Results of Proficiency Test
Diesel B10 (10% FAME)
May 2020

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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CONTENTS

1 INTRODUCTION

Since 2005 the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for Diesel B10 containing approximately 10% FAME every year. The setup is in accordance with the latest version of the EN590 (0-7% FAME) and ASTM D7467 (6-20% FAME). During the annual proficiency testing program 2019/2020 it was decided to continue the round robin for the regular analysis of Diesel B10 (10% FAME) and a round for Total Contamination in Diesel B10 (10% FAME) only.

In this interlaboratory study in total over both rounds of Diesel B10 (10% FAME) 67 laboratories from 35 different countries registered for participation in the proficiency tests. For the regular round of Diesel B10 67 participants from 35 countries and for Total Contamination 38 participants from 21 countries did register. See appendix 3 for the total number of participants per country. In this report the results of the proficiency test on Diesel B10 are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyzes for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory.
It was decided to send 1.5L of Diesel B10 labelled #20070 and 1L of Diesel B10 labelled #20071 for Total Contamination only. Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

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

2.2 PROTOCOL

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

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

Approximately 200L of regular EN590 Diesel was purchased from a local petrol station. To this batch 6.5 L Biodiesel B100 was added to reach a final FAME concentration of approximately 10%V/V. After homogenization 86 amber glass bottles of 1 liter and 86 amber glass bottles of 0.5 liter were filled and labelled #20070. The homogeneity of the subsamples #20070 was checked by determination of Density at 15°C in accordance with ISO12185 on 8 stratified randomly selected subsamples.

	Density at 15°C in kg/m^3
sample #20070-1	845.43
sample #20070-2	845.42
sample #20070-3	845.43
sample #20070-4	845.42
sample #20070-5	845.43
sample #20070-6	845.43
sample #20070-7	845.42
sample #20070-8	845.42

Table 1: homogeneity test results of subsamples #20070

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

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

Table 2: evaluation of repeatability of the subsamples #20070

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

For the preparation of the Total Contamination PT subsamples, the remaining batch of 71 L was used. To each amber glass bottle Arizona Dust material in an oil suspension was added to give a total contamination of approximately 16 mg/kg. To do this, a defined volume of the fresh prepared and well shaken dust suspension was added to an empty bottle by means of a calibrated pipette. The addition was checked by weighing the bottle before and after addition. In total 52 bottles were prepared and subsequently filled up to 1L with Diesel B10 and labelled #20071. After homogenization a random sample was taken to verify the actual Total Contamination content together with a blanc sample.

Depending on the registration of the participant the appropriate set of PT samples was sent on April 29, 2020. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

The stability of Diesel B10 packed in the amber glass bottles was checked. The material was found sufficiently stable for the period of the proficiency test.

2.6 ANALYZES

The participants were asked to determine on sample #20070: Total Acid Number, Aromatics by FIA, Ash content, Calculated Cetane Index (two and four variables), Cloud Point, Cold Filter Plugging Point (CFPP), Carbon Residue micro method on 10% distillation residue, Ramsbottom Carbon Residue on 10% distillation residue, Copper Corrosion 3 hrs at 50°C, Density at 15°C, Distillation at 760 mmHg (IBP, 10%, 50%, 90%, 95% recovered, FBP and %V/V at 250°C and 350°C), FAME, Flash Point PMcc, Kinematic Viscosity at 40°C, Lubricity by HFRR at 60°C, Oxidation Stability (ISO12205 and EN15751), Polycyclic-, Mono-, Di-, Tri+- and Total Aromatic Hydrocarbons, Pour Point (Manual and Automated (3°C interval), Sulfur and Water.
The participants were requested to determine Total Contamination only on sample #20071.

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 evaluations.

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

3 RESULTS

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

Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment.
Shortly after the deadline the available test results were screened for suspect data. A test result was called suspect in case the Huber Elimination Rule (a robust outlier test) found it to be an outlier. The laboratories that produced these suspect data were asked to check the reported test results (no reanalyzes). 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 organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of June 2018 (iis-protocol, version 3.5).
For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test, a variant of the Kolmogorov-Smirnov test and by the calculation of skewness and kurtosis. Evaluation of the three normality indicators in combination with the visual evaluation of the graphic Kernel density plot, lead to judgement of the normality being either 'unknown', 'OK', 'suspect' or 'not OK'. After removal of outliers, this check was repeated. If a data set does not have a normal distribution, the (results of the) statistical evaluation should be used with due care.
According to ISO5725 the original test results per determination were submitted to Dixon's, Grubbs' and/or Rosner's outlier tests. Outliers are marked by D(0.01) for the Dixon's test, by G(0.01) or DG(0.01) for the Grubbs' test and by R(0.01) for the Rosner's test. Stragglers are marked by D(0.05) for the Dixon's test, by G(0.05) or DG(0.05) for the Grubbs' test and by R(0.05) for the Rosner's test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. In this PT, the criterion of ISO13528, paragraph 9.2.1, was met for all evaluated tests, therefore, the uncertainty of all assigned values may be negligible and need not be included in the PT report.
Finally, the reproducibilities were calculated from the standard deviations by multiplying them with a factor of 2.8.

3.2 GRAPHICS

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

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ISO or ASTM 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 according to:

$z_{(target)}$ = (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.
The usual interpretation of z-scores is as follows:

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

4 EVALUATION

Some problems were encountered with the dispatch of the samples due to COVID-19 pandemic. Therefore, the reporting time on the data entry portal was extended with another three weeks. Not all participants were able to report test results for all requested tests. Finally, 63 laboratories reported 1261 numerical test results. Observed were 37 outlying test results, which is 2.9%. In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER 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 test methods are also in the tables together with the reported test results in appendix 1. The abbreviations, used in these tables, are explained in appendix 4.

In the iis PT reports ASTM methods are referred to with a number (e.g. D976) and an added designation for the year that the method was adopted or revised (e.g. D976:06). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D976:06(2016)). In the results tables of appendix 1 only the method number and year of adoption or revision (e.g. D976:06) will be used.

Sample #20070

Total Acid Number: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D664-B:18e2.

Aromatics by FIA: No z-scores were calculated as the precision and bias of ASTM D1319 with biodiesel blends is not known and is currently under investigation, see paragraph X1.11.1 of ASTM D7467:18.

Ash content: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ISO6245:01 and ASTM D482:13.

Calc. Cetane Index, two variables: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D976:06(2016).

Calc. Cetane Index, four variables: Regretfully, no reproducibility is mentioned in procedure A of ASTM D4737:10(2016) nor in the equivalent test methods ISO4262:2007(E) and IP380. Therefore, iis has estimated a reproducibility for Calculated Cetane Index by Four Variable Equation based from previous iis PTs (see iis memo 1904 lit.19).
This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the reproducibility of iis memo 1904.

Cloud Point: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of EN23015:94 and ASTM D2500:17a.

CFPP: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the requirements of EN116:15.

Carbon Residue micro method on 10% residue: The consensus value of the group was below the application range (0.1% - 30% M/M) of ISO10370:14. Therefore, no z-scores were calculated.

Ramsbottom Carbon Residue on 10% residue: This determination was problematic. One statistical outlier was observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D524:15.

Copper Corrosion: This determination was not problematic. All reporting laboratories agreed on a test result of 1 (1a/1b).

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

Distillation at 760 mmHg: This determination was not problematic for all parameters except for IBP. In total six statistical outliers were observed over eight parameters. All calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of the automated mode of ISO3405:19 except IBP. When evaluated against the requirements of the manual mode of ISO3405:19 the calculated reproducibilities for IBP, 95% rec. and FBP after rejection of the statistical outliers are not in agreement.

FAME: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of EN14078-B:14 and in agreement with ASTM D7371:14.

Flash Point PMcc: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ISO2719-A:16, D93-A:16a and EN590-Annex A:13.

Kinematic Viscosity at 40°C: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO3104:94+corr.1997 but is in agreement with the requirements of EN590-Annex A:13.

Lubricity by HFRR: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ISO12156:18 modes A and B.

Oxidation Stability ISO12205: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ISO12205:95.

Oxidation Stability EN15751: 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 EN15751:14.

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

Mono-Aromatics: This determination was not problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of EN12916:16.

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

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

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

Pour Point, Manual: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ISO3016:19.

Pour Point, Automated: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5950:14.

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

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

Sample #20071

Total Contamination: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of EN12664:14.

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 number of significant test results, the average results, the calculated reproducibility (2.8 * standard deviation) and the target reproducibility derived from literature reference test methods (in casu ASTM, ISO, EN test methods) are presented in the next table.

Parameter	unit	n	average	2.8 * sd	R (lit)
Total Acid Number	mg KOH/g	30	0.062	0.046	0.058
Aromatics by FIA	%V/V	7	26.5	14.3	n.a.
Ash content	%M/M	19	0.0009	0.0028	0.005
Calculated Cetane, two variables		25	49.7	0.7	2
Calculated Cetane, four variables		44	49.2	0.7	0.9
Cloud Point	°C	46	-5.6	2.4	4
Cold Filter Plugging Point (CFPP)	°C	49	-19.9	4.4	4.2
CR micro method on 10% residue	%M/M	18	0.038	0.049	(0.028)
Ramsbottom CR on 10% residue	%M/M	6	0.087	0.039	0.033
Copper Corrosion 3 hrs at 50°C		40	1 (1A)	n.a.	n.a.
Density at 15°C	kg/m^3	60	845.4	0.2	0.5
Initial Boiling Point	°C	54	168.8	10.3	9.3
10% recovery	°C	53	210.4	3.7	4.6
50% recovery	°C	54	271.6	2.9	3
90% recovery	°C	54	340.6	3.0	5.1
95% recovery	°C	52	353.0	5.4	8.7
Final Boiling Point	°C	53	360.4	5.0	7.1

Parameter	unit	n	average	2.8 * sd	R (lit)
Volume at 250°C	%V/V	50	36.4	1.8	2.7
Volume at 350°C	%V/V	49	94.1	1.6	2.7
Fatty Acid Methyl Ester (FAME)	%V/V	45	11.4	0.9	0.9
Flash Point PMcc	°C	53	61.5	3.4	4.4
Kinematic Viscosity at 40°C	mm^2/s	50	2.806	0.040	0.031
Lubricity by HFRR at 60°C	µm	31	190	65	80
Oxidation Stability ISO12205	g/m^3	15	3.14	7.38	7.94
Oxidation Stability EN15751	hours	29	11.1	4.0	2.5
Polycyclic Aromatic Hydrocarbons	%M/M	21	2.48	0.61	0.92
Mono-Aromatic Hydrocarbons	%M/M	21	19.25	1.42	2.43
Di-Aromatic Hydrocarbons	%M/M	21	2.32	0.51	0.76
Tri+-Aromatic Hydrocarbons	%M/M	19	0.16	0.26	0.54
Total Aromatic Hydrocarbons	%M/M	20	21.87	2.01	2.67
Pour Point, Manual	°C	25	-31.3	7.7	6.6
Pour Point, Automated	°C	25	-29.5	3.3	6.1
Sulfur	mg/kg	49	6.9	1.8	1.9
Water	mg/kg	48	99.3	31.9	68.5
Total Contamination (#20071)	mg/kg	28	25.0	14.0	8.2

Table 3: reproducibilities of test on samples #20070 and #20071

Between brackets: evaluation with care as consensus value was below application range of the reference test method

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 reference test methods. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE INTERLABORATORY STUDY OF MAY 2020 WITH PREVIOUS PTS

	May 2020	June 2019	June 2018	June 2017	June 2016
Number of reporting laboratories	63	68	66	68	76
Number of test results	1261	1349	1343	1444	1522
Number of statistical outliers	37	41	40	33	51
Percentage of statistical outliers	2.9%	3.0%	3.0%	2.3%	3.4%

Table 4: 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.

Parameter	May 2020	June 2019	June 2018	June 2017	June 2016
Total Acid Number	+	+/-	+/-	+	++
Aromatics by FIA	n.e.	n.e.	n.e.	n.e.	n.e.
Ash content	+	++	++	++	++
Calculated Cetane Index, two variables	++	++	++	++	++
Calculated Cetane Index, four variables	+	++	++	++	n.e.
Cloud Point	+	+	+	++	++
Cold Filter Plugging Point (CFPP)	+/-	+/-	-	+	++
CR micro method on 10% residue	(-)	(--)	(-)	(--)	(--)
Ramsbottom CR on 10% residue	-	--	-	++	+
Density at 15°C	++	++	++	+	++
Distillation at 760 mmHg	+	+	+	+	-
Fatty Acid Methyl Ester (FAME)	+/-	+	+	-	+/-
Flash Point PMcc	+	+/-	+	+	+
Kinematic Viscosity at 40°C	-	-	+	+	+
Lubricity by HFRR at 60°C	+	++	+/-	+/-	+
Oxidation Stability ISO12205	+	+	+	+	-
Oxidation Stability EN15751	-	-	+	--	+
Aromatic Hydrocarbons	+	+	+/-	+	-
Pour Point, Manual	-	+	+	+/-	+
Pour Point, Automated	+	+	+	+	++
Sulfur	+/-	-	+	+	+
Water	++	++	+	++	++
Total Contamination	-	--	-	+/-	+

Table 5: comparison determinations against the reference test method

Between brackets: consensus value is below application range of the reference test method

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

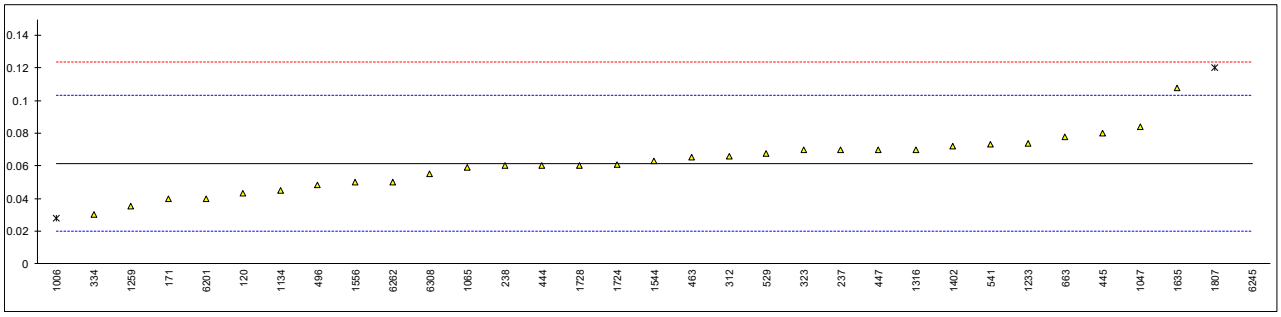
- ++: group performed much better than the reference test method
- + : group performed better than the reference test method
- +/-: group performance equals the reference test method
- - : group performed worse than the reference test method
- -- : group performed much worse than the reference test method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

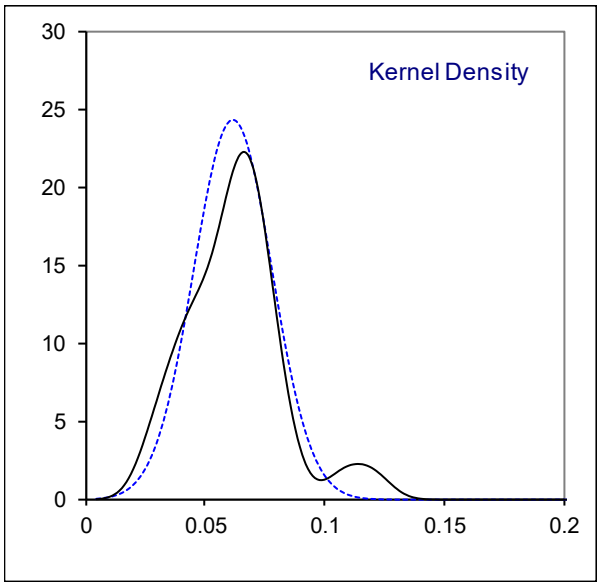
APPENDIX 1

Determination of Total Acid Number on sample #20070; result in mg KOH/g

lab	method	value	mark	z(targ)	remarks
62	D664-B	<0.1		-----	
120	D664-B	0.043		-0.90	
140		-----		-----	
150	D664-B	<0.10		-----	
171	D664-B	0.04		-1.04	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D974	0.07		0.41	
238	D974	0.060		-0.07	
312	D974	0.066		0.21	
323	D664-B	0.07		0.41	
334	D664-B	0.03		-1.52	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444	D664-B	0.06	C	-0.07	first reported 0.13
445	D664-B	0.080		0.89	
447	D974	0.07		0.41	
448		-----		-----	
463	D974	0.065		0.17	
496	D664-B	0.048		-0.65	
511		-----		-----	
529	D664	0.0676		0.29	
541	D974	0.073		0.55	
603	D664-B	<0.1		-----	
621		-----		-----	
633		-----		-----	
663	D664-B	0.078		0.79	
1006	D664-B	0.0279	R(0.05)	-1.62	
1017		-----		-----	
1047	EN14104	0.084		1.08	
1059		-----		-----	
1065	D664-B	0.059		-0.12	
1126		-----		-----	
1131		-----		-----	
1134	D664-B	0.045		-0.80	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233	D664-B	0.074		0.60	
1237		-----		-----	
1259	D664-B	0.035		-1.28	
1310		-----		-----	
1316	D664-B	0.07		0.41	
1397		-----		-----	
1402	D664-B	0.072		0.50	
1459		-----		-----	
1510		-----		-----	
1544	D974	0.063		0.07	
1546		-----		-----	
1556	D664-A	0.05		-0.56	
1631		-----		-----	
1635	D664-B	0.1079		2.24	
1706		-----		-----	
1724	D664-B	0.061		-0.03	
1728	D974	0.06		-0.07	
1807	D664-B	0.12	R(0.05)	2.82	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D664-B	0.04		-1.04	
6245	EN14104	0.475	C,R(0.01)	19.95	first reported 0.14
6262	D664-B	0.05		-0.56	
6308	D974	0.055		-0.32	

normality	OK
n	30
outliers	3
mean (n)	0.0616
st.dev. (n)	0.01637
R(calc.)	0.0458
st.dev.(D664-B:18e2)	0.02073
R(D664-B:18e2)	0.0580

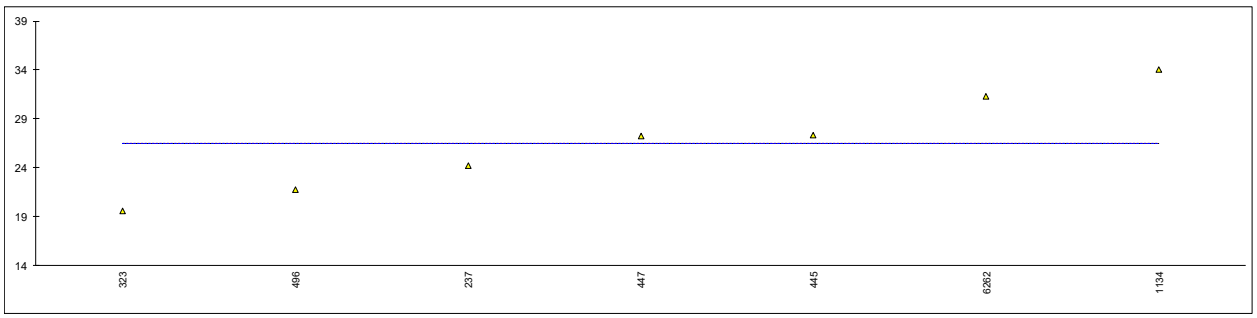


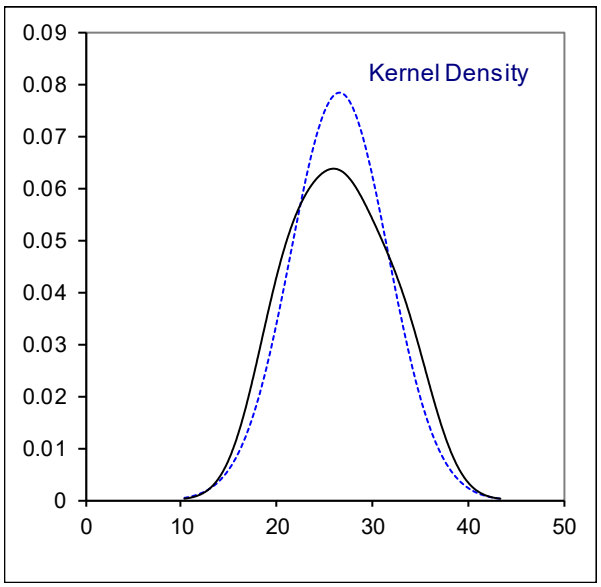


Determination of Aromatics by FIA (without Oxygenates correction) on sample #20070; result in %V/V

