Results of Proficiency Test
Gasoil B10 (10% FAME)
June 2019

Organized by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 2005, the Institute for Interlaboratory Studies (iis) organizes a proficiency scheme for Gasoil B10 containing 6-10% FAME every year. The setup is in accordance with the latest applicable version of the EN590 (0-7% FAME) and ASTM D7467 (6-20% FAME) specifications. During the annual proficiency testing program 2018/2019, it was decided to continue the round robin for the analysis of Gasoil B10.

In this interlaboratory study in total 70 laboratories from 35 different countries registered for participation in the proficiency tests. For the main round of Gasoil B10 69 participants from 35 countries and for Total Contamination 38 participants from 20 countries did register. See appendix 3 for the total number of participants per country. In this report, the results of the 2019 Gasoil B10 proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC17025 accredited laboratory.
It was decided to send 1.5L Gasoil B10 labelled #19090 for the main Gasoil B10 round. For Total Contamination determination it was decided to send 1L bottle filled with 1 liter Gasoil B10 labelled #19091. 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

Preparation of samples for the PT on regular Gasoil B10

The necessary sample material of about 185 L of regular EN590 Diesel (containing 6.5%V/V FAME) was purchased from a local petrol station. To this batch 6.5 L Biodiesel B100 was added to reach a final FAME concentration of approx. 10%V/V. From this batch, after homogenization, 84 amber glass bottles of 1 liter and 84 amber glass bottles of 0.5 liter (both labelled #19090) were filled. The homogeneity of the subsamples #19090 was checked by determination of Density at 15°C in accordance with ISO12185 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #19090-1	842.90
sample #19090-2	842.88
sample #19090-3	842.89
sample #19090-4	842.89
sample #19090-5	842.87
sample #19090-6	842.89
sample #19090-7	842.89
sample #19090-8	842.86

Table 1: homogeneity test results of subsamples #19090

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

	Density at 15°C in kg/m^3
r (observed)	0.04
reference test method	ISO12185:96
0.3 * R (reference test method)	0.15

Table 2: evaluation of repeatability of the subsamples #19090

The calculated repeatability was in agreement with 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples #19090 was assumed.

Preparation of samples for the PT on Total Contamination in Gasoil B10
For the preparation of the Total Contamination PT subsamples, the remaining batch of 65 L was used. To each amber glass bottle (labelled #19091) Arizona Dust material in an oil suspension was added to give a total contamination of approximately 14 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 46 bottles were prepared and subsequently filled up to 1L with Gasoil B10. After homogenization, a random sample was taken to verify the actual Total Contamination content.

To the participants, depending on their registration, an 1 L and an 0.5 L bottle of sample #19090 and/or an 1 L of sample #19091 were sent on May 15, 2019. An SDS was added to the sample package.

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSES

The participants were asked to determine on sample #19090: Acid Number (Total), 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 3hrs 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 (Δ3°C), Sulfur and Water. The participants were requested to determine Total Contamination only on sample #19091.

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

In this proficiency test no problems were encountered during the dispatch of the samples. Seven laboratories reported test results after the final reporting date and two other laboratories did not report any test results at all. Not all laboratories were able to perform all analyses requested. Finally, 68 laboratories did report 1349 numerical test results. Observed were 41 outlying test results, which is 3.0%. 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 data. The abbreviations, used in these tables, are listed in appendix 4.

In the iis PT reports ASTM methods are referred to with a number (e.g. 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 #19090

Acid number: This determination was not problematic. Two statistical outliers were observed and one test result was excluded. However, the calculated reproducibility after rejection of the suspect data is in agreement with the requirements of ASTM D664-B:18e2.

Aromatics (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: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO6245:01 and ASTM D482:13.

Calc. Cetane Index D976: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in good agreement with the requirements of ASTM D976:06(2016).

Calc. Cetane Index ISO4264: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ISO4264:18.

Cloud Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of EN23015:94 and ASTM D2500:17a.

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

CR 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 CR: This determination was problematic. No statistical outliers were observed, but one test result was excluded. However, the calculated reproducibility after rejection of the suspect data is not in agreement with the requirements of ASTM D524:15.

Copper Corrosion: No problems were observed. All reporting participants agreed on a test result of 1 or 1A/1B.

Density at 15°C: 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 ISO12185:96.

Distillation at 760 mmHg: This determination was not problematic. In total twelve statistical outliers were observed, and one test result was excluded over eight parameters. However, the calculated reproducibilities after rejection of the suspect data are all in agreement with the requirements of the automated mode of ISO3405:19 and most of the manual mode. The calculated reproducibility after rejection of the statistical outlier of 95% recovered parameter is not in agreement with the requirements of the manual mode of ISO3405:19.

FAME: 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 EN14078-B:14 and ASTM D7371:14.

Flash Point PMcc: 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 both ISO2719-A:16 and D93-A:16a, but not in agreement with the (stricter) requirements of EN590-Annex A:13.

Kin. Visc. 40°C: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility 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. The calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ISO12156-1-B:18, ISO12156-1-A:18, ASTM D6079:11 and IP450:00.

Ox. Stab. ISO12205: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ISO12205:95.

Ox. Stab. 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.

PAH: 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.

MAH: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of EN12916:16.

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

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

Total AH: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of EN12916:16. Two calculations errors were observed.

Pour Point (M): This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirements of ISO3016:19.

Pour Point (A): 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 problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ISO20846:19, but is in agreement with the requirements of ASTM D5453:16e1.

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

Sample #19091

Total Contamination: 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 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.

Parameters	unit	n	average	2.8 * sd	R (lit)
Acid Number (total)	mg KOH/g	25	0.061	0.060	0.058
Aromatics by FIA	%V/V	10	22.0	7.6	n.a.
Ash content	%M/M	24	0.0007	0.0017	0.005
Calc. Cetane Index D976		26	52.7	0.5	2
Calc. Cetane Index ISO4264		47	50.9	0.8	2
Cloud Point	°C	50	-6.4	2.5	4
Cold Filter Plugging Point (CFPP)	°C	41	-20.5	4.2	4.2
CR micro method on 10% residue	%M/M	25	0.035	0.081	(0.026)
Ramsbottom CR on 10% residue	%M/M	7	0.083	0.066	0.033
Copper Corrosion 3hrs at 50°C	rating	43	1 (1A)	n.a.	n.a.
Density at 15°C	kg/m^3	60	842.9	0.2	0.5
Initial Boiling Point	°C	58	160.5	7.1	8.8
10% recovery	°C	57	200.3	4.5	4.4
50% recovery	°C	58	282.9	2.8	3
90% recovery	°C	58	334.7	4.0	5.0
95% recovery	°C	58	345.8	6.3	8.5
Final Boiling Point	°C	55	353.4	3.5	7.1
Volume at 250°C	%V/V	54	29.1	1.5	2.7
Volume at 350°C	%V/V	51	96.2	1.8	2.7
Fatty Acid Methyl Ester (FAME)	%V/V	42	9.3	0.6	0.7
Flash Point PMcc	°C	59	57.9	4.4	4.1
Kinematic Viscosity at 40°C	mm^2/s	53	2.859	0.039	0.032

Parameters	unit	n	average	2.8 * sd	R (lit)
Lubricity by HFRR at 60°C	µm	26	192	38	90
Oxidation Stability ISO12205	g/m^3	16	2.60	4.65	7.57
Oxidation Stability EN15751	hours	27	19.0	5.9	4.0
Polycyclic Aromatic Hydrocarbons	%M/M	27	3.11	0.90	1.04
Mono-Aromatic Hydrocarbons	%M/M	28	19.72	2.39	2.50
Di-Aromatic Hydrocarbons	%M/M	28	2.84	0.81	0.94
Tri+-Aromatic Hydrocarbons	%M/M	24	0.26	0.29	0.59
Total Aromatic Hydrocarbons	%M/M	28	22.92	2.90	2.85
Pour Point (manual)	°C	25	-28.0	5.3	6.6
Pour Point (automated)	°C	25	-27.2	5.3	6.1
Sulfur	mg/kg	48	8.1	2.3	2.0
Water	mg/kg	53	73.3	25.3	58.9
Total Contamination (#19091)	mg/kg	32	17.4	13.8	7.0

Table 3: reproducibilities of test on samples #19090 and #19091

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 JUNE 2019 WITH PREVIOUS PTS

	June 2019	June 2018	June 2017	June 2016	May 2015
Number of reporting labs	68	66	68	76	73
Number of test results	1349	1343	1444	1522	1371
Number of statistical outliers	41	40	33	51	32
Percentage outliers	3.0%	3.0%	2.3%	3.4%	2.3%

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.

	June 2019	June 2018	June 2017	June 2016	May 2015
Acid Number (total)	+/-	+/-	+	++	+
Aromatics by FIA	n.e.	n.e.	n.e.	n.e.	n.e.
Ash content	++	++	++	++	+
Calc. Cetane Index D976	++	++	++	++	++
Calc. Cetane Index ISO4264	++	++	++	n.e.	n.e.
Cloud Point	+	+	++	++	+
Cold Filter Plugging Point (CFPP)	+/-	-	+	++	+

	June 2019	June 2018	June 2017	June 2016	May 2015
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 content	++	+	++	++	++
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:

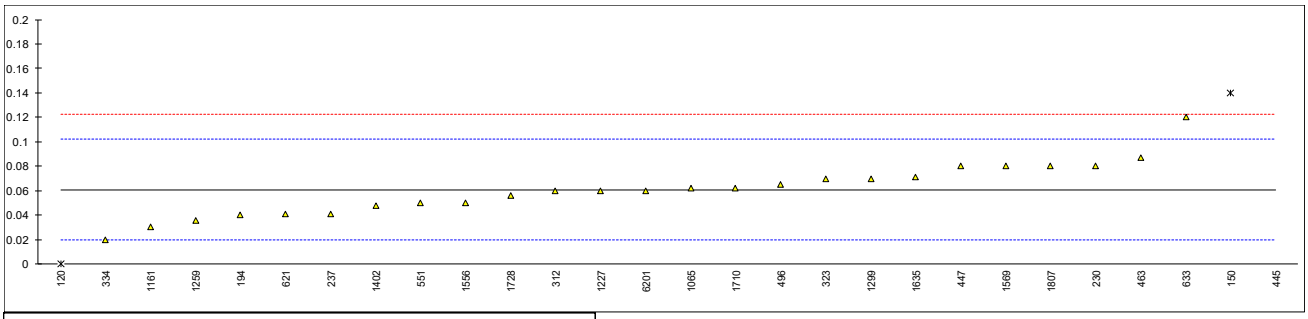
++: group performed much better than the reference test method
+ : group performed better than the reference test method
+/-: group performance equals the reference test method
- : group performed worse than the reference test method
-- : group performed much worse than the reference test method
n.e.: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

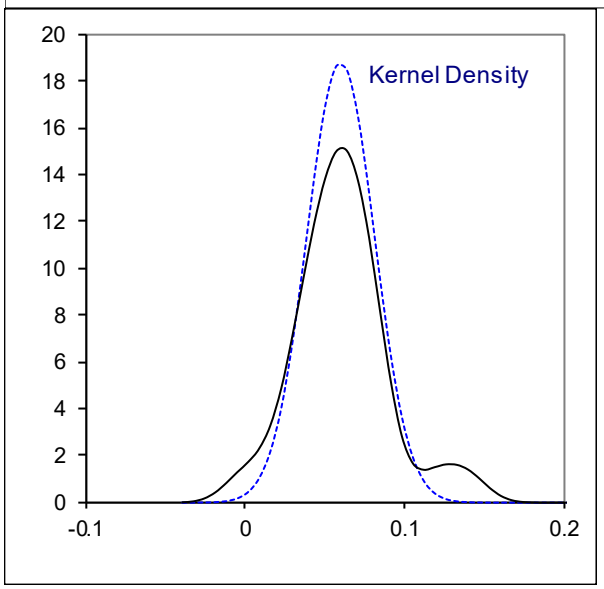
APPENDIX 1

Determination of Acid Number, total on sample #19090; result in mg KOH/g

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D664-B	0	ex	-2.95	Test result excluded as zero is not a real result
140		-----		-----	
150	D664-B	0.14	R(0.05)	3.84	
171	D664-A	<0.10		-----	
175		-----		-----	
194	D664-B	0.04	C	-1.01	First reported 0.35
230	D664-B	0.0802		0.94	
237	D664-B	0.041		-0.96	
238		-----		-----	
312	D974	0.06		-0.04	
323	D664-B	0.07		0.45	
334	D664-B	0.02		-1.98	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	D664-B	1.68	R(0.01)	78.53	
447	D974	0.08		0.93	
448		-----		-----	
463	D974	0.087		1.27	
496	D664-B	0.065		0.21	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551	D664-A	0.05		-0.52	
603		-----		-----	
621	D664-B	0.041		-0.96	
633	D664-B	0.12		2.87	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059		-----		-----	
1065	D664-B	0.062		0.06	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161	D664-B	0.03		-1.49	
1194		-----		-----	
1205		-----		-----	
1227	D664-B	0.06		-0.04	
1259	D664-B	0.036		-1.20	
1299	D664-B	0.07		0.45	
1397		-----		-----	
1402	D664-B	0.048		-0.62	
1438		-----		-----	
1459		-----		-----	
1510		-----		-----	
1521		-----		-----	
1556	D664-B	0.05		-0.52	
1569	D664-B	0.08		0.93	
1631		-----		-----	
1634		-----		-----	
1635	D664-B	0.071		0.50	
1706		-----		-----	
1710	D664-B	0.062		0.06	
1724		-----		-----	
1728	D974	0.0559		-0.24	
1807	D664-B	0.08		0.93	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D664-B	0.06		-0.04	

normality	suspect
n	25
outliers	2 (+1 excl)
mean (n)	0.0608
st.dev. (n)	0.02125
R(calc.)	0.0595
st.dev.(D664-B:18e2)	0.02062
R(D664-B:18e2)	0.0577

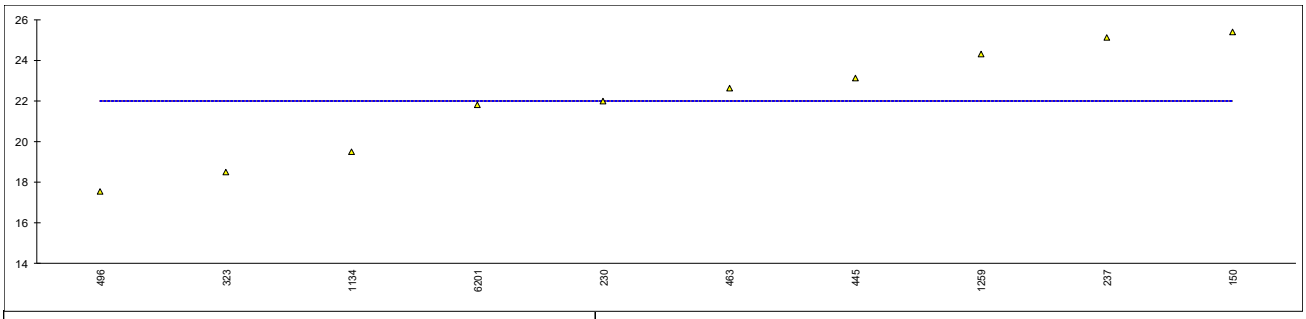


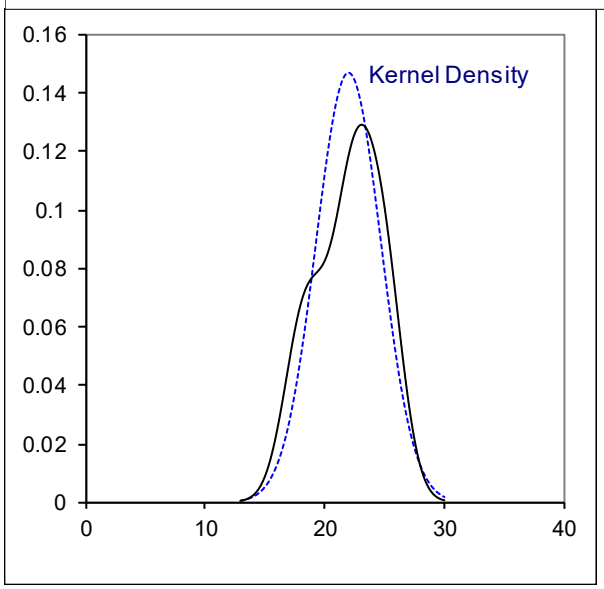


Determination of Aromatics by FIA (without Oxygenates correction) on sample #19090; result in %V/V

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140		-----		-----	
150	D1319	25.4		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230	D1319	21.98		-----	
237	D1319	25.1		-----	
238		-----		-----	
312		-----		-----	
323	D1319	18.5		-----	
334		-----		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	D1319	23.1		-----	
447		-----		-----	
448		-----		-----	
463	D1319	22.63		-----	
496	D1319	17.55		-----	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1134	D1319	19.5		-----	
1146		-----		-----	
1161		-----		-----	
1194		-----		-----	
1205		-----		-----	
1227		-----		-----	
1259	EN15553	24.32		-----	
1299		-----		-----	
1397		-----		-----	
1402		-----		-----	
1438		-----		-----	
1459		-----		-----	
1510		-----		-----	
1521		-----		-----	
1556		-----		-----	
1569		-----		-----	
1631		-----		-----	
1634		-----		-----	
1635		-----		-----	
1706		-----		-----	
1710		-----		-----	
1724		-----		-----	
1728		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D1319	21.8		-----	

normality	OK	
n	10	
outliers	0	
mean (n)	21.988	
st.dev. (n)	2.7183	
R(calc.)	7.611	
st.dev.(lit)	n.a.	
R(lit)	n.a.	
Compare		
R(D1319:18)	3.7	For Gasoil without FAME
R(iis18G03)	9.550	





Determination of Ash Content on sample #19090; result in %M/M

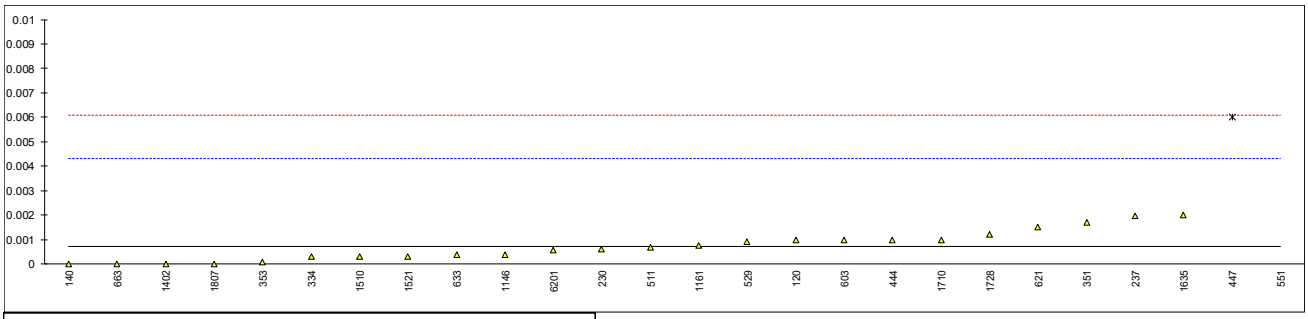
lab	method	value	mark	z(targ)	remarks
62	D482	<0.001		-----	
120	D482	0.001		0.15	
140	ISO6245	0.00		-0.41	
150	D482	<0.001		-----	
171	D482	<0.001		-----	
175		-----		-----	
194		-----		-----	
230	ISO6245	0.00061		-0.07	
237	D482	0.00199		0.70	
238		-----		-----	
312		-----		-----	
323	ISO6245	< 0.001		-----	
334	ISO6245	0.0003		-0.25	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351	ISO6245	0.0017		0.54	
353	IP4	0.0001		-0.36	
381		-----		-----	
444	D482	0.001		0.15	
445	ISO6245	< 0.001		-----	
447	IP4	0.006	R(0.01)	2.95	
448		-----		-----	
463	ISO6245	<0,001		-----	
496		-----		-----	
511	D482	0.0007		-0.02	
529	D482	0.0009		0.09	
541	ISO6245	<0.001		-----	
551	D482	0.033	R(0.01)	18.07	
603	D482	0.0010		0.15	
621	D482	0.0015		0.43	
633	D482	0.0004		-0.19	
663	D482	0.000		-0.41	
1016		-----		-----	
1017		-----		-----	
1026	ISO6245	<0.01		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1134	IP4	<0.001		-----	
1146	D482	0.0004		-0.19	
1161	ISO6245	0.00077		0.02	
1194		-----		-----	
1205		-----		-----	
1227		-----		-----	
1259		-----		-----	
1299	D482	<0.001		-----	
1397		-----		-----	
1402	IP4	0.000		-0.41	
1438		-----		-----	
1459		-----		-----	
1510	IP4	0.0003		-0.25	
1521	ISO6245	0.0003		-0.25	
1556		-----		-----	
1569	ISO6245	<0.005		-----	
1631		-----		-----	
1634		-----		-----	
1635	ISO6245	0.002		0.71	
1706		-----		-----	
1710	ISO6245	0.001		0.15	
1724	ISO6245	<0,001		-----	
1728	D482	0.0012		0.26	
1807	ISO6245	0		-0.41	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	ISO6245	0.00058		-0.09	

