1549		-----		-----	-----		-----	-----
1550		-----		-----	-----		-----	-----
1556		-----		-----	-----		-----	-----
1586		-----		-----	-----		-----	-----
1613		-----		-----	-----		-----	-----
1635		-----		-----	-----		-----	-----
1689		-----		-----	-----		-----	-----
1724		-----		-----	-----		-----	-----
1741		-----		-----	-----		-----	-----
1776		-----		-----	-----		-----	-----
1792		-----		-----	-----		-----	-----
1807	EN15195	50.27		-3.10	4.073		3.24	585.5
1810		-----		-----	-----		-----	-----
1811		-----		-----	-----		-----	-----
1857		-----		-----	-----		-----	-----
1862		-----		-----	-----		-----	-----
6028		-----		-----	-----		-----	-----
6049		-----		-----	-----		-----	-----
6057	EN15195	52.2	E	-0.93	2.96	D(0.01)	-12.25	592
6075		-----		-----	-----		-----	-----
6142	EN15195	53.79		0.87	3.783		-0.79	555.8
6170		-----		-----	-----		-----	-----
	normality	suspect			suspect			
	n	12			11			
	outliers	0			1			
	mean (n)	53.02			3.84			
	st.dev. (n)	1.532			0.125			
	R(calc.)	4.29			0.35			
	st.dev.(EN15195:14)	0.887			0.072			
	R(EN15195:14)	2.48			0.20			

Lab 6057: iis calculated 67.5 (according to EN15195)
Lab 1167: reported Test temperature = 564.1 °C and Air Back Temp = 617.3 °C

Derived Cetane Number (EN15195)

Ignition Delay (EN15195)
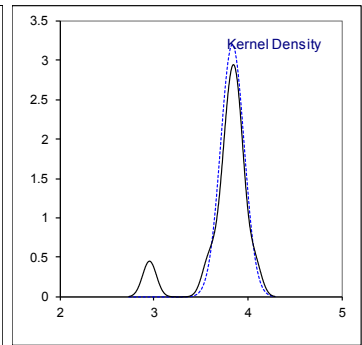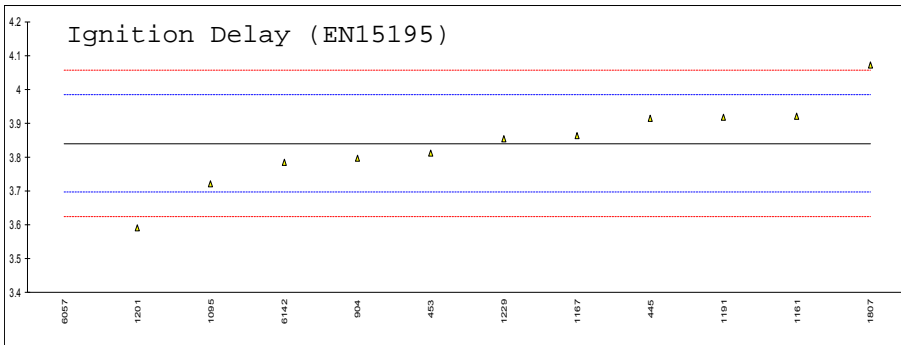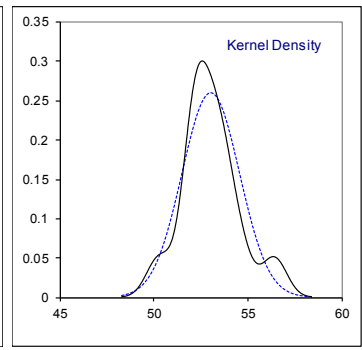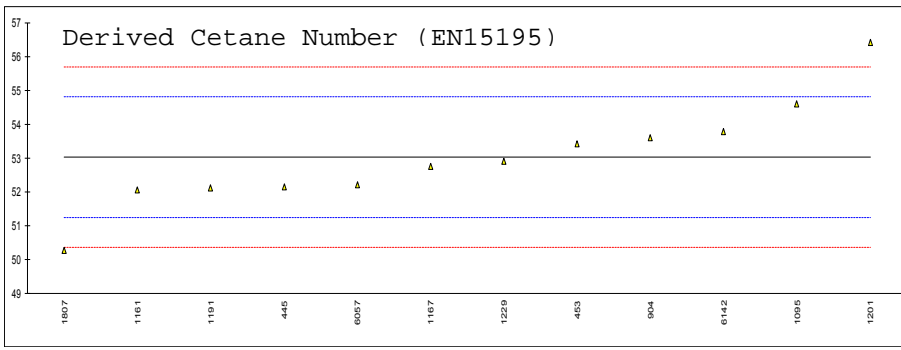
Determination of Derived Cetane Number (D7668) on sample #18026;