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D1319	24.2		-----	
238		-----		-----	
312		-----		-----	
323	D1319	19.6		-----	
334		-----		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	D1319	27.38		-----	
447	D1319	27.2		-----	
448		-----		-----	
463		-----		-----	
496	D1319	21.80		-----	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047		-----		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1131		-----		-----	
1134	D1319	34.0		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259		-----		-----	
1310		-----		-----	
1316		-----		-----	
1397		-----		-----	
1402		-----		-----	
1459		-----		-----	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		-----		-----	
1631		-----		-----	
1635		-----		-----	
1706		-----		-----	
1724		-----		-----	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D1319	NA		-----	
6245		-----		-----	
6262	D1319	31.3		-----	
6308		-----		-----	

normality	unknown	
n	7	
outliers	0	
mean (n)	26.497	
st.dev. (n)	5.0916	
R(calc.)	14.256	
st.dev.(lit)	n.a	
R(lit)	n.a.	
Compare		
R(D1319:20a)	3.7	For Gasoil without FAME
R(iis19G03)	7.611	





Determination of Ash content on sample #20070; result in %M/M

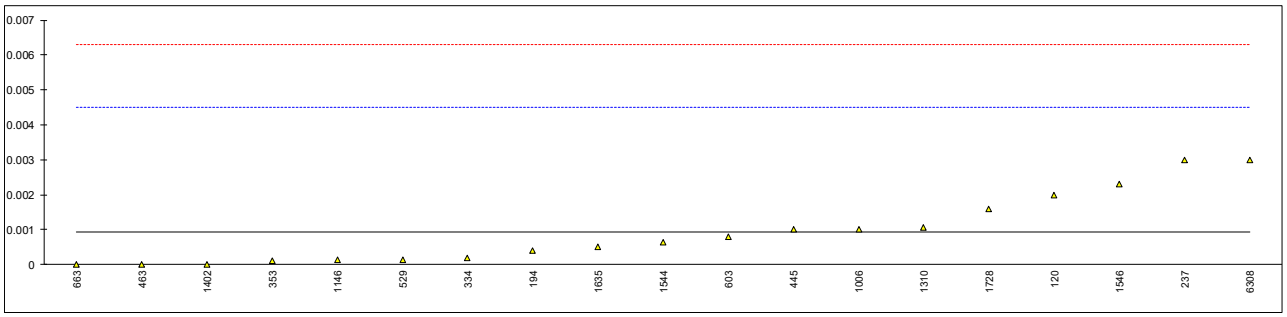
lab	method	value	mark	z(targ)	remarks
62	D482	<0.001		-----	
120	D482	0.002		0.59	
140	D482	<0.01		-----	
150	ISO6245	<0.010		-----	
171	D482	<0.010		-----	
175		-----		-----	
194	D482	0.0004		-0.30	
230		-----		-----	
237	D482	0.00299		1.15	
238		-----		-----	
312		-----		-----	
323		-----		-----	
334	ISO6245	0.0002		-0.41	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353	IP4	0.0001		-0.47	
381		-----		-----	
444		-----		-----	
445	ISO6245	0.001		0.03	
447	IP4	<0.001		-----	
448		-----		-----	
463	ISO6245	0.0000		-0.53	
496		-----		-----	
511		-----		-----	
529	D482	0.00015		-0.44	
541	ISO6245	<0.001		-----	
603	D482	0.0008		-0.08	
621		-----		-----	
633		-----		-----	
663	D482	0.000		-0.53	
1006	D482	0.001		0.03	
1017		-----		-----	
1047	ISO6245	<0,005		-----	
1059	ISO6245	<0,001		-----	
1065		-----		-----	
1126		-----		-----	
1131	ISO6245	<0,001		-----	
1134	IP4	<0.001		-----	
1146	D482	0.00013		-0.45	
1194		-----		-----	
1205		-----		-----	
1233	ISO6245	<0.001		-----	
1237		-----		-----	
1259		-----		-----	
1310	ISO6245	0.00106		0.07	
1316		-----		-----	
1397	ISO6245	<0,001		-----	
1402	IP4	0.000		-0.53	
1459		-----		-----	
1510	ISO6245	<0.001		-----	
1544	ISO6245	0.00064		-0.17	
1546	ISO6245	0.0023		0.76	
1556	ISO6245	<0,001		-----	
1631		-----		-----	
1635	ISO6245	0.0005		-0.25	
1706		-----		-----	
1724	D482	<0,001		-----	
1728	D482	0.0016		0.37	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	ISO6245	<0,001		-----	
6245		-----		-----	
6262	ISO6245	<0.001		-----	
6308	IP4	0.003		1.15	

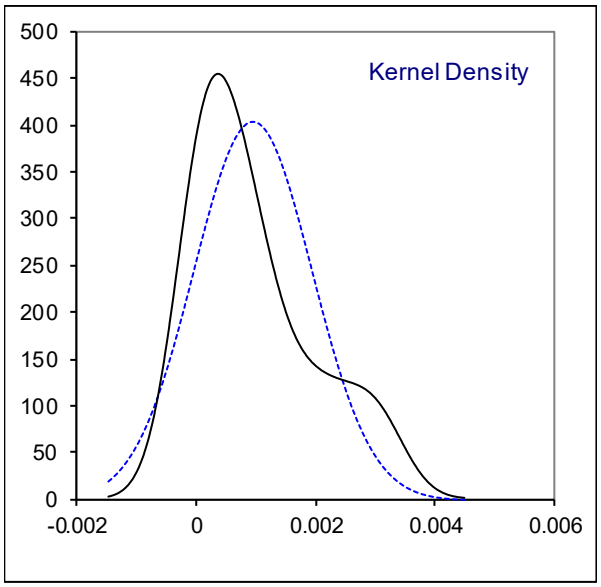
normality	suspect
n	19
outliers	0
mean (n)	0.00094
st.dev. (n)	0.000990
R(calc.)	0.00277
st.dev.(ISO6245:01)	0.001786
R(ISO6245:01)	0.005

Application range: 0.001 – 0.180%M/M

Compare

R(D482:13)	0.005

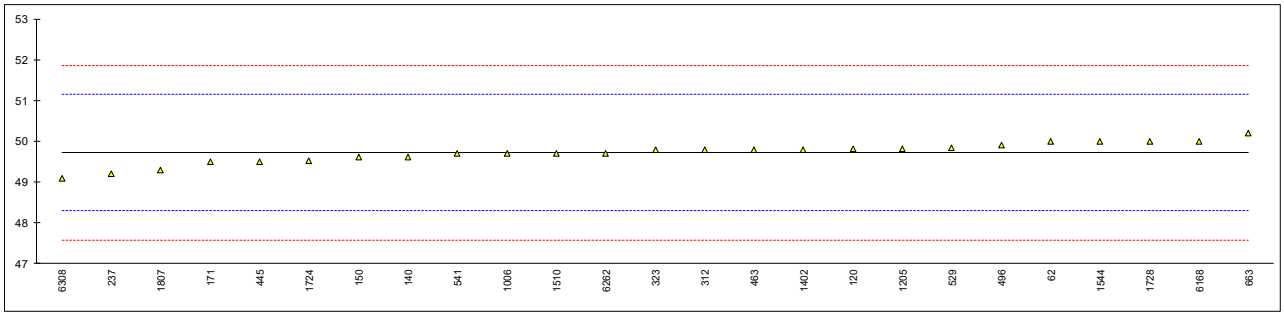


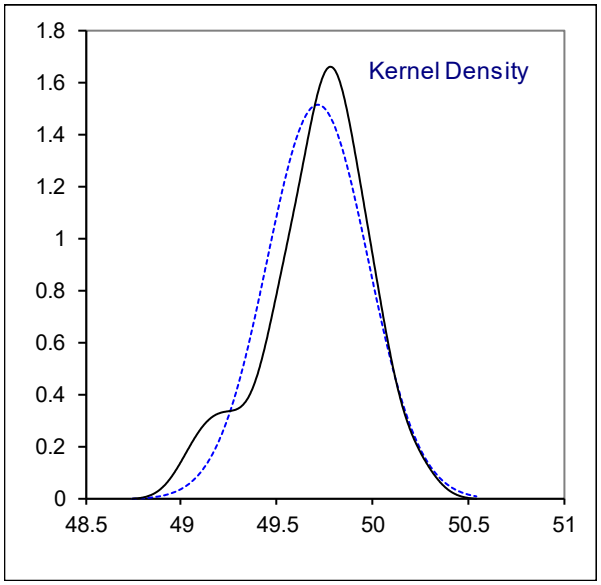


Determination of Calculated Cetane Index, two variables D976 on sample #20070

lab	method	value	mark	z(targ)	remarks
62	D976	50.0		0.40	
120	D976	49.81		0.13	
140	D976	49.6		-0.16	
150	D976	49.6		-0.16	
171	D976	49.5		-0.30	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D976	49.2		-0.72	
238		-----		-----	
312	D976	49.8		0.12	
323	D976	49.8		0.12	
334		-----		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	D976	49.5		-0.30	
447		-----		-----	
448		-----		-----	
463	D976	49.8		0.12	
496	D976	49.90		0.26	
511		-----		-----	
529	D976	49.84		0.18	
541	D976	49.7		-0.02	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	D976	50.21		0.69	
1006	D976	49.7		-0.02	
1017		-----		-----	
1047		-----		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1131		-----		-----	
1134		-----		-----	
1146		-----		-----	
1194		-----		-----	
1205	D976	49.82		0.15	
1233		-----		-----	
1237		-----		-----	
1259		-----		-----	
1310		-----		-----	
1316		-----		-----	
1397		-----		-----	
1402	D976	49.8		0.12	
1459		-----		-----	
1510	D976	49.7		-0.02	
1544	D976	50.00		0.40	
1546		-----		-----	
1556		-----		-----	
1631		-----		-----	
1635		-----		-----	
1706		-----		-----	
1724	D976	49.51		-0.29	
1728	D976	50		0.40	
1807	D976	49.3		-0.58	
2146		-----		-----	
6016		-----		-----	
6168	D976	50.0		0.40	
6201		-----		-----	
6245		-----		-----	
6262	D976	49.7		-0.02	
6308	D976	49.08		-0.89	

normality	OK
n	25
outliers	0
mean (n)	49.715
st.dev. (n)	0.2639
R(calc.)	0.739
st.dev.(D976:06)	0.7143
R(D976:06)	2

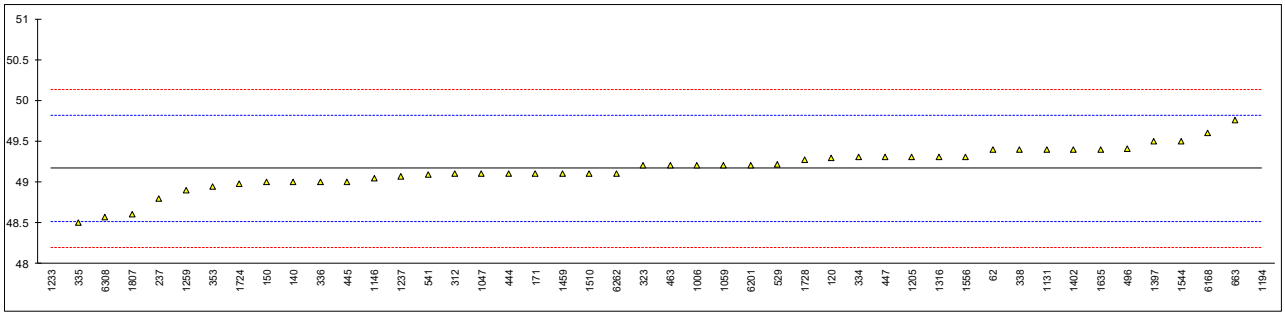


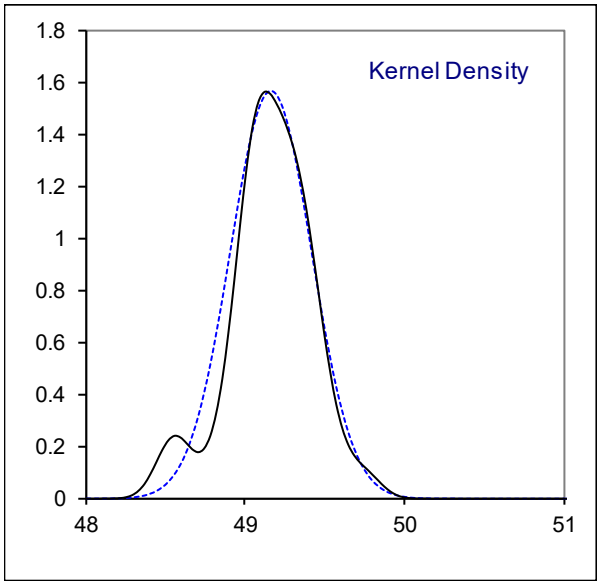


Determination of Calculated Cetane Index, four variables ISO4264 on sample #20070

lab	method	value	mark	z(targ)	remarks
62	ISO4264	49.4		0.73	
120	D4737-A	49.29		0.39	
140	D4737-A	49.0		-0.51	
150	D4737-A	49.0		-0.51	
171	D4737-A	49.1		-0.20	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D4737-A	48.8		-1.13	
238		-----		-----	
312	ISO4264	49.1		-0.20	
323	ISO4264	49.2		0.11	
334	ISO4264	49.3		0.42	
335	ISO4264	48.5		-2.05	
336	ISO4264	49.0		-0.51	
338	ISO4264	49.4		0.73	
353	IP380	48.939		-0.70	
381		-----		-----	
444	ISO4264	49.1		-0.20	
445	IP380	49.0		-0.51	
447	IP380	49.3		0.42	
448		-----		-----	
463	ISO4264	49.2		0.11	
496	ISO4264	49.41		0.76	
511		-----		-----	
529	D976	49.21		0.14	
541	D4737-A	49.09		-0.23	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	D4737-A	49.76		1.84	
1006	D4737-A	49.2		0.11	
1017		-----		-----	
1047	ISO4264	49.1		-0.20	
1059	ISO4264	49.2		0.11	
1065		-----		-----	
1126		-----		-----	
1131	ISO4264	49.4		0.73	
1134		-----		-----	
1146	ISO4264	49.05		-0.35	
1194	D4737-A	55.3	R(0.01)	18.94	
1205	ISO4264	49.30		0.42	
1233	ISO4264	46.3	C,R(0.01)	-8.84	first reported 47.4
1237	ISO4264	49.07		-0.29	
1259	ISO4264	48.9		-0.82	
1310		-----		-----	
1316	D4737-A	49.3		0.42	
1397	ISO4264	49.5		1.04	
1402	IP380	49.4		0.73	
1459	ISO4264	49.1		-0.20	
1510	ISO4264	49.1		-0.20	
1544	D4737-A	49.50		1.04	
1546		-----		-----	
1556	ISO4264	49.3		0.42	
1631		-----		-----	
1635	ISO4264	49.4		0.73	
1706		-----		-----	
1724	D4737-A	48.98		-0.57	
1728	ISO4264	49.2671		0.32	
1807	ISO4264	48.6		-1.74	
2146		-----		-----	
6016		-----		-----	
6168	D4737-A	49.6		1.34	
6201	ISO4264	49.2		0.11	
6245		-----		-----	
6262	ISO4264	49.1		-0.20	
6308	D4737-A	48.57		-1.84	

normality	OK
n	44
outliers	2
mean (n)	49.164
st.dev. (n)	0.2552
R(calc.)	0.714
st.dev.(iis memo 1904)	0.3239
R(iis memo 1904)	0.907





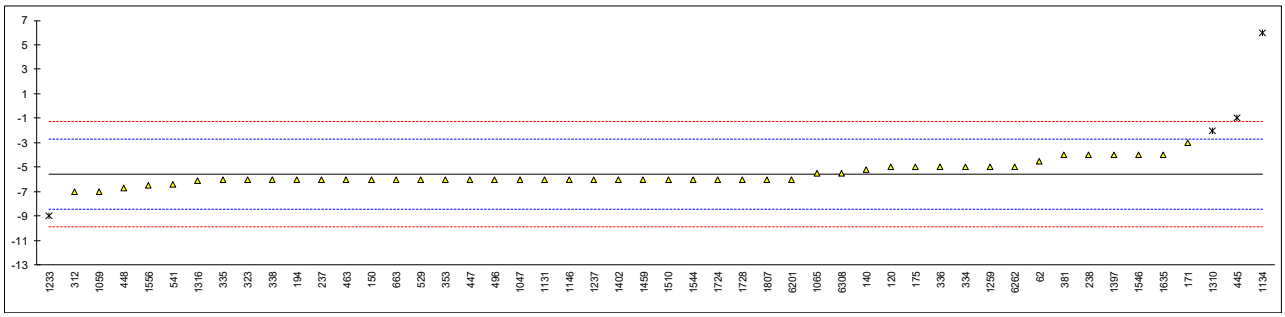
Determination of Cloud Point on sample #20070; result in °C

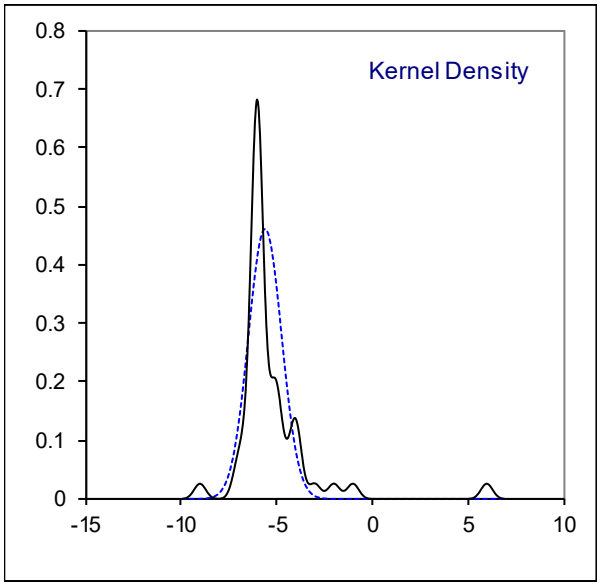
lab	method	value	mark	z(targ)	remarks
62	D5773	-4.5		0.77	
120	D5773	-5		0.42	
140	D5773	-5.2		0.28	
150	D2500	-6		-0.28	
171	D2500	-3		1.82	
175	D5771	-5		0.42	
194	D2500	-6		-0.28	
230		-----		-----	
237	D2500	-6		-0.28	
238	D2500	-4		1.12	
312	EN23015	-7		-0.98	
323	EN23015	-6		-0.28	
334	EN23015	-5		0.42	
335	ISO3015	-6		-0.28	
336	ISO3015	-5		0.42	
338	EN23015	-6		-0.28	
353	IP219	-6		-0.28	
381	ISO3015	-4		1.12	
444		-----		-----	
445	D2500	-1	R(0.01)	3.22	
447	IP219	-6		-0.28	
448	IP219	-6.7		-0.77	
463	EN23015	-6.0		-0.28	
496	EN23015	-6		-0.28	
511		-----		-----	
529	D2500	-6		-0.28	
541	D5771	-6.4		-0.56	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	D2500	-6		-0.28	
1006		-----		-----	
1017		-----		-----	
1047	ISO3015	-6		-0.28	
1059	ISO3015	-7		-0.98	
1065	D2500	-5.5		0.07	
1126		-----		-----	
1131	ISO3015	-6		-0.28	
1134	EN23015	6	R(0.01)	8.12	
1146	D2500	-6		-0.28	
1194		-----		-----	
1205		-----		-----	
1233	ISO3015	-9	R(0.01)	-2.38	
1237	ISO3015	-6		-0.28	
1259	EN23015	-5		0.42	
1310	ISO3015	-2	R(0.01)	2.52	
1316	D5771	-6.1		-0.35	
1397	EN23015	-4		1.12	
1402	EN23015	-6		-0.28	
1459	EN23015	-6.0		-0.28	
1510	EN23015	-6		-0.28	
1544	ISO3015	-6		-0.28	
1546	ISO3015	-4		1.12	
1556	ISO3015	-6.5		-0.63	
1631		-----		-----	
1635	EN23015	-4		1.12	
1706		-----		-----	
1724	D2500	-6		-0.28	
1728	D2500	-6		-0.28	
1807	D2500	-6		-0.28	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D5771	-6		-0.28	
6245		-----		-----	
6262	ISO3015	-5		0.42	
6308	IP219	-5.5		0.07	

normality	suspect
n	46
outliers	4
mean (n)	-5.60
st.dev. (n)	0.866
R(calc.)	2.43
st.dev.(EN23015:94)	1.429
R(EN23015:94)	4