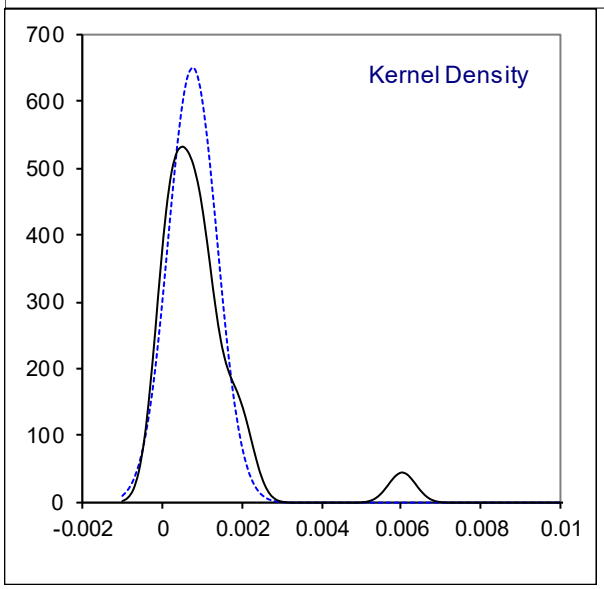
normality	OK
n	24
outliers	2
mean (n)	0.00074
st.dev. (n)	0.000612
R(calc.)	0.00171
st.dev.(ISO6245:01)	0.001786
R(ISO6245:01)	0.005

Application range: 0.001 – 0.180%M/M

Compare

R(D482:13)	0.005

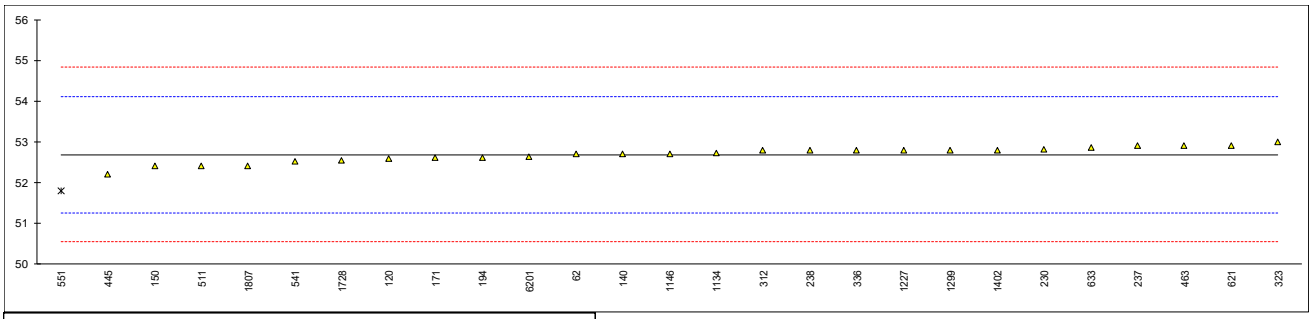


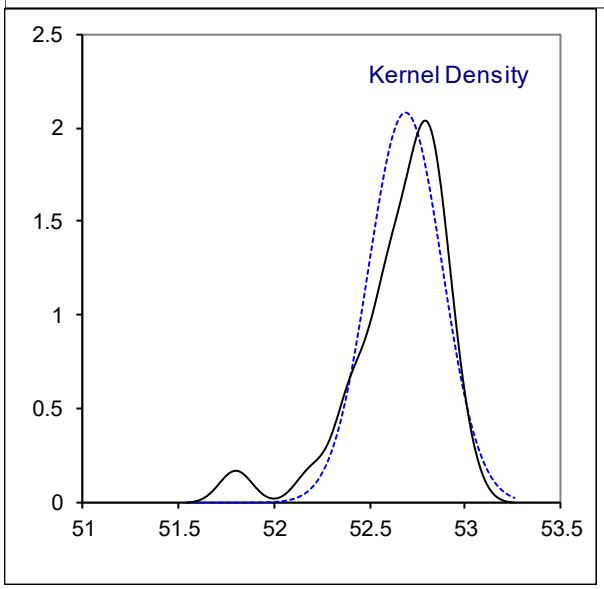


Determination of Calculated Cetane Index, two variables D976 on sample #19090

lab	method	value	mark	z(targ)	remarks
62	D976	52.7		0.02	
120	D976	52.58		-0.15	
140	D976	52.7		0.02	
150	D976	52.4		-0.40	
171	D976	52.6		-0.12	
175		-----		-----	
194	D976	52.6		-0.12	
230	D976	52.82		0.18	
237	D976	52.9		0.30	
238	D976	52.8		0.16	
312	D976	52.8		0.16	
323	D976	53.0		0.44	
334		-----		-----	
335		-----		-----	
336	D976	52.8		0.16	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	D976	52.2		-0.68	
447		-----		-----	
448		-----		-----	
463	D976	52.90		0.30	
496		-----		-----	
511	D976	52.4		-0.40	
529		-----		-----	
541	D976	52.52		-0.24	
551	D976	51.8	R(0.01)	-1.24	
603		-----		-----	
621	D976	52.9		0.30	
633	D976	52.87		0.25	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1134	D976	52.7217		0.05	
1146	D976	52.7		0.02	
1161		-----		-----	
1194		-----		-----	
1205		-----		-----	
1227	D976	52.8		0.16	
1259		-----		-----	
1299	D976	52.8		0.16	
1397		-----		-----	
1402	D976	52.8		0.16	
1438		-----		-----	
1459		-----		-----	
1510		-----		-----	
1521		-----		-----	
1556		-----		-----	
1569		-----		-----	
1631		-----		-----	
1634		-----		-----	
1635		-----		-----	
1706		-----		-----	
1710		-----		-----	
1724		-----		-----	
1728	D976	52.5518		-0.19	
1807	D976	52.4		-0.40	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D976	52.64		-0.07	

normality	OK
n	26
outliers	1
mean (n)	52.689
st.dev. (n)	0.1921
R(calc.)	0.538
st.dev.(D976:06)	0.7143
R(D976:06)	2

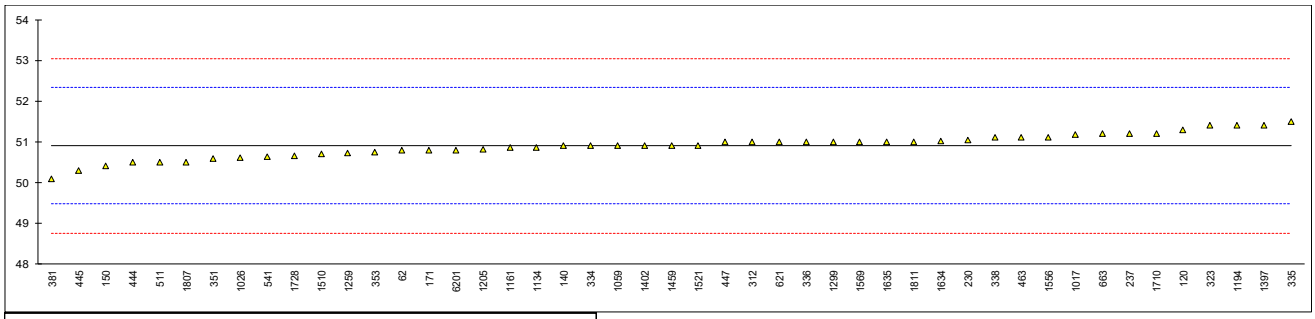


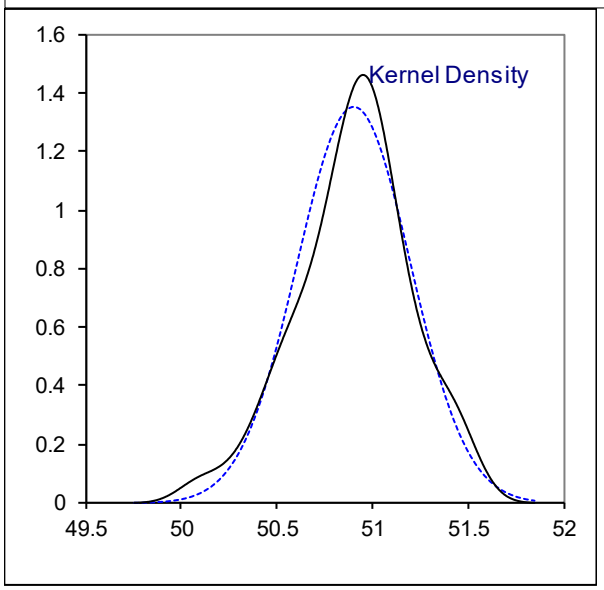


Determination of Calculated Cetane Index, four variables ISO4264 on sample #19090

lab	method	value	mark	z(targ)	remarks
62	D4737-A	50.8		-0.14	
120	D4737-A	51.28		0.53	
140	ISO4264	50.9		0.00	
150	D4737-A	50.4		-0.70	
171	D4737-A	50.8		-0.14	
175		-----		-----	
194		-----		-----	
230	ISO4264	51.04		0.19	
237	D4737-A	51.2		0.42	
238		-----		-----	
312	ISO4264	51.0		0.14	
323	ISO4264	51.4		0.70	
334	ISO4264	50.9		0.00	
335	ISO4264	51.5		0.84	
336	ISO4264	51.0		0.14	
338	ISO4264	51.1		0.28	
351	ISO4264	50.59		-0.44	
353	IP380	50.739		-0.23	
381	ISO4264	50.1		-1.12	
444	ISO4264	50.5		-0.56	
445	IP380	50.3		-0.84	
447	IP380	51.0		0.14	
448		-----		-----	
463	ISO4264	51.10		0.28	
496		-----		-----	
511	D4737	50.5		-0.56	
529		-----		-----	
541	D4737-A	50.63		-0.38	
551		-----		-----	
603		-----		-----	
621	ISO4264	51.0		0.14	
633		-----		-----	
663	D4737-A	51.20		0.42	
1016		-----		-----	
1017	ISO4264	51.17		0.38	
1026	ISO4264	50.6		-0.42	
1059	ISO4264	50.9		0.00	
1065		-----		-----	
1126		-----		-----	
1134	IP380	50.8608		-0.06	
1146		-----		-----	
1161	ISO4264	50.85		-0.07	
1194	D4737-A	51.4		0.70	
1205	ISO4264	50.81	C	-0.13	First reported 55.46
1227		-----		-----	
1259	ISO4264	50.73		-0.24	
1299	D4737-A	51.0		0.14	
1397	ISO4264	51.4		0.70	
1402	IP380	50.9		0.00	
1438		-----		-----	
1459	ISO4264	50.9		0.00	
1510	IP380	50.70		-0.28	
1521	ISO4264	50.9		0.00	
1556	ISO4264	51.1		0.28	
1569	ISO4264	51		0.14	
1631		-----		-----	
1634	ISO4264	51.01		0.15	
1635	D4737-A	51.0		0.14	
1706		-----		-----	
1710	ISO4264	51.2		0.42	
1724		-----		-----	
1728	ISO4264	50.6533		-0.35	
1807	ISO4264	50.5		-0.56	
1810		-----		-----	
1811	ISO4264	51		0.14	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	ISO4264	50.80		-0.14	

normality	OK
n	47
outliers	0
mean (n)	50.901
st.dev. (n)	0.2955
R(calc.)	0.827
st.dev.(ISO4264:18)	0.7143
R(ISO4264:18)	2

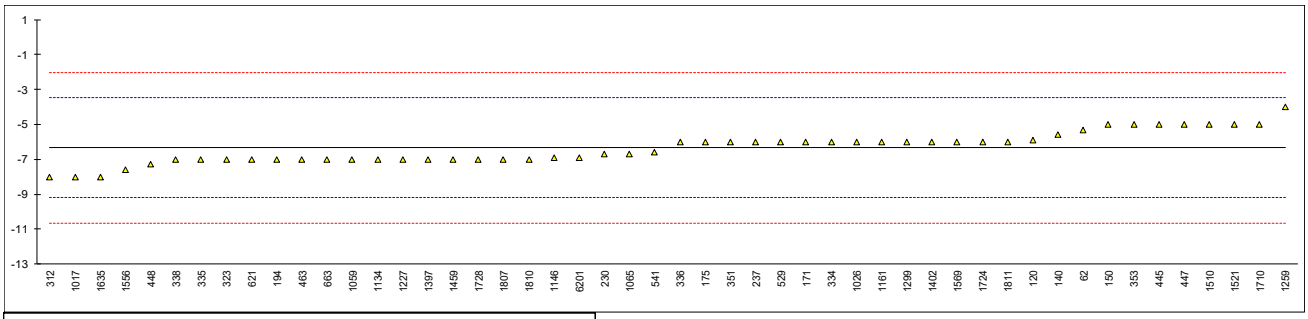


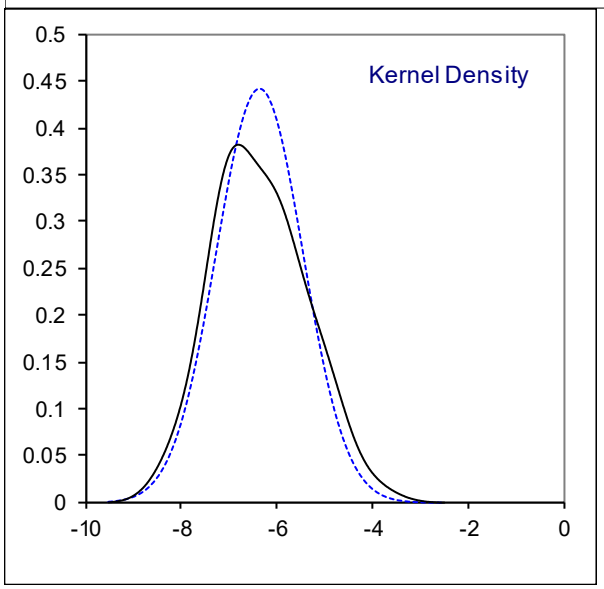


Determination of Cloud Point on sample #19090; result in °C

lab	method	value	mark	z(targ)	remarks
62	D5773	-5.3		0.74	
120	D5773	-5.9		0.32	
140	D5773	-5.6		0.53	
150	D2500	-5		0.95	
171	D2500	-6		0.25	
175	D2500	-6		0.25	
194	D2500	-7		-0.45	
230	D2500	-6.7		-0.24	
237	D2500	-6		0.25	
238		-----		-----	
312	D2500	-8		-1.15	
323	EN23015	-7		-0.45	
334	EN23015	-6		0.25	
335	EN23015	-7		-0.45	
336	EN23015	-6		0.25	
338	EN23015	-7		-0.45	
351	D7683	-6.00		0.25	
353	IP219	-5		0.95	
381		-----		-----	
444		-----		-----	
445	D2500	-5		0.95	
447	IP219	-5		0.95	
448	IP219	-7.3		-0.66	
463	EN23015	-7		-0.45	
496		-----		-----	
511		-----		-----	
529	D2500	-6		0.25	
541	D5771	-6.6		-0.17	
551		-----		-----	
603		-----		-----	
621	D2500	-7.0		-0.45	
633		-----		-----	
663	D2500	-7		-0.45	
1016		-----		-----	
1017	D5771	-8		-1.15	
1026	D5773	-6		0.25	
1059	EN23015	-7		-0.45	
1065	D5771	-6.7		-0.24	
1126		-----		-----	
1134	IP219	-7		-0.45	
1146	D2500	-6.92		-0.40	
1161	D7683	-6		0.25	
1194		-----		-----	
1205		-----		-----	
1227	D2500	-7		-0.45	
1259	EN23015	-4		1.65	
1299	D2500	-6		0.25	
1397	EN23015	-7		-0.45	
1402	EN23015	-6		0.25	
1438		-----		-----	
1459	EN23015	-7.0		-0.45	
1510	EN23015	-5		0.95	
1521	ISO3015	-5		0.95	
1556	ISO3015	-7.6		-0.87	
1569	EN23015	-6		0.25	
1631		-----		-----	
1634		-----		-----	
1635	D7689	-8		-1.15	
1706		-----		-----	
1710	EN23015	-5		0.95	
1724	EN23015	-6		0.25	
1728	D2500	-7		-0.45	
1807	EN23015	-7		-0.45	
1810	EN23015	-7		-0.45	
1811	EN23015	-6		0.25	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	EN23015	-6.9		-0.38	

normality	OK
n	50
outliers	0
mean (n)	-6.35
st.dev. (n)	0.901
R(calc.)	2.52
st.dev.(EN23015:94)	1.429
R(EN23015:94)	4
Compare	
R(D2500:17a)	5

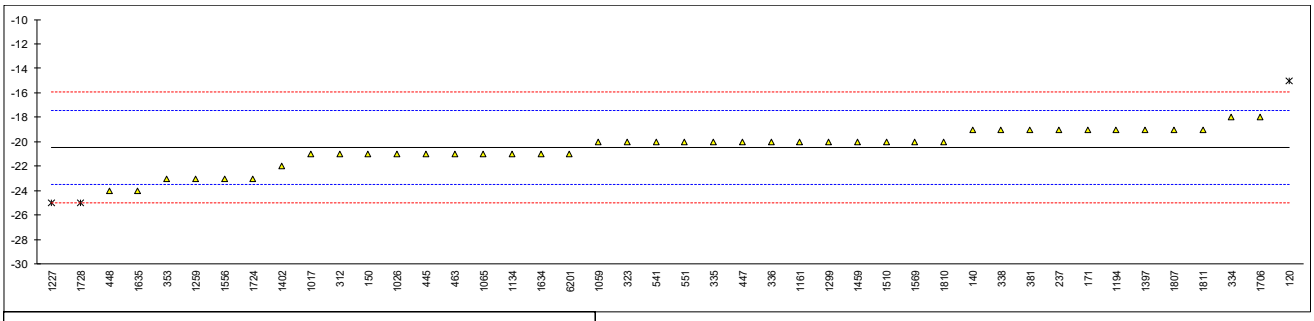


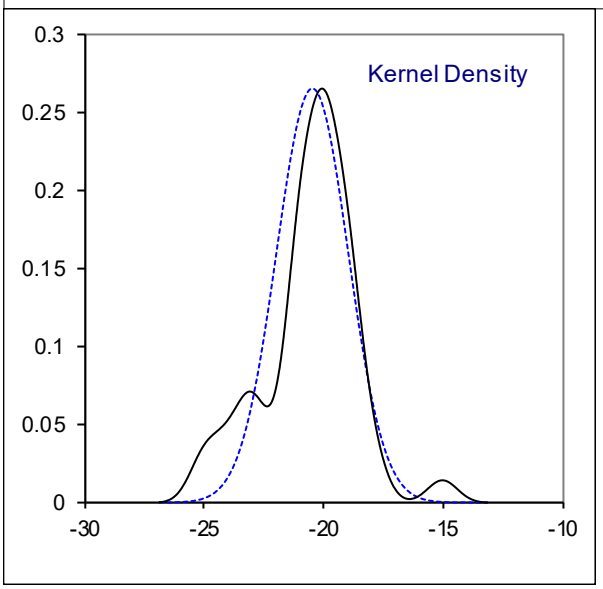


Determination of Cold Filter Plugging Point (CFPP) on sample #19090; result in °C