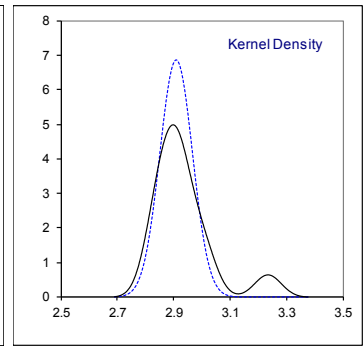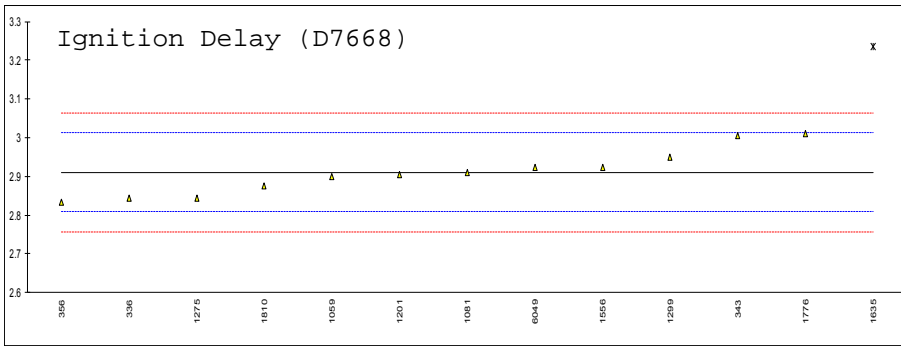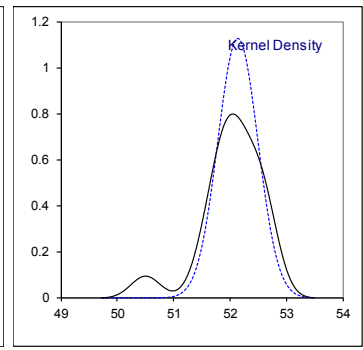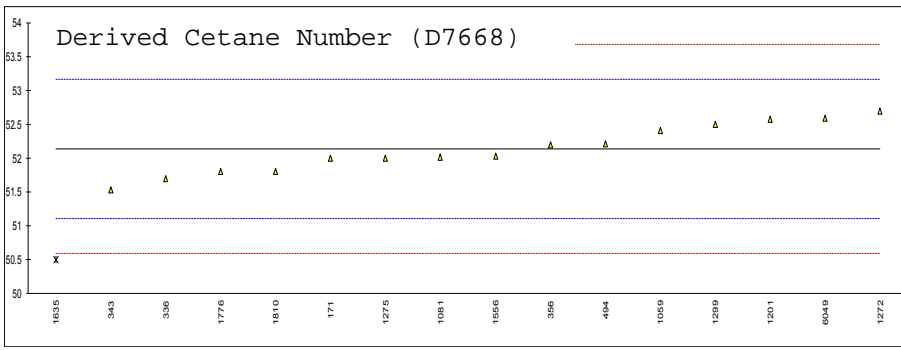| lab	method	DCN	mark	z(targ)	ID (ms)	mark	z(targ)	CD (ms)	mark	z(targ)	W. T. (°C)
120		-----		-----	-----		-----	-----		-----	-----
140		-----		-----	-----		-----	-----		-----	-----
171	D7668	52.0		-0.26	-----		-----	-----		-----	-----
312		-----		-----	-----		-----	-----		-----	-----
323		-----		-----	-----		-----	-----		-----	-----
333		-----		-----	-----		-----	-----		-----	-----
334		-----		-----	-----		-----	-----		-----	-----
336	D7668	51.7		-0.85	2.8436		-1.31	4.5937		0.76	602.49
343	D7668	51.53		-1.18	3.0051		1.87	4.6135		1.17	592.68
356	D7668	52.2		0.12	2.8329		-1.52	4.5465		-0.23	611.46
360		-----		-----	-----		-----	-----		-----	-----
370		-----		-----	-----		-----	-----		-----	-----
381		-----		-----	-----		-----	-----		-----	-----
402		-----		-----	-----		-----	-----		-----	-----
403		-----		-----	-----		-----	-----		-----	-----
420		-----		-----	-----		-----	-----		-----	-----
444		-----		-----	-----		-----	-----		-----	-----
445		-----		-----	-----		-----	-----		-----	-----
447		-----		-----	-----		-----	-----		-----	-----
453		-----		-----	-----		-----	-----		-----	-----
494	D7668	52.21		0.14	-----		-----	-----		-----	-----
753		-----		-----	-----		-----	-----		-----	-----
904		-----		-----	-----		-----	-----		-----	-----
1026		-----		-----	-----		-----	-----		-----	-----
1059	D7668	52.4		0.51	2.90		-0.20	4.53		-0.58	603.1
1081	D7668	52.02		-0.23	2.9089		-0.02	4.5639		0.13	598.18
1082		-----		-----	-----		-----	-----		-----	-----
1095		-----		-----	-----		-----	-----		-----	-----
1134		-----		-----	-----		-----	-----		-----	-----
1161		-----		-----	-----		-----	-----		-----	-----
1167		-----		-----	-----		-----	-----		-----	-----
1191		-----		-----	-----		-----	-----		-----	-----
1201	D7668	52.57		0.84	2.9039		-0.12	4.5161		-0.87	596.98
1229		-----		-----	-----		-----	-----		-----	-----
1251		-----		-----	-----		-----	-----		-----	-----
1259		-----		-----	-----		-----	-----		-----	-----
1272	EN16715	52.7		1.10	-----		-----	-----		-----	-----
1275	D7668	52.0		-0.26	2.8448		-1.28	4.5597		0.05	598.20
1299	D7668	52.5		0.71	2.95		0.79	4.53		-0.58	589.2
1300		-----		-----	-----		-----	-----		-----	-----
1428		-----		-----	-----		-----	-----		-----	-----
1528		-----		-----	-----		-----	-----		-----	-----
1549		-----		-----	-----		-----	-----		-----	-----
1550		-----		-----	-----		-----	-----		-----	-----
1556	EN16715	52.03		-0.21	2.9242		0.28	4.5637		0.13	586.97
1586		-----		-----	-----		-----	-----		-----	-----
1613		-----		-----	-----		-----	-----		-----	-----
1635	EN16715	50.50	D(0.05)	-3.18	3.2361	G(0.01)	6.41	4.7208	D(0.05)	3.42	584.19
1689		-----		-----	-----		-----	-----		-----	-----
1724		-----		-----	-----		-----	-----		-----	-----
1741		-----		-----	-----		-----	-----		-----	-----
1776	D7668	51.8		-0.65	3.01		1.96	4.59		0.68	594.77
1792		-----		-----	-----		-----	-----		-----	-----
1807		-----		-----	-----		-----	-----		-----	-----
1810	D7668	51.8		-0.65	2.875		-0.69	4.567		0.20	600
1811		-----		-----	-----		-----	-----		-----	-----
1857		-----		-----	-----		-----	-----		-----	-----
1862		-----		-----	-----		-----	-----		-----	-----
6028		-----		-----	-----		-----	-----		-----	-----
6049	D7668	52.58		0.86	2.9223		0.24	4.5165		-0.86	601.68
6057		-----		-----	-----		-----	-----		-----	-----
6075		-----		-----	-----		-----	-----		-----	-----
6142		-----		-----	-----		-----	-----		-----	-----
6170		-----		-----	-----		-----	-----		-----	-----
	normality	OK			OK			OK			
	n	15			12			12			
	outliers	1			1			1			
	mean (n)	52.14			2.91			4.56			
	st.dev. (n)	0.355			0.058			0.031			
	R(calc.)	0.99			0.16			0.09			
	st.dev.(D7668:17)	0.515			0.051			0.048			
	R(D7668:17)	1.44			0.14			0.13			