Compare

R(D2500:17a)	4

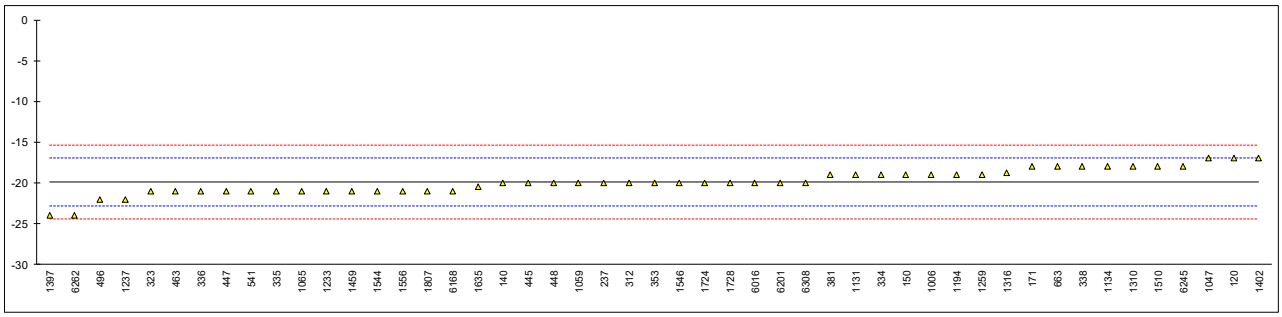


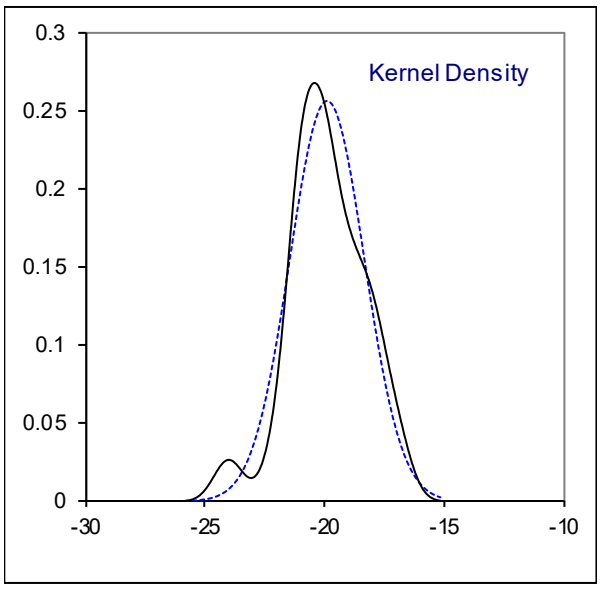


Determination of Cold Filter Plugging Point (CFPP) on sample #20070; result in °C

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D6371	-17		1.93	
140	D6371	-20		-0.08	
150	EN116	-19		0.59	
171	D6371	-18		1.26	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D6371	-20		-0.08	
238		-----		-----	
312	EN116	-20		-0.08	
323	EN116	-21		-0.75	
334	EN116	-19		0.59	
335	EN116	-21		-0.75	
336	EN116	-21		-0.75	
338	EN116	-18		1.26	
353	IP309	-20		-0.08	
381	EN116	-19		0.59	
444		-----		-----	
445	IP309	-20		-0.08	
447	IP309	-21		-0.75	
448	EN116	-20.0		-0.08	
463	EN116	-21		-0.75	
496	EN116	-22		-1.41	
511		-----		-----	
529		-----		-----	
541	D6371	-21		-0.75	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	EN116	-18		1.26	
1006		-19		0.59	
1017		-----		-----	
1047	EN116	-17		1.93	
1059	EN116	-20		-0.08	
1065	D6371	-21		-0.75	
1126		-----		-----	
1131	EN116	-19		0.59	
1134	EN116	-18		1.26	
1146		-----		-----	
1194	EN116	-19		0.59	
1205		-----		-----	
1233	D6371	-21		-0.75	
1237	EN116	-22		-1.41	
1259	EN116	-19		0.59	
1310	EN116	-18		1.26	
1316	EN116	-18.8		0.72	
1397	EN116	-24		-2.75	
1402	EN116	-17		1.93	
1459	EN116	-21.0		-0.75	
1510	EN116	-18		1.26	
1544	EN116	-21		-0.75	
1546	EN116	-20		-0.08	
1556	EN116	-21		-0.75	
1631		-----		-----	
1635	EN116	-20.5		-0.41	
1706		-----		-----	
1724	IP309	-20		-0.08	
1728	D6371	-20		-0.08	
1807	EN116	-21		-0.75	
2146		-----		-----	
6016	D6371	-20.0		-0.08	
6168	D6371	-21		-0.75	
6201	EN116	-20		-0.08	
6245	EN116	-18		1.26	
6262	EN116	-24		-2.75	
6308	IP309	-20		-0.08	

normality	OK
n	49
outliers	0
mean (n)	-19.88
st.dev. (n)	1.555
R(calc.)	4.35
st.dev.(EN116:15)	1.498
R(EN116:15)	4.19



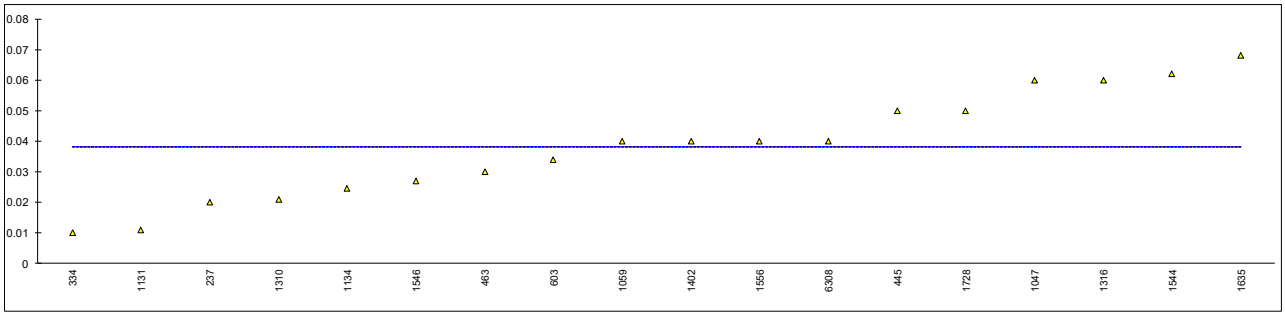


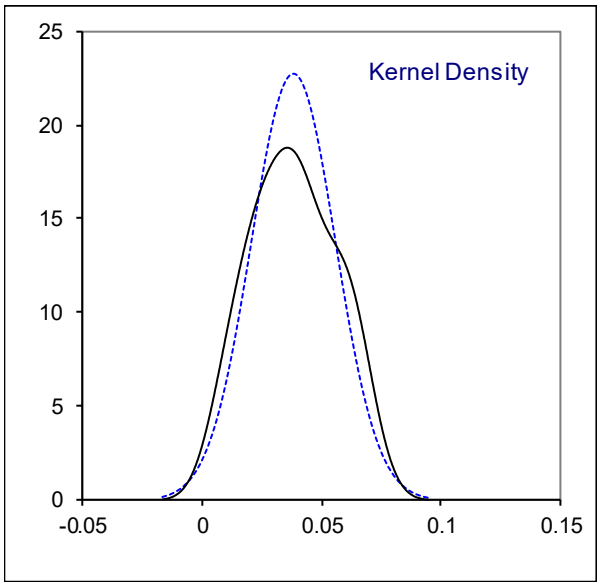
Determination of Carbon Residue micro method on 10% dist. res. on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62	D4530	<0.1		-----	
120		-----		-----	
140	D4530	<0.1		-----	
150		-----		-----	
171	D4530	<0.1		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D4530	0.02		-----	
238		-----		-----	
312		-----		-----	
323	ISO10370	<0.10		-----	
334	ISO10370	0.01		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	ISO10370	0.05		-----	
447	IP398	<0.10		-----	
448		-----		-----	
463	ISO10370	0.03		-----	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541	D4530	<0.1		-----	
603	D4530	0.034		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	ISO10370	0.06		-----	
1059	ISO10370	0.04		-----	
1065		-----		-----	
1126		-----		-----	
1131	ISO10370	0.011		-----	
1134	D4530	0.0246		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233	ISO10370	<0.01		-----	
1237		-----		-----	
1259		-----		-----	
1310	ISO10370	0.0210562		-----	
1316	ISO10370	0.06		-----	
1397		-----		-----	
1402	ISO10370	0.04		-----	
1459		-----		-----	
1510	ISO10370	<0.1		-----	
1544	ISO10370	0.062		-----	
1546	ISO6615	0.027		-----	
1556	ISO10370	0.04		-----	
1631		-----		-----	
1635	ISO10370	0.068		-----	
1706		-----		-----	
1724	D4530	<0,10		-----	
1728	ISO10370	0.05		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D4530	<0,1		-----	
6245		-----		-----	
6262	ISO10370	< 0.10		-----	
6308	ISO10370	0.04		-----	

normality	OK
n	18
outliers	0
mean (n)	0.0382
st.dev. (n)	0.01758
R(calc.)	0.0492
st.dev.(ISO10370:14)	(0.00993)
R(ISO10370:14)	(0.0278)

Application range: 0.1 – 30%M/M

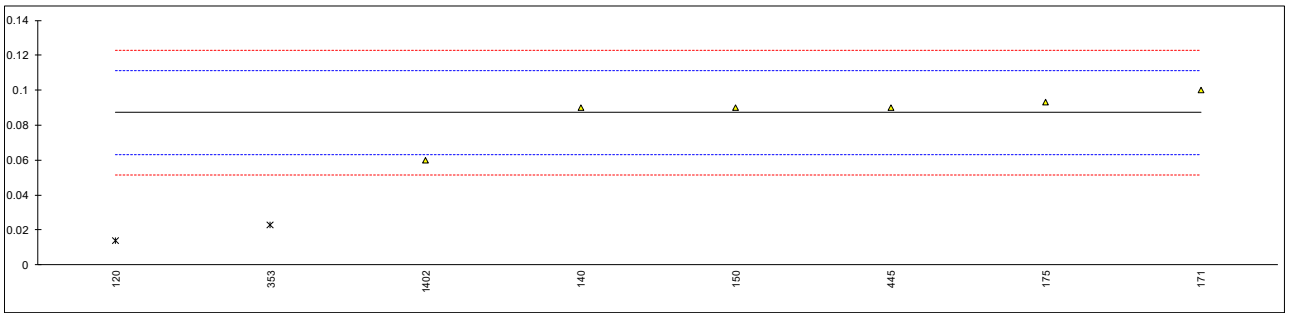


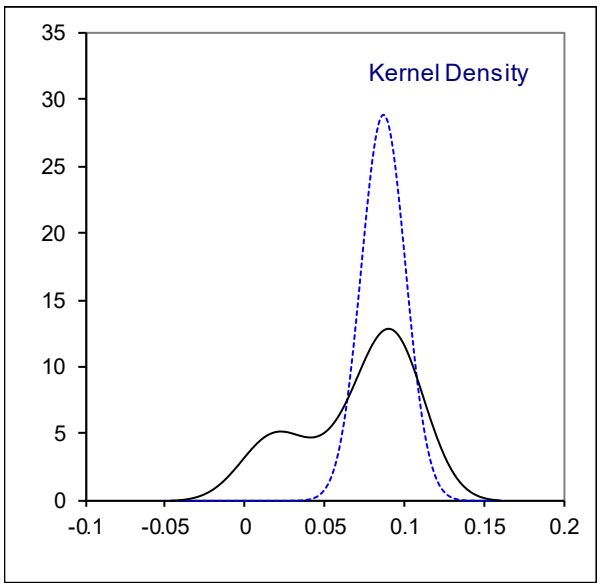


Determination of Ramsbottom Carbon Residue on 10% dist. res. on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D524	0.014	G(0.05)	-6.13	
140	D524	0.09		0.24	
150	D524	0.09		0.24	
171	D524	0.1		1.08	
175	D524	0.093		0.49	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323		-----		-----	
334		-----		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353	IP13	0.023	ex	-5.38	test result excluded, test method different (Conradson CR)
381		-----		-----	
444		-----		-----	
445	D524	0.09		0.24	
447		-----		-----	
448		-----		-----	
463		-----		-----	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047		-----		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1131		-----		-----	
1134		-----		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259		-----		-----	
1310		-----		-----	
1316		-----		-----	
1397		-----		-----	
1402	D524	0.06		-2.28	
1459		-----		-----	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		-----		-----	
1631		-----		-----	
1635		-----		-----	
1706		-----		-----	
1724		-----		-----	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201		-----		-----	
6245		-----		-----	
6262		-----		-----	
6308		-----		-----	

normality	unknown
n	6
outliers	1(+1ex)
mean (n)	0.0872
st.dev. (n)	0.01386
R(calc.)	0.0388
st.dev.(D524:15)	0.01194
R(D524:15)	0.0334





Determination of Copper Corrosion 3hrs at 50 °C on sample #20070: rating

lab	method	value	mark	z(targ)	remarks
62	D130	1a		-----	
120	D130	1A		-----	
140	D130	1a		-----	
150	D130	1a		-----	
171	D130	1a		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D130	1A		-----	
238	D130	1A		-----	
312		-----		-----	
323	D130	1A		-----	
334	D130	1a		-----	
335	D130	1b		-----	
336	ISO2160	1		-----	
338		-----		-----	
353	IP154	1a		-----	
381		-----		-----	
444		-----		-----	
445	D130	1a		-----	
447	IP154	1a		-----	
448		-----		-----	
463	D130	1A		-----	
496	D130	1a		-----	
511		-----		-----	
529	D130	1A		-----	
541	D130	1a		-----	
603	D130	1a		-----	
621		-----		-----	
633		-----		-----	
663	D130	1A		-----	
1006	D130	1a		-----	
1017		-----		-----	
1047	ISO2160	1		-----	
1059	ISO2160	1a		-----	
1065		-----		-----	
1126		-----		-----	
1131	ISO2160	1a		-----	
1134	IP154	1a		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259		-----		-----	
1310	ISO2160	1A		-----	
1316	D130	1a		-----	
1397	ISO2160	1		-----	
1402	D130	1A		-----	
1459		-----		-----	
1510	D130	1a		-----	
1544	ISO2160	1A		-----	
1546		-----		-----	
1556	ISO2160	1a		-----	
1631		-----		-----	
1635	ISO2160	1A		-----	
1706		-----		-----	
1724	D130	1a		-----	
1728	D130	1A		-----	
1807	D130	1A		-----	
2146		-----		-----	
6016		-----		-----	
6168	D130	1a		-----	
6201	D130	1A		-----	
6245		-----		-----	
6262	D130	1a		-----	
6308	IP154	1a		-----	
	n	40			
	mean (n)	1 (1A, 1B)			

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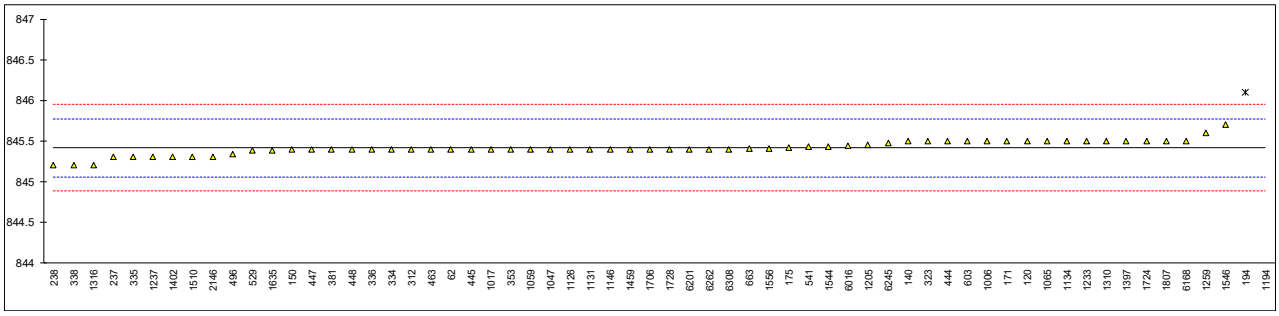
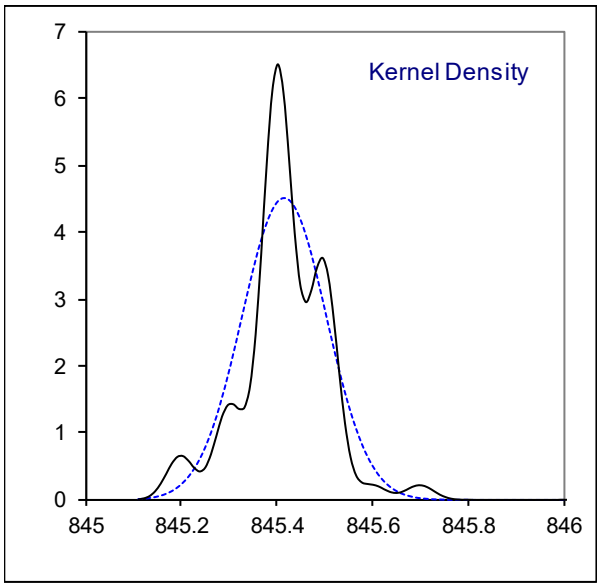
Determination of Density at 15°C on sample #20070; result in kg/m^3

lab	method	value	mark	z(targ)	remarks
62	D4052	845.4		-0.09	
120	D4052	845.5		0.47	
140	D4052	845.5		0.47	
150	ISO12185	845.4		-0.09	
171	D4052	845.5		0.47	
175	D4052	845.42		0.02	
194	D4052	846.1	R(0.01)	3.83	
230		-----		-----	
237	D4052	845.3		-0.65	
238	D4052	845.2		-1.21	
312	ISO12185	845.4		-0.09	
323	ISO12185	845.5		0.47	
334	ISO12185	845.4		-0.09	
335	ISO12185	845.3		-0.65	
336	ISO12185	845.4		-0.09	
338	ISO12185	845.2		-1.21	
353	IP365	845.4		-0.09	
381	ISO12185	845.4		-0.09	
444	D4052	845.5		0.47	
445	D4052	845.4		-0.09	
447	IP365	845.4		-0.09	
448	D4052	845.4		-0.09	
463	ISO12185	845.40		-0.09	
496	ISO12185	845.34		-0.43	
511		-----		-----	
529	D4052	845.39		-0.15	
541	ISO12185	845.43		0.07	
603	D4052	845.5	C	0.47	first reported 844.0
621		-----		-----	
633		-----		-----	
663	D4052	845.41		-0.04	
1006	D4052	845.5		0.47	
1017	D4052	845.4		-0.09	
1047	ISO12185	845.4		-0.09	
1059	ISO12185	845.4		-0.09	
1065	D4052	845.5		0.47	
1126	ISO12185	845.4		-0.09	
1131	ISO12185	845.4		-0.09	
1134	ISO12185	845.5		0.47	
1146	D4052	845.4		-0.09	
1194	In house	848.0	R(0.01)	14.47	
1205	ISO12185	845.45		0.19	
1233	ISO12185	845.5		0.47	
1237	ISO12185	845.3		-0.65	
1259	ISO3675	845.6		1.03	
1310	ISO12185	845.5		0.47	
1316	D4052	845.2		-1.21	
1397	ISO12185	845.5		0.47	
1402	ISO12185	845.3		-0.65	
1459	ISO12185	845.4		-0.09	
1510	ISO12185	845.3		-0.65	
1544	ISO12185	845.43		0.07	
1546	ISO12185	845.7		1.59	
1556	ISO12185	845.41		-0.04	
1631		-----		-----	
1635	ISO12185	845.39		-0.15	
1706	ISO12185	845.4		-0.09	
1724	D4052	845.5		0.47	
1728	D4052	845.40		-0.09	
1807	ISO12185	845.5		0.47	
2146	ISO12185	845.3		-0.65	
6016	D4052	845.44		0.13	
6168	D4052	845.5		0.47	
6201	ISO12185	845.4		-0.09	
6245	ISO12185	845.48	C	0.35	first reported 0.84548 kg/m^3
6262	ISO12185	845.4		-0.09	
6308	IP365	845.4		-0.09	

normality	suspect
n	60
outliers	2
mean (n)	845.417
st.dev. (n)	0.0883
R(calc.)	0.247
st.dev.(ISO12185:96)	0.1786
R(ISO12185:96)	0.5