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D6371	-15	R(0.05)	3.62	
140	EN116	-19		0.97	
150	EN116	-21		-0.36	
171	D6371	-19		0.97	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D6371	-19		0.97	
238		-----		-----	
312	D6371	-21		-0.36	
323	EN116	-20		0.31	
334	EN116	-18		1.63	
335	EN116	-20		0.31	
336	EN116	-20		0.31	
338	EN116	-19		0.97	
351		-----		-----	
353	IP309	-23		-1.68	
381	EN116	-19		0.97	
444		-----		-----	
445	IP309	-21		-0.36	
447	IP309	-20		0.31	
448	EN116	-24		-2.34	
463	EN116	-21		-0.36	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541	D6371	-20		0.31	
551	D6371	-20		0.31	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017	EN116	-21		-0.36	
1026	EN16329	-21		-0.36	
1059	EN116	-20		0.31	
1065	D6371	-21		-0.36	
1126		-----		-----	
1134	EN116	-21.0		-0.36	
1146		-----		-----	
1161	EN116	-20		0.31	
1194	EN116	-19		0.97	
1205		-----		-----	
1227	EN116	-25	R(0.05)	-3.00	
1259	EN116	-23		-1.68	
1299	EN116	-20		0.31	
1397	EN116	-19		0.97	
1402	EN116	-22		-1.02	
1438		-----		-----	
1459	EN116	-20.0		0.31	
1510	EN116	-20		0.31	
1521		-----		-----	
1556	EN116	-23		-1.68	
1569	EN116	-20		0.31	
1631		-----		-----	
1634	EN116	-21		-0.36	
1635	EN116	-24		-2.34	
1706	EN116	-18.0		1.63	
1710		-----	W	-----	Test result withdrawn, reported -26
1724	EN116	-23		-1.68	
1728	D6371	-25	R(0.05)	-3.00	
1807	EN116	-19		0.97	
1810	EN116	-20		0.31	
1811	EN116	-19		0.97	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	EN116	-21		-0.36	

normality	OK
n	41
outliers	3
mean (n)	-20.46
st.dev. (n)	1.502
R(calc.)	4.20
st.dev.(EN116:15)	1.510
R(EN116:15)	4.23



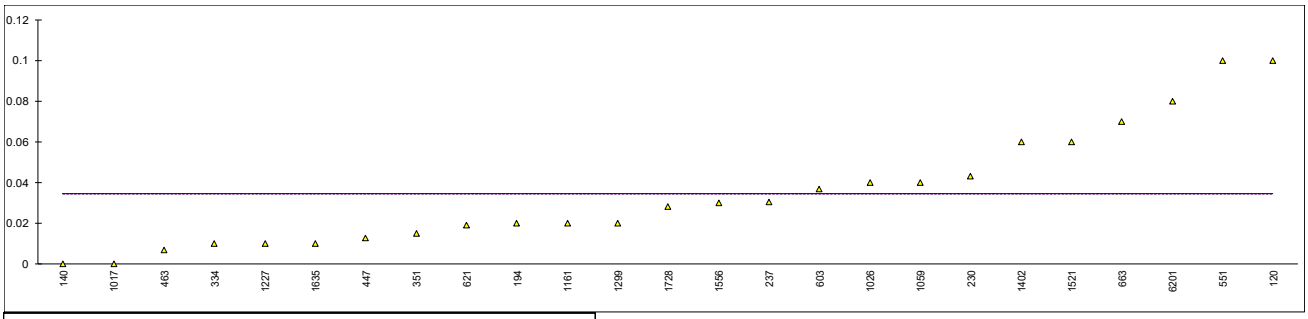


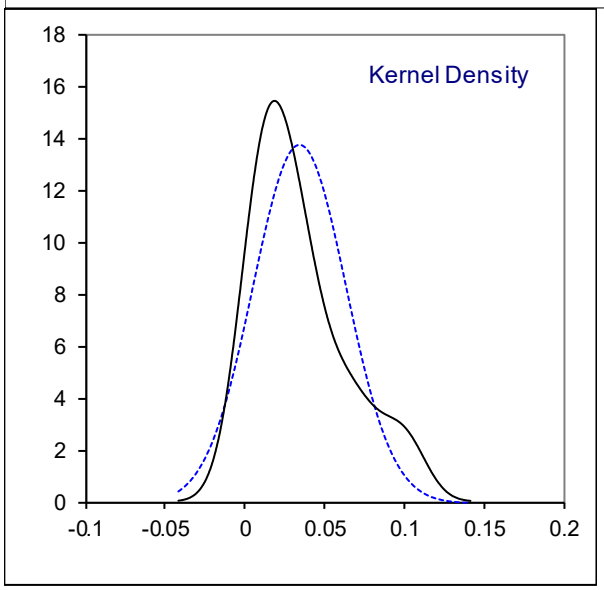
Determination of Carbon Residue, Micro method on 10% dist. res. on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62	D4530	<0.1		-----	
120	D4530	0.10		-----	
140	ISO10370	0.0		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194	D4530	0.02		-----	
230	ISO10370	0.043		-----	
237	D4530	0.03039		-----	
238		-----		-----	
312		-----		-----	
323	ISO10370	< 0.10		-----	
334	ISO10370	0.01		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351	ISO10370	0.015		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	ISO10370	< 0.01		-----	
447	IP398	0.013		-----	
448		-----		-----	
463	ISO10370	0.007		-----	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541	D4530	<0.1		-----	
551	D4530	0.1		-----	
603	D4530	0.037		-----	
621	D189	0.0192		-----	
633		-----		-----	
663	D4530	0.07		-----	
1016		-----		-----	
1017	ISO10370	0		-----	
1026	ISO10370	0.04		-----	
1059	ISO10370	0.04		-----	
1065		-----		-----	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161	ISO10370	0.02		-----	
1194		-----		-----	
1205		-----		-----	
1227	D4530	0.01		-----	
1259		-----		-----	
1299	D4530	0.02		-----	
1397		-----		-----	
1402	ISO10370	0.06	C	-----	First reported 0.10
1438		-----		-----	
1459		-----		-----	
1510		-----		-----	
1521	ISO10370	0.06		-----	
1556	ISO10370	0.03		-----	
1569	ISO10370	<0.10		-----	
1631		-----		-----	
1634		-----		-----	
1635	ISO10370	0.01		-----	
1706		-----		-----	
1710		-----	W	-----	Test result withdrawn, reported 0.12
1724	ISO10370	<0,10		-----	
1728	ISO10370	0.0280		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D4530	0.08		-----	

normality	suspect
n	25
outliers	0
mean (n)	0.0345
st.dev. (n)	0.02892
R(calc.)	0.0810
st.dev.(ISO10370:14)	(0.00928)
R(ISO10370:14)	(0.0260)

Application range: 0.1 – 30%M/M

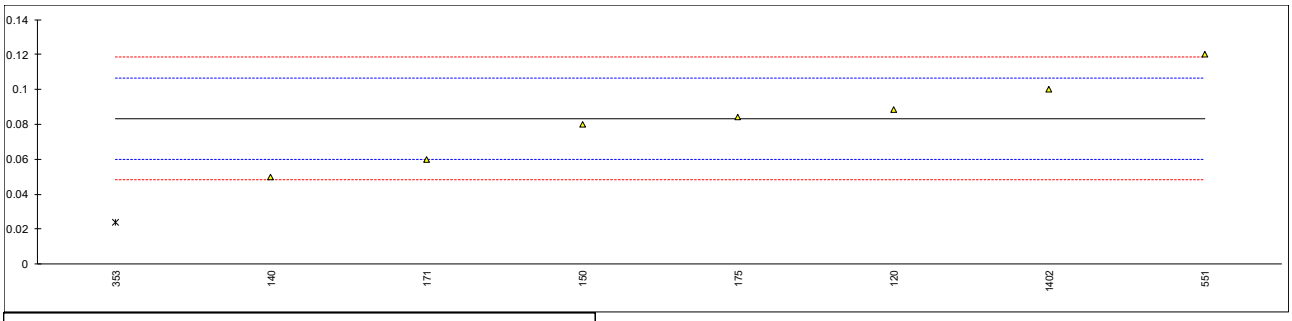


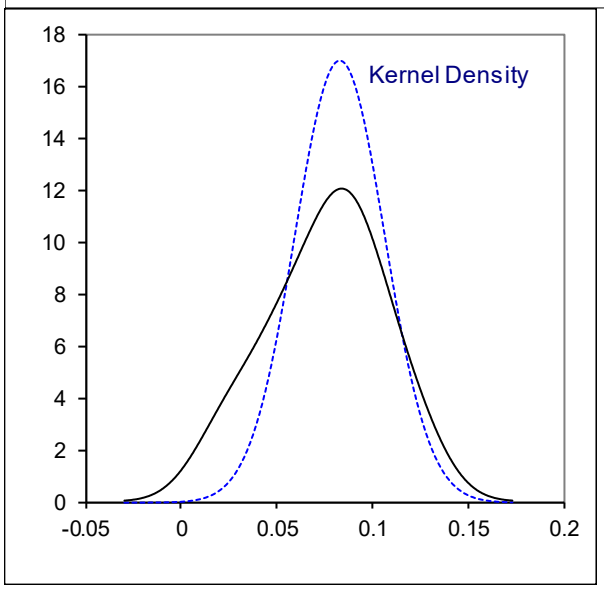


Determination of Ramsbottom Carbon Residue on 10% dist. res. on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D524	0.0885		0.45	
140	D524	0.05		-2.83	
150	D524	0.08		-0.27	
171	D524	0.06		-1.98	
175	D524	0.084		0.07	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312		-----		-----	
323		-----		-----	
334		-----		-----	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353	IP13	0.024	ex	-5.05	Test result excluded, test method different (Conradson CR)
381		-----		-----	
444		-----		-----	
445	D524	< 0.01		<-6.24	Possibly a false negative test result?
447		-----		-----	
448		-----		-----	
463		-----		-----	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551	D524	0.12		3.14	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059		-----		-----	
1065		-----		-----	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161		-----		-----	
1194		-----		-----	
1205		-----		-----	
1227		-----		-----	
1259		-----		-----	
1299		-----		-----	
1397		-----		-----	
1402	D524	0.10		1.43	
1438		-----		-----	
1459		-----		-----	
1510		-----		-----	
1521		-----		-----	
1556		-----		-----	
1569		-----		-----	
1631		-----		-----	
1634		-----		-----	
1635		-----		-----	
1706		-----		-----	
1710		-----		-----	
1724		-----		-----	
1728		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201		-----		-----	

normality	unknown
n	7
outliers	0 (+1ex)
mean (n)	0.0832
st.dev. (n)	0.02351
R(calc.)	0.0658
st.dev.(D524:15)	0.01173
R(D524:15)	0.0328





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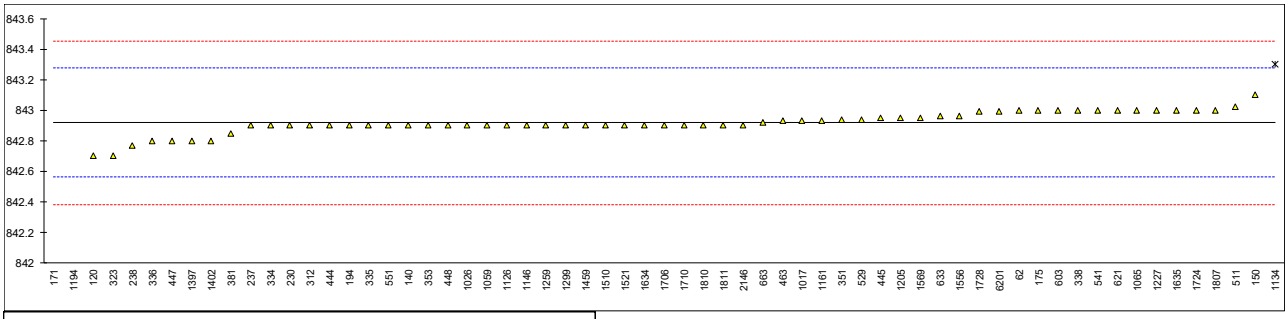
Determination of Copper Corrosion 3hrs at 50 °C on sample #19090: rating

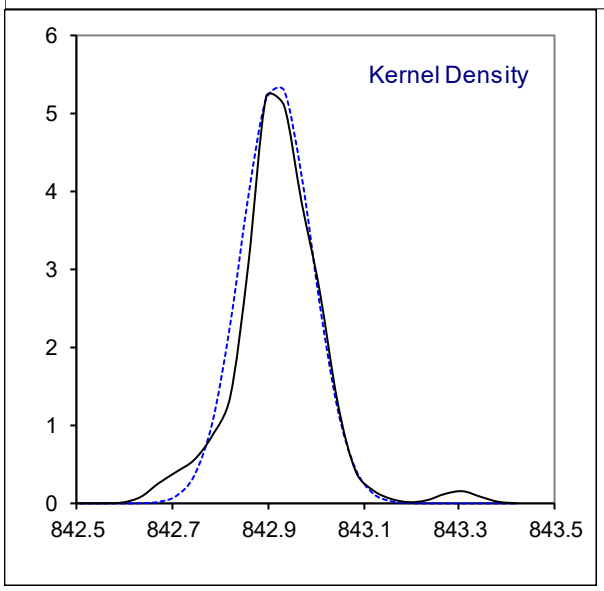
lab	method	value	mark	z(targ)	remarks
62	D130	1a		-----	
120		-----		-----	
140	ISO2160	1a		-----	
150	D130	1a		-----	
171	D130	1a		-----	
175	D130	1a		-----	
194	D130	1A		-----	
230	D130	1a		-----	
237	D130	1A		-----	
238		-----		-----	
312	D130	1a		-----	
323	D130	1A	C	-----	First reported 117
334	D130	1A		-----	
335		-----		-----	
336	D130	1a		-----	
338		-----		-----	
351	ISO2160	1A		-----	
353	D130	1a		-----	
381		-----		-----	
444		-----		-----	
445	D130	1A		-----	
447	IP154	1a		-----	
448		-----		-----	
463	D130	1A		-----	
496		-----		-----	
511	D130	1a		-----	
529	D130	1A		-----	
541	D130	1A		-----	
551	D130	1A		-----	
603	D130	1a		-----	
621	D130	1A		-----	
633	D130	1a		-----	
663	D130	1a		-----	
1016		-----		-----	
1017	ISO2160	1A		-----	
1026	ISO2160	1A		-----	
1059	ISO2160	1a		-----	
1065		-----		-----	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161	ISO2160	1a		-----	
1194		-----		-----	
1205		-----		-----	
1227	D130	1A		-----	
1259		-----		-----	
1299	D130	1A		-----	
1397	ISO2160	1		-----	
1402	D130	1A		-----	
1438		-----		-----	
1459		-----		-----	
1510	ISO2160	1a		-----	
1521	ISO2160	1a		-----	
1556	ISO2160	1a		-----	
1569	ISO2160	1a		-----	
1631		-----		-----	
1634	ISO2160	1a		-----	
1635		-----		-----	
1706		-----		-----	
1710	ISO2160	1A		-----	
1724	D130	No.1a		-----	
1728	D130	1A		-----	
1807	D130	1A		-----	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D130	1A		-----	
	n	43			
	mean (n)	1 (1A)			

Determination of Density at 15°C on sample #19090; result in kg/m^3

lab	method	value	mark	z(targ)	remarks
62	D4052	843.0		0.46	
120	D4052	842.7		-1.22	
140	D4052	842.9		-0.10	
150	D4052	843.1		1.02	
171	D4052	834.0	R(0.01)	-49.94	
175	D4052	843.0		0.46	
194	D4052	842.9		-0.10	
230	ISO12185	842.90		-0.10	
237	D4052	842.9		-0.10	
238	D4052	842.77		-0.83	
312	ISO12185	842.9		-0.10	
323	ISO12185	842.7		-1.22	
334	ISO12185	842.9		-0.10	
335	ISO12185	842.9		-0.10	
336	ISO12185	842.8		-0.66	
338	ISO12185	843.0		0.46	
351	ISO12185	842.94		0.12	
353	IP365	842.9		-0.10	
381	ISO12185	842.85		-0.38	
444	D4052	842.9		-0.10	
445	D4052	842.95		0.18	
447	IP365	842.8		-0.66	
448	D4052	842.9	C	-0.10	First reported 824.9
463	ISO12185	842.93		0.07	
496		-----		-----	
511	D4052	843.02		0.57	
529	D4052	842.94		0.12	
541	ISO12185	843.00		0.46	
551	D4052	842.9		-0.10	
603	D4052	843.0		0.46	
621	D4052	843.0		0.46	
633	D1298	842.96		0.23	
663	D4052	842.92		0.01	
1016		-----		-----	
1017	ISO12185	842.93		0.07	
1026	D4052	842.9		-0.10	
1059	ISO12185	842.9		-0.10	
1065	D4052	843.0		0.46	
1126	ISO12185	842.9		-0.10	
1134	ISO12185	843.3	R(0.01)	2.14	
1146	D4052	842.90		-0.10	
1161	ISO12185	842.93		0.07	
1194	ISO12185	841.5	C,R(0.01)	-7.94	First reported 0.8415 kg/m^3
1205	ISO12185	842.95		0.18	
1227	D4052	843		0.46	
1259	ISO12185	842.9		-0.10	
1299	D4052	842.9		-0.10	
1397	ISO12185	842.8		-0.66	
1402	ISO12185	842.8		-0.66	
1438		-----		-----	
1459	ISO12185	842.9		-0.10	
1510	ISO12185	842.90		-0.10	
1521	ISO12185	842.9		-0.10	
1556	ISO12185	842.96		0.23	
1569	ISO12185	842.95		0.18	
1631		-----		-----	
1634	ISO12185	842.9		-0.10	
1635	ISO12185	843.0		0.46	
1706	ISO12185	842.9		-0.10	
1710	ISO12185	842.9		-0.10	
1724	ISO12185	843.0		0.46	
1728	D4052	842.99		0.40	
1807	ISO12185	843		0.46	
1810	ISO12185	842.9		-0.10	
1811	ISO12185	842.9		-0.10	
2146	ISO12185	842.9		-0.10	
6016		-----		-----	
6168		-----		-----	
6201	ISO12185	842.99	C	0.40	First reported 0.84299 kg/m^3

normality	suspect
n	60
outliers	3
mean (n)	842.918
st.dev. (n)	0.0738
R(calc.)	0.207
st.dev.(ISO12185:96)	0.1786
R(ISO12185:96)	0.5