Derived Cetane Number (D7668)

Ignition Delay (D7668)

Combustion Delay (D7668)
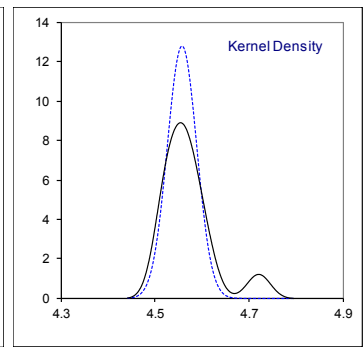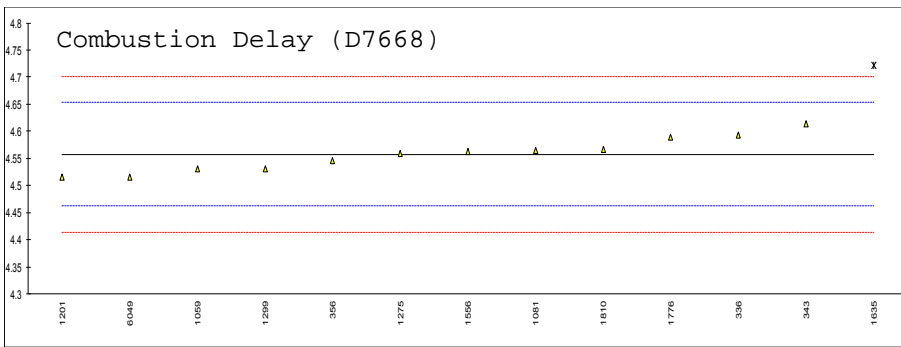
Determination of Total Contamination on sample #18027; result in mg/kg