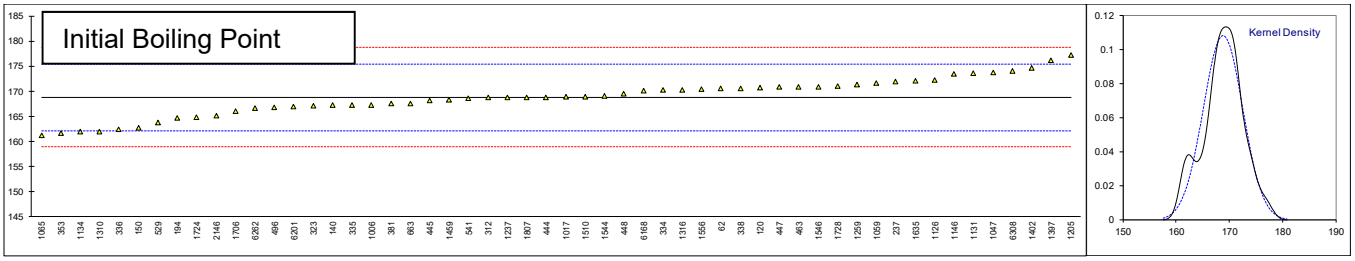


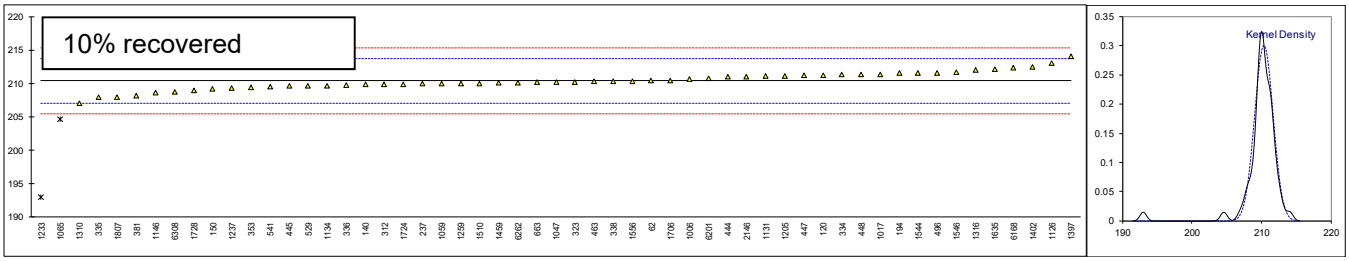
Determination of Distillation at 760 mmHg on sample #20070; result in °C

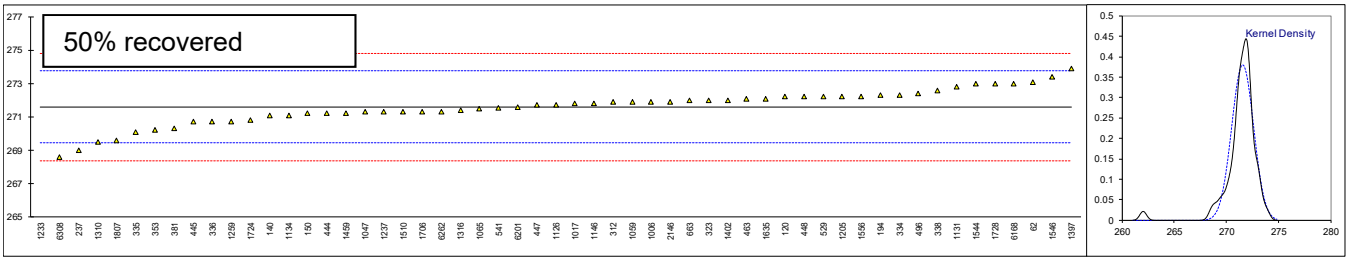
lab	method	IBP	mark	10%rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
62	D86-automated	170.6		210.4		273.1		343.1		360.2	R(5)	362.0	
120	D86-automated	170.7		211.2		272.2		340.7		-----		361.8	
140	D86-automated	167.2		209.8		271.1		340.4		352.8		358.6	
150	ISO3405-automated	162.7		209.2		271.2		340.2		352.9		358.3	
171		-----		-----		-----		-----		-----		-----	
175		-----		-----		-----		-----		-----		-----	
194	D86-automated	164.6		211.5		272.3		341.2		353.1		362.1	
230		-----		-----		-----		-----		-----		-----	
237	D86-manual	172.0		210.0		269.0		339.0		347.0		362.0	
238		-----		-----		-----		-----		-----		-----	
312	ISO3405-automated	168.7		209.8		271.9		339.4		352.1		357.6	
323	ISO3405-automated	167.1		210.2		272.0		341.9		355.5		361.5	
334	D86-automated	170.2		211.3		272.3		341.0		354.9		361.0	
335	D86-automated	167.2		207.9		270.1		342.0		354.9		362.3	
336	ISO3405-automated	162.4		209.7		270.7		339.3		351.0		359.3	
338	ISO3405-automated	170.6		210.3		272.6		341.0		353.6		361.3	
353	IP123-automated	161.7		209.4		270.2		340.2		352.1		358.2	
381	ISO3405-automated	167.5		208.1		270.3		340.0		349.6		359.3	
444	D86-automated	168.8		211.0		271.2		341.4		355.4		361.8	
445	ISO3405-automated	168.2		209.6		270.7		339.1		352.3		358.9	
447	IP123-automated	170.9		211.2		271.7		340.7		353.8		361.3	
448	IP123-automated	169.5		211.3		272.2		341.1		354.0		363.1	
463	D86-automated	170.9		210.3		272.1		340.8		352.0		361.0	
496	D86-automated	166.8		211.6		272.4		340.2		352.5		361.6	
511		-----		-----		-----		-----		-----		-----	
529	D86	163.8		209.6		272.2		341.7		355.2		360.4	
541	ISO3405-automated	168.65		209.55		271.55		340.75		354.85		359.85	
603		-----		-----		-----		-----		-----		-----	
621		-----		-----		-----		-----		-----		-----	
633		-----		-----		-----		-----		-----		-----	
663	D86-automated	167.60	C	210.2	C	272.0	C	341.0	C	354.2	C	359.6	C
1006	D86-automated	167.3		210.6		271.9		340.5		352.1		360.3	
1017	D86-automated	168.9		211.3		271.8		339.8		351.0		360.8	
1047	ISO3405-automated	173.7		210.2		271.3		342.3		355.2		360.1	
1059	ISO3405-automated	171.6		210.0		271.9		340.1		352.4		360.7	
1065		161.2		204.6	R(1)	271.5		340.6		351.9		357.2	
1126		172.2		213.0		271.7		341.5		353.0		357.0	
1131	ISO3405-automated	173.6		211.1		272.8		341.3		355.7		360.3	
1134	D86-automated	162.0		209.6		271.1		340.2		353.3		359.0	
1146	ISO3405-automated	173.5		208.6		271.8		340.5		351.8		363.0	
1194		-----		-----		-----		-----		-----		-----	
1205	D86-automated	177.2		211.1		272.2		340.7		352.8		363.1	
1233		-----		193	C,R(1)	262	C,R(1)	336.4	R(5)	-----		-----	
1237	ISO3405-automated	168.7		209.3		271.3		340.5		353.5		360.4	
1259	D86-automated	171.3		210.0		270.7		338.8		349.5		359.6	
1310	ISO3405-automated	162.0		207.0		269.5		339.5		352.5		357.5	
1316	D86-automated	170.2		212.0		271.4		337.9		349.0		355.7	
1397		176.1		214.1		273.9		341.6		354		364.2	
1402	ISO3405-automated	174.6		212.5		272.0		339.7		351.1		361.8	
1459	ISO3405-automated	168.3		210.1		271.2		339.4		351.3		359.1	
1510	ISO3405-automated	168.9		210.0		271.3		340.7		353.7		360.2	
1544	ISO3405-automated	169.00		211.50		273.00		341.65		356.00		360.85	
1546	ISO3405-automated	170.9		211.7		273.4		342.0		355.6		-----	
1556	ISO3405-automated	170.4		210.3		272.2		340.6		353.3		359.7	
1631		-----		-----		-----		-----		-----		-----	
1635	ISO3405-automated	172.1		212.1		272.1		340.2		351.9		361.9	
1706		166.0		210.4		271.3		340.2		352.4		358.7	
1724	D86-automated	164.8		209.9		270.8		340.5		352.6		362.4	
1728	ISO3405-manual	171		209		273		341		354		361	
1807	ISO3405-automated	168.7		207.9		269.6		338.9		350.4		361.3	
2146	ISO3405-automated	165.2		211.0		271.9		341.5		355.4		360.2	
6016		-----		-----		-----		-----		-----		-----	
6168	D86-automated	170.1		212.4		273.0		343.6		356.6		362.2	
6201	D86-automated	167.0		210.8		271.6		340.5		353.6		361.1	
6245		-----		-----		-----		-----		-----		-----	
6262	D86-automated	166.6		210.1		271.3		340.4		352.4		359.0	
6308	IP123-automated	174.0		208.7		268.6		338.9		351.6		358.3	

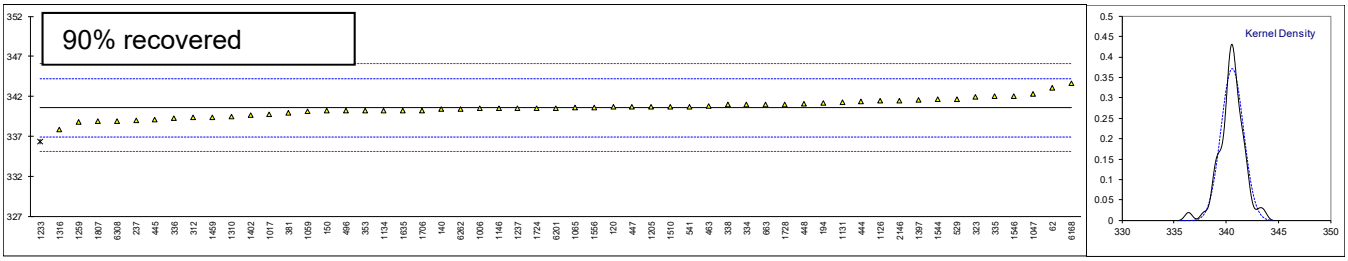
Lab 663 first reported 179.50, 213.10, 274.00, 340.80, 352.85 and 359.15 respectively
Lab 1233 first reported 201.4 and 260.2 respectively

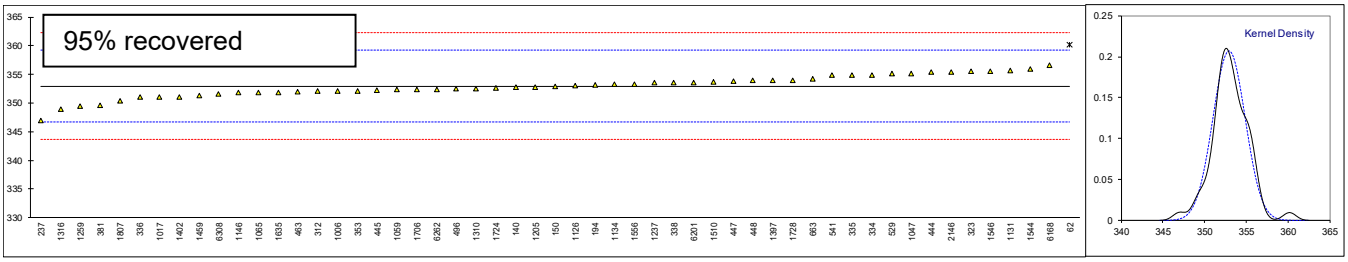
	IBP	10%rec	50%rec	90%rec	95%rec	FBP
normality	OK	OK	OK	OK	OK	OK
n	54	53	54	54	52	53
outliers	0	2	1	1	1	0
mean (n)	168.80	210.37	271.60	340.59	352.95	360.37
st.dev. (n)	3.690	1.327	1.051	1.075	1.927	1.767
R(calc.)	10.33	3.72	2.94	3.01	5.40	4.95
st.dev.(ISO3405-A:19)	3.316	1.653	1.071	1.825	3.122	2.536
R(ISO3405-A:19)	9.28	4.63	3	5.11	8.74	7.10
Compare						
R(ISO3405-M:19)	6.67	4.53	3.96	4.20	4.43	3.72

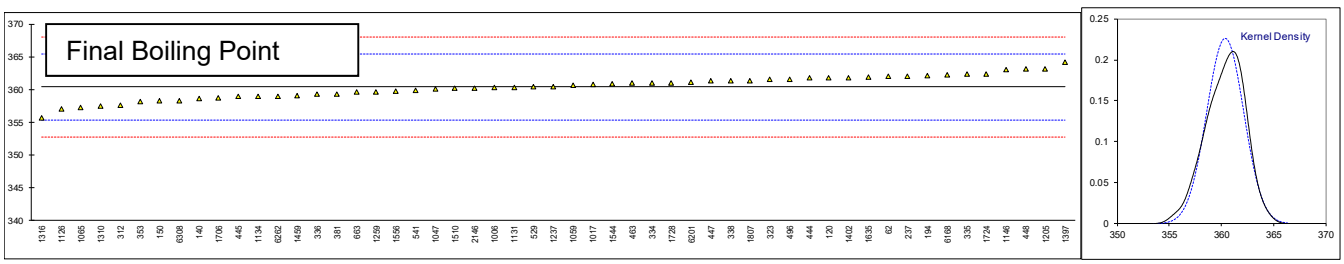










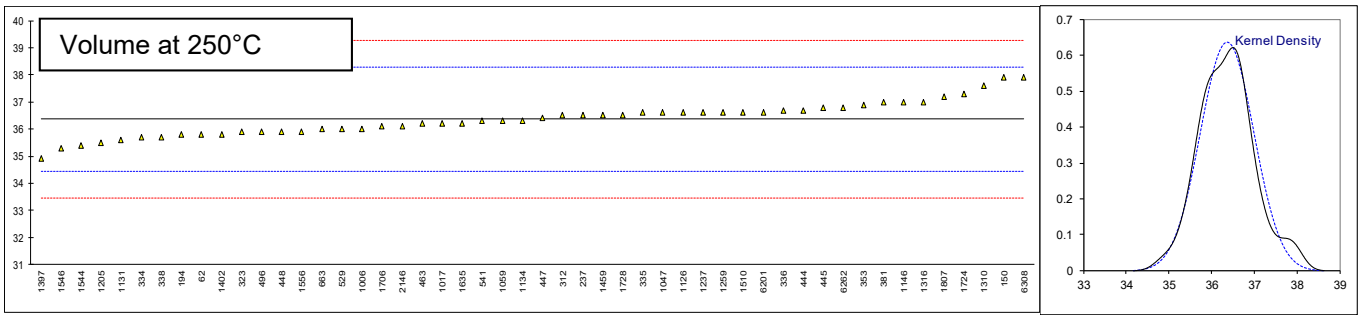


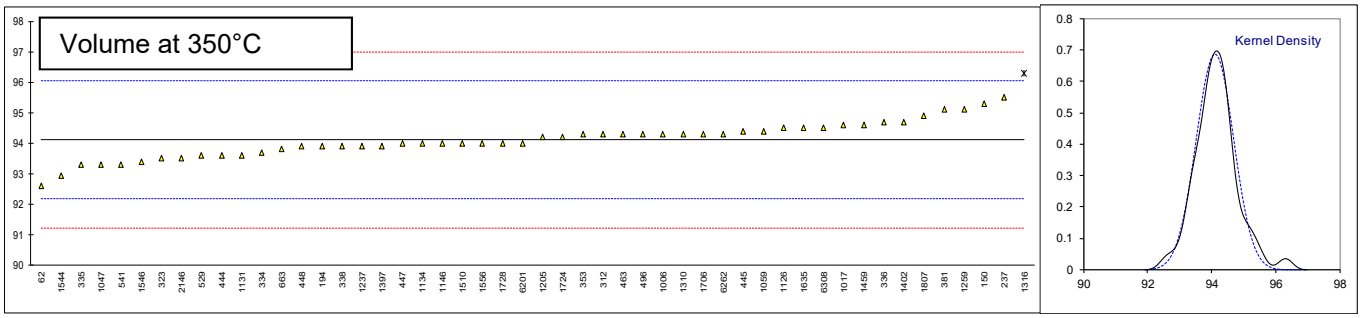
Determination of Distillation at 760 mmHg on sample #20070; result in %V/V

lab	method	Vol at 250°C	mark	z(targ)	Vol at 350°C	mark	z(targ)	% residue	remark
62	D86-automated	35.8		-0.58	92.6		-1.56	1.0	
120	D86-automated	-----		-----	-----		-----	1.4	
140	D86-automated	-----		-----	-----		-----	1.4	
150	ISO3405-automated	37.9		1.59	95.3		1.24	1.2	
171		-----		-----	-----		-----	-----	
175		-----		-----	-----		-----	-----	
194	D86-automated	35.8		-0.58	93.9		-0.21	0.5	
230		-----		-----	-----		-----	-----	
237	D86-manual	36.5		0.14	95.5		1.44	1.0	
238		-----		-----	-----		-----	-----	
312	ISO3405-automated	36.5		0.14	94.3		0.20	2.0	
323	ISO3405-automated	35.9		-0.48	93.5		-0.63	1.3	
334	D86-automated	35.7		-0.69	93.7		-0.42	1.3	
335	D86-automated	36.6		0.24	93.3		-0.84	0.3	
336	ISO3405-automated	36.7		0.35	94.7		0.61	1.6	
338	ISO3405-automated	35.7		-0.69	93.9		-0.21	1.4	
353	IP123-automated	36.9		0.56	94.3		0.20	1.4	
381	ISO3405-automated	37.0		0.66	95.1		1.03	0.8	
444	D86-automated	36.7		0.35	93.6		-0.53	1.4	
445	ISO3405-automated	36.8		0.45	94.4		0.30	1.8	
447	IP123-automated	36.4		0.04	94.0		-0.11	1.4	
448	IP123-automated	35.9		-0.48	93.9		-0.21	1.4	
463	D86-automated	36.2		-0.17	94.3		0.20	1.9	
496	D86-automated	35.9		-0.48	94.3		0.20	1.2	
511		-----		-----	-----		-----	-----	
529	D86	36.0		-0.38	93.6		-0.53	1.8	
541	ISO3405-automated	36.30		-0.07	93.30		-0.84	1.4	
603		-----		-----	-----		-----	-----	
621		-----		-----	-----		-----	-----	
633		-----		-----	-----		-----	-----	
663	D86-automated	36.0	C	-0.38	93.8	C	-0.32	1.95	
1006	D86-automated	36.0		-0.38	94.3		0.20	1.4	
1017	D86-automated	36.2		-0.17	94.6		0.51	1.4	
1047	ISO3405-automated	36.6		0.24	93.3		-0.84	1.8	
1059	ISO3405-automated	36.3		-0.07	94.4		0.30	1.4	
1065		-----		-----	-----		-----	-----	
1126		36.6		0.24	94.5		0.41	1.9	
1131	ISO3405-automated	35.6		-0.79	93.6		-0.53	-----	
1134	D86-automated	36.3		-0.07	94.0		-0.11	1.4	
1146	ISO3405-automated	37		0.66	94		-0.11	0.8	
1194		-----		-----	-----		-----	-----	
1205	D86-automated	35.5		-0.90	94.2		0.10	1.4	
1233		-----		-----	-----		-----	-----	
1237	ISO3405-automated	36.6		0.24	93.9		-0.21	1.4	
1259	D86-automated	36.6		0.24	95.1		1.03	1.3	
1310	ISO3405-automated	37.6		1.28	94.3		0.20	1.6	
1316	D86-automated	37.0		0.66	96.3	R(0.05)	2.27	1.4	
1397		34.9		-1.52	93.9		-0.21	1.2	
1402	ISO3405-automated	35.8		-0.58	94.7		0.61	1.2	
1459	ISO3405-automated	36.5		0.14	94.6		0.51	1.4	
1510	ISO3405-automated	36.6		0.24	94.0		-0.11	1.6	
1544	ISO3405-automated	35.40		-1.00	92.95		-1.20	1.2	
1546	ISO3405-automated	35.3		-1.10	93.4		-0.73	-----	
1556	ISO3405-automated	35.9		-0.48	94.0		-0.11	1.4	
1631		-----		-----	-----		-----	-----	
1635	ISO3405-automated	36.2		-0.17	94.5		0.41	1.3	
1706		36.1		-0.27	94.3		0.20	1.4	
1724	D86-automated	37.3		0.97	94.2		0.10	1.3	
1728	ISO3405-manual	36.5		0.14	94		-0.11	1.2	
1807	ISO3405-automated	37.2		0.87	94.9		0.82	1.4	
2146	ISO3405-automated	36.1		-0.27	93.5		-0.63	1.4	
6016		-----		-----	-----		-----	-----	
6168	D86-automated	-----		-----	-----		-----	1.4	
6201	D86-automated	36.6		0.24	94.0		-0.11	1.4	
6245		-----		-----	-----		-----	-----	
6262	D86-automated	36.8		0.45	94.3		0.20	1.4	
6308	IP123-automated	37.9		1.59	94.5		0.41	1.6	