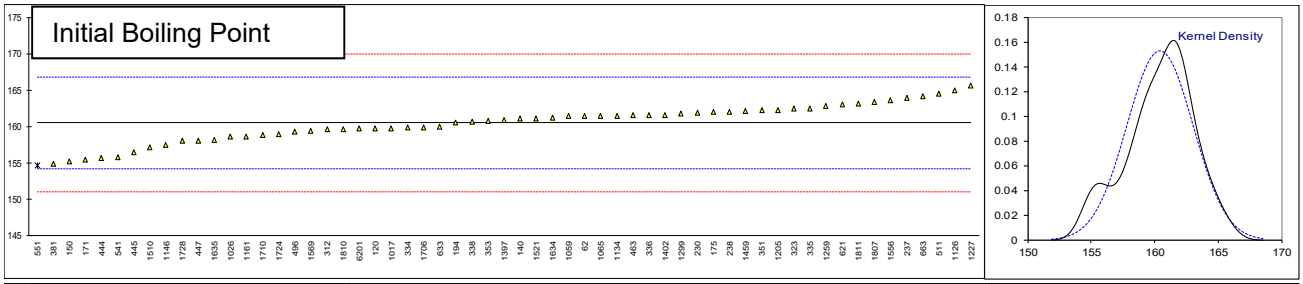


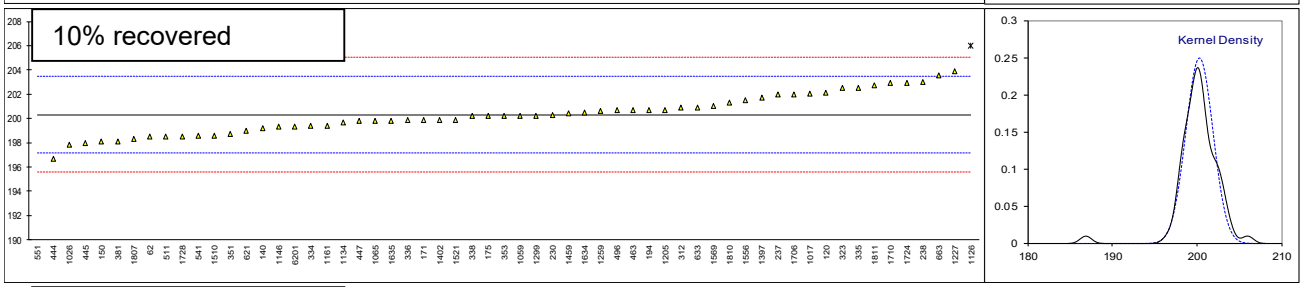
Determination of Distillation at 760 mmHg on sample #19090; result in °C

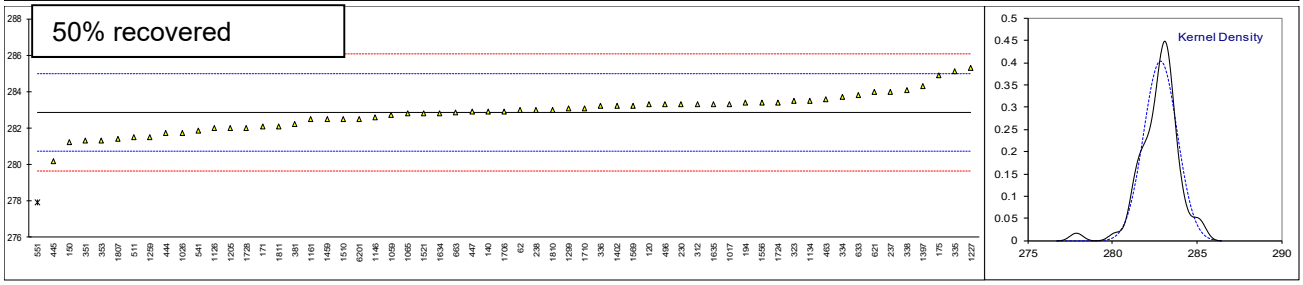
lab	method	IBP	mark	10%rec	mark	50%rec	mark	90%rec	mark	95%rec	mark	FBP	mark
62	D86-automated	161.5		198.5		283.0		335.0		347.8		353.8	
120	D86-automated	159.8		202.1		283.3		336.0		348.6		352.7	
140	ISO3405-automated	161.1		199.2		282.9		334.7		346.0		352.6	
150	D86-automated	155.2		198.1		281.2		332.7		342.7		348.4	R(0.05)
171	D86-automated	155.4		199.9		282.1		333.9		345.4		353.1	
175	D86-automated	162.0		200.2		284.9		337.9		351.2		354.6	
194	D86-automated	160.5		200.7		283.4		335.8		348.1		355.1	
230	D86-automated	161.9		200.3		283.3		335.0		345.5		353.6	
237	D86-manual	164.0		202.0		284.0		332.0		341.0		352.0	
238	D86-manual	162.0		203.0		283.0		335.0		347.0		353.0	
312	D86-automated	159.6		200.9		283.3		333.9		344.4		352.4	
323	D86-automated	162.5		202.5		283.5		336.0		348.9		353.5	
334	ISO3405-automated	159.9		199.4		283.7		335.4		348.0		352.1	
335	ISO3405-automated	162.5		202.5		285.1		338.3		352.5		354.3	
336	ISO3405-automated	161.6		199.9		283.2		334.3		345.0		353.2	
338		160.7		200.2		284.1		336.2		348.3		354.7	
351		162.2		198.7		281.3		334.4		346.7		353.2	
353	D86-automated	160.8		200.2		281.3		335.7		347.7		354.6	
381	D86-manual	154.9	C	198.1	C	282.2	C	334.1	C	343.2	C	353.1	C
444	D86-automated	155.7		196.7		281.7		333.3		344.3		352.7	
445	ISO3405-automated	156.5		198.0		280.2		331.6		341.8		349.8	
447	IP123-automated	158.1		199.8		282.9		334.8		345.9		353.5	
448		-----		-----		-----		-----		-----		-----	
463	D86-automated	161.6		200.7		283.6		335.9		346.5		355.6	
496	ISO3405-automated	159.3		200.7		283.3		334.7		346.1		352.7	
511	D86-manual	164.5		198.5		281.5		334.5		347.5		352.0	
529		-----		-----		-----		-----		-----		-----	
541	ISO3405-automated	155.75		198.60		281.85		333.80		344.05		351.65	
551	D86-automated	154.7	ex	186.9	R(0.01)	277.9	R(0.01)	329.2	R(0.05)	337.1	R(0.05)	341.7	R(0.01)
603		-----		-----		-----		-----		-----		-----	
621	D86-manual	163.0		199.0		284.0		335		348		353	
633	D86-automated	160.0		200.9		283.8		336.5		347.0		352.1	
663	D86-automated	164.15		203.55		282.85		333.90		344.70		352.55	
1016		-----		-----		-----		-----		-----		-----	
1017	ISO3405-automated	159.81		202.08		283.32		335.38		346.51		355.18	
1026	ISO3405-automated	158.6		197.8		281.7		333.7		344		352.1	
1059	ISO3405-automated	161.4		200.2		282.7		334.8		346.4		354.9	
1065	D86-automated	161.5		199.8		282.8		336.2		346.7		351.8	
1126		165		206	R(0.05)	282		337		347		359	R(0.05)
1134	D86-automated	161.5		199.7		283.5		335.3		346.7		353.9	
1146	D86-automated	157.5		199.3		282.6		336.0		348.1		354.8	
1161	ISO3405-automated	158.6		199.4		282.5		335.1		345.1		354.6	
1194		-----		-----		-----		-----		-----		-----	
1205	D86-automated	162.3		200.7		282.0		333.0		342.6		354.2	
1227	D86-automated	165.7		203.9		285.3		335.5		346.3		353.2	
1259	ISO3405-automated	162.8		200.6		281.5		331.9		340.9		352.3	
1299	D86-automated	161.8		200.2		283.1		335.2		345.8		354.2	
1397	ISO3405-automated	160.9		201.7		284.3		336.1		346.4		353.8	
1402	ISO3405-automated	161.6		199.9		283.2		335.2		345.9		355.6	
1438		-----		-----		-----		-----		-----		-----	
1459	ISO3405-automated	162.1		200.4		282.5		332.2		342.3		348.1	R(0.05)
1510	ISO3405-automated	157.1		198.6		282.5		335.3		348.0		353.2	
1521	ISO3405-automated	161.1		199.9		282.8		334.9		345.7		353.1	
1556	ISO3405-automated	163.6		201.5		283.4		335.1		345.7		354.9	
1569	D86-automated	159.4		201.0		283.2		334.7		345.3		355.1	
1631		-----		-----		-----		-----		-----		-----	
1634	ISO3405-automated	161.2		200.5		282.8		334.3		344.6		354.8	
1635	D86-automated	158.2		199.8		283.3		335.6		347.6		353.9	
1706	ISO3405-automated	159.9		202		282.9		334.3		345.2		353.5	
1710	ISO3405-automated	158.9		202.9		283.1		334.3		344.5		352.0	
1724	ISO3405-automated	159		202.9		283.4		334.9		345.9		353.9	
1728	ISO3405-manual	158		198.5		282		334		344		353	
1807	ISO3405-automated	163.4		198.3		281.4		333.4		343.7		353.1	
1810	D86-manual	159.6		201.3		283.0		334.5		345.2		353.7	
1811	D86-automated	163.2		202.7		282.1		330.6		341.5		349.8	
2146		-----		-----		-----		-----		-----		-----	
6016		-----		-----		-----		-----		-----		-----	
6168		-----		-----		-----		-----		-----		-----	
6201	D86-automated	159.7		199.3		282.5		334.5		345.2		353.7	

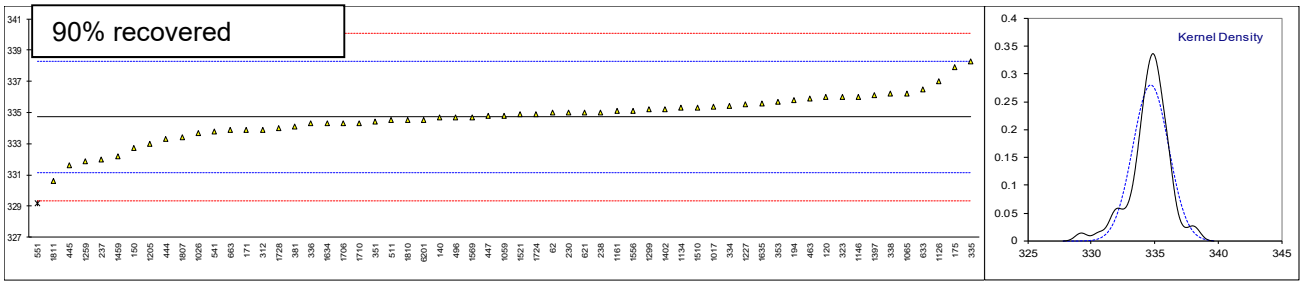
Lab 381: first reported 153.3, 195.3, 279.7, 332.5, 342.0, 347.8
Lab 551: test result excluded, as rest of the related test results are statistical outliers

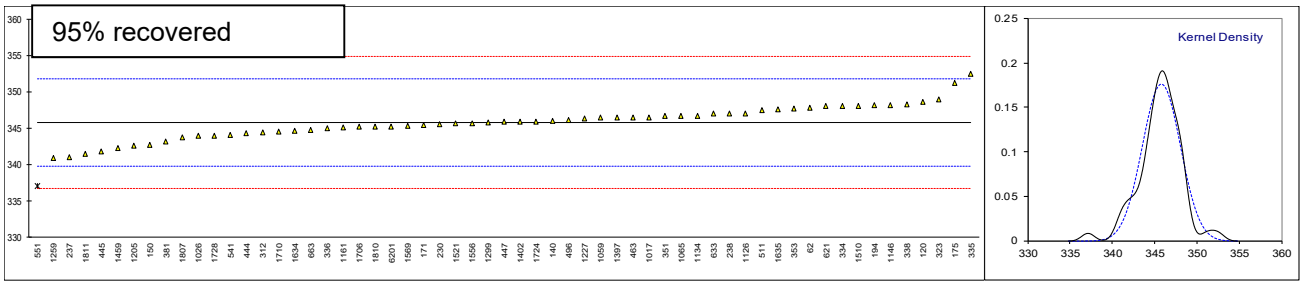
	IBP	10% rec	50% rec	90% rec	95% rec	FBP
normality	OK	OK	OK	suspect	OK	OK
n	58	57	58	58	58	55
outliers	0 (+1ex)	2	1	1	1	4
mean (n)	160.52	200.31	282.86	334.71	345.80	353.37
st.dev. (n)	2.525	1.597	0.987	1.421	2.260	1.254
R(calc.)	7.07	4.47	2.76	3.98	6.33	3.51
st.dev.(ISO3405-A:19)	3.153	1.574	1.071	1.793	3.017	2.536
R(ISO3405-A:19)	8.83	4.41	3	5.02	8.45	7.1
Compare						
R(ISO3405-M:19)	6.50	5.05	4.03	3.66	4.28	3.74

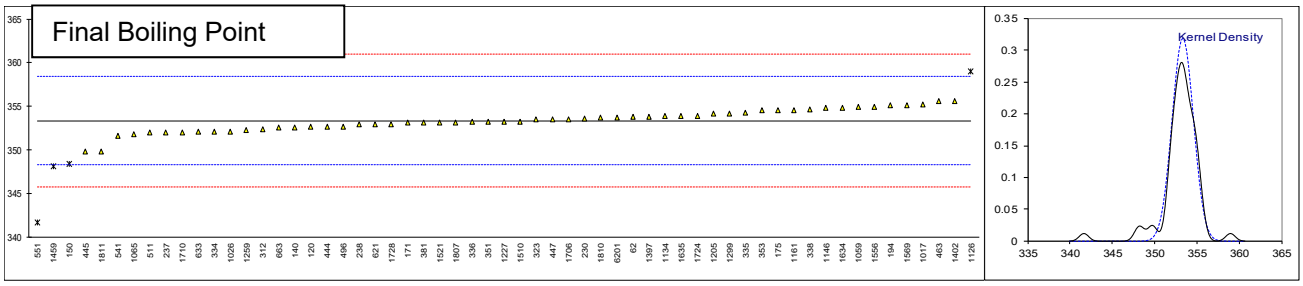








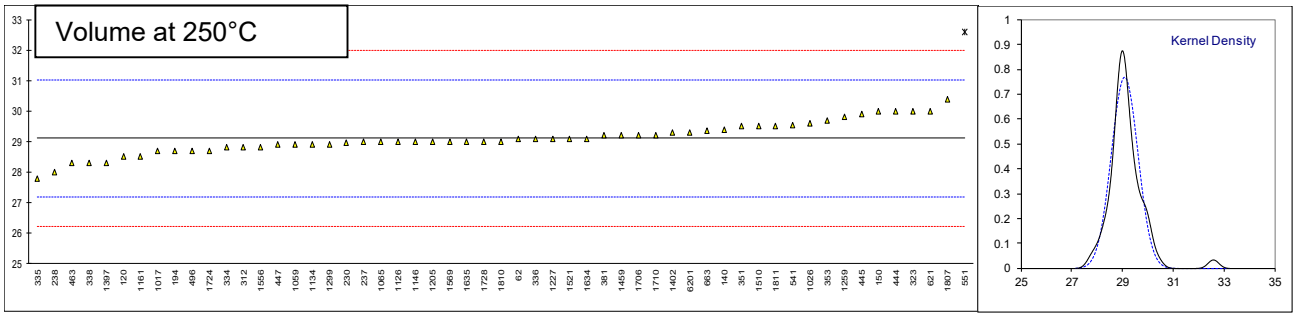


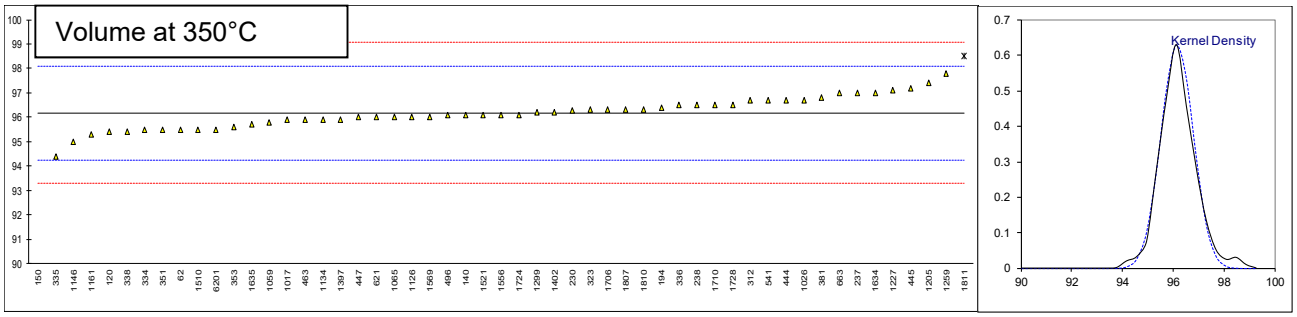


Determination of Distillation at 760 mm Hg on sample #19090; result in %V/V

lab	method	Vol at 250°C	mark	z(targ)	Vol at 350°C	mark	z(targ)	% residue	remark
62	D86-automated	29.1		0.00	95.5		-0.69	1.0	
120	D86-automated	28.5		-0.63	95.4		-0.80	1.0	
140	ISO3405-automated	29.4		0.31	96.1		-0.07	1.4	
150	D86-automated	30.0		0.93	0	R(0.01)	-99.73	1.4	
171		-----		-----	-----		-----	0.9	
175		-----		-----	-----		-----	1.0	
194	D86-automated	28.7		-0.42	96.4		0.24	1.4	
230	D86-automated	28.97		-0.14	96.28		0.12	1.4	
237	D86-manual	29.0		-0.11	97.0		0.86	1.0	
238	D86-manual	28.0		-1.14	96.5		0.34	1.0	
312	D86-automated	28.8		-0.31	96.7		0.55	1.7	
323	D86-automated	30.0		0.93	96.3		0.14	1.4	
334	ISO3405-automated	28.8		-0.31	95.5		-0.69	1.2	
335	ISO3405-automated	27.8		-1.35	94.4		-1.83	0.8	
336	ISO3405-automated	29.1		0.00	96.5		0.34	1.2	
338		28.3		-0.83	95.4	C	-0.80	-----	First reported 28.3
351		29.5		0.41	95.5		-0.69	1.2	
353	D86-automated	29.7		0.62	95.6		-0.59	1.2	
381	D86-manual	29.2	C	0.10	96.8	C	0.66	0.7	First reported 31.1, --
444	D86-automated	30.0		0.93	96.7		0.55	-----	
445	ISO3405-automated	29.9		0.83	97.2		1.07	1.4	
447	IP123-automated	28.9		-0.21	96.0		-0.17	1.4	
448		-----		-----	-----		-----	-----	
463	D86-automated	28.3		-0.83	95.9		-0.28	1.6	
496	ISO3405-automated	28.7		-0.42	96.1		-0.07	1.4	
511		-----		-----	-----		-----	-----	
529		-----		-----	-----		-----	-----	
541	ISO3405-automated	29.55		0.46	96.70		0.55	1.40	
551	D86-automated	32.6	R(0.01)	3.63	-----		-----	1.4	
603		-----		-----	-----		-----	-----	
621	D86-manual	30		0.93	96		-0.17	0.8	
633		-----		-----	-----		-----	1.6	
663	D86-automated	29.35		0.26	97.00		0.86	-----	
1016		-----		-----	-----		-----	-----	
1017	ISO3405-automated	28.7		-0.42	95.9		-0.28	1.4	
1026	ISO3405-automated	29.6		0.52	96.7		0.55	1.2	
1059	ISO3405-automated	28.9		-0.21	95.8		-0.38	1.4	
1065	D86-automated	29.0		-0.11	96.0		-0.17	2.0	
1126		29		-0.11	96		-0.17	-----	
1134	D86-automated	28.9		-0.21	95.9		-0.28	1.4	
1146	D86-automated	29		-0.11	95		-1.21	1.4	
1161	ISO3405-automated	28.5		-0.63	95.3		-0.90	1.4	
1194		-----		-----	-----		-----	-----	
1205	D86-automated	29.0		-0.11	97.4		1.28	1.4	
1227	D86-automated	29.1		0.00	97.1		0.97	1	
1259	ISO3405-automated	29.8		0.72	97.8		1.69	1.4	
1299	D86-automated	28.9		-0.21	96.2		0.03	1.3	
1397	ISO3405-automated	28.3		-0.83	95.9		-0.28	1.4	
1402	ISO3405-automated	29.3		0.20	96.2		0.03	0.8	
1438		-----		-----	-----		-----	-----	
1459	ISO3405-automated	29.2		0.10	>97	C	-----	1.4	First reported 100
1510	ISO3405-automated	29.5		0.41	95.5		-0.69	1.4	
1521	ISO3405-automated	29.1		0.00	96.1		-0.07	1.5	
1556	ISO3405-automated	28.8		-0.31	96.1		-0.07	1.4	
1569	D86-automated	29		-0.11	96		-0.17	1.4	
1631		-----		-----	-----		-----	-----	
1634	ISO3405-automated	29.1		0.00	97.0		0.86	0.8	
1635	D86-automated	29.0		-0.11	95.7		-0.49	1.4	
1706	ISO3405-automated	29.2		0.10	96.3		0.14	1.6	
1710	ISO3405-automated	29.2		0.10	96.5		0.34	1.3	
1724	ISO3405-automated	28.7		-0.42	96.1		-0.07	1.6	
1728	ISO3405-manual	29		-0.11	96.5		0.34	1.4	
1807	ISO3405-automated	30.4		1.34	96.3		0.14	1.2	
1810	D86-manual	29.0		-0.11	96.3		0.14	1.5	
1811	D86-automated	29.5		0.41	98.5	R(0.05)	2.42	1.4	
2146		-----		-----	-----		-----	-----	
6016		-----		-----	-----		-----	-----	
6168		-----		-----	-----		-----	-----	
6201	D86-automated	29.3		0.20	95.5		-0.69	1.6	