lab	method	value	mark	z(targ)	Volume filtered (ml)	Filtration stopped (min)	Incomplete filtration
120	D6217	11.05		-0.87	850	18	-----
132		-----		-----	-----	-----	-----
140	EN12662:2014	>30	false pos?	>7.63	300	-----	-----
171	EN12662:2014	9.1		-1.74	300	-----	-----
273	IP440	10.98	C	-0.90	-----	-----	-----
312	EN12662:2014	14.6	C	0.72	300	-----	-----
317	EN12662:2014	<12		-----	300	-----	-----
323	EN12662:2014	10.9		-0.94	800 *)	2	-----
331	EN12662:2014	<12		-----	-----	-----	-----
334	EN12662:1998	10.6		-1.07	-----	-----	-----
335	EN12662:2014	12.5		-0.22	300	-----	-----
336	EN12662:2014	<12.0		-----	300	-----	-----
337	EN12662:2014	18.0	C	2.25	300	-----	-----
342		-----		-----	-----	-----	-----
343	EN12662:2014	<12		-----	-----	-----	-----
345	EN12662:2014	5.8		-3.22	300	-----	-----
351	EN12662:2014	12.57		-0.19	300	-----	-----
353	IP440	17.29		1.93	300	NA	-----
356	IP440	20.0		3.14	300	-----	-----
360	IP440	14.08		0.49	300	-----	NO
369	EN12662:2014	13.2		0.10	-----	-----	-----
370	EN12662:2014	15.3		1.04	300	14	-----
371	EN12662:2014	13.80		0.36	-----	-----	NO
391	EN12662:2008	11.2		-0.80	800	-----	-----
398		-----		-----	-----	-----	-----
399	EN12662:2014	7.2		-2.59	500 *)	-----	-----
402	EN12662:2014	<12,0		-----	-----	-----	-----
403	EN12662:2014	14.73		0.78	-----	-----	-----
420	EN12662:2014	9.5		-1.56	-----	-----	-----
445	IP440	9.0		-1.79	300	-----	-----
447	EN12662:2014	10.7		-1.03	800 *)	-----	-----
453	IP440	12.5		-0.22	-----	-----	-----
494	EN12662:2014	12.05		-0.42	-----	-----	NO
663	EN12662:2014	14.26		0.57	366.8	14	NO
704	EN12662:2014	<12		-----	-----	-----	NO
781	EN12662:2014	11.1		-0.85	300	4	-----
785	EN12662:2014	15.003		0.90	300	-----	-----
823		-----		-----	-----	-----	-----
842	D6217	10.81		-0.98	-----	-----	-----
873	EN12662:2014	15.5		1.13	-----	-----	-----
874	EN12662:2014	13.0		0.01	-----	-----	-----
875	EN12662:2014	13.0		0.01	-----	-----	-----
902	EN12662:2014	14.0		0.45	-----	-----	-----
904	EN12662:2014	19.2		2.79	300	13.20	-----
963	EN12662:2014	12.3		-0.31	850 *)	3	-----
974	IP440	13.62		0.28	-----	-----	-----
1006	EN12662:2014	12.7		-0.13	357	10	-----
1033		-----		-----	-----	-----	-----
1059	EN12662:2014	14.1		0.50	300	-----	-----
1081	EN12662:2014	12.6		-0.17	300	-----	-----
1082	EN12662:2014	10.69		-1.03	298	-----	-----
1095	EN12662:2014	13.0		0.01	-----	-----	-----
1134	EN12662:2014	14.7951		0.81	-----	-----	-----
1141	EN12662:2014	18.3		2.38	-----	-----	-----
1161	EN12662:2014	19.9		3.10	-----	-----	-----
1167	EN12662:2014	14.2		0.54	300	-----	-----
1191	EN12662:2014	1.45	ex	-5.17	360	-----	-----
1201	EN12662:1998	0.8	ex	-5.46	350	-----	-----
1229	EN12662:2014	12.0		-0.44	300	-----	-----
1251	EN12662:2014	7.22		-2.59	-----	-----	-----
1254	EN12662:2014	12.36		-0.28	300	-----	NO
1259	EN12662:2014	36.4	R(0.01)	10.50	-----	-----	-----
1266	EN12662:2014	14.96		0.88	-----	-----	-----
1272	EN12662:2014	13.03		0.02	-----	-----	-----
1299	EN12662:2014	14.0	C	0.45	300	-----	-----
1316	EN12662:2014	11.6		-0.62	300	-----	-----
1397	EN12662:2014	14.7		0.77	-----	-----	-----
1428	EN12662:2014	13.4		0.19	-----	-----	-----
1468	EN12662:2014	13.4		0.19	-----	-----	-----
1510	EN12662:1998	5.9		-3.18	-----	-----	-----
1528	EN12662:2014	14.789		0.81	300	7	-----
1539	EN12662:2014	11.9		-0.49	-----	-----	-----
1556	EN12662:2014	<12		-----	300	<5	-----
1586	EN12662:2014	13.5		0.23	-----	-----	-----