Lab 663 first reported 34.95 and 94.55 respectively

	Vol at 250°C	Vol at 350°C
normality	OK	OK
n	50	49
outliers	0	1
mean (n)	36.36	94.11
st.dev. (n)	0.627	0.581
R(calc.)	1.76	1.63
st.dev.(ISO3405-A:19)	0.964	0.964
R(ISO3405-A:19)	2.7	2.7
Compare		
R(ISO3405-M:19)	5.16	5.02

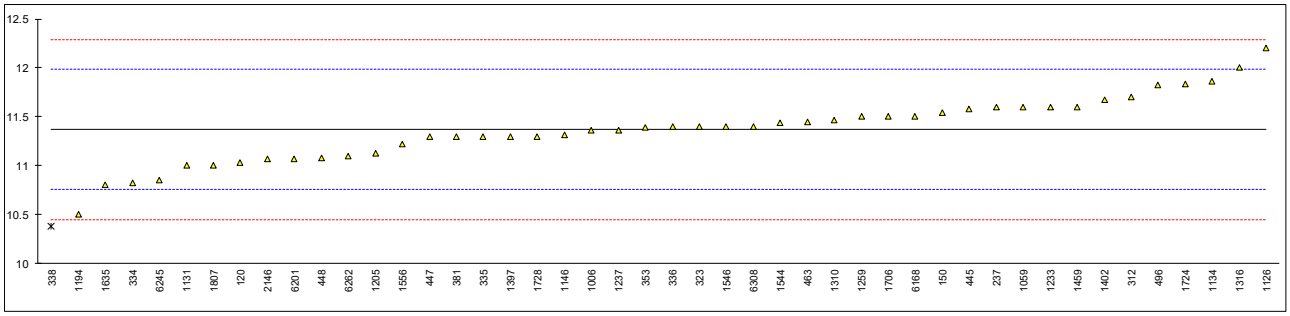


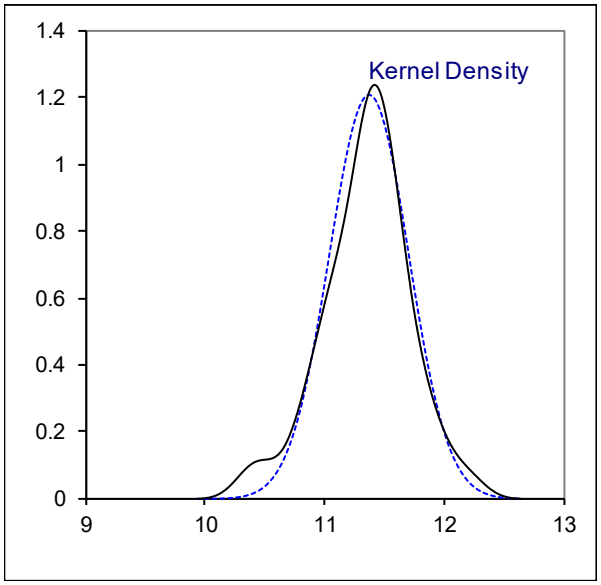


Determination of Fatty Acid Methyl Esters (FAME) on sample #20070; result in %V/V

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D7371	11.03		-1.11	
140		-----		-----	
150	D7371	11.54		0.55	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D7371	11.6		0.75	
238		-----		-----	
312	EN14078-B	11.7		1.07	
323	EN14078-B	11.4		0.10	
334	EN14078-B	10.82		-1.79	
335	EN14078-B	11.3		-0.23	
336	EN14078-B	11.4		0.10	
338	EN14078-B	10.378	R(0.01)	-3.23	
353	EN14078-B	11.39		0.06	
381	EN14078-B	11.3		-0.23	
444		-----		-----	
445	EN14078-B	11.58		0.68	
447	EN14078-B	11.3		-0.23	
448	EN14078-B	11.077		-0.95	
463	EN14078-B	11.45		0.26	
496	EN14078-B	11.82		1.46	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006	EN14078-B	11.36		-0.03	
1017		-----		-----	
1047		-----		-----	
1059	EN14078-B	11.6		0.75	
1065		-----		-----	
1126	EN14078-A	12.2		2.70	
1131	EN14078-B	11.00		-1.20	
1134	EN14078-A	11.8634		1.61	
1146	In house	11.31		-0.20	
1194	In house	10.5		-2.83	
1205	EN14078	11.13		-0.78	
1233	EN14078-A	11.6		0.75	
1237	EN14078-B	11.36		-0.03	
1259	EN14078-B	11.5		0.42	
1310	EN14078-B	11.47		0.33	
1316	EN14078-B	12.0		2.05	
1397	EN14078-A	11.3		-0.23	
1402	EN14078-B	11.675		0.99	
1459	EN14078-B	11.6		0.75	
1510		-----		-----	
1544	EN14078-B	11.44		0.23	
1546	EN14078-B	11.4		0.10	
1556	EN14078-B	11.217		-0.50	
1631		-----		-----	
1635	EN14078-B	10.8	C	-1.86	first reported 10.2
1706	EN14078-B	11.5		0.42	
1724	EN14078-A	11.83		1.50	
1728	EN14078-B	11.3		-0.23	
1807	EN14078-B	11.0		-1.20	
2146	In house	11.07		-0.98	
6016		-----		-----	
6168	EN14078-B	11.5		0.42	
6201	EN14078-A	11.07		-0.98	
6245	EN14078-B	10.85		-1.69	
6262	EN14078-A	11.1		-0.88	
6308	EN14078-B	11.4		0.10	

normality	OK
n	45
outliers	1
mean (n)	11.370
st.dev. (n)	0.3302
R(calc.)	0.925
st.dev.(EN14078-B:14)	0.3073
R(EN14078-B:14)	0.860
Compare	
R(D7371:14)	1.253

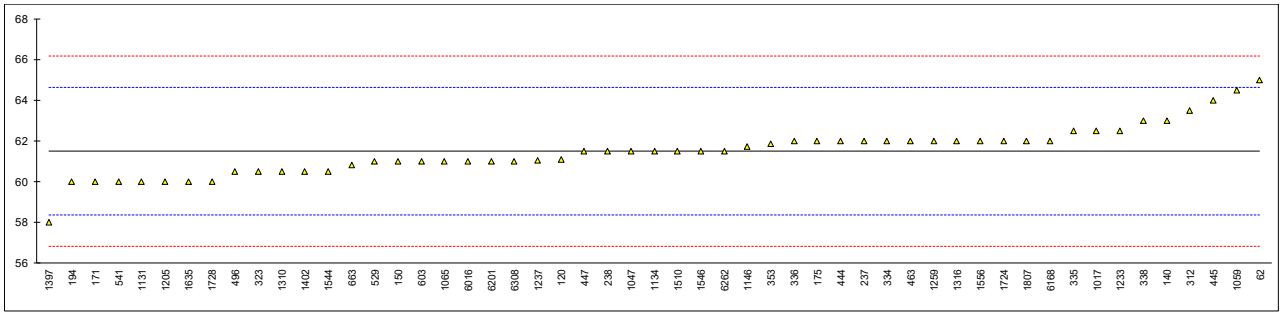


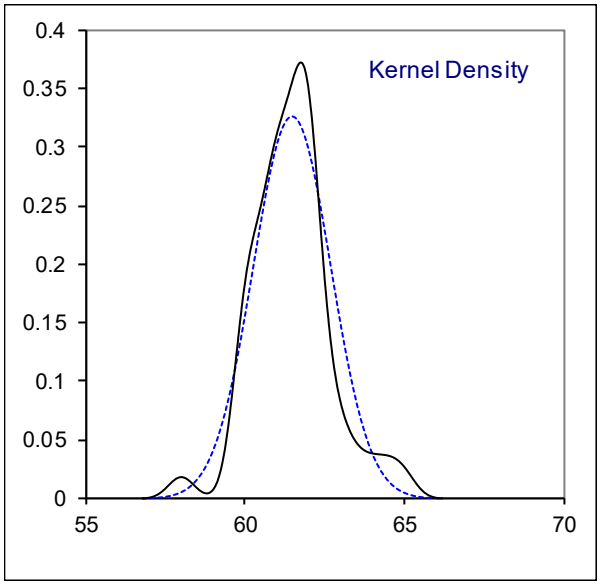


Determination of Flash Point PMcc on sample #20070; result in °C

lab	method	value	mark	z(targ)	remarks
62	D93-A	65.0		2.25	
120	D93-A	61.1		-0.25	
140	D93-A	63.0		0.97	
150	D93-A	61.0		-0.32	
171	ISO2719-A	60.0		-0.96	
175	D93-A	62		0.33	
194	D93-A	60.0		-0.96	
230		-----		-----	
237	D93-A	62.0		0.33	
238	D93	61.5		0.01	
312	ISO2719-A	63.5		1.29	
323	ISO2719-A	60.5		-0.64	
334	D93-A	62.0		0.33	
335	ISO2719-A	62.5		0.65	
336	ISO2719-A	62.0		0.33	
338	ISO2719-A	63.0		0.97	
353	IP34-A	61.875		0.25	
381		-----		-----	
444	D93-A	62.0		0.33	
445	IP34-A	64.0		1.61	
447	IP34-A	61.5		0.01	
448		-----		-----	
463	D93-A	62.0		0.33	
496	ISO2719-A	60.5		-0.64	
511		-----		-----	
529	D93-A	61		-0.32	
541	ISO2719-A	60.00		-0.96	
603	D93-A	61.0		-0.32	
621		-----		-----	
633		-----		-----	
663	D93-A	60.8		-0.44	
1006		-----		-----	
1017	D93-A	62.5		0.65	
1047	ISO2719-A	61.5		0.01	
1059	ISO2719-A	64.5		1.93	
1065	D93-A	61		-0.32	
1126		-----		-----	
1131	ISO2719-A	60.0		-0.96	
1134	D93-A	61.5		0.01	
1146	D93-A	61.7		0.13	
1194		-----		-----	
1205	D93-A	60.0		-0.96	
1233	ISO2719-A	62.5		0.65	
1237	ISO2719-A	61.05		-0.28	
1259	D93-A	62.0		0.33	
1310	ISO2719-A	60.5		-0.64	
1316	D93-A	62.0		0.33	
1397	ISO2719-A	58		-2.24	
1402	ISO2719-B	60.5		-0.64	
1459		-----		-----	
1510	D93-A	61.5		0.01	
1544	ISO2719-A	60.50		-0.64	
1546	ISO2719-A	61.5		0.01	
1556	ISO2719-A	62.0		0.33	
1631		-----		-----	
1635	ISO2719-A	60.0		-0.96	
1706		-----		-----	
1724	D93-A	62		0.33	
1728	D93-A	60		-0.96	
1807	D93-A	62.0		0.33	
2146		-----		-----	
6016	D93-A	61.0		-0.32	
6168	D93-A	62.01		0.33	
6201	ISO2719-A	61.0		-0.32	
6245		-----		-----	
6262	ISO2719-A	61.5		0.01	
6308	IP34-A	61.0		-0.32	

normality	suspect
n	53
outliers	0
mean (n)	61.491
st.dev. (n)	1.2231
R(calc.)	3.425
st.dev.(ISO2719-A:16)	1.5592
R(ISO2719-A:16)	4.366
Compare	
R(D93-A:19)	4.366
R(EN590-annex A:13)	3.5

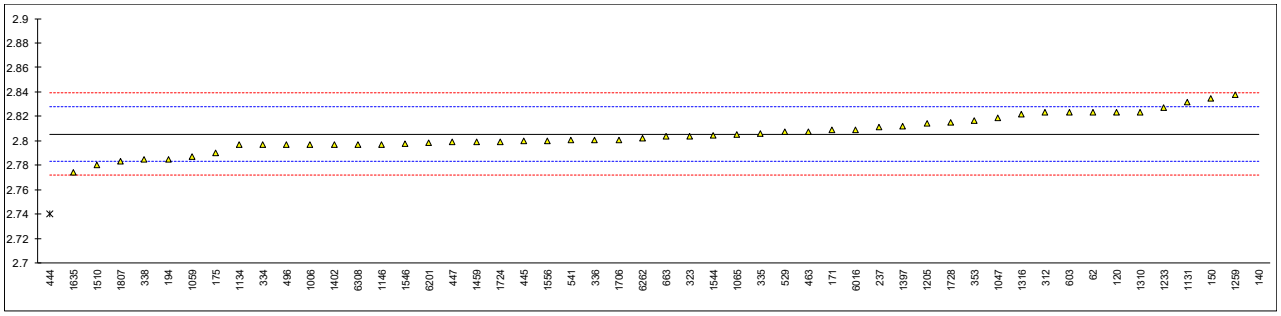


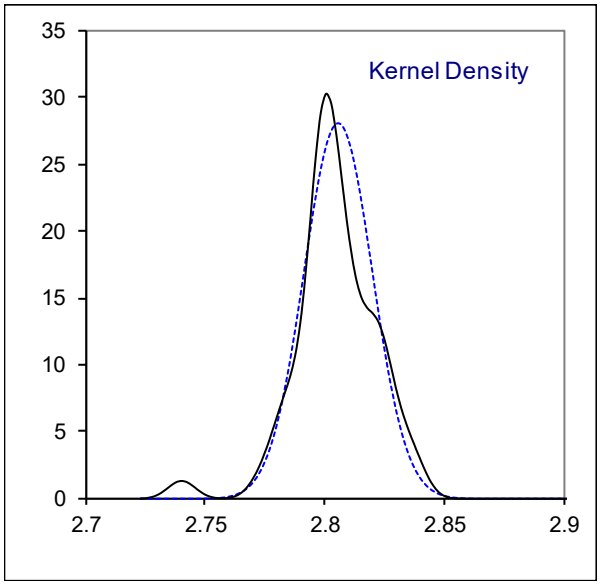


Determination of Kinematic Viscosity at 40°C on sample #20070; result in mm^2/s

lab	method	value	mark	z(targ)	remarks
62	D445	2.823		1.57	
120	D445	2.8231		1.58	
140	D445	3.256	C,R(0.01)	40.42	first reported 2.865
150	ISO3104	2.835		2.65	
171	ISO3104	2.809		0.31	
175	D445	2.7900		-1.39	
194	D445	2.785		-1.84	
230		-----		-----	
237	D445	2.811		0.49	
238		-----		-----	
312	D445	2.823		1.57	
323	ISO3104	2.804		-0.13	
334	ISO3104	2.797		-0.76	
335	D445	2.806		0.05	
336	ISO3104	2.801		-0.40	
338	ISO3104	2.785		-1.84	
353	IP71	2.8162		0.96	
381		-----		-----	
444	D445	2.740	C,R(0.01)	-5.88	first reported 2.918
445	D445	2.800		-0.49	
447	D445	2.799		-0.58	
448		-----		-----	
463	D7042	2.8076		0.19	
496	ISO3104	2.797		-0.76	
511		-----		-----	
529	D445	2.8075		0.18	
541	ISO3104	2.8006		-0.44	
603	D445	2.823		1.57	
621		-----		-----	
633		-----		-----	
663	D445	2.8034		-0.19	
1006	D445	2.797		-0.76	
1017		-----		-----	
1047	ISO3104	2.819		1.21	
1059	ISO3104	2.787		-1.66	
1065	D445	2.805		-0.04	
1126		-----		-----	
1131	ISO3104	2.8319		2.37	
1134	IP71	2.7968		-0.78	
1146	D445	2.7971		-0.75	
1194		-----		-----	
1205	D7042	2.8146		0.82	
1233	ISO3104	2.827		1.93	
1237		-----		-----	
1259	ISO3104	2.838		2.92	
1310	ISO3104	2.8235375		1.62	
1316	D445	2.822		1.48	
1397	D7042	2.812		0.58	
1402	ISO3104	2.797		-0.76	
1459	D7042	2.7991		-0.57	
1510	D445	2.780		-2.29	
1544	ISO3104	2.80454		-0.09	
1546	ISO3104	2.7979		-0.68	
1556	ISO3104	2.80010		-0.48	
1631		-----		-----	
1635	ISO3104	2.774		-2.83	
1706	ISO3104	2.801		-0.40	
1724	D445	2.7992		-0.56	
1728	D445	2.815		0.85	
1807	ISO3104	2.783		-2.02	
2146		-----		-----	
6016	D445	2.809		0.31	
6168		-----		-----	
6201	ISO3104	2.798		-0.67	
6245		-----		-----	
6262	ISO3104	2.8025		-0.27	
6308	ISO3104	2.797		-0.76	

normality	OK
n	50
outliers	2
mean (n)	2.8055
st.dev. (n)	0.01425
R(calc.)	0.0399
st.dev.(ISO3104:94/Cor1:97)	0.01114
R(ISO3104:94/Cor1:97)	0.0312
Compare	
R(EN590-annex A:13)	0.0505