	Vol at 250°C	Vol at 350°C
normality	OK	OK
n	54	51
outliers	1	2
mean (n)	29.10	96.17
st.dev. (n)	0.520	0.634
R(calc.)	1.46	1.77
st.dev.(ISO3405-A:19)	0.964	0.964
R(ISO3405-A:19)	2.7	2.7
Compare		
R(ISO3405-M:19)	5.86	4.82

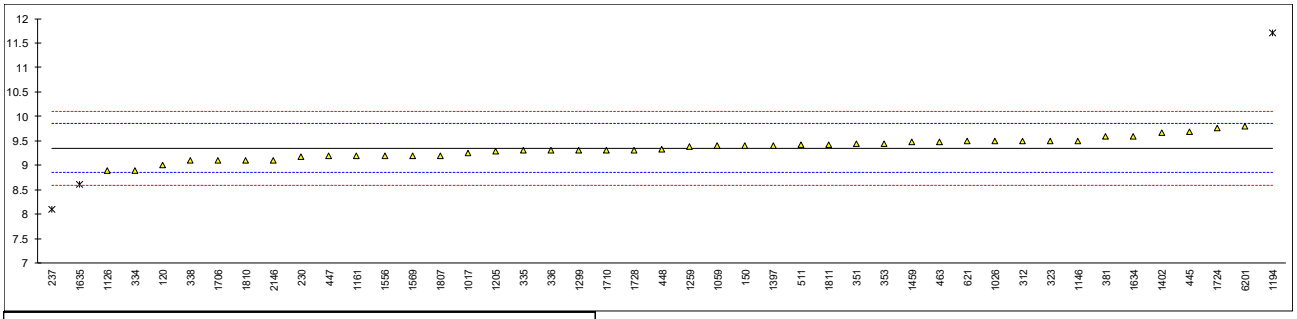


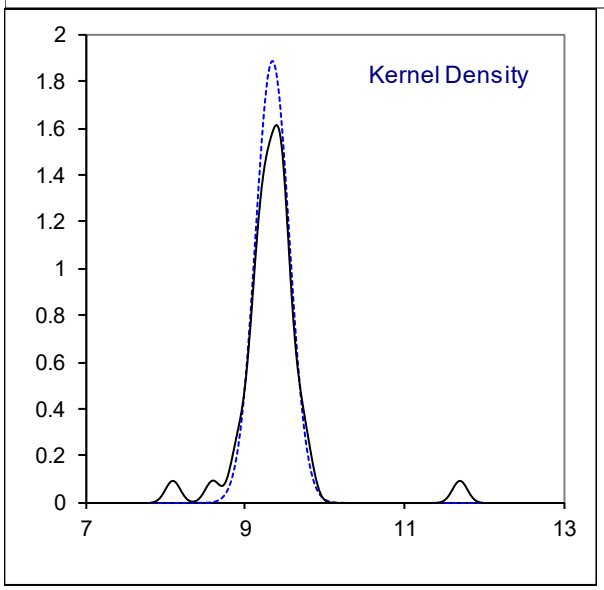


Determination of Fatty Acid Methyl Esters (FAME) content on sample #19090; result in %V/V

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D7371	9.0		-1.39	
140		-----		-----	
150	D7371	9.40		0.21	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230	EN14078-B	9.18		-0.67	
237	D7371	8.1	R(0.01)	-4.99	
238		-----		-----	
312	EN14078-B	9.5		0.61	
323	EN14078-B	9.5		0.61	
334	EN14078-B	8.9		-1.79	
335	EN14078-B	9.3		-0.19	
336	EN14078-B	9.3		-0.19	
338	EN14078-B	9.1		-0.99	
351	EN14078-B	9.447		0.40	
353	EN14078-B	9.447	C	0.40	First reported 4.35
381	EN14078-B	9.6		1.01	
444		-----		-----	
445	EN14078-B	9.679		1.32	
447	EN14078-B	9.2		-0.59	
448	EN14078-B	9.332		-0.06	
463	EN14078-B	9.48		0.53	
496		-----		-----	
511	D7371	9.421		0.29	
529		-----		-----	
541		-----		-----	
551		-----		-----	
603		-----		-----	
621	EN14078-B	9.5		0.61	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017	EN14078-B	9.25		-0.39	
1026	EN14078-A	9.5		0.61	
1059	EN14078-B	9.4		0.21	
1065		-----		-----	
1126	EN14078-A	8.9		-1.79	
1134		-----		-----	
1146	D7371	9.5		0.61	
1161	EN14078-B	9.20		-0.59	
1194		11.7	R(0.01)	9.41	
1205	In house	9.28		-0.27	
1227		-----		-----	
1259	EN14078-B	9.38		0.13	
1299	EN14078-B	9.3		-0.19	
1397	EN14078-A	9.4		0.21	
1402	EN14078-B	9.658		1.24	
1438		-----		-----	
1459	EN14078-B	9.47		0.49	
1510		-----		-----	
1521		-----		-----	
1556	EN14078-B	9.2		-0.59	
1569	EN14078-B	9.20		-0.59	
1631		-----		-----	
1634	EN14078-A	9.6		1.01	
1635	EN14078-B	8.6	R(0.05)	-2.99	
1706	EN14078-B	9.1		-0.99	
1710	EN14078-B	9.3		-0.19	
1724	EN14078-B	9.76		1.65	
1728	EN14078-B	9.3		-0.19	
1807	EN14078-B	9.2	C	-0.59	First reported 10.5
1810		9.1		-0.99	
1811	EN14078-A	9.43		0.33	
2146	In house	9.10		-0.99	
6016		-----		-----	
6168		-----		-----	
6201	EN14078-A	9.80		1.81	

	normality	OK
	n	42
	outliers	3
	mean (n)	9.348
	st.dev. (n)	0.2111
	R(calc.)	0.591
	st.dev.(EN14078-B:14)	0.2500
	R(EN14078-B:14)	0.700
Compare		
	R(D7371:14)	1.157

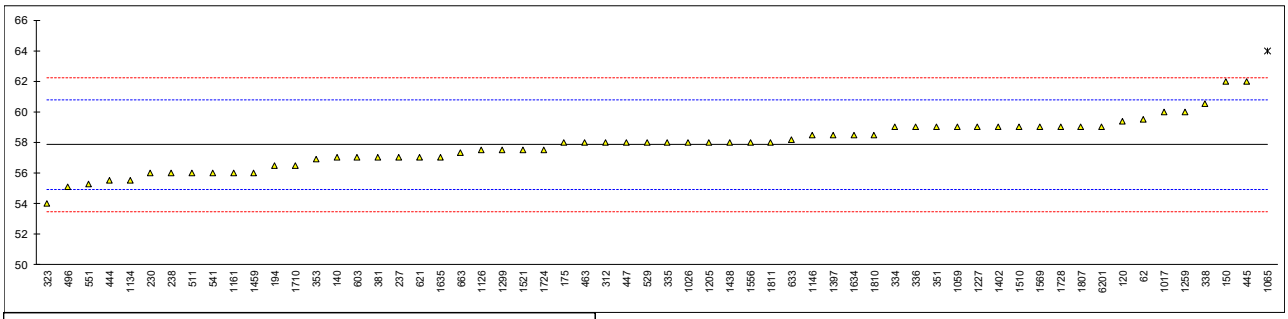


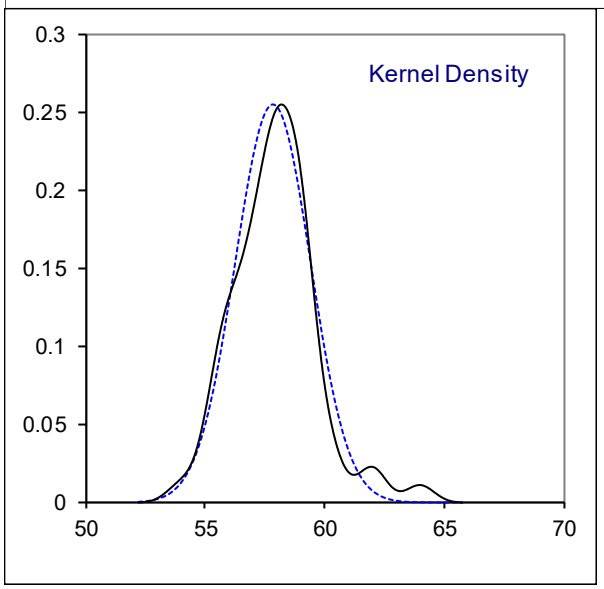


Determination of Flash Point PMcc on sample #19090; result in °C

lab	method	value	mark	z(targ)	remarks
62	D93-A	59.5		1.12	
120	D93-C	59.4		1.06	
140	ISO2719-A	57		-0.58	
150	D93-A	62.0		2.83	
171		-----		-----	
175	D93-A	58		0.10	
194	D93-A	56.5		-0.92	
230	ISO2719-A	56.0		-1.26	
237	D93-A	57		-0.58	
238	D93-A	56.0		-1.26	
312	D93-A	58.0		0.10	
323	ISO2719-B	54.0		-2.62	
334	ISO2719-A	59.0		0.78	
335	ISO2719-A	58.0		0.10	
336	ISO2719-A	59.0		0.78	
338	ISO2719-A	60.5		1.81	
351	ISO2719-A	59.00		0.78	
353	IP34-A	56.875		-0.66	
381	ISO2719-A	57.0		-0.58	
444	D93-A	55.5		-1.60	
445	IP34-A	62.0		2.83	
447	IP34-A	58.0		0.10	
448		-----		-----	
463	D93-A	58.0		0.10	
496	D93-A	55.1		-1.87	
511	D93-A	56.0		-1.26	
529	D93-A	58.0		0.10	
541	ISO2719-A	56.00		-1.26	
551	D93	55.3		-1.74	
603	D93-A	57.0		-0.58	
621	D93-A	57.0		-0.58	
633	D93-C	58.2		0.24	
663	D93-A	57.3		-0.38	
1016		-----		-----	
1017	ISO2719-A	60.0		1.47	
1026	D93-A	58.0		0.10	
1059	ISO2719-A	59.0		0.78	
1065	D93-A	64	R(0.05)	4.19	
1126	ISO2719-B	57.5		-0.24	
1134	D93-B	55.5		-1.60	
1146	D93-A	58.5		0.44	
1161	ISO2719-A	56.0		-1.26	
1194		-----		-----	
1205	D93-A	58.0		0.10	
1227	D93-A	59		0.78	
1259	ISO2719-A	60.0		1.47	
1299	D93-A	57.5		-0.24	
1397	ISO2719-A	58.5		0.44	
1402	ISO2719-B	59.0		0.78	
1438	D93-A	58		0.10	
1459	ISO2719-A	56		-1.26	
1510	ISO2719-A	59.0		0.78	
1521	ISO2719-A	57.5		-0.24	
1556	ISO2719-A	58.0		0.10	
1569	D93-A	59.0		0.78	
1631		-----		-----	
1634	ISO2719-A	58.5		0.44	
1635	D93-A	57.0		-0.58	
1706		-----		-----	
1710	ISO2719-B	56.5		-0.92	
1724	ISO2719-A	57.5		-0.24	
1728	D93-A	59		0.78	
1807	D93-A	59		0.78	
1810	D93-B	58.5	C	0.44	First reported 68.5
1811	ISO2719-A	58.0		0.10	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D93-B	59.0		0.78	

	normality	OK
	n	59
	outliers	1
	mean (n)	57.850
	st.dev. (n)	1.5682
	R(calc.)	4.391
	st.dev.(ISO2719-A:16)	1.4669
	R(ISO2719-A:16)	4.107
Compare		
	R(D93-A:16a)	4.107
	R(EN590-annex A:13)	3.5

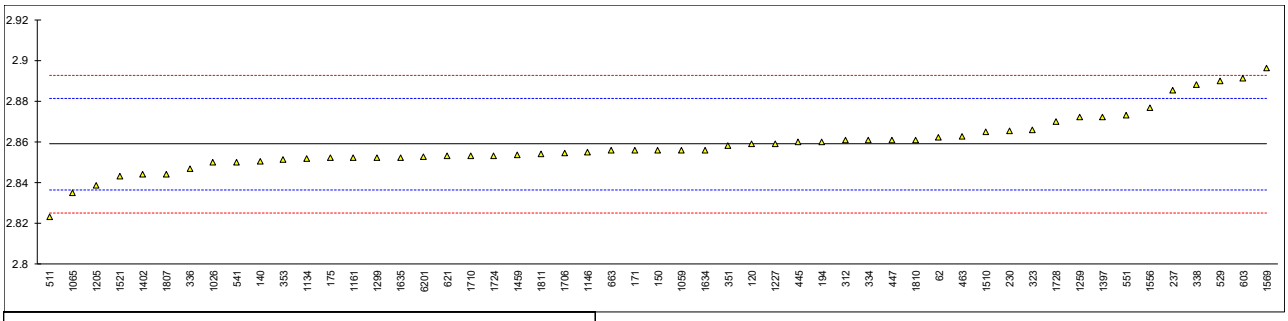


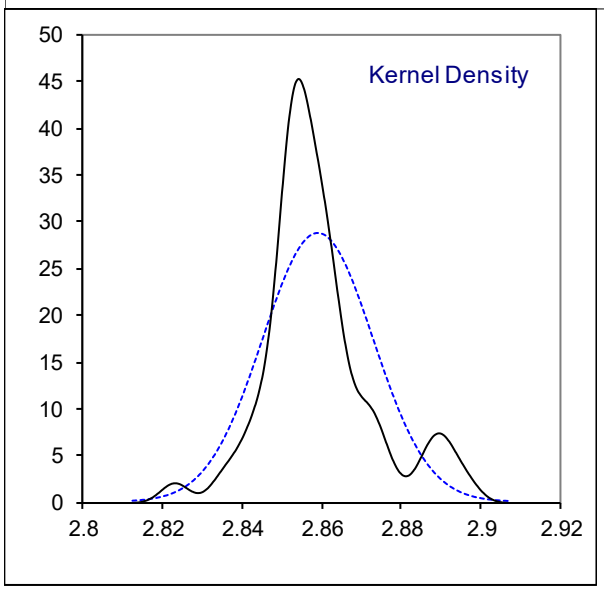


Determination of Kinematic Viscosity at 40°C on sample #19090; result in mm^2/s

lab	method	value	mark	z(targ)	remarks
62	D445	2.862		0.28	
120	D445	2.859		0.01	
140	ISO3104	2.8505		-0.74	
150	D445	2.856		-0.25	
171	ISO3104	2.856		-0.25	
175	D445	2.852		-0.61	
194	D445	2.86		0.10	
230	ISO3104	2.8654		0.58	
237	D445	2.88534		2.34	
238		-----		-----	
312	D445	2.861		0.19	
323	ISO3104	2.866		0.63	
334	ISO3104	2.861		0.19	
335		-----		-----	
336	ISO3104	2.847		-1.05	
338	ISO3104	2.888		2.58	
351	ISO3104	2.858		-0.08	
353	IP71	2.8512		-0.68	
381		-----		-----	
444		-----		-----	
445	D445	2.860		0.10	
447	D445	2.861	C	0.19	First reported 2.9
448		-----		-----	
463	D7042	2.8625		0.32	
496		-----		-----	
511	D445	2.823		-3.17	
529	D445	2.890		2.76	
541	ISO3104	2.8500		-0.78	
551	D445	2.873		1.25	
603	D445	2.891		2.84	
621	D445	2.853	C	-0.52	First reported 2.701
633		-----		-----	
663	D445	2.8559		-0.26	
1016		-----		-----	
1017		-----		-----	
1026	D445	2.850		-0.78	
1059	ISO3104	2.856		-0.25	
1065	D445	2.835		-2.11	
1126		-----		-----	
1134	D445	2.8518		-0.62	
1146	D445	2.8549		-0.35	
1161	ISO3104	2.852		-0.61	
1194		-----		-----	
1205	ISO3104	2.8388		-1.77	
1227	D445	2.859		0.01	
1259	ISO3104	2.8720		1.16	
1299	D445	2.852		-0.61	
1397	D7042	2.872		1.16	
1402	ISO3104	2.844		-1.31	
1438		-----		-----	
1459	D7042	2.8534		-0.48	
1510	ISO3104	2.8650		0.54	
1521	ISO3104	2.843		-1.40	
1556	ISO3104	2.8768		1.59	
1569	ISO3104	2.896	C	3.29	First reported 2.907
1631		-----		-----	
1634	ISO3104	2.856		-0.25	
1635	D445	2.852		-0.61	
1706	ISO3104	2.8543		-0.40	
1710	ISO3104	2.853		-0.52	
1724	ISO3104	2.853		-0.52	
1728	D445	2.870		0.99	
1807	ISO3104	2.844		-1.31	
1810		2.861		0.19	
1811	ISO3104	2.854		-0.43	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D445	2.8525		-0.56	

	normality	suspect
	n	53
	outliers	0
	mean (n)	2.8589
	st.dev. (n)	0.01386
	R(calc.)	0.0388
	st.dev.(ISO3104:94/Cor1:97)	0.01130
	R(ISO3104:94/Cor1:97)	0.0316
Compare		
	R(EN590-annex A:13)	0.0515