lab	method	value	mark	z(targ)	Volume filtered (ml)	Filtration stopped (min)	Incomplete filtration
1613	IP440	8.91		-1.83	-----	-----	-----
1631	EN12662:2014	<12		-----	-----	-----	-----
1635	EN12662:2014	6		-3.13	-----	-----	-----
1654	EN12662:2014	12.9		-0.04	-----	-----	-----
1681	EN12662:2014	13.96		0.44	266.78	16	-----
1724	IP440	18.71		2.57	-----	-----	-----
1740	EN12662:2014	12.5		-0.22	300	-----	-----
1741	EN12662:2014	6.71		-2.81	300	-----	-----
1792	EN12662:2014	12.08		-0.41	-----	-----	-----
1807	EN12662:2014	13.0		0.01	-----	-----	-----
1810	EN12662:2014	19.8	C	3.05	300	-----	-----
1811	EN12662:2014	19.35		2.85	300	-----	-----
1833	EN12662:2014	12		-0.44	-----	-----	-----
1849	EN12662:2014	<12		-----	-----	-----	-----
1854	EN12662:2014	13.1		0.05	300	1	-----
1857	EN12662:2014	12.79		-0.09	305	12	-----
1862	EN12662:2014	11.8		-0.53	-----	-----	-----
1936	EN12662:2014	13.6		0.27	300	5.5	-----
1937	EN12662:2014	13.2		0.10	300	5.5	-----
1938	EN12662:2014	13.3		0.14	300	5.5	-----
1949	EN12662:2014	11.8		-0.53	-----	-----	-----
1950	EN12662:2014	15.8		1.26	300	-----	-----
1961	EN12662:2014	13.00		0.01	-----	-----	-----
1971	EN12662:2014	12.02		-0.43	-----	-----	-----
1972	EN12662:2014	12.41		-0.26	300	1	-----
1976	EN12662:1998	12.59		-0.18	300	-----	-----
1984	EN12662:2014	12.195		-0.36	300	-----	-----
2129	EN12662:2014	14.80		0.81	317	-----	NO
2130	IP440	2.62	ex	-4.65	-----	-----	-----
6005	EN12662:2014	10.8		-0.98	-----	-----	-----
6018	EN12662:2014	9.0		-1.79	-----	-----	-----
6028	EN12662:2014	19.1		2.74	-----	-----	-----
6049	EN12662:2014	15.03		0.92	300	-----	NO
6057	EN12662:2014	10		-1.34	-----	-----	-----
6075	EN12662:2014	12.8		-0.08	300	-----	-----
6170	EN12662:2014	15.29		1.03	-----	-----	-----

|				
normality	OK			
n	91			
outliers	1 (+3 ex)	Spike:		
mean (n)	12.987	12.0 mg/kg		
st.dev. (n)	3.0375			
R(calc.)	8.505			
st.dev.(EN12662:14)	2.2307			
R(EN12662:14)	6.246			

*) volume not according to test method (version)

Lab 273: first reported 3.7
Lab 312: first reported 20.9
Lab 337: first reported 24.0
Lab 1191: result excluded, see §4.1
Lab 1201: result excluded, see §4.1
Lab 1299: first reported 27.5
Lab 1810: first reported 21.7
Lab 2130: result excluded, see §4.1
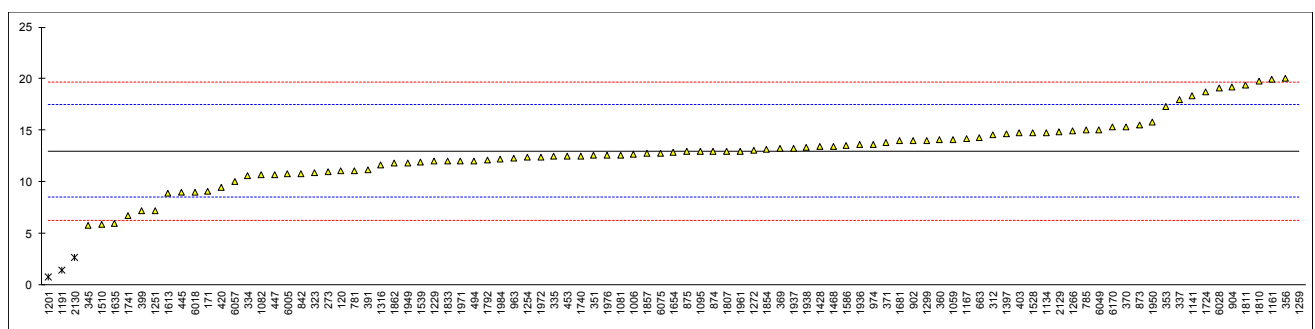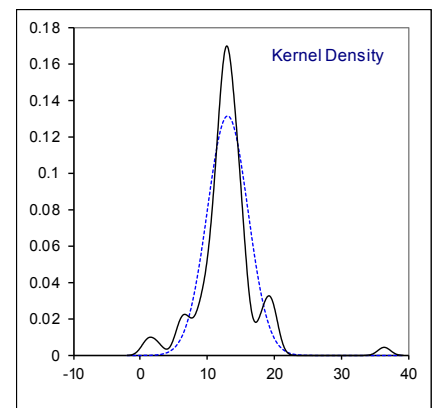
Determination of Oxidation Stability Induction period on sample #18028; results in hrs