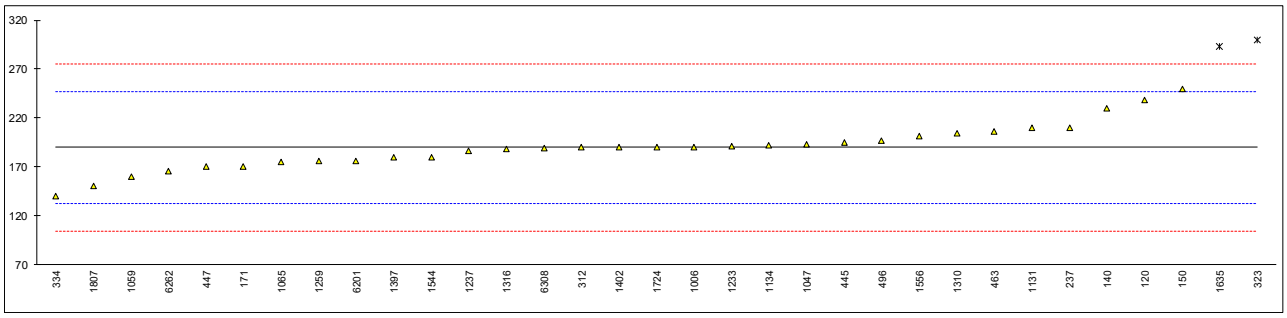


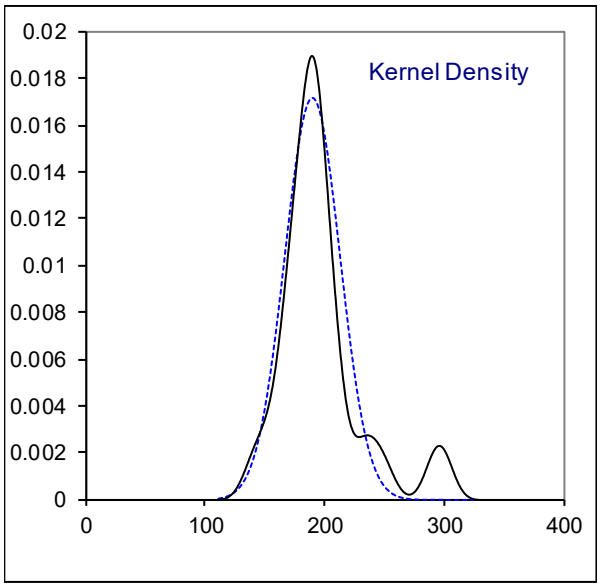


Determination of Lubricity by HFRR at 60°C on sample #20070; result in µm

lab	method	value	mark	z(targ)	corrected	remarks
62		-----		-----		
120	D6079	238.0		1.69	NO	
140	D6079	230	C	1.41	YES	first reported 320
150	D6079	250		2.11		
171	ISO12156-1 method A	170		-0.69	NO	
175		-----		-----		
194		-----		-----		
230		-----		-----		
237	D6079	210		0.71	NO	
238		-----		-----		
312	ISO12156-1 method A	190		0.01	NO	
323	ISO12156-1 method A	300	R(0.01)	3.86		
334	ISO12156-1 method B	140		-1.74	NO	
335		-----		-----		
336		-----		-----	NO	
338		-----		-----		
353		-----		-----		
381		-----		-----		
444		-----		-----		
445	ISO12156-1 method A	195		0.18	NO	
447	ISO12156-1 method B	170		-0.69	NO	
448		-----		-----		
463	ISO12156-1 (2006)	206.0		0.57	YES	
496	ISO12156-1 method A	197		0.25	NO	
511		-----		-----		
529		-----		-----		
541		-----		-----		
603		-----		-----		
621		-----		-----		
633		-----		-----		
663		-----		-----		
1006	D6079	190.5		0.02		
1017		-----		-----		
1047	ISO12156-1 method A	193		0.11	YES	
1059	ISO12156-1 method B	160		-1.04	NO	
1065	IP450	175		-0.52	NO	
1126		-----		-----		
1131	ISO12156-1 method A	210		0.71	NO	
1134	ISO12156-1 (2006)	192		0.08	YES	
1146		-----		-----		
1194		-----		-----		
1205		-----		-----		
1233	ISO12156-1 method A	191		0.04	NO	
1237	ISO12156-1 method B	186		-0.13		
1259	ISO12156-1 method B	175.5		-0.50	NO	
1310	ISO12156-1 method A	204		0.50	NO	
1316	ISO12156-1 method B	188		-0.06	YES	
1397	ISO12156-1 method B	180		-0.34		
1402	ISO12156-1 method B	190		0.01	NO	
1459		-----		-----		
1510		-----		-----		
1544	ISO12156-1 method B	180		-0.34		
1546		-----		-----		
1556	ISO12156-1 method A	201.5		0.41	YES	
1631		-----		-----		
1635	ISO12156-1 method A	293	R(0.01)	3.61	NO	
1706		-----		-----		
1724	ISO12156-1 method A	190		0.01	NO	
1728		-----		-----		
1807	ISO12156-1 method B	150		-1.39		
2146		-----		-----		
6016		-----		-----		
6168		-----		-----		
6201	ISO12156-1 method A	176		-0.48		
6245		-----		-----		
6262	ISO12156-1 method A	166		-0.83	NO	
6308	ISO12156-1 method A	189		-0.03	YES	

normality	suspect
n	31
outliers	2
mean (n)	189.79
st.dev. (n)	23.240
R(calc.)	65.07
st.dev.(ISO12156-1-A:18 (Digital Camera))	28.571
R(ISO12156-1-A:18 (Digital Camera))	80
Compare	
R(ISO12156-1-A:18 (Visual))	90

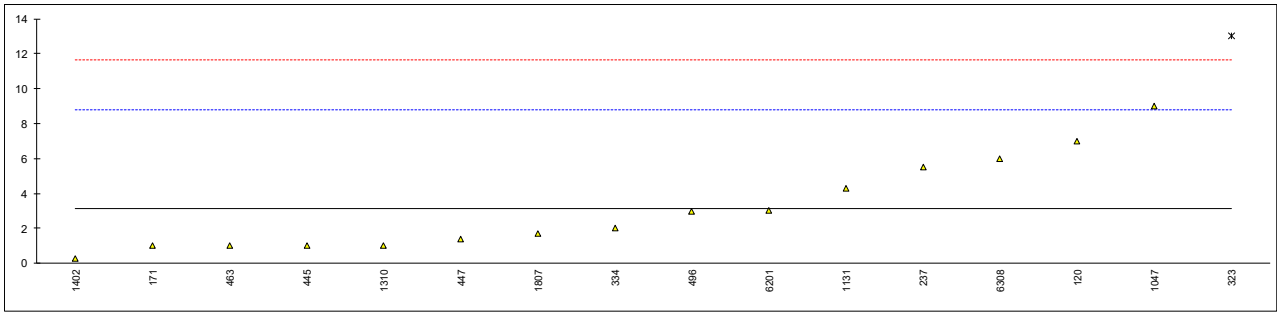


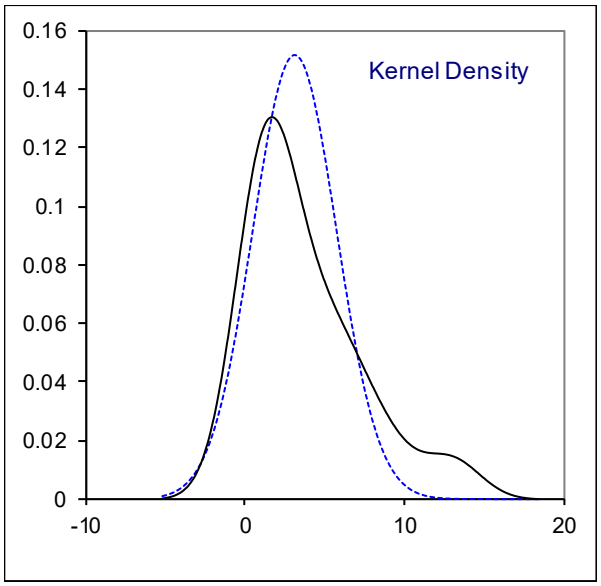


Determination of Oxidation Stability ISO12205 on sample #20070; result in g/m^3

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D2274	7		1.36	
140		-----		-----	
150		-----		-----	
171	ISO12205	1		-0.76	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D2274	5.5		0.83	
238		-----		-----	
312		-----		-----	
323	ISO12205	13	G(0.05)	3.48	
334	ISO12205	2		-0.40	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	ISO12205	1		-0.76	
447	ISO12205	1.4		-0.62	
448		-----		-----	
463	ISO12205	1.0		-0.76	
496	ISO12205	2.96		-0.06	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	ISO12205	9		2.07	
1059	ISO12205	<1		-----	
1065		-----		-----	
1126		-----		-----	
1131	ISO12205	4.29		0.40	
1134		-----		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259		-----		-----	
1310	ISO12205	1		-0.76	
1316	ISO12205	<1		-----	
1397		-----		-----	
1402	ISO12205	0.3		-1.00	
1459		-----		-----	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		-----		-----	
1631		-----		-----	
1635		-----		-----	
1706		-----		-----	
1724		-----		-----	
1728		-----		-----	
1807	ISO12205	1.7		-0.51	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	ISO12205	3		-0.05	
6245		-----		-----	
6262		-----		-----	
6308	ISO12205	6		1.01	

normality	suspect
n	15
outliers	1
mean (n)	3.143
st.dev. (n)	2.6342
R(calc.)	7.376
st.dev.(ISO12205:95)	2.8346
R(ISO12205:95)	7.937

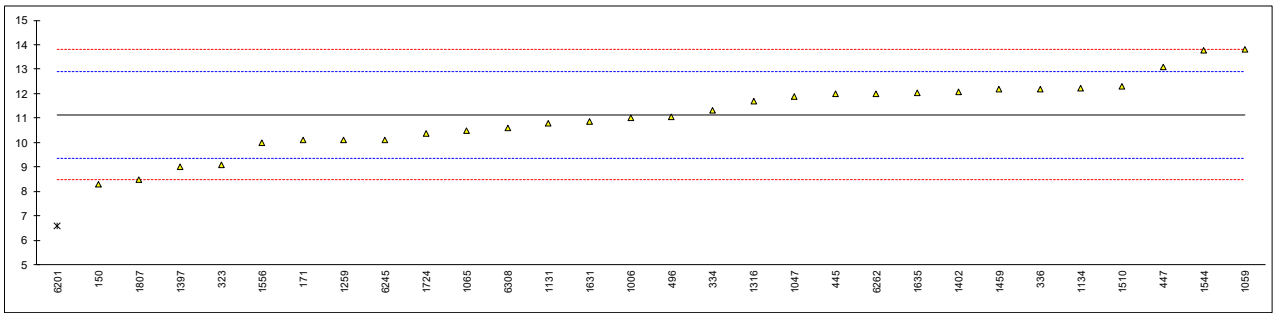


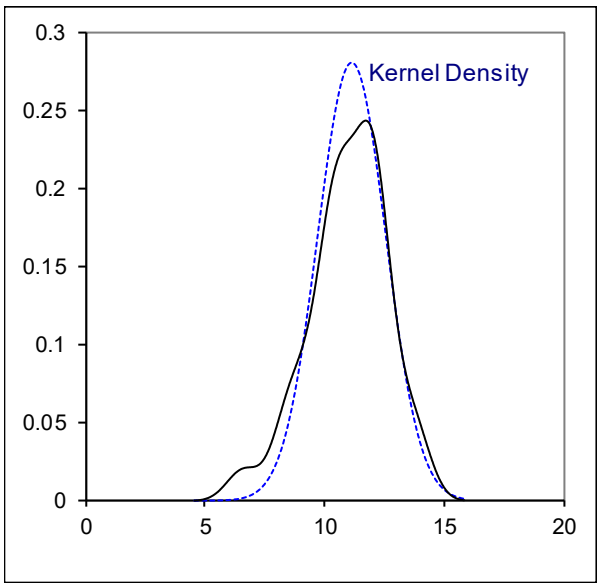


Determination of Oxidation Stability induction period EN15751 on sample #20070; result in hours

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150	EN15751	8.3	C	-3.19	first reported 16.0
171	EN15751	10.1		-1.16	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323	EN15751	9.1		-2.29	
334	EN15751	11.3		0.18	
335		-----		-----	
336	EN15751	12.2		1.20	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN15751	12.0		0.97	
447	EN15751	13.1		2.21	
448		-----		-----	
463		-----		-----	
496	EN15751	11.06		-0.08	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006	EN15751	11.0		-0.15	
1017		-----		-----	
1047	EN15751	11.9		0.86	
1059	EN15751	13.8		2.99	
1065	EN15751	10.5		-0.71	
1126		-----		-----	
1131	EN15751	10.77		-0.41	
1134	EN15751	12.21		1.21	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259	EN15751	10.1		-1.16	
1310		-----		-----	
1316	EN15751	11.7		0.63	
1397	EN15751	9.0		-2.40	
1402	EN15751	12.07		1.05	
1459	EN15751	12.18		1.17	
1510	EN15751	12.3		1.31	
1544	EN15751	13.78		2.97	
1546		-----		-----	
1556	EN15751	10.0		-1.28	
1631	EN15751	10.88		-0.29	
1635	EN15751	12.02		0.99	
1706		-----		-----	
1724	EN15751	10.36		-0.87	
1728		-----		-----	
1807	EN15751	8.5		-2.96	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	EN15751	6.6	R(0.01)	-5.09	
6245	EN14112	10.1		-1.16	
6262	EN14112	12.0		0.97	
6308	EN15751	10.6		-0.60	

normality	OK
n	29
outliers	1
mean (n)	11.136
st.dev. (n)	1.4202
R(calc.)	3.977
st.dev.(EN15751:14)	0.8902
R(EN15751:14)	2.493



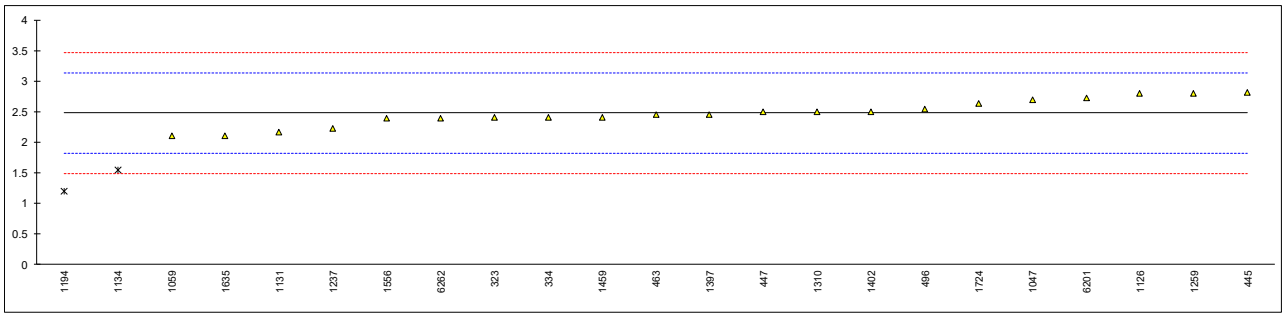


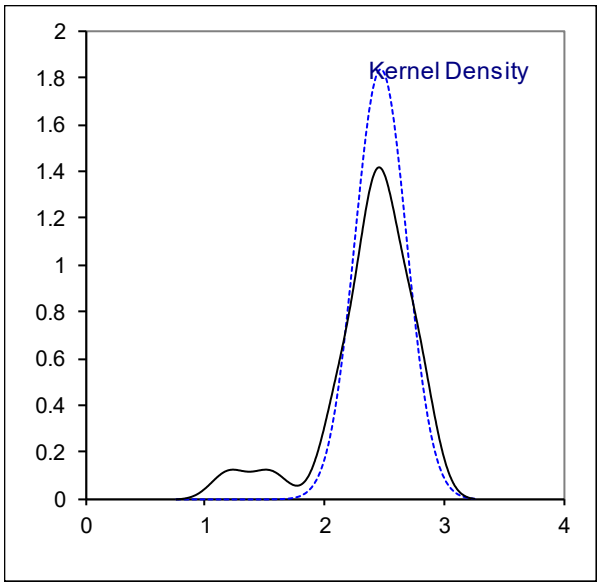
Determination of Polycyclic Aromatic Hydrocarbons *) on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323	EN12916	2.4		-0.23	
334	IP391	2.4	C	-0.23	first reported 21.1
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN12916	2.820		1.05	
447	IP391	2.5		0.07	
448		-----		-----	
463	EN12916	2.45		-0.08	
496	EN12916	2.54		0.20	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	EN12916	2.7		0.68	
1059	EN12916	2.1	C	-1.14	first reported 2.5
1065		-----		-----	
1126	EN12916	2.8		0.98	
1131	EN12916	2.17		-0.93	
1134	IP391	1.544	C,R(0.01)	-2.83	first reported 8.4
1146		-----		-----	
1194		1.2	R(0.01)	-3.87	
1205		-----		-----	
1233		-----		-----	
1237	EN12916	2.22		-0.78	
1259	EN12916	2.8		0.98	
1310	EN12916	2.5		0.07	
1316		-----		-----	
1397		2.45		-0.08	
1402	EN12916	2.5		0.07	
1459	EN12916	2.40		-0.23	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		2.39		-0.26	
1631		-----		-----	
1635		2.1		-1.14	
1706		-----		-----	
1724	IP391	2.63		0.47	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	2.72		0.74	
6245		-----		-----	
6262	EN12916	2.396		-0.24	
6308		-----		-----	

*) = Definition from EN12916: %Polycyclic Aromatic Hydrocarbons = sum of the di-aromatic hydrocarbons and tri+-aromatic hydrocarbons.

normality	OK
n	21
outliers	2
mean (n)	2.476
st.dev. (n)	0.2170
R(calc.)	0.608
st.dev.(EN12916:16)	0.3296
R(EN12916:16)	0.923

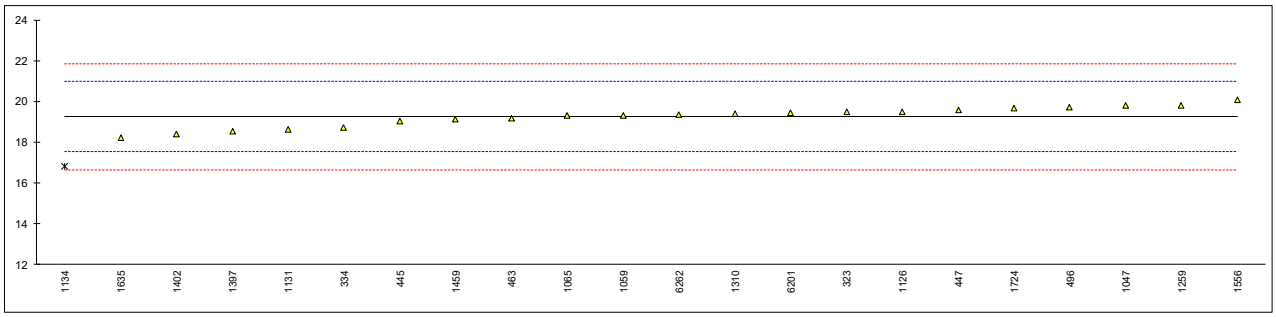


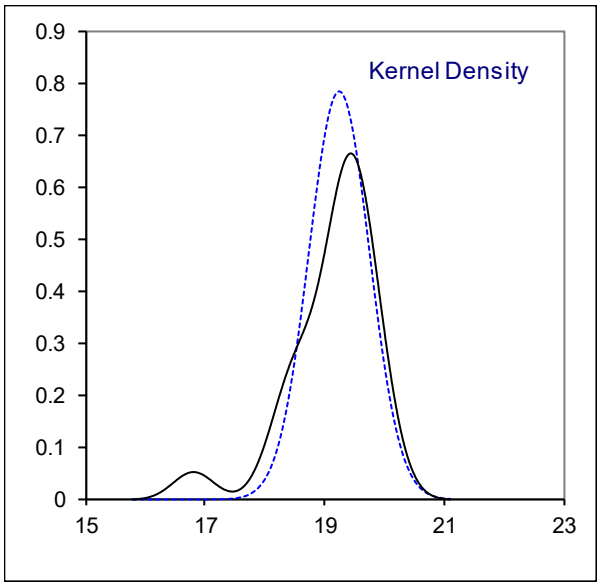


Determination of Mono-Aromatic Hydrocarbons on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323	EN12916	19.5		0.29	
334	IP391	18.7		-0.64	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN12916	19.057		-0.23	
447	IP391	19.6		0.40	
448		-----		-----	
463	EN12916	19.15		-0.12	
496	EN12916	19.73		0.55	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	EN12916	19.8		0.63	
1059	EN12916	19.3	C	0.05	first reported 22.1
1065		19.3		0.05	
1126	EN12916	19.5		0.29	
1131	EN12916	18.61	C	-0.74	first reported 16.93
1134	IP391	16.810	C,R(0.01)	-2.82	first reported 91.6
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259	EN12916	19.8		0.63	
1310	EN12916	19.4		0.17	
1316		-----		-----	
1397		18.54		-0.82	
1402	EN12916	18.4		-0.98	
1459	EN12916	19.13		-0.14	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		20.09		0.97	
1631		-----		-----	
1635		18.2		-1.21	
1706		-----		-----	
1724	IP391	19.69		0.50	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	19.46		0.24	
6245		-----		-----	
6262	EN12916	19.347		0.11	
6308		-----		-----	

normality	OK
n	21
outliers	1
mean (n)	19.253
st.dev. (n)	0.5082
R(calc.)	1.423
st.dev.(EN12916:16)	0.8673
R(EN12916:16)	2.428