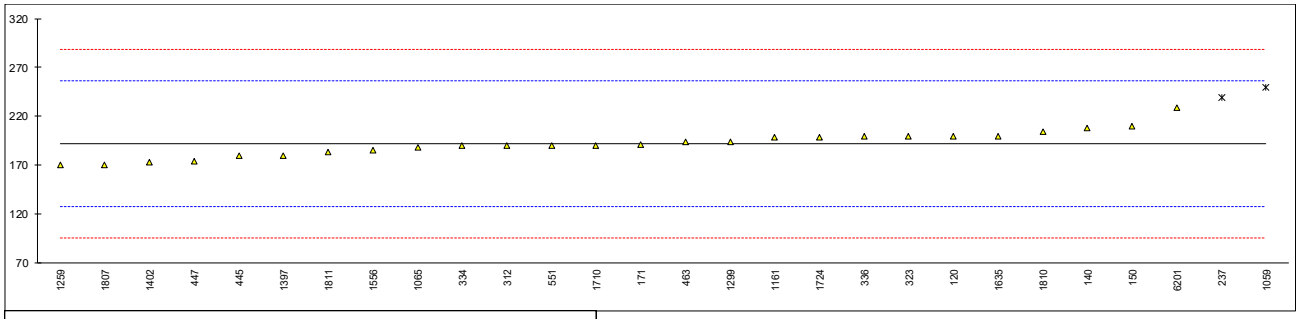


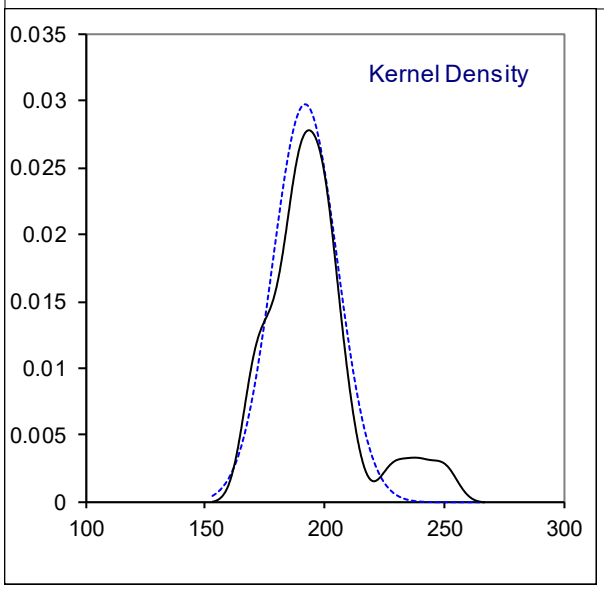
Determination of Lubricity by HFRR at 60°C on sample #19090; result in µm

lab	method	value	mark	z(targ)	Corrected	remarks
62		-----		-----		
120	D6079	200		0.25	NO	
140	ISO12156-1 (2006)	208		0.50	YES	
150	D6079	210		0.56		
171	ISO12156-1 meth A	191		-0.03		
175		-----		-----		
194		-----		-----		
230		-----		-----		
237	D6079	239	DG(0.01)	1.46	NO	
238		-----		-----		
312	ISO12156-1 meth A	190		-0.06	NO	
323	ISO12156-1 meth A	200		0.25	NO	
334	ISO12156-1 meth B	190		-0.06	NO	
335		-----		-----		
336	ISO12156-1 meth B	200		0.25	NO	
338		-----		-----		
351		-----		-----		
353		-----		-----		
381		-----		-----		
444		-----		-----		
445	ISO12156-1 meth A	180		-0.37	NO	
447	ISO12156-1 meth B	174		-0.56	YES	
448		-----		-----		
463	ISO12156-1 (2006)	194.0		0.06	YES	
496		-----		-----		
511		-----		-----		
529		-----		-----		
541		-----		-----		
551	D6079	190		-0.06		
603		-----		-----		
621		-----		-----		
633		-----		-----		
663		-----		-----		
1016		-----		-----		
1017		-----		-----		
1026		-----		-----		
1059	ISO12156-1 meth B	250	DG(0.01)	1.81	NO	
1065	IP450	188		-0.12		
1126		-----		-----		
1134		-----		-----		
1146		-----		-----		
1161	ISO12156-1 meth A	199.0		0.22		
1194		-----		-----		
1205		-----		-----		
1227		-----		-----		
1259	ISO12156-1 meth B	170		-0.68	NO	
1299	ISO12156-1 (2006)	194		0.06	YES	
1397	ISO12156-1 meth B	180		-0.37	NO	
1402	ISO12156-1 meth B	173.0		-0.59	NO	
1438		-----		-----		
1459		-----		-----		
1510		-----		-----		
1521		-----		-----		
1556	ISO12156-1 meth A	185		-0.22	NO	
1569		-----		-----		
1631		-----		-----		
1634		-----		-----		
1635	ISO12156-1 (2006)	200		0.25		
1706		-----		-----		
1710	ISO12156-1 meth A	190		-0.06		
1724	ISO12156-1 (2006)	199		0.22		
1728		-----		-----		
1807	ISO12156-1 (2006)	170		-0.68		
1810	ISO12156-1 meth A	204		0.37	NO	
1811	ISO12156-1 (2006)	183.5		-0.26		
2146		-----		-----		
6016		-----		-----		
6168		-----		-----		
6201	ISO12156-1 (2006)	228.5		1.14	YES	

ISO12156 method A = Digital Camera
ISO12156 method B = Visual

	normality	OK
	n	26
	outliers	2
	mean (n)	191.96
	st.dev. (n)	13.436
	R(calc.)	37.62
	st.dev.(ISO12156-1-B:18)	32.143
	R(ISO12156-1-B:18)	90
Compare		
	R(ISO12156-1-A:18)	80
	R(D6079:11) (=visual)	80
	R(IP450:00) (=visual)	102

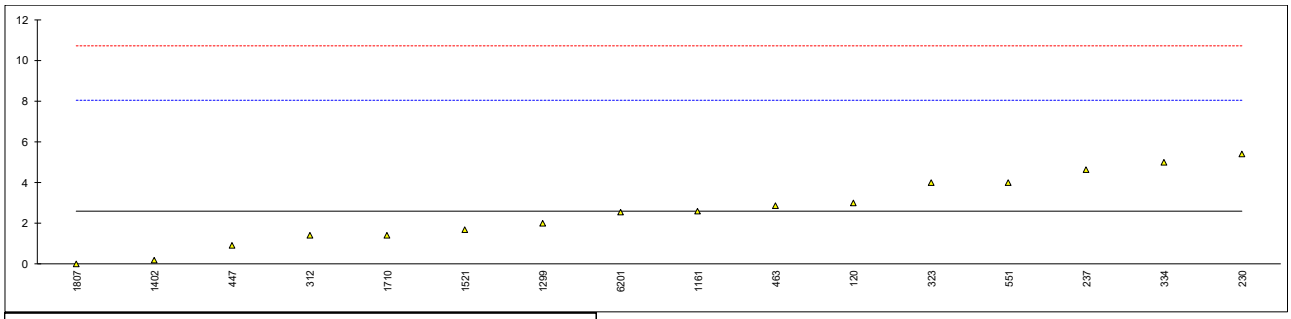


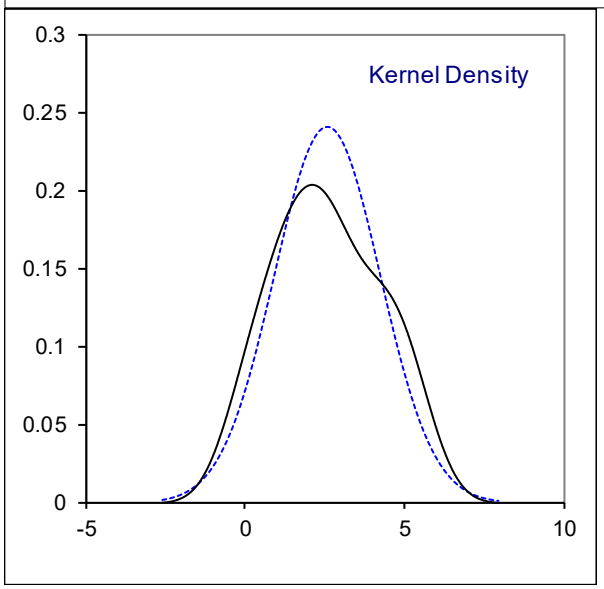


Determination of Oxidation Stability ISO12205 on sample #19090; result in g/m^3

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D2274	3		0.15	
140		-----		-----	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230	ISO12205	5.4		1.03	
237	D2274	4.6285		0.75	
238		-----		-----	
312	ISO12205	1.4		-0.44	
323	ISO12205	4		0.52	
334	ISO12205	5		0.89	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	ISO12205	<1		-----	
447	ISO12205	0.9		-0.63	
448		-----		-----	
463	ISO12205	2.85		0.09	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551	D2274	4		0.52	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059	ISO12205	<1		-----	
1065		-----		-----	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161	ISO12205	2.6		0.00	
1194		-----		-----	
1205		-----		-----	
1227		-----		-----	
1259		-----		-----	
1299	D2274	2		-0.22	
1397		-----		-----	
1402	ISO12205	0.2		-0.89	
1438		-----		-----	
1459		-----		-----	
1510		-----		-----	
1521	ISO12205	1.7		-0.33	
1556		-----		-----	
1569		-----		-----	
1631		-----		-----	
1634		-----		-----	
1635		-----		-----	
1706		-----		-----	
1710	ISO12205	1.4		-0.44	
1724		-----		-----	
1728		-----		-----	
1807	ISO12205	0		-0.96	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	ISO12205	2.57		-0.01	

normality	OK
n	16
outliers	0
mean (n)	2.603
st.dev. (n)	1.6597
R(calc.)	4.647
st.dev.(ISO12205:95)	2.7041
R(ISO12205:95)	7.571

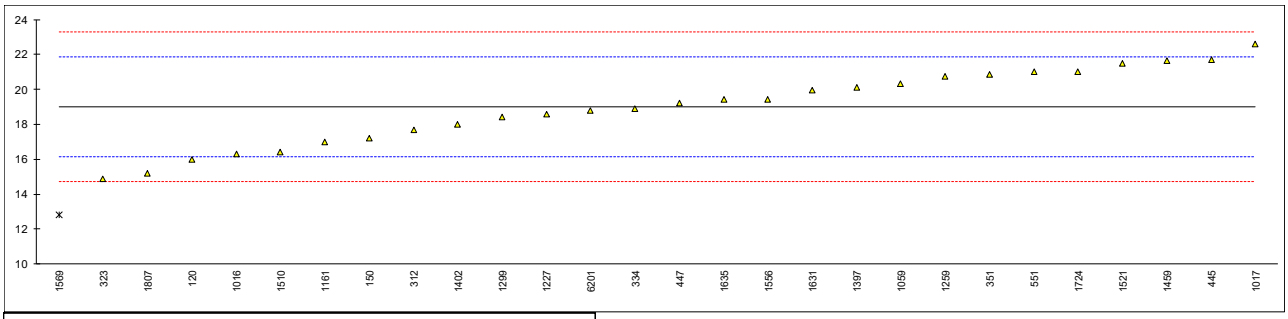


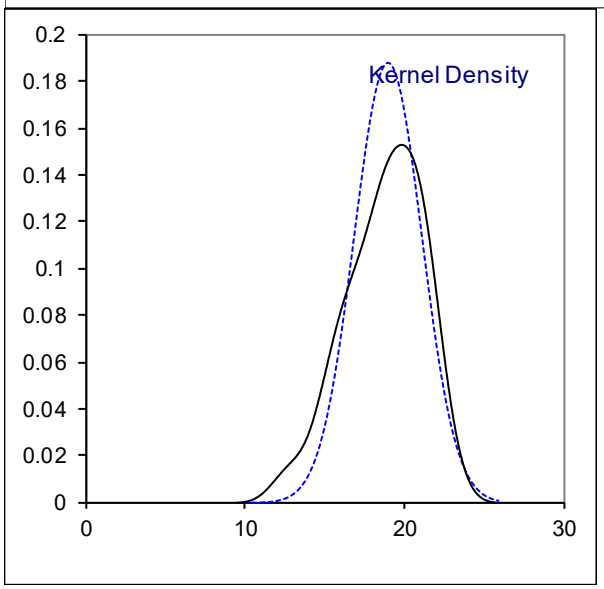


Determination of Oxidation Stability induction period EN15751 on sample #19090; result in hours

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	EN15751	16		-2.10	
140		-----		-----	
150	EN15751	17.2		-1.26	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	EN15751	17.7		-0.91	
323	EN15751	14.9		-2.87	
334	EN15751	18.88		-0.08	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351	EN15751	20.85		1.30	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445	EN15751	21.7		1.90	
447	EN15751	19.23		0.17	
448		-----		-----	
463		-----		-----	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551	EN15751	21		1.41	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016	EN15751	16.28		-1.90	
1017	EN15751	22.6		2.53	
1026		-----		-----	
1059	EN15751	20.3		0.92	
1065		-----		-----	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161	EN15751	17		-1.40	
1194		-----		-----	
1205		-----		-----	
1227	EN15751	18.6		-0.28	
1259	EN15751	20.73		1.22	
1299	EN15751	18.4		-0.42	
1397	EN15751	20.1		0.78	
1402	EN15751	18.01		-0.69	
1438		-----		-----	
1459	EN15751	21.625		1.85	
1510	EN15751	16.40		-1.82	
1521	EN15751	21.5		1.76	
1556	EN15751	19.43		0.31	
1569	EN15751	12.8	R(0.05)	-4.35	
1631	EN15751	19.95		0.67	
1634		-----		-----	
1635	EN15751	19.41		0.29	
1706		-----		-----	
1710		-----		-----	
1724	EN15751	21		1.41	
1728		-----		-----	
1807	EN15751	15.2		-2.66	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	EN15751	18.79		-0.14	

normality	OK
n	27
outliers	1
mean (n)	18.992
st.dev. (n)	2.1205
R(calc.)	5.937
st.dev.(EN15751:14)	1.4244
R(EN15751:14)	3.988



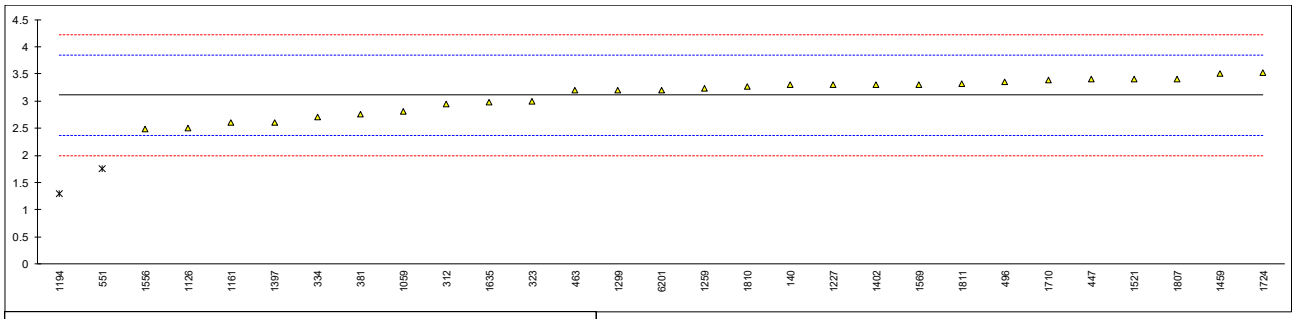


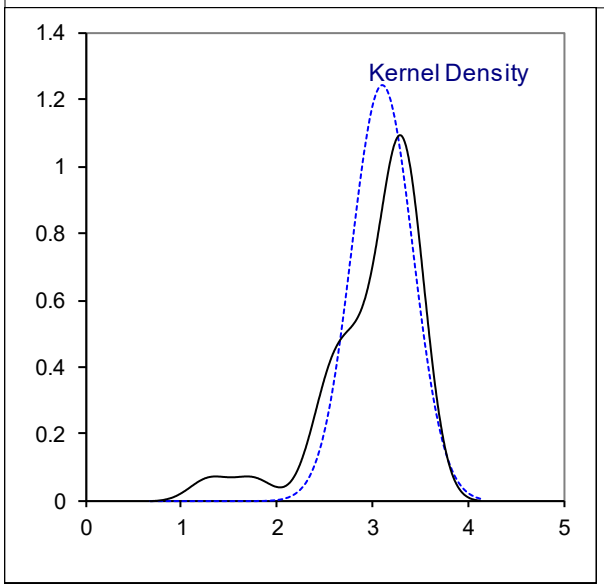
Determination of Polycyclic Aromatic Hydrocarbons *) on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140	EN12916	3.3		0.51	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	EN12916	2.95		-0.43	
323	EN12916	3.0		-0.30	
334	EN12916	2.7		-1.10	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381	EN12916	2.76		-0.94	
444		-----		-----	
445		-----		-----	
447	IP391	3.4		0.78	
448		-----		-----	
463	EN12916	3.196		0.23	
496	EN12916	3.35		0.65	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551	D6591	1.759	R(0.01)	-3.64	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059	EN12916	2.8		-0.83	
1065		-----		-----	
1126	EN12916	2.5		-1.64	
1134		-----		-----	
1146		-----		-----	
1161	EN12916	2.6		-1.37	
1194		1.3	R(0.01)	-4.87	
1205		-----		-----	
1227	EN12916	3.3		0.51	
1259	EN12916	3.23		0.32	
1299	EN12916	3.2		0.24	
1397		2.61		-1.34	
1402	EN12916	3.3		0.51	
1438		-----		-----	
1459	EN12916	3.5	C	1.05	First reported 4.2
1510		-----		-----	
1521	EN12916	3.4		0.78	
1556	EN12916	2.489		-1.67	
1569	EN12916	3.3		0.51	
1631		-----		-----	
1634		-----		-----	
1635		2.984		-0.34	
1706		-----		-----	
1710	EN12916	3.39		0.75	
1724	EN12916	3.52		1.10	
1728		-----		-----	
1807		3.4		0.78	
1810	IP391	3.27		0.43	
1811	EN12916	3.31		0.54	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	3.202		0.25	

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

normality	OK
n	27
outliers	2
mean (n)	3.110
st.dev. (n)	0.3202
R(calc.)	0.896
st.dev.(EN12916:16)	0.3715
R(EN12916:16)	1.040

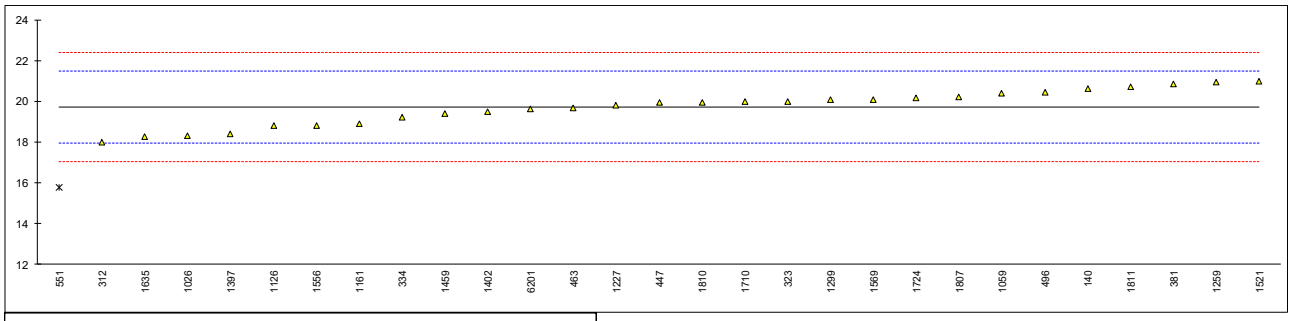


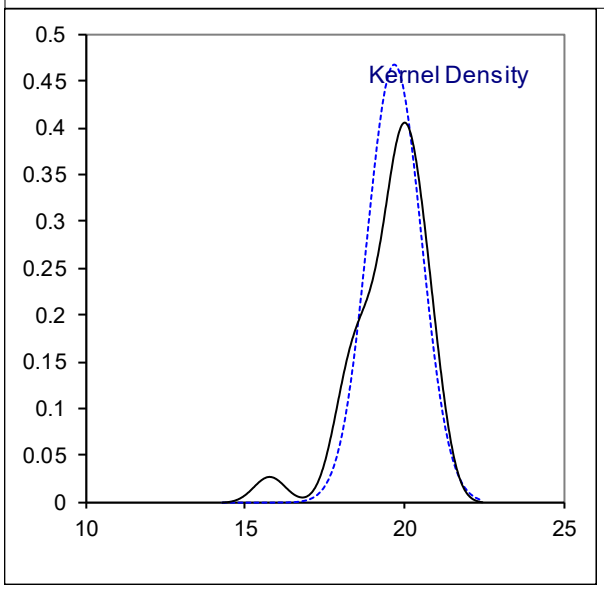


Determination of Mono-Aromatic Hydrocarbons on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140	EN12916	20.6		0.99	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	EN12916	18.0		-1.92	
323	EN12916	20.0		0.32	
334	EN12916	19.2		-0.58	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381	EN12916	20.84		1.26	
444		-----		-----	
445		-----		-----	
447	IP391	19.925		0.24	
448		-----		-----	
463	EN12916	19.68		-0.04	
496	EN12916	20.44		0.81	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551	D6591	15.788	R(0.01)	-4.41	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026	EN12916	18.3		-1.59	
1059	EN12916	20.4		0.77	
1065		-----		-----	
1126	EN12916	18.8		-1.03	
1134		-----		-----	
1146		-----		-----	
1161	EN12916	18.9		-0.91	
1194		-----		-----	
1205		-----		-----	
1227	EN12916	19.8		0.10	
1259	EN12916	20.93		1.36	
1299	EN12916	20.1		0.43	
1397		18.40	C	-1.48	First reported 17.28
1402	EN12916	19.5		-0.24	
1438		-----		-----	
1459	EN12916	19.4		-0.35	
1510		-----		-----	
1521	EN12916	21.0		1.44	
1556	EN12916	18.801		-1.03	
1569	EN12916	20.10		0.43	
1631		-----		-----	
1634		-----		-----	
1635		18.260		-1.63	
1706		-----		-----	
1710	EN12916	19.99		0.31	
1724	EN12916	20.18		0.52	
1728		-----		-----	
1807		20.2		0.54	
1810	IP391	19.93		0.24	
1811	EN12916	20.71		1.12	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	19.625		-0.10	

normality	OK
n	28
outliers	1
mean (n)	19.715
st.dev. (n)	0.8544
R(calc.)	2.392
st.dev.(EN12916:16)	0.8910
R(EN12916:16)	2.495