lab	method	value	mark	z(targ)	remarks
120	D2274	16		-1.57	
132		-----		-----	
140		-----		-----	
171		-----		-----	
323	EN15751	18.0		-0.11	
334	EN15751	19.1		0.69	
342		-----		-----	
343	EN15751	15.9		-1.65	
356		-----		-----	
360		-----		-----	
370		-----		-----	
391	EN15751	22.7		3.33	
402	EN15751	18.1		-0.04	
403		-----		-----	
420	EN15751	17.1	C	-0.77	first reported 42
445		-----		-----	
447		16		-1.57	
453		-----		-----	
494	EN15751	15.57		-1.89	
823		-----		-----	
874		-----		-----	
902	EN15751	16		-1.57	
904		-----		-----	
963		-----		-----	
974		-----		-----	
1026	EN15751	14.53		-2.65	
1033	EN15751	17.40		-0.55	
1059		-----		-----	
1081		-----		-----	
1082	EN15751	17.90		-0.18	
1095		-----		-----	
1109		-----		-----	
1134	EN15751	18.02		-0.09	
1161		-----		-----	
1167		-----		-----	
1191		-----		-----	
1201	EN15751	18.0		-0.11	
1251		-----		-----	
1272		-----		-----	
1299	EN15751	22.7	C	3.33	first reported 40.5
1316	EN15751	16.8		-0.99	
1428		-----		-----	
1459	EN15751	19.47		0.97	
1468	EN15751	15.54		-1.91	
1510		-----		-----	
1528	EN15751	19.47		0.97	
1539	EN15751	15.0		-2.30	
1556	EN15751	17.74		-0.30	
1586	EN15751	22.7		3.33	
1613		-----		-----	
1631		-----		-----	
1654		-----		-----	
1656		-----		-----	
1681		-----		-----	
1724	EN15751	15.76		-1.75	
1740		-----		-----	
1741		-----		-----	
1792	EN15751	19.54		1.02	
1807	EN15751	>24		> 4.28	possible false positive test result?
1810	EN15751	24.3		4.50	
1811	EN15751	24		4.28	
1833	EN15751	18.9		0.55	
1849		-----		-----	
1857		-----		-----	
1862		-----		-----	
1949		-----		-----	
1971	EN15751	15.03		-2.28	
1984	EN15751	18.015		-0.10	
2129	EN15751	17.36	C	-0.58	first reported 38.97
2130		-----		-----	
6057		-----		-----	
6075		-----		-----	

|	
normality	OK
n	31
outliers	0
mean (n)	18.15
st.dev. (n)	2.685
R(calc.)	7.52
st.dev.(EN15751:14)	1.367
R(EN15751:14)	3.83
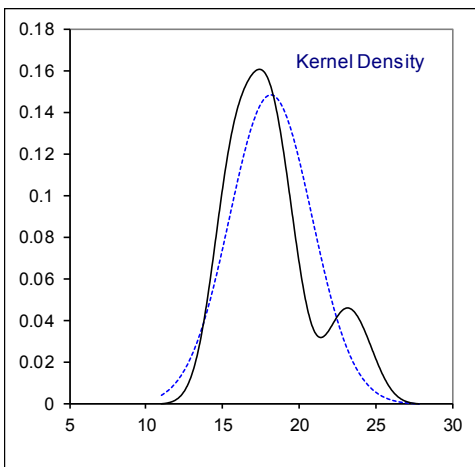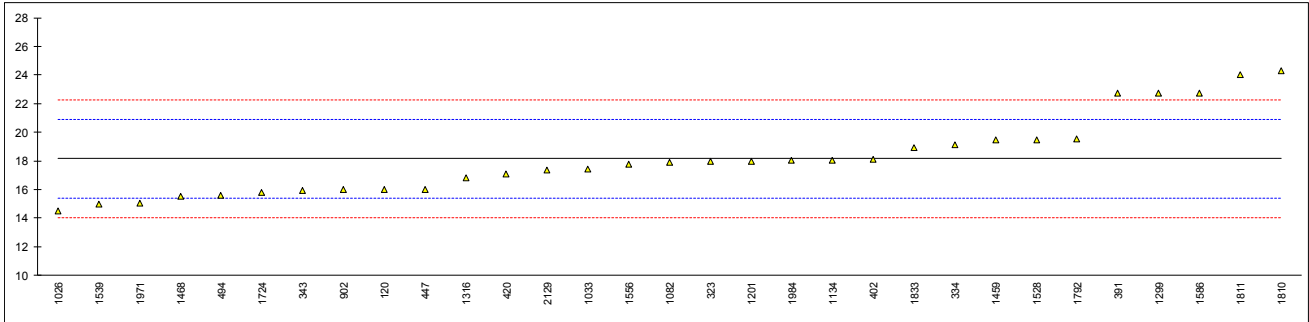
Determination of Oxidation Stability Insolubles on sample #18028; results in g/m^3