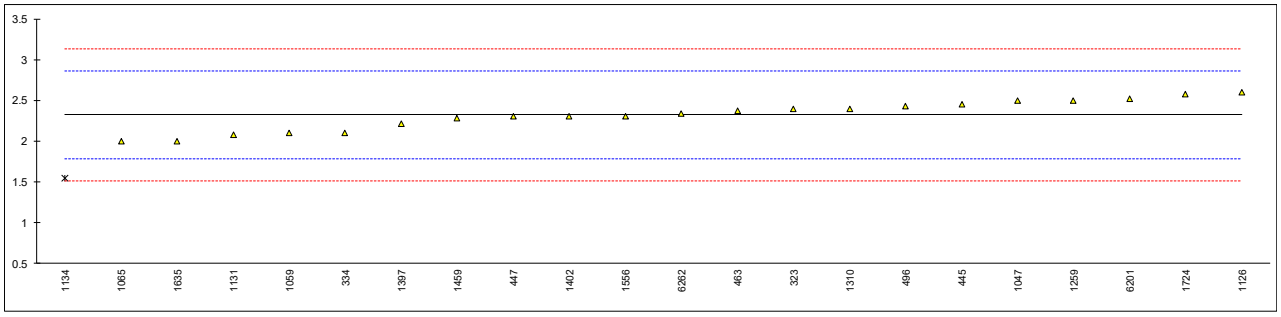


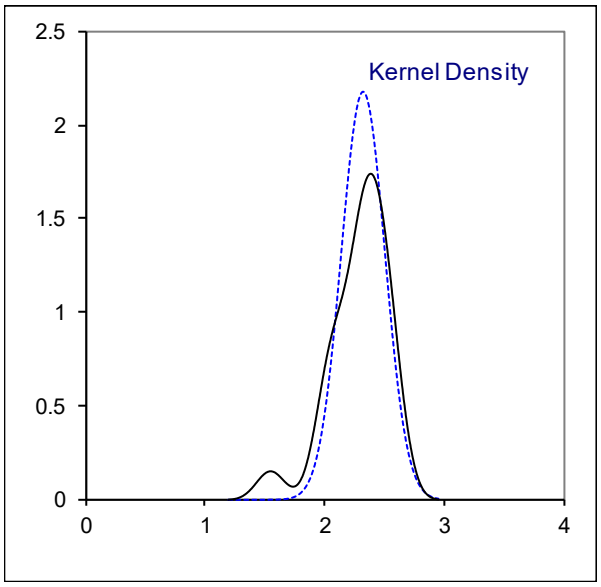


Determination of Di-Aromatic Hydrocarbons on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323	EN12916	2.4		0.29	
334	IP391	2.1		-0.82	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN12916	2.457		0.50	
447	IP391	2.3		-0.08	
448		-----		-----	
463	EN12916	2.37		0.18	
496	EN12916	2.43		0.40	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	EN12916	2.5		0.66	
1059	EN12916	2.1	C	-0.82	first reported 2.5
1065		2.0		-1.19	
1126	EN12916	2.6		1.03	
1131	EN12916	2.08		-0.90	
1134	IP391	1.544	C,R(0.05)	-2.88	first reported 8.4
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259	EN12916	2.5		0.66	
1310	EN12916	2.4		0.29	
1316		-----		-----	
1397		2.21		-0.42	
1402	EN12916	2.3		-0.08	
1459	EN12916	2.28		-0.16	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		2.30		-0.08	
1631		-----		-----	
1635		2.0		-1.19	
1706		-----		-----	
1724	IP391	2.58		0.96	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	2.52		0.73	
6245		-----		-----	
6262	EN12916	2.336		0.05	
6308		-----		-----	

normality	OK
n	21
outliers	1
mean (n)	2.322
st.dev. (n)	0.1832
R(calc.)	0.513
st.dev.(EN12916:16)	0.2700
R(EN12916:16)	0.756

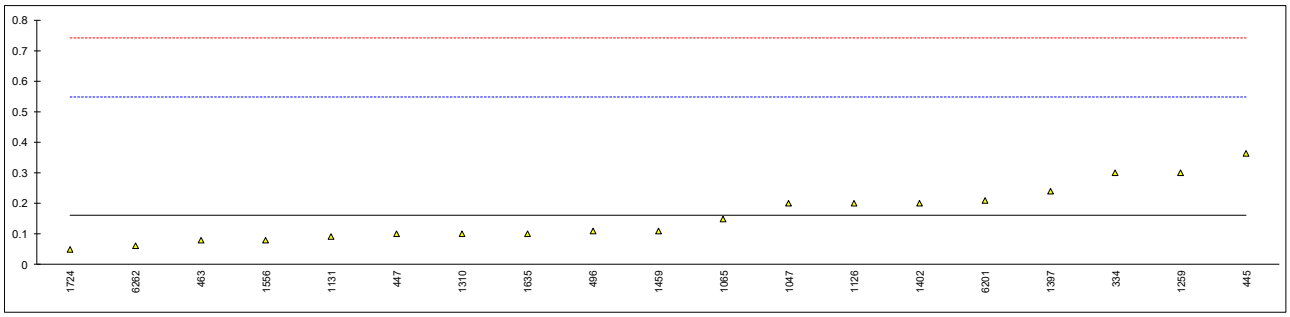


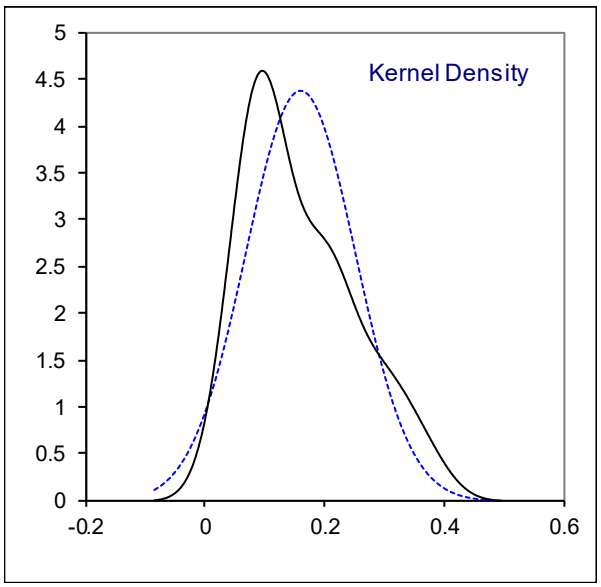


Determination of Tri+-Aromatic Hydrocarbons on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323	EN12916	<0.1		-----	
334	IP391	0.3		0.72	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN12916	0.363		1.05	
447	IP391	0.1		-0.31	
448		-----		-----	
463	EN12916	0.08		-0.41	
496	EN12916	0.11		-0.26	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	EN12916	0.2		0.21	
1059	EN12916	<0,1		-----	
1065		0.15		-0.05	
1126	EN12916	0.2		0.21	
1131	EN12916	0.09		-0.36	
1134	IP391	<0.01		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259	EN12916	0.3		0.72	
1310	EN12916	0.1		-0.31	
1316		-----		-----	
1397		0.24		0.41	
1402	EN12916	0.2		0.21	
1459	EN12916	0.11		-0.26	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		0.08		-0.41	
1631		-----		-----	
1635		0.1		-0.31	
1706		-----		-----	
1724	IP391	0.05		-0.57	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	0.21		0.26	
6245		-----		-----	
6262	EN12916	0.060		-0.52	
6308		-----		-----	

normality	OK
n	19
outliers	0
mean (n)	0.160
st.dev. (n)	0.0912
R(calc.)	0.255
st.dev.(EN12916:16)	0.1935
R(EN12916:16)	0.542

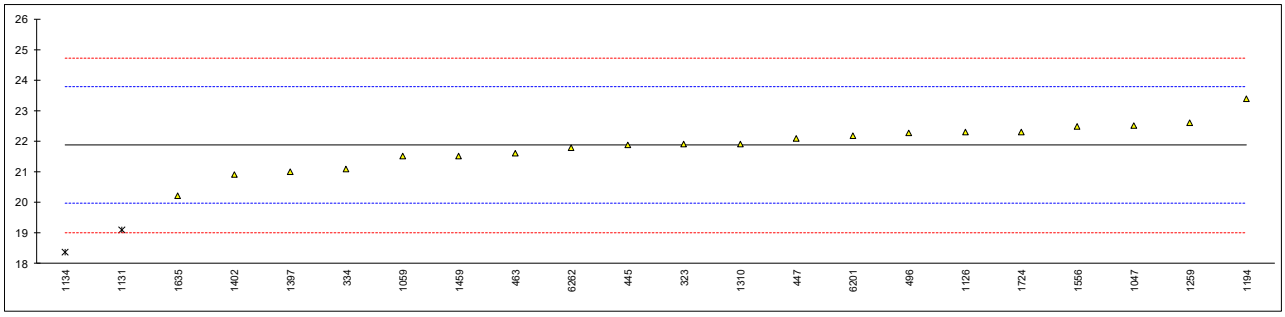


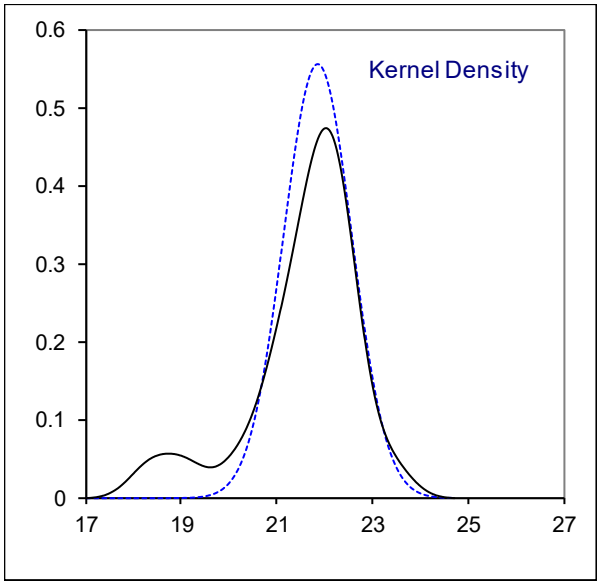


Determination of Total Aromatic Hydrocarbons on sample #20070; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323	EN12916	21.9		0.03	
334	IP391	21.1	C	-0.81	first reported 2.4
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN12916	21.877		0.01	
447	IP391	22.1		0.24	
448		-----		-----	
463	EN12916	21.59		-0.29	
496	EN12916	22.27		0.42	
511		-----		-----	
529		-----		-----	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017		-----		-----	
1047	EN12916	22.5		0.66	
1059	EN12916	21.5	C	-0.39	first reported 24.5
1065		-----		-----	
1126	EN12916	22.3		0.45	
1131	EN12916	19.10	E,R(0.05)	-2.91	calculation error, iis calculated 20.78
1134	IP391	18.354	C,R(0.05)	-3.69	first reported 100.0
1146		-----		-----	
1194		23.4		1.61	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259	EN12916	22.6		0.77	
1310	EN12916	21.9		0.03	
1316		-----		-----	
1397		20.99		-0.92	
1402	EN12916	20.9		-1.02	
1459	EN12916	21.52		-0.37	
1510		-----		-----	
1544		-----		-----	
1546		-----		-----	
1556		22.47		0.63	
1631		-----		-----	
1635		20.2		-1.75	
1706		-----		-----	
1724	IP391	22.31		0.46	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	22.18		0.33	
6245		-----		-----	
6262	EN12916	21.797		-0.08	
6308		-----		-----	

normality	OK
n	20
outliers	2
mean (n)	21.870
st.dev. (n)	0.7167
R(calc.)	2.007
st.dev.(EN12916:16)	0.9527
R(EN12916:16)	2.668

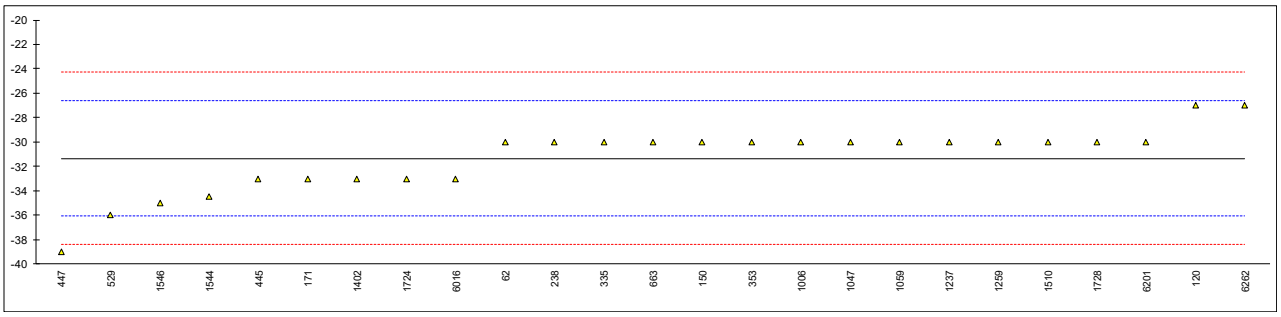


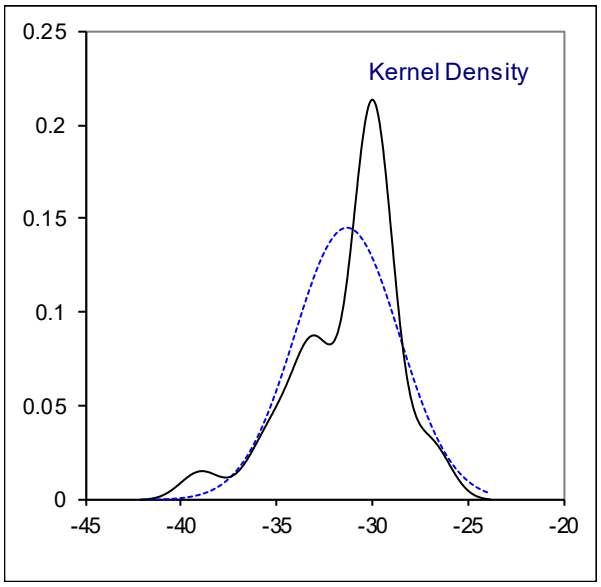


Determination of Pour Point, Manual on sample #20070; results in °C

lab	method	value	mark	z(targ)	remarks
62	D97	-30.0		0.57	
120	D97	-27		1.84	
140		-----		-----	
150	D97	-30		0.57	
171	D97	-33		-0.70	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238	D97	-30		0.57	
312		-----		-----	
323		-----		-----	
334		-----		-----	
335	ISO3016	-30		0.57	
336		-----		-----	
338		-----		-----	
353	IP15	-30		0.57	
381		-----		-----	
444		-----		-----	
445	D97	-33		-0.70	
447	IP15	-39		-3.25	
448		-----		-----	
463		-----		-----	
496		-----		-----	
511		-----		-----	
529	D97	-36		-1.98	
541		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	D97	-30		0.57	
1006	D97	-30		0.57	
1017		-----		-----	
1047	ISO3016	-30		0.57	
1059	ISO3016	-30		0.57	
1065		-----		-----	
1126		-----		-----	
1131		-----		-----	
1134	IP15	<-30		-----	
1146		-----		-----	
1194		-----		-----	
1205		-----		-----	
1233	D97	<-12		-----	
1237	ISO3016	-30		0.57	
1259	ISO3016	-30		0.57	
1310		-----		-----	
1316		-----		-----	
1397		-----		-----	
1402	ISO3016	-33		-0.70	
1459		-----		-----	
1510	ISO3016	-30		0.57	
1544	ISO3016	-34.5		-1.34	
1546	ISO3016	-35		-1.55	
1556		-----		-----	
1631		-----		-----	
1635		-----		-----	
1706		-----		-----	
1724	D97	-33		-0.70	
1728	D97	-30		0.57	
1807		-----		-----	
2146		-----		-----	
6016	D97	-33		-0.70	
6168		-----		-----	
6201	ISO3016	-30		0.57	
6245		-----		-----	
6262	D97	-27		1.84	
6308		-----		-----	

normality	suspect
n	25
outliers	0
mean (n)	-31.34
st.dev. (n)	2.741
R(calc.)	7.68
st.dev.(ISO3016:19)	2.357
R(ISO3016:19)	6.6

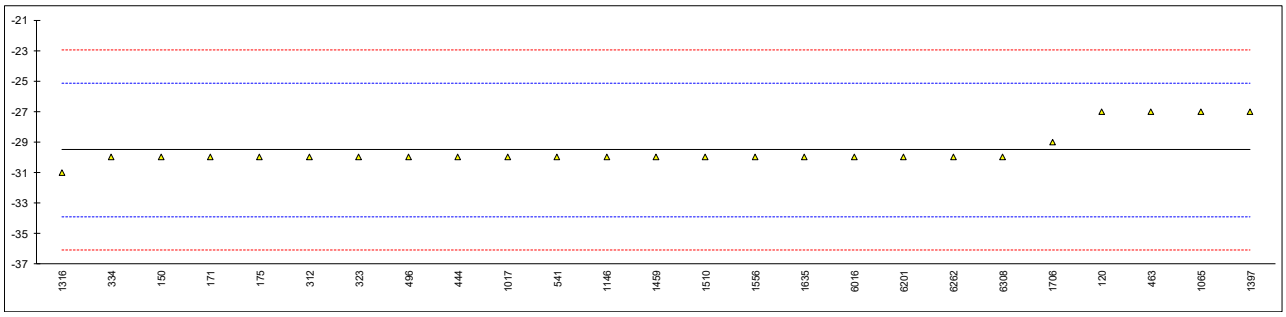


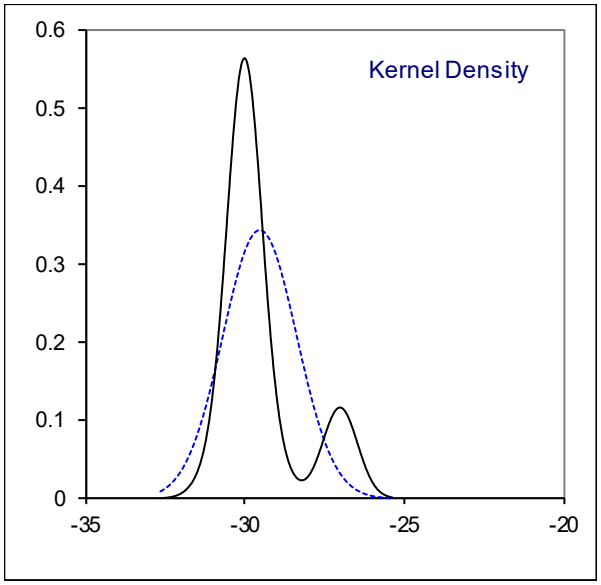


Determination of Pour Point, Automated (3°C interval) on sample #20070; results in °C

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D5949	-27		1.16	
140		-----		-----	
150	D5950	-30		-0.22	
171	D5950	-30		-0.22	
175	D5950	-30		-0.22	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	D5950	-30		-0.22	
323	D5950	-30		-0.22	
334	D5950	-30		-0.22	
335		-----		-----	
336		-----		-----	
338		-----		-----	
353		-----		-----	
381		-----		-----	
444	D5950	-30		-0.22	
445		-----		-----	
447		-----		-----	
448		-----		-----	
463	D6892	-27		1.16	
496	D5950	-30		-0.22	
511		-----		-----	
529		-----		-----	
541	D5950	-30		-0.22	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1006		-----		-----	
1017	D5950	-30		-0.22	
1047		-----		-----	
1059		-----		-----	
1065	D5950	-27.0		1.16	
1126		-----		-----	
1131		-----		-----	
1134		-----		-----	
1146	D6892	-30		-0.22	
1194		-----		-----	
1205		-----		-----	
1233		-----		-----	
1237		-----		-----	
1259		-----		-----	
1310		-----		-----	
1316	D5950	-31.0		-0.68	
1397	D5950	-27		1.16	
1402		-----		-----	
1459	In house	-30.0		-0.22	
1510	D5950	-30		-0.22	
1544		-----		-----	
1546		-----		-----	
1556	In house	-30		-0.22	
1631		-----		-----	
1635	D7346	-30		-0.22	
1706	D5950	-29.0		0.24	
1724		-----		-----	
1728		-----		-----	
1807		-----		-----	
2146		-----		-----	
6016	D5950	-30		-0.22	
6168		-----		-----	
6201	D5950	-30		-0.22	
6245		-----		-----	
6262	D5950	-30		-0.22	
6308	D5950	-30		-0.22	

normality	not OK
n	25
outliers	0
mean (n)	-29.52
st.dev. (n)	1.159
R(calc.)	3.25
st.dev.(D5950:14)	2.179
R(D5950:14)	6.1