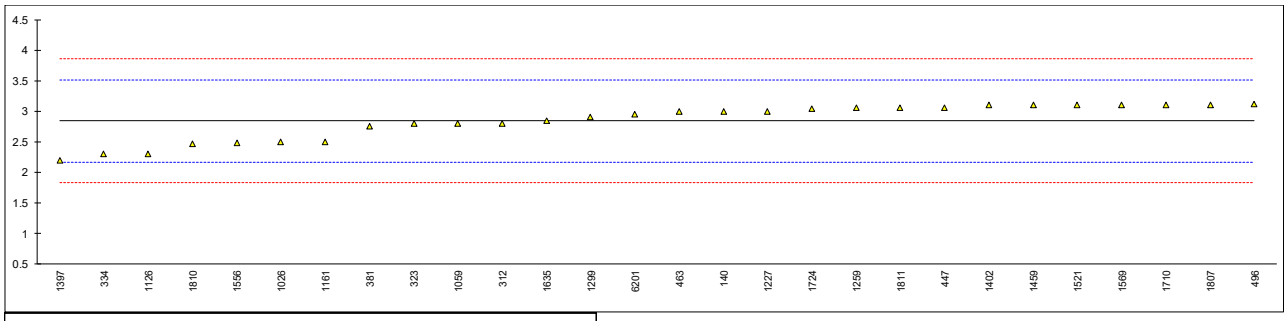


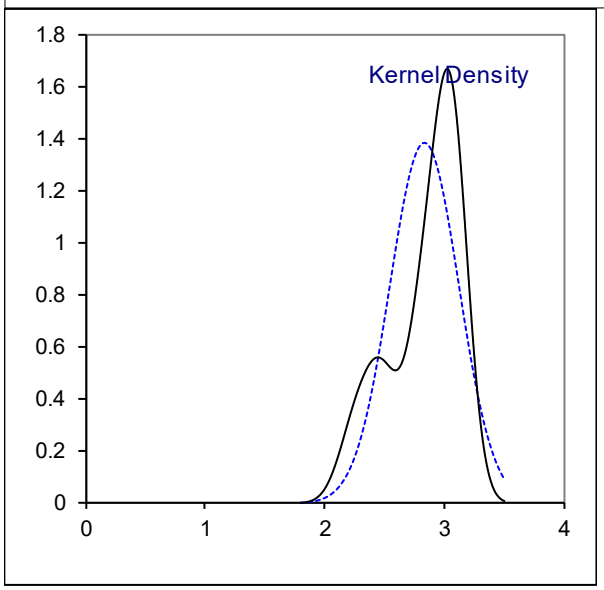


Determination of Di-Aromatic Hydrocarbons on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140	EN12916	3.0		0.48	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	EN12916	2.8		-0.12	
323	EN12916	2.8		-0.12	
334	EN12916	2.3		-1.60	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381	EN12916	2.76		-0.24	
444		-----		-----	
445		-----		-----	
447	IP391	3.053		0.63	
448		-----		-----	
463	EN12916	2.99		0.45	
496	EN12916	3.11		0.80	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026	EN12916	2.5		-1.01	
1059	EN12916	2.8		-0.12	
1065		-----		-----	
1126	EN12916	2.3		-1.60	
1134		-----		-----	
1146		-----		-----	
1161	EN12916	2.5		-1.01	
1194		-----		-----	
1205		-----		-----	
1227	EN12916	3		0.48	
1259	EN12916	3.05		0.63	
1299	EN12916	2.9		0.18	
1397		2.20		-1.90	
1402	EN12916	3.1		0.77	
1438		-----		-----	
1459	EN12916	3.1		0.77	
1510		-----		-----	
1521	EN12916	3.1		0.77	
1556	EN12916	2.489		-1.04	
1569	EN12916	3.10		0.77	
1631		-----		-----	
1634		-----		-----	
1635		2.847		0.02	
1706		-----		-----	
1710	EN12916	3.10		0.77	
1724	EN12916	3.04		0.60	
1728		-----		-----	
1807		3.1		0.77	
1810	IP391	2.46		-1.13	
1811	EN12916	3.05		0.63	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	2.950		0.33	

normality	OK
n	28
outliers	0
mean (n)	2.839
st.dev. (n)	0.2883
R(calc.)	0.807
st.dev.(EN12916:16)	0.3370
R(EN12916:16)	0.944

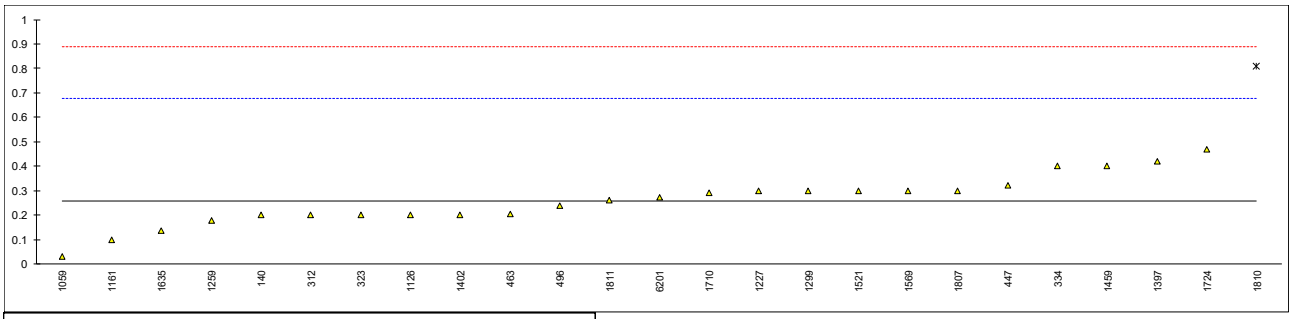


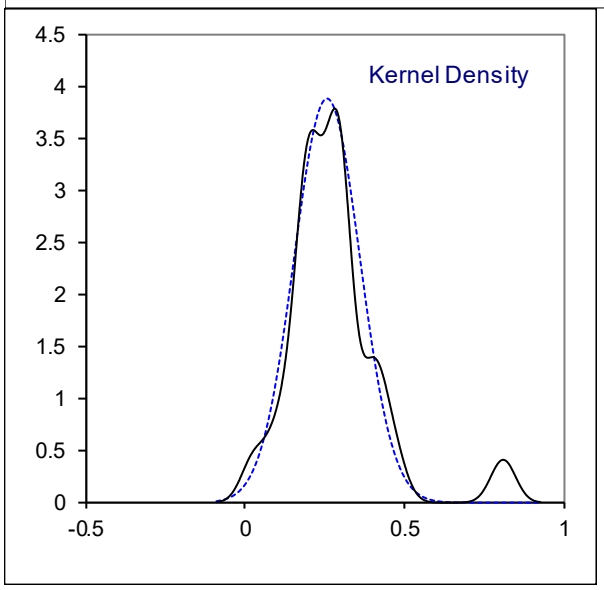


Determination of Tri+-Aromatic Hydrocarbons on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140	EN12916	0.2		-0.28	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	EN12916	0.2		-0.28	
323	EN12916	0.2		-0.28	
334	EN12916	0.4		0.67	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381	EN12916	<0,1		-----	
444		-----		-----	
445		-----		-----	
447	IP391	0.320		0.29	
448		-----		-----	
463	EN12916	0.205		-0.26	
496	EN12916	0.24		-0.09	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026	EN12916	<0.1		-----	
1059	EN12916	0.03		-1.10	
1065		-----		-----	
1126	EN12916	0.2		-0.28	
1134		-----		-----	
1146		-----		-----	
1161	EN12916	0.1		-0.76	
1194		-----		-----	
1205		-----		-----	
1227	EN12916	0.3		0.19	
1259	EN12916	0.18		-0.38	
1299	EN12916	0.3		0.19	
1397		0.42		0.77	
1402	EN12916	0.2		-0.28	
1438		-----		-----	
1459	EN12916	0.4	C	0.67	First reported 1.1
1510		-----		-----	
1521	EN12916	0.3		0.19	
1556	EN12916	<0,1		-----	
1569	EN12916	0.30		0.19	
1631		-----		-----	
1634		-----		-----	
1635		0.137		-0.59	
1706		-----		-----	
1710	EN12916	0.29		0.15	
1724	EN12916	0.47		1.01	
1728		-----		-----	
1807		0.3		0.19	
1810	IP391	0.81	R(0.01)	2.63	
1811	EN12916	0.26		0.00	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	0.273		0.07	

normality	OK
n	24
outliers	1
mean (n)	0.259
st.dev. (n)	0.1028
R(calc.)	0.288
st.dev.(EN12916:16)	0.2092
R(EN12916:16)	0.586

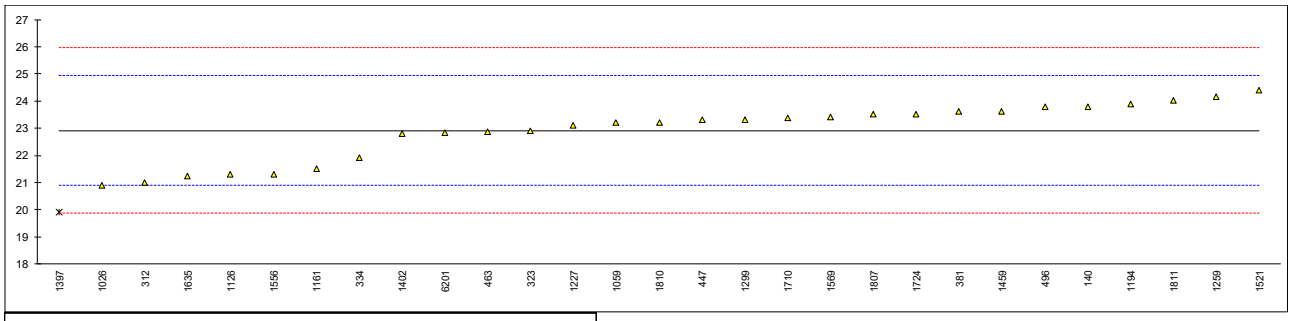


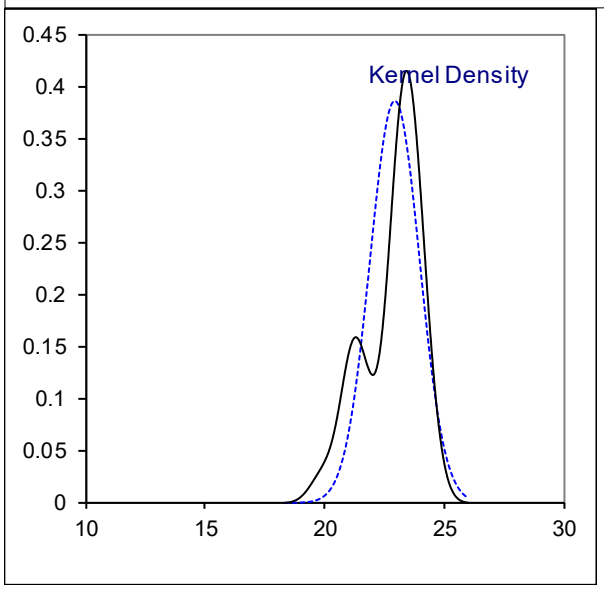


Determination of Total Aromatic Hydrocarbons on sample #19090; result in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120		-----		-----	
140	EN12916	23.8		0.87	
150		-----		-----	
171		-----		-----	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	EN12916	21.0		-1.89	
323	EN12916	22.9		-0.02	
334	EN12916	21.9		-1.00	
335		-----		-----	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353		-----		-----	
381	EN12916	23.6		0.67	
444		-----		-----	
445		-----		-----	
447	IP391	23.3		0.37	
448		-----		-----	
463	EN12916	22.87		-0.05	
496	EN12916	23.79		0.86	
511		-----		-----	
529		-----		-----	
541		-----		-----	
551		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026	EN12916	20.9		-1.98	
1059	EN12916	23.2		0.28	
1065		-----		-----	
1126	EN12916	21.3		-1.59	
1134		-----		-----	
1146		-----		-----	
1161	EN12916	21.5		-1.39	
1194		23.9		0.96	
1205		-----		-----	
1227	EN12916	23.1		0.18	
1259	EN12916	24.17		1.23	
1299	EN12916	23.3		0.37	
1397		19.90	E,R(0.05)	-2.97	Calculation error, iis calculated 21.02
1402	EN12916	22.8		-0.12	
1438		-----		-----	
1459	EN12916	23.6	E	0.67	Calculation error, iis calculated 22.9
1510		-----		-----	
1521	EN12916	24.4		1.46	
1556	EN12916	21.3		-1.59	
1569	EN12916	23.4		0.47	
1631		-----		-----	
1634		-----		-----	
1635		21.244		-1.65	
1706		-----		-----	
1710	EN12916	23.38		0.45	
1724	EN12916	23.52		0.59	
1728		-----		-----	
1807		23.5		0.57	
1810	IP391	23.2		0.28	
1811	EN12916	24.02		1.08	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	IP391	22.826		-0.09	

normality	OK
n	28
outliers	1
mean (n)	22.919
st.dev. (n)	1.0346
R(calc.)	2.897
st.dev.(EN12916:16)	1.0171
R(EN12916:16)	2.848

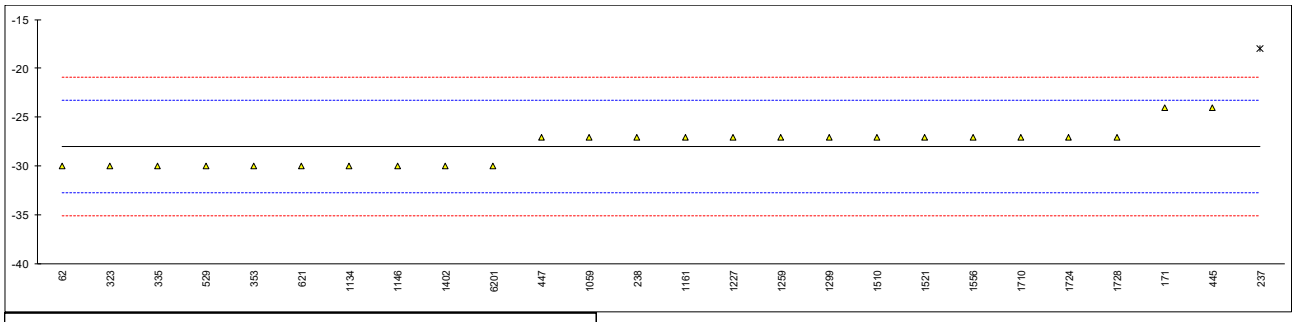


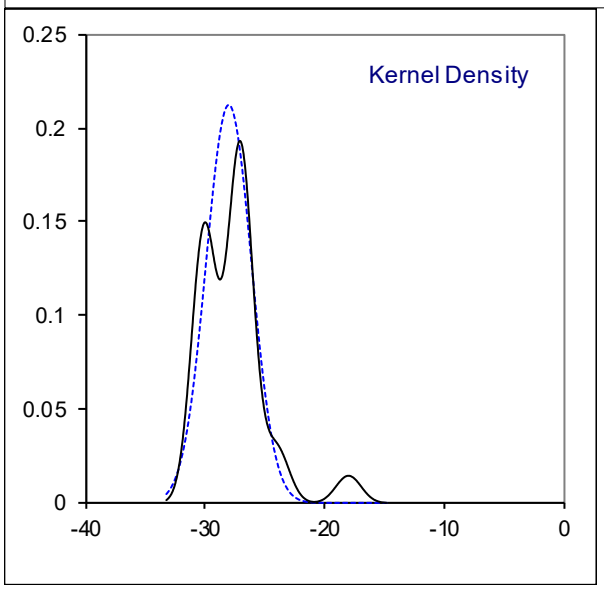


Determination of Pour Point, Manual on sample #19090; results in °C

lab	method	value	mark	z(targ)	remarks
62	D97	-30	C	-0.87	First reported 30
120		-----		-----	
140	ISO3016	<-30		-----	
150		-----		-----	
171	D97	-24		1.68	
175		-----		-----	
194		-----		-----	
230		-----		-----	
237	D97	-18	R(0.01)	4.23	
238	D97	-27		0.41	
312		-----		-----	
323	ISO3016	-30		-0.87	
334		-----		-----	
335	ISO3016	-30		-0.87	
336		-----		-----	
338		-----		-----	
351		-----		-----	
353	IP15	-30		-0.87	
381		-----		-----	
444		-----		-----	
445	D97	-24		1.68	
447	IP15	-27		0.41	
448		-----		-----	
463		-----		-----	
496		-----		-----	
511		-----		-----	
529	D97	-30		-0.87	
541		-----		-----	
551		-----		-----	
603		-----		-----	
621	D97	-30.0		-0.87	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017		-----		-----	
1026		-----		-----	
1059	ISO3016	-27		0.41	
1065		-----		-----	
1126		-----		-----	
1134	ISO3016	-30		-0.87	
1146	D97	-30		-0.87	
1161	ISO3016	-27		0.41	
1194		-----		-----	
1205		-----		-----	
1227	D97	-27		0.41	
1259	ISO3016	-27		0.41	
1299	D97	-27		0.41	
1397		-----		-----	
1402	ISO3016	-30		-0.87	
1438		-----		-----	
1459		-----		-----	
1510	ISO3016	-27		0.41	
1521	ISO3016	-27		0.41	
1556	ISO3016	-27		0.41	
1569		-----		-----	
1631		-----		-----	
1634		-----		-----	
1635		-----		-----	
1706		-----		-----	
1710	ISO3016	-27		0.41	
1724	ISO3016	-27		0.41	
1728	D97	-27		0.41	
1807		-----		-----	
1810		-----		-----	
1811		-----		-----	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D97	-30		-0.87	

normality	OK
n	25
outliers	1
mean (n)	-27.96
st.dev. (n)	1.881
R(calc.)	5.27
st.dev.(ISO3016:19)	2.357
R(ISO3016:19)	6.6

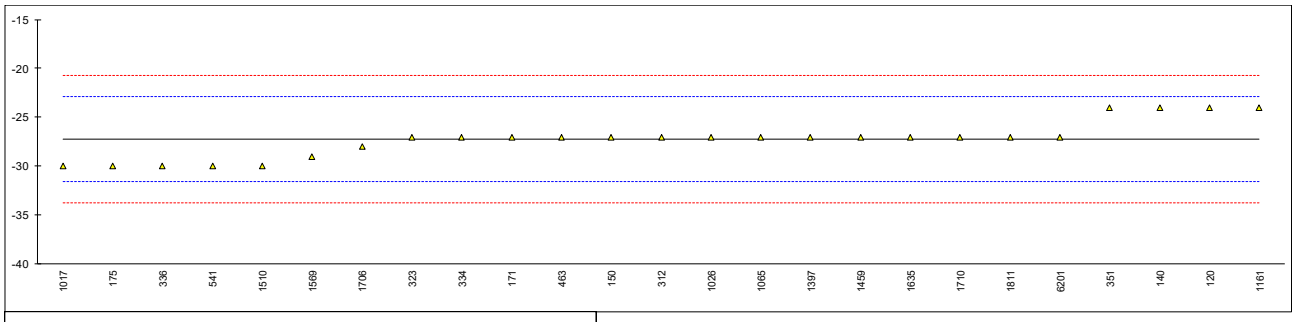


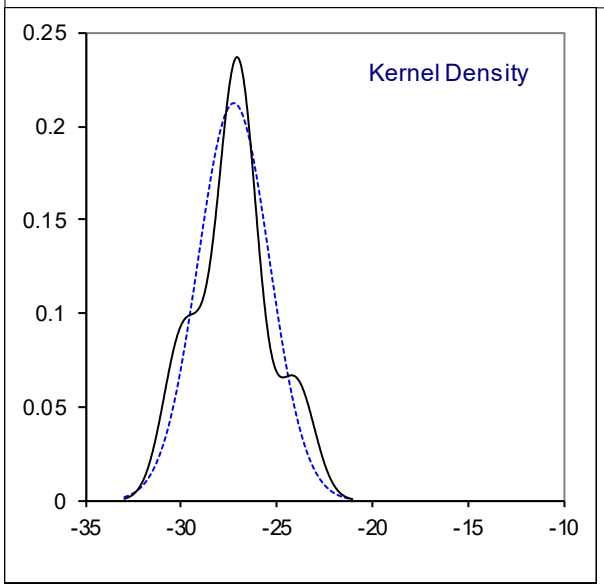


Determination of Pour Point, Automated (3°C interval) on sample #19090; results in °C