lab	method	Filterable (A)	mark	z(targ)	Adherent (B)	mark	z(targ)	Total (A+B)	mark	z(targ)
120	D2274	0.57		-0.39	1.7		0.02	2.28		-0.19
132		-----		-----				-----		-----
140	ISO12205	4		1.37	0		-1.21	4		0.43
171	D2274	1		-0.17	0		-1.21	1		-0.66
323	ISO12205	0		-0.68	5		2.42	5		0.80
334	ISO12205	1		-0.17	1		-0.48	2		-0.29
342	ISO12205	0		-0.68	2		0.24	3	E	0.07
343	ISO12205	2		0.34	0		-1.21	2		-0.29
356		-----		-----				-----		-----
360	ISO12205	1.1		-0.12	1.2		-0.34	2.3		-0.18
370	ISO12205	0.6		-0.38	0.9		-0.56	1.5		-0.47
391		-----		-----	-----			-----		-----
402	ISO12205	1.71		0.19	4.28		1.90	5.99		1.16
403	ISO12205	1.71		0.19	4.57		2.11	6.28		1.26
420	ISO12205	17.1	R(0.01)	8.09	5.7		2.93	23	R(0.01)	7.33
445	ISO12205	1		-0.17	1		-0.48	2		-0.29
447	ISO12205	0.9		-0.22	3.7		1.48	4.6		0.65
453	ISO12205	2.2		0.45	0.0		-1.21	2.2		-0.22
494	ISO12205	8.6	R(0.01)	3.73	2.9		0.90	11.5	R(0.01)	3.16
823		-----		-----	-----			-----		-----
874	D2274	1.9		0.29	0.28		-1.01	2.18		-0.23
902	ISO12205	0.57		-0.39	2.85		0.86	3.42		0.22
904	ISO12205	0.52		-0.42	2.81		0.83	3.33		0.19
963	ISO12205	1.43		0.05	1.14		-0.38	2.57		-0.09
974	D2274	2		0.34	1		-0.48	3		0.07
1026		-----		-----	-----			-----		-----
1033	D2274	0.1		-0.63	0.1		-1.14	0.2		-0.95
1059	ISO12205	0.286		-0.54	1.714		0.03	2.0		-0.29
1081		-----		-----	-----			-----		-----
1082		-----		-----	-----			-----		-----
1095	ISO12205	4		1.37	-----			-----		-----
1109		-----		-----	-----			-----		-----
1134		-----		-----	-----			-----		-----
1161		-----		-----	-----		-----	3.4		0.22
1167		-----		-----	-----			-----		-----
1191	ISO12205	1.14		-0.10	0.8		-0.63	1.94		-0.31
1201	ISO12205	1		-0.17	-----			-----		-----
1251	ISO12205	0.86		-0.24	0		-1.21	0.86		-0.71
1272		-----		-----	-----		-----	3.0		0.07
1299	D2274	0.6		-0.38	0.3		-0.99	0.9		-0.69
1316	ISO12205	2		0.34	0		-1.21	2		-0.29
1428	ISO12205	0.89		-0.23	1.43		-0.17	2.3		-0.18
1459		-----		-----	-----			-----		-----
1468	ISO12205	0.6		-0.38	3.1		1.04	3.7		0.32
1510		-----		-----	-----			-----		-----
1528	ISO12205	1.11		-0.11	1.43		-0.17	2.54		-0.10
1539	ISO12205	2.6		0.65	1.7	C	0.02	4.3	C	0.54
1556		-----		-----	-----			-----		-----
1586	ISO12205	2		0.34	1		-0.48	3		0.07
1613	D2274	4.57		1.66	5.14		2.52	9.71	R(0.01)	2.51
1631		-----		-----	-----		-----	4		0.43
1654		-----		-----	-----		-----	2.8		0.00
1656	D2274	0.6		-0.38	4.0		1.69	4.6		0.65
1681	ISO12205	0.0		-0.68	1.1		-0.41	1.1		-0.62
1724	D2274	1.7		0.19	4.3		1.91	6		1.16
1740	ISO12205	2		0.34	1		-0.48	3		0.07
1741	ISO12205	1.1		-0.12	0.2		-1.06	1.3		-0.55
1792	D2274	4.0		1.37	0.7		-0.70	4.7		0.69
1807	ISO12205	0		-0.68	0		-1.21	0		-1.02
1810		-----		-----	-----		-----	-----		-----
1811		-----		-----	-----		-----	-----		-----
1833		-----		-----	-----		-----	4		0.43
1849		-----		-----	-----		-----	4		0.43
1857	ISO12205	0.29		-0.53	0.29		-1.00	0.58		-0.81
1862	D2274	2.8		0.75	0.5		-0.85	3.3		0.18
1949	ISO12205	2.0		0.34	0.9		-0.56	2.9		0.03
1971		-----		-----	-----			-----		-----
1984	ISO12205	0.9		-0.22	2.9		0.90	3.8		0.36
2129	ISO12205	0.3		-0.53	2.0		0.24	2.3		-0.18
2130	ISO12205	0.29		-0.53	0		-1.21	0.3		-0.91
6057	ISO12205	<1		-----	<1		-----	<1		-----
6075	ISO12205	0.66		-0.34	8.97	R(0.01)	5.30	9.63	R(0.01)	2.48

normality	not OK	OK	OK
n	47	46	49
outliers	2	1	4
mean (n)	1.33	1.67	2.81
st.dev. (n)	1.128	1.627	1.499
R(calc.)	3.16	4.56	4.20
st.dev.(ISO12205:95)	1.948	1.948	2.755
R(ISO12205:95)	5.45	5.45	7.71