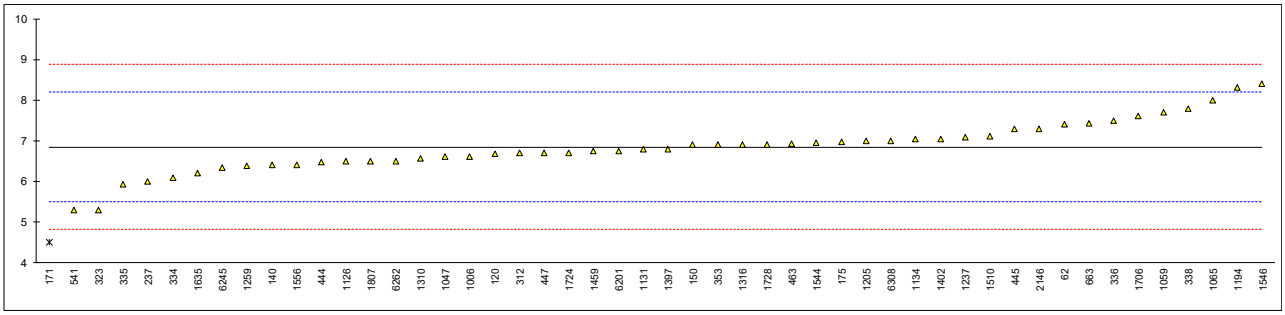


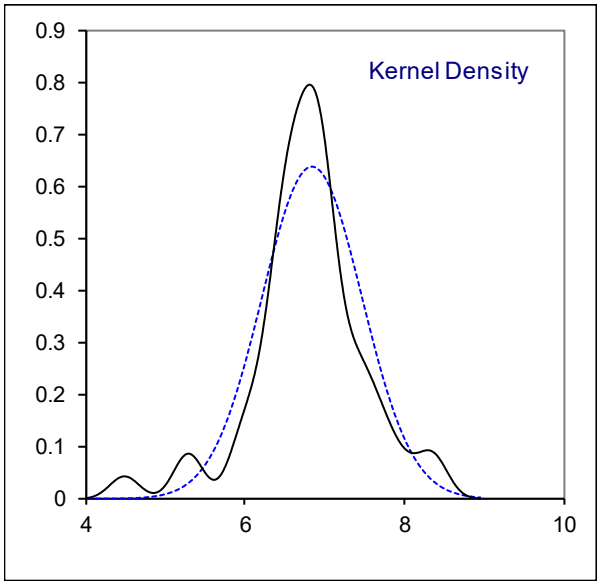


Determination of Sulfur on sample #20070; result in mg/kg

lab	method	value	mark	z(targ)	remarks
62	D5453	7.4		0.82	
120	D7039	6.68		-0.25	
140	D2622	6.4		-0.66	
150	ISO20846	6.9		0.08	
171	D7039	4.5	R(0.05)	-3.48	
175	D5453	6.98		0.20	
194		-----		-----	
230		-----		-----	
237	D4294	6.0		-1.26	
238		-----		-----	
312	ISO20846	6.7		-0.22	
323	ISO20846	5.3		-2.29	
334	ISO20846	6.1		-1.11	
335	ISO20846	5.93		-1.36	
336	ISO20846	7.5		0.97	
338	ISO20846	7.78		1.39	
353	IP490	6.9		0.08	
381		-----		-----	
444	D5453	6.47		-0.56	
445	ISO20846	7.3		0.67	
447	IP490	6.7		-0.22	
448		-----		-----	
463	ISO20846	6.93		0.12	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541	ISO20846	5.30		-2.29	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	D5453	7.43		0.87	
1006	D5453	6.6		-0.36	
1017		-----		-----	
1047	ISO20846	6.6		-0.36	
1059	ISO20846	7.7		1.27	
1065	D5453	8.0		1.71	
1126	ISO20846	6.5		-0.51	
1131	ISO20846	6.8		-0.07	
1134	IP490	7.047		0.30	
1146		-----		-----	
1194	D7220	8.3		2.16	
1205	ISO20846	7.00		0.23	
1233	ISO8754	<0.030		-----	possibly an unit error?
1237	ISO20846	7.09		0.36	
1259	ISO20846	6.39		-0.68	
1310	ISO20846	6.57		-0.41	
1316	D4294	6.9		0.08	
1397	ISO20846	6.8		-0.07	
1402	ISO20846	7.05		0.30	
1459	ISO20884	6.75		-0.14	
1510	ISO20846	7.1		0.38	
1544	ISO20846	6.95		0.15	
1546	ISO20846	8.4		2.31	
1556	ISO20884	6.4		-0.66	
1631		-----		-----	
1635	ISO20846	6.2		-0.96	
1706	ISO20846	7.6		1.12	
1724	D5453	6.7		-0.22	
1728	D5453	6.9		0.08	
1807	ISO20846	6.5		-0.51	
2146	ISO20846	7.3		0.67	
6016		-----		-----	
6168		-----		-----	
6201	ISO20846	6.75		-0.14	
6245	ISO20846	6.35		-0.74	
6262	ISO20846	6.5		-0.51	
6308	D5453	7.0		0.23	

normality	suspect
n	49
outliers	1
mean (n)	6.85
st.dev. (n)	0.626
R(calc.)	1.75
st.dev.(ISO20846:19)	0.674
R(ISO20846:19)	1.887

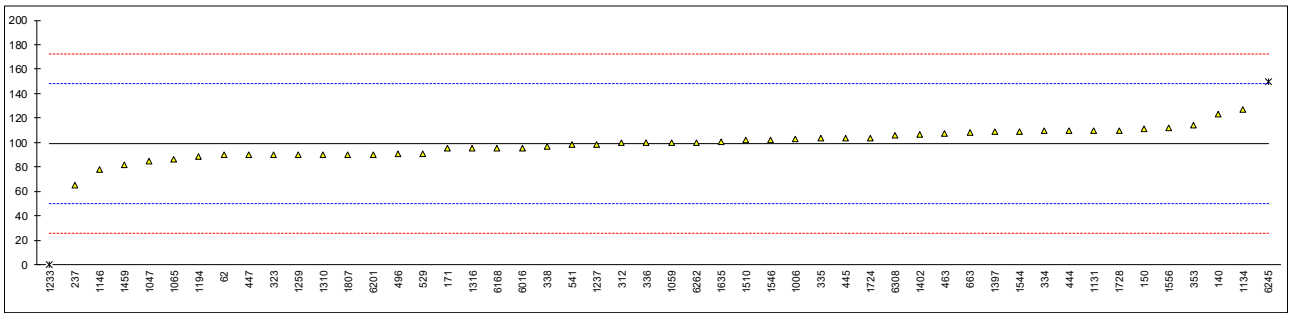


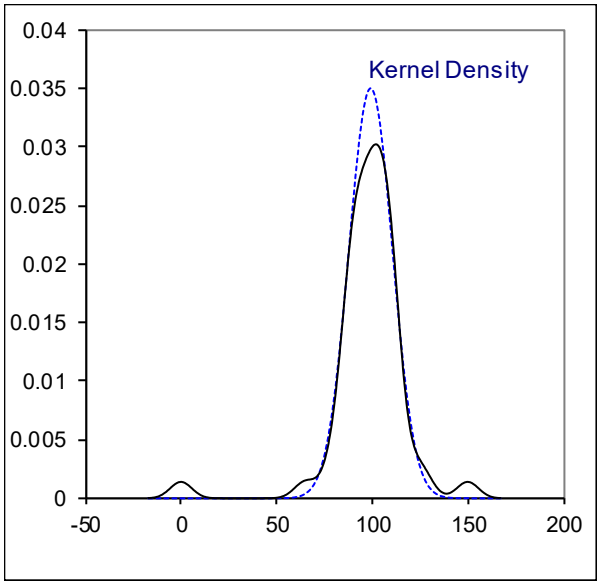


Determination of Water on sample #20070; result in mg/kg

lab	method	value	mark	z(targ)	remarks
62	D6304-A	90		-0.38	
120		-----		-----	
140	ISO12937	123		0.97	
150	D6304-A	111		0.48	
171	D6304-A	95		-0.17	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D6304-C	65		-1.40	
238		-----		-----	
312	ISO12937	100		0.03	
323	ISO12937	90		-0.38	
334	ISO12937	110		0.44	
335	ISO12937	103.7		0.18	
336	ISO12937	100		0.03	
338	ISO12937	97.1		-0.09	
353	IP439	114		0.60	
381		-----		-----	
444	IP438	110		0.44	
445	ISO12937	104		0.19	
447	IP438	90		-0.38	
448		-----		-----	
463	ISO12937	107.3		0.33	
496	D6304-A	90.5		-0.36	
511		-----		-----	
529	ISO12937	90.76		-0.35	
541	ISO12937	98.0		-0.05	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663	D6304-A	108.4		0.37	
1006	D6304-A	103		0.15	
1017		-----		-----	
1047	ISO12937	85		-0.58	
1059	ISO12937	100		0.03	
1065	D6304-C	86		-0.54	
1126		-----		-----	
1131	ISO12937	110		0.44	
1134	ISO12937	127		1.13	
1146	D6304-C	78		-0.87	
1194	ISO12937	88.4		-0.44	
1205		-----		-----	
1233	E203	0.03	C,R(0.01)	-4.05	first reported 0.02
1237	ISO12937	98.5		-0.03	
1259	D6304-A	90		-0.38	
1310	ISO12937	90		-0.38	
1316	ISO12937	95		-0.17	
1397	ISO12937	109		0.40	
1402	ISO12937	107.04		0.32	
1459	ISO12937	82		-0.70	
1510	ISO12937	102		0.11	
1544	ISO12937	109.1		0.40	
1546	ISO12937	102.4		0.13	
1556	ISO12937	112		0.52	
1631		-----		-----	
1635	ISO12937	101		0.07	
1706		-----		-----	
1724	D6304-A	104		0.19	
1728	E203	110		0.44	
1807	ISO12937	90		-0.38	
2146		-----		-----	
6016	D6304-A	95.6		-0.15	
6168	E1064	95		-0.17	
6201	ISO12937	90		-0.38	
6245	ISO12937	150	R(0.01)	2.07	
6262	ISO12937	100		0.03	
6308	IP438	106		0.28	

normality	OK
n	48
outliers	2
mean (n)	99.25
st.dev. (n)	11.396
R(calc.)	31.91
st.dev.(ISO12937:00)	24.468
R(ISO12937:00)	68.51



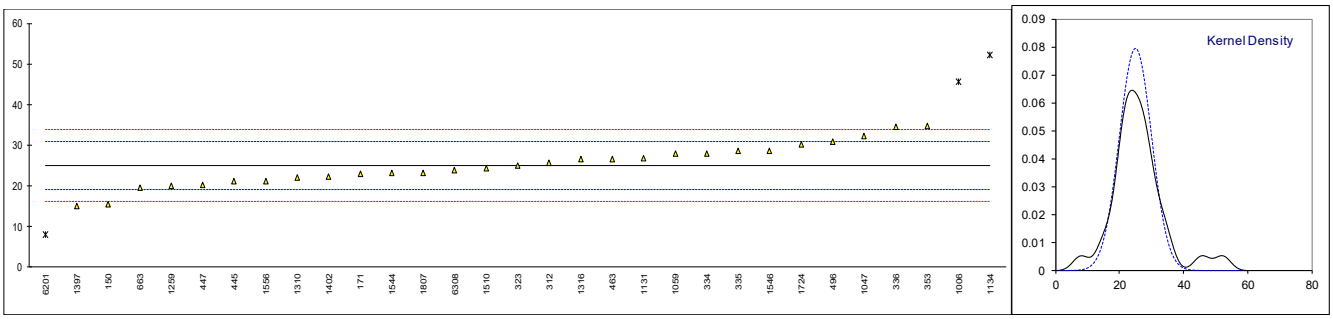


Determination of Total Contamination on sample #20071; result in mg/kg

lab	method	Value	mark	z(targ)	Complete filtration	Volume used (mL)	filtration stopped after minutes
120		-----		-----		-----	-----
140	EN12662:2014	<12		<-4.43	YES	300	-----
150	EN12662:2014	15.5		-3.24	YES	300	-----
171	EN12662:2014	23.00		-0.69	YES	300	-----
230		-----		-----		-----	-----
312	EN12662:2014	25.7		0.23		300	-----
323	EN12662:2014	25.0		-0.01	YES	300	-----
334	EN12662:2014	28	C	1.01	YES	-----	-----
335	EN12662:2014	28.5		1.18	YES	-----	-----
336	EN12662:2014	34.5		3.23	YES	300	-----
353	IP440	34.72		3.30	YES	399	-----
445	EN12662:1998	21.03		-1.36		300	-----
447	IP440	20.3		-1.61	YES	-----	-----
463	EN12662:2014	26.67		0.56	YES	300	1.26
496	EN12662:2014	30.8		1.97	YES	-----	-----
621		-----		-----		-----	-----
663	EN12662:2014	19.56		-1.86	YES	300	15
1006	EN12662:2014	45.7	C,G(0.05)	7.04	YES	300	10
1047	EN12662:2014	32.3		2.48	YES	300	1.18
1059	EN12662:2014	28.0		1.01	YES	300	-----
1131	EN12662:2014	26.84		0.62	YES	-----	-----
1134	EN12662:2014	52.2	G(0.05)	9.25	YES	-----	-----
1259	EN12662:2014	19.9		-1.74	YES	-----	-----
1310	EN12662:2014	22.0		-1.03		310	25
1316	EN12662:2008	26.6		0.54	YES	300	-----
1397	EN12662:2014	15.1		-3.38		-----	-----
1402	IP440	22.2		-0.96	YES	1000	-----
1510	IP440	24.4		-0.21		-----	-----
1544	EN12662:2014	23.12		-0.65	YES	300	13.0
1546	EN12662:2014	28.5		1.18		-----	-----
1556	EN12662:2014	21.12		-1.33	NO	-----	-----
1635		-----		-----		-----	-----
1724	IP440	30.2		1.76		-----	-----
1807	EN12662:2014	23.2		-0.62		-----	-----
6016		-----		-----		-----	-----
6201	EN12662:1998	8.0	G(0.05)	-5.79	YES	300	-----
6262		-----		-----		-----	-----
6308	IP440	23.8		-0.42	YES	300	-----

normality	OK
n	28
outliers	3
mean (n)	25.020
st.dev. (n)	5.0059
R(calc.)	14.017
st.dev.(EN12662:14)	2.9372
R(EN12662:14)	8.224

Lab 334 first reported 41
Lab 140 possibly a false negative test result?
Lab 1006 first reported 10.8



APPENDIX 2

z-scores Distillation

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
62	0.54	0.02	1.40	1.38	2.32	0.64
120	0.57	0.50	0.56	0.06	-----	0.56
140	-0.48	-0.34	-0.46	-0.10	-0.05	-0.70
150	-1.84	-0.71	-0.37	-0.21	-0.02	-0.82
171	-----	-----	-----	-----	-----	-----
175	-----	-----	-----	-----	-----	-----
194	-1.27	0.69	0.66	0.34	0.05	0.68
230	-----	-----	-----	-----	-----	-----
237	0.96	-0.22	-2.42	-0.87	-1.91	0.64
238	-----	-----	-----	-----	-----	-----
312	-0.03	-0.34	0.28	-0.65	-0.27	-1.09
323	-0.51	-0.10	0.38	0.72	0.82	0.45
334	0.42	0.56	0.66	0.23	0.62	0.25
335	-0.48	-1.49	-1.40	0.77	0.62	0.76
336	-1.93	-0.40	-0.84	-0.71	-0.62	-0.42
338	0.54	-0.04	0.94	0.23	0.21	0.37
353	-2.14	-0.59	-1.30	-0.21	-0.27	-0.85
381	-0.39	-1.37	-1.21	-0.32	-1.07	-0.42
444	0.00	0.38	-0.37	0.45	0.79	0.56
445	-0.18	-0.46	-0.84	-0.82	-0.21	-0.58
447	0.63	0.50	0.10	0.06	0.27	0.37
448	0.21	0.56	0.56	0.28	0.34	1.08
463	0.63	-0.04	0.47	0.12	-0.30	0.25
496	-0.60	0.75	0.75	-0.21	-0.14	0.49
511	-----	-----	-----	-----	-----	-----
529	-1.51	-0.46	0.56	0.61	0.72	0.01
541	-0.05	-0.49	-0.04	0.09	0.61	-0.20
603	-----	-----	-----	-----	-----	-----
621	-----	-----	-----	-----	-----	-----
633	-----	-----	-----	-----	-----	-----
663	-0.36	-0.10	0.38	0.23	0.40	-0.30
1006	-0.45	0.14	0.28	-0.05	-0.27	-0.03
1017	0.03	0.56	0.19	-0.43	-0.62	0.17
1047	1.48	-0.10	-0.28	0.94	0.72	-0.11
1059	0.84	-0.22	0.28	-0.27	-0.18	0.13
1065	-2.29	-3.49	-0.09	0.01	-0.34	-1.25
1126	1.02	1.59	0.10	0.50	0.02	-1.33
1131	1.45	0.44	1.12	0.39	0.88	-0.03
1134	-2.05	-0.46	-0.46	-0.21	0.11	-0.54
1146	1.42	-1.07	0.19	-0.05	-0.37	1.04
1194	-----	-----	-----	-----	-----	-----
1205	2.53	0.44	0.56	0.06	-0.05	1.08
1233	-----	-10.51	-8.96	-2.29	-----	-----
1237	-0.03	-0.65	-0.28	-0.05	0.18	0.01
1259	0.75	-0.22	-0.84	-0.98	-1.10	-0.30
1310	-2.05	-2.04	-1.96	-0.60	-0.14	-1.13
1316	0.42	0.99	-0.18	-1.47	-1.26	-1.84
1397	2.20	2.26	2.15	0.56	0.34	1.51
1402	1.75	1.29	0.38	-0.49	-0.59	0.56
1459	-0.15	-0.16	-0.37	-0.65	-0.53	-0.50
1510	0.03	-0.22	-0.28	0.06	0.24	-0.07
1544	0.06	0.69	1.31	0.58	0.98	0.19
1546	0.63	0.81	1.68	0.77	0.85	-----
1556	0.48	-0.04	0.56	0.01	0.11	-0.26
1631	-----	-----	-----	-----	-----	-----
1635	0.99	1.05	0.47	-0.21	-0.34	0.60
1706	-0.85	0.02	-0.28	-0.21	-0.18	-0.66
1724	-1.21	-0.28	-0.74	-0.05	-0.11	0.80
1728	0.66	-0.83	1.31	0.23	0.34	0.25
1807	-0.03	-1.49	-1.86	-0.92	-0.82	0.37
2146	-1.09	0.38	0.28	0.50	0.79	-0.07
6016	-----	-----	-----	-----	-----	-----
6168	0.39	1.23	1.31	1.65	1.17	0.72
6201	-0.54	0.26	0.00	-0.05	0.21	0.29
6245	-----	-----	-----	-----	-----	-----
6262	-0.66	-0.16	-0.28	-0.10	-0.18	-0.54
6308	1.57	-1.01	-2.80	-0.92	-0.43	-0.82

APPENDIX 3

Number of participants per country

1 lab in ARGENTINA
1 lab in AUSTRIA
4 labs in BELGIUM
2 labs in BULGARIA
1 lab in CANADA
3 labs in CROATIA
1 lab in CYPRUS
1 lab in ESTONIA
1 lab in FINLAND
5 labs in FRANCE
1 lab in GERMANY
1 lab in HONG KONG
1 lab in INDONESIA
1 lab in IRELAND
1 lab in ISRAEL
1 lab in KAZAKHSTAN
1 lab in LITHUANIA
1 lab in MALAYSIA
1 lab in MAURITIUS
1 lab in MEXICO
4 labs in NETHERLANDS
2 labs in NIGERIA
2 labs in PERU
1 lab in PHILIPPINES
1 lab in POLAND
1 lab in ROMANIA
1 lab in SERBIA
2 labs in SLOVENIA
1 lab in SPAIN
3 labs in SWEDEN
1 lab in TAIWAN
1 lab in THAILAND
2 labs in TURKEY
9 labs in UNITED KINGDOM
6 labs in UNITED STATES OF AMERICA

APPENDIX 4

Abbreviations

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

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