Lab 342: iis calculated 2 g/m3
Lab 1539: first reported 5.7 and 8.3 respectively
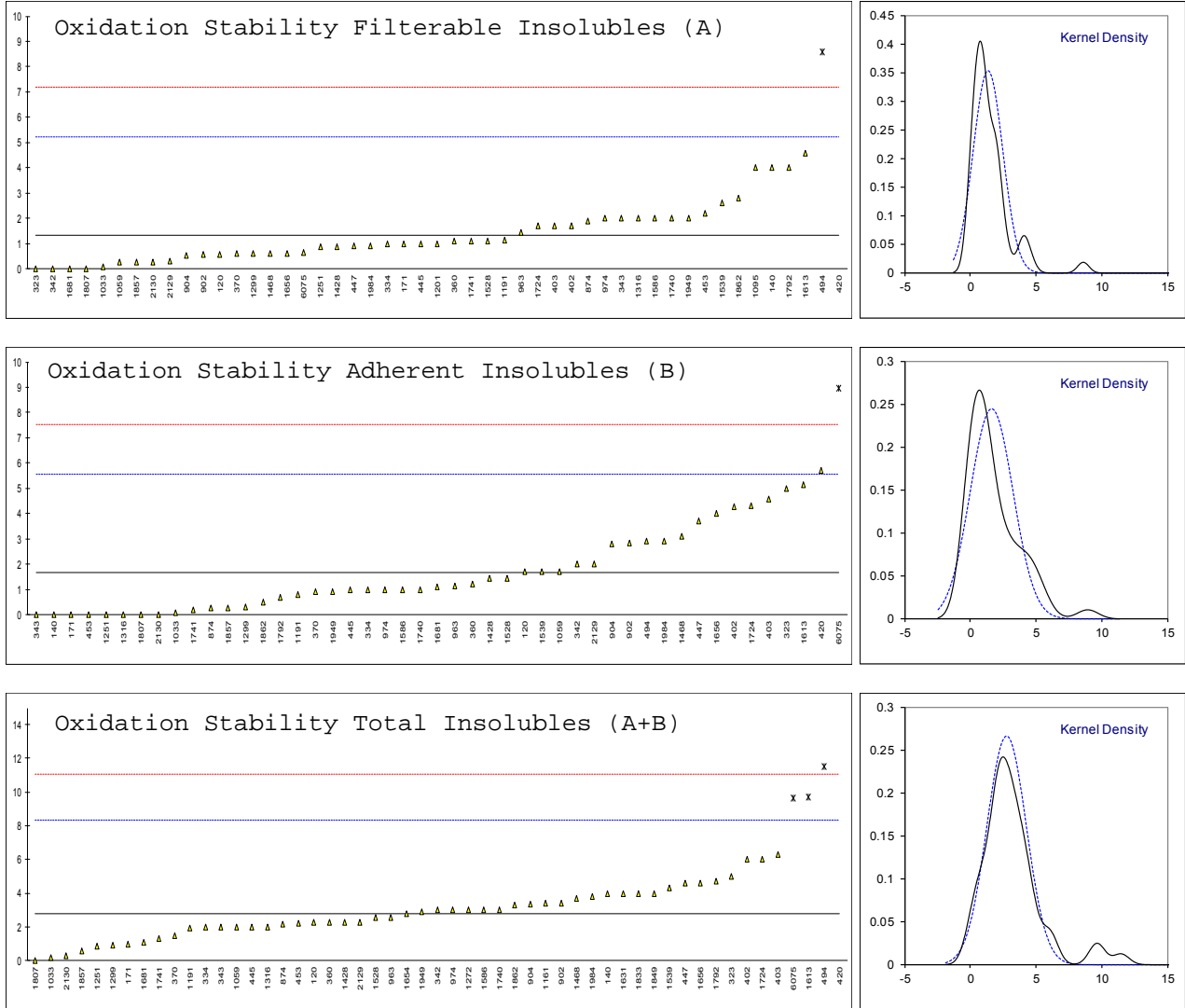
APPENDIX 2

Number of participants per country

1 lab in ARGENTINA	1 lab in NIGER
1 lab in AUSTRALIA	2 labs in NIGERIA
4 labs in AUSTRIA	1 lab in NORWAY
2 labs in BELGIUM	1 lab in PHILIPPINES
5 labs in BULGARIA	5 labs in POLAND
1 lab in CHILE	6 labs in PORTUGAL
1 lab in CHINA, People's Republic	4 labs in ROMANIA
1 lab in COTE D'IVOIRE	15 labs in RUSSIAN FEDERATION
5 labs in CROATIA	2 labs in SAUDI ARABIA
1 lab in CYPRUS	4 labs in SERBIA
3 labs in CZECH REPUBLIC	1 lab in SLOVAKIA
1 lab in ESTONIA	2 labs in SLOVENIA
6 labs in FINLAND	1 lab in SOUTH AFRICA
9 labs in FRANCE	1 lab in SOUTH KOREA
2 labs in GEORGIA	10 labs in SPAIN
2 labs in GERMANY	1 lab in SUDAN
5 labs in GREECE	4 labs in SWEDEN
1 lab in GUAM	1 lab in TAIWAN
1 lab in HONG KONG	1 lab in THAILAND
2 labs in IRELAND	1 lab in TOGO
3 labs in ITALY	2 labs in TUNISIA
1 lab in JORDAN	13 labs in TURKEY
4 labs in LATVIA	2 labs in UKRAINE
2 labs in LITHUANIA	2 labs in UNITED ARAB EMIRATES
2 labs in MALTA	16 labs in UNITED KINGDOM
1 lab in MARTINIQUE	4 labs in UNITED STATES OF AMERICA
1 lab in MOROCCO	1 lab in VIETNAM
9 labs in NETHERLANDS	

APPENDIX 3

Abbreviations:

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

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