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
120	D5950	-24		1.49	
140	D5949	-24		1.49	
150	D5950	-27		0.11	
171	D5950	-27		0.11	
175	D5950	-30		-1.27	
194		-----		-----	
230		-----		-----	
237		-----		-----	
238		-----		-----	
312	D5950	-27		0.11	
323	D5950	-27		0.11	
334	D5950	-27		0.11	
335		-----		-----	
336	D5950	-30		-1.27	
338		-----		-----	
351	D6749	-24.0		1.49	
353		-----		-----	
381		-----		-----	
444		-----		-----	
445		-----		-----	
447		-----		-----	
448		-----		-----	
463	D6892	-27		0.11	
496		-----		-----	
511		-----		-----	
529		-----		-----	
541	D5950	-30		-1.27	
551		-----		-----	
603		-----		-----	
621		-----		-----	
633		-----		-----	
663		-----		-----	
1016		-----		-----	
1017	D5950	-30		-1.27	
1026	D5950	-27		0.11	
1059		-----		-----	
1065	D5950	-27.0		0.11	
1126		-----		-----	
1134		-----		-----	
1146		-----		-----	
1161	D6749	-24		1.49	
1194		-----		-----	
1205		-----		-----	
1227		-----		-----	
1259		-----		-----	
1299		-----		-----	
1397	D5950	-27		0.11	
1402		-----		-----	
1438		-----		-----	
1459	In house	-27.0		0.11	
1510	D5950	-30		-1.27	
1521		-----		-----	
1556		-----		-----	
1569	D5950	-29		-0.81	
1631		-----		-----	
1634		-----		-----	
1635	D7346	-27		0.11	
1706	ISO3016	-28.0		-0.35	
1710	D5950	-27		0.11	
1724		-----		-----	
1728		-----		-----	
1807		-----		-----	
1810		-----		-----	
1811	D5950	-27		0.11	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	D5950	-27		0.11	

normality	OK
n	25
outliers	0
mean (n)	-27.24
st.dev. (n)	1.877
R(calc.)	5.26
st.dev.(D5950:14)	2.179
R(D5950:14)	6.1

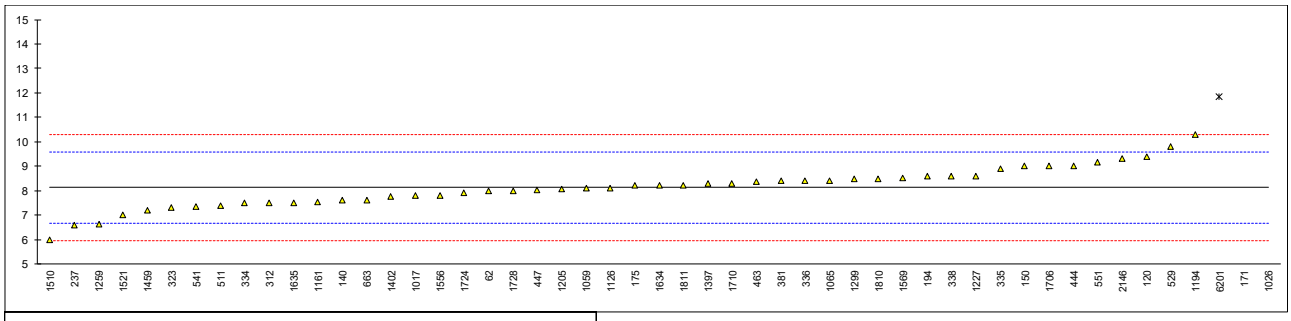


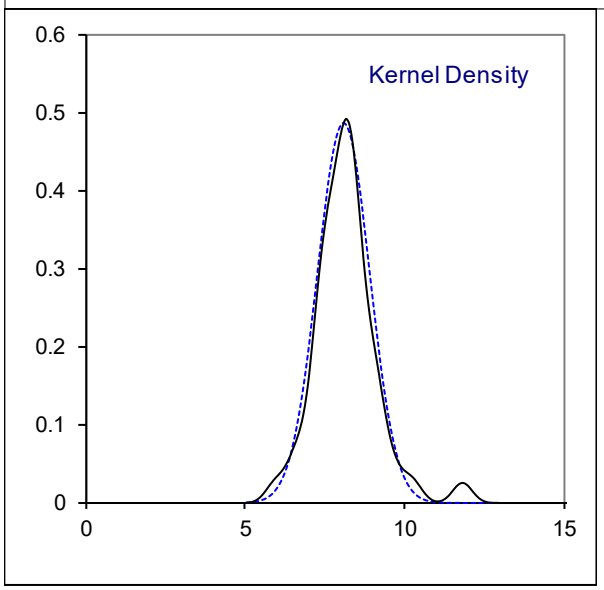


Determination of Sulfur on sample #19090; result in mg/kg

lab	method	value	mark	z(targ)	remarks
62	D5453	8.0		-0.18	
120	D5453	9.4		1.75	
140	ISO20846	7.6		-0.73	
150	D5453	9.0		1.20	
171	D4294	26	R(0.01)	24.64	
175	D5453	8.2		0.10	
194	D7039	8.6		0.65	
230	ISO8754	<20		-----	
237	D5453	6.6		-2.11	
238		-----		-----	
312	ISO20846	7.5		-0.87	
323	ISO20846	7.3		-1.15	
334	ISO20846	7.5		-0.87	
335	ISO20846	8.9		1.06	
336	ISO20846	8.4		0.37	
338	ISO20846	8.6		0.65	
351		-----		-----	
353		-----		-----	
381	ISO20846	8.4		0.37	
444	D5453	9.028		1.24	
445		-----		-----	
447	IP490	8.02		-0.15	
448		-----		-----	
463	ISO20846	8.36		0.32	
496		-----		-----	
511	D5453	7.386		-1.03	
529	ISO20846	9.8		2.30	
541	ISO20846	7.36		-1.06	
551	D5453	9.167		1.43	
603		-----		-----	
621	D4294	< 20		-----	
633		-----		-----	
663	D5453	7.60		-0.73	
1016		-----		-----	
1017	ISO20846	7.79		-0.47	
1026	ISO20846	27	R(0.01)	26.02	
1059	ISO20846	8.1		-0.04	
1065	D5453	8.4		0.37	
1126	ISO20846	8.1		-0.04	
1134		-----		-----	
1146		-----		-----	
1161	ISO20846	7.52		-0.84	
1194	In house	10.3		2.99	
1205	ISO20846	8.07		-0.08	
1227	D5453	8.6		0.65	
1259	ISO20846	6.65		-2.04	
1299	ISO20846	8.5		0.51	
1397	ISO20846	8.3		0.23	
1402	ISO20846	7.78		-0.48	
1438		-----		-----	
1459	ISO8754	7.2		-1.28	
1510	ISO20846	6.0		-2.94	
1521	ISO20884	7.0		-1.56	
1556	ISO20884	7.8		-0.46	
1569	ISO20846	8.53		0.55	
1631		-----		-----	
1634	ISO20846	8.2		0.10	
1635	ISO20846	7.50		-0.87	
1706	ISO20846	9.0		1.20	
1710	ISO20846	8.3		0.23	
1724	ISO20846	7.9		-0.32	
1728	D5453	8		-0.18	
1807		-----		-----	
1810	D5453	8.5		0.51	
1811	ISO20846	8.2		0.10	
2146	ISO20846	9.3		1.61	
6016		-----		-----	
6168		-----		-----	
6201	ISO20846	11.86	R(0.01)	5.14	

	normality	OK
	n	48
	outliers	3
	mean (n)	8.130
	st.dev. (n)	0.8191
	R(calc.)	2.293
	st.dev.(ISO20846:19)	0.7252
	R(ISO20846:19)	2.031
Compare		
	R(D5453:16e1)	2.791

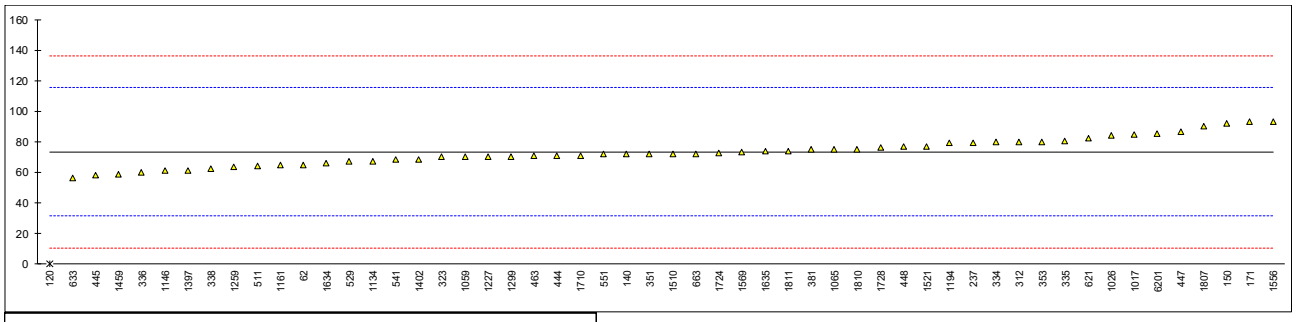


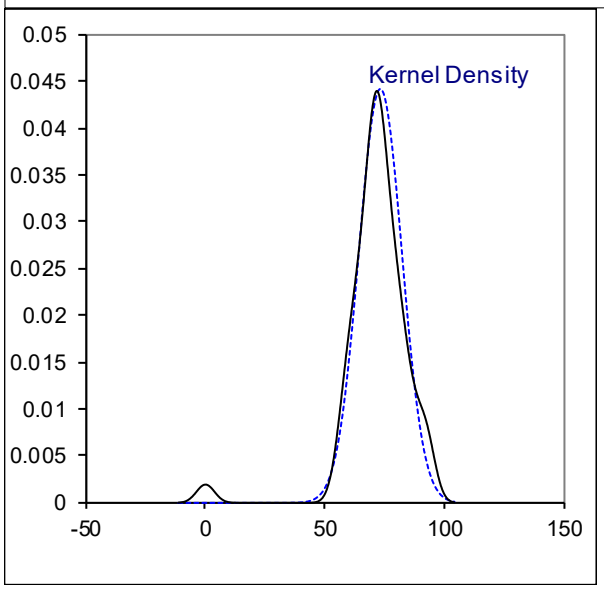


Determination of Water on sample #19090; result in mg/kg

lab	method	value	mark	z(targ)	remarks
62	D6304-A	65		-0.40	
120	E203	0	R(0.01)	-3.49	
140	D6304-A	72		-0.06	
150	D6304-A	92		0.89	
171	D6304-A	93		0.94	
175		-----		-----	
194		-----		-----	
230	ISO3733	<500		-----	
237	D6304-C	79.3		0.28	
238		-----		-----	
312	ISO12937	80		0.32	
323	ISO12937	70		-0.16	
334	ISO12937	80		0.32	
335	ISO12937	80.7		0.35	
336	ISO12937	60		-0.63	
338	ISO12937	62.67		-0.51	
351	ISO12937	72.0		-0.06	
353	IP439	80		0.32	
381	ISO12937	75		0.08	
444	IP438	71		-0.11	
445	ISO12937	58		-0.73	
447	IP438	86.5		0.63	
448	IP438	77.0		0.18	
463	ISO12937	70.65		-0.13	
496		-----		-----	
511	D6304	64.0		-0.44	
529	D6304	67.25		-0.29	
541	ISO12937	68.5		-0.23	
551	D6304	71.8		-0.07	
603		-----		-----	
621	D6304-B	82.5		0.44	
633	D6304-A	56.45		-0.80	
663	D6304-A	72.2		-0.05	
1016		-----		-----	
1017	ISO12937	84.5		0.53	
1026	D6304-C	84		0.51	
1059	ISO12937	70		-0.16	
1065	D6304-C	75		0.08	
1126		-----		-----	
1134	ISO12937	67.405		-0.28	
1146	D6304-C	61		-0.59	
1161	ISO12937	64.901		-0.40	
1194	ISO12937	79.26		0.28	
1205		-----		-----	
1227	D6304-A	70		-0.16	
1259	ISO12937	63.8		-0.45	
1299	ISO12937	70		-0.16	
1397	ISO12937	61		-0.59	
1402	ISO12937	68.534		-0.23	
1438		-----		-----	
1459	ISO12937	59		-0.68	
1510	ISO12937	72.03		-0.06	
1521	ISO12937	77		0.18	
1556	ISO12937	93		0.94	
1569	In house	73.5		0.01	
1631		-----		-----	
1634	ISO12937	66		-0.35	
1635	ISO12937	74.0		0.03	
1706		-----		-----	
1710	ISO12937	71		-0.11	
1724	ISO12937	72.9		-0.02	
1728	E203	76		0.13	
1807	ISO12937	90		0.79	
1810	ISO12937	75.0		0.08	
1811	ISO12937	74.0		0.03	
2146		-----		-----	
6016		-----		-----	
6168		-----		-----	
6201	ISO12937	85.5		0.58	

normality	OK
n	53
outliers	1
mean (n)	73.318
st.dev. (n)	9.01817
R(calc.)	25.251
st.dev.(ISO12937:00)	21.0303
R(ISO12937:00)	58.885

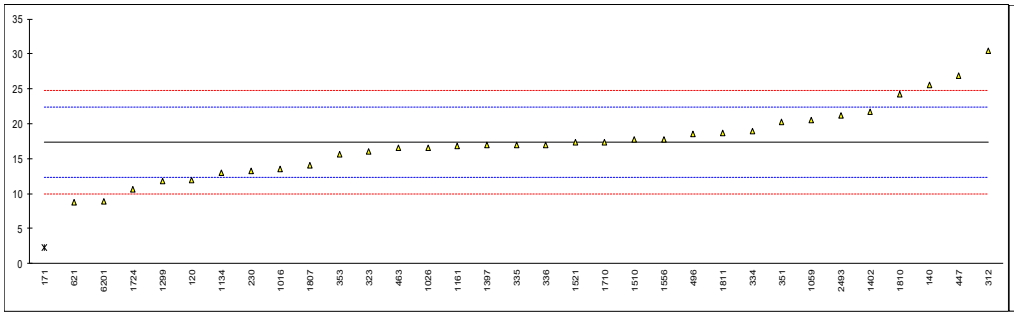


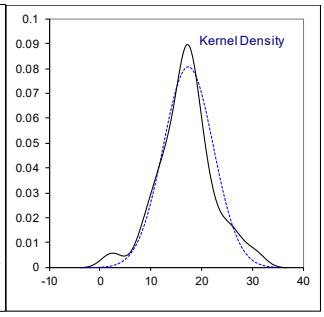


Determination of Total Contamination on sample #19091; result in mg/kg

lab	method	value	mark	z(targ)	Incomplete filtration	Volume used (mL)	filtration stopped after minutes
120	EN12662:2014	11.87		-2.21	NO	-----	-----
140	EN12662:2014	25.5		3.27	NO	300	-----
150		-----		-----	YES	-----	-----
171	EN12662:2014	2.328	R(0.05)	-6.04	NO	30	-----
230	D6217	13.30		-1.63	NO	940	No
312	EN12662:2014	30.5		5.29	NO	-----	-----
323	EN12662:2014	16.0		-0.54		-----	-----
334	EN12662:2014	19.0		0.66	NO	-----	-----
335	EN12662:2014	17.0		-0.14		-----	-----
336	EN12662:2014	17.0		-0.14	NO	300	-----
351	EN12662:2014	20.27		1.17	NO	300	20
353	IP440	15.6		-0.71	NO	-----	-----
445		-----		-----		-----	-----
447	IP440	26.9		3.84	NO	-----	-----
463	EN12662:2014	16.53		-0.33	NO	300	1.6
496	EN12662:2014	18.5		0.46		-----	-----
621	EN12662:2014	8.8		-3.44	NO	400	-----
663	EN12662:2014	N/A		-----		-----	-----
1016	EN12662	13.5		-1.55	YES	300	-----
1017		-----		-----		-----	-----
1026	EN12662:2014	16.6		-0.30	NO	-----	-----
1059	EN12662:2014	20.5		1.26	NO	323	-----
1134	IP440	13.0		-1.75		-----	-----
1161	EN12662:2014	16.8		-0.22		-----	-----
1299	EN12662:2014	11.8		-2.23	NO	300	-----
1397	EN12662:2014	16.9		-0.18	NO	-----	-----
1402	IP440	21.7		1.75	NO	-----	-----
1510	EN12662:2014	17.75		0.16		-----	-----
1521	EN12662:2014	17.3		-0.02	NO	-----	-----
1556	EN12662:2014	17.77		0.17	NO	-----	-----
1710	EN12662:2014	17.4		0.02	NO	-----	-----
1724	EN12662:2014	10.56		-2.73		-----	-----
1807	EN12662:2014	14.0		-1.35		-----	-----
1810	EN12662:2014	24.2		2.75	NO	300	3
1811	EN12662:2008	18.7		0.54	NO	300	-----
2493	EN12662:2014	21.15		1.53	NO	-----	-----
6016		-----		-----		-----	-----
6201	EN12662:2014	8.948080325		-3.38	NO	-----	-----

normality	OK
n	32
outliers	1
mean (n)	17.355
st.dev. (n)	4.9330
R(calc.)	13.812
st.dev.(EN12662:14)	2.4872
R(EN12662:14)	6.964





APPENDIX 2

z-scores Distillation

lab	IBP	10% rec	50% rec	90% rec	95% rec	FBP
62	0.31	-1.15	0.13	0.16	0.66	0.17
120	-0.23	1.14	0.41	0.72	0.93	-0.27
140	0.18	-0.71	0.04	-0.01	0.06	-0.30
150	-1.69	-1.40	-1.55	-1.12	-1.03	-1.96
171	-1.62	-0.26	-0.71	-0.45	-0.13	-0.11
175	0.47	-0.07	1.90	1.78	1.79	0.48
194	-0.01	0.25	0.50	0.61	0.76	0.68
230	0.44	-0.01	0.41	0.16	-0.10	0.09
237	1.10	1.07	1.06	-1.51	-1.59	-0.54
238	0.47	1.71	0.13	0.16	0.40	-0.15
312	-0.29	0.37	0.41	-0.45	-0.47	-0.38
323	0.63	1.39	0.60	0.72	1.03	0.05
334	-0.20	-0.58	0.78	0.38	0.73	-0.50
335	0.63	1.39	2.09	2.00	2.22	0.37
336	0.34	-0.26	0.32	-0.23	-0.27	-0.07
338	0.06	-0.07	1.16	0.83	0.83	0.52
351	0.53	-1.02	-1.46	-0.17	0.30	-0.07
353	0.09	-0.07	-1.46	0.55	0.63	0.48
381	-1.78	-1.40	-0.62	-0.34	-0.86	-0.11
444	-1.53	-2.29	-1.08	-0.79	-0.50	-0.27
445	-1.27	-1.47	-2.48	-1.74	-1.33	-1.41
447	-0.77	-0.32	0.04	0.05	0.03	0.05
448	-----	-----	-----	-----	-----	-----
463	0.34	0.25	0.69	0.66	0.23	0.88
496	-0.39	0.25	0.41	-0.01	0.10	-0.27
511	1.26	-1.15	-1.27	-0.12	0.56	-0.54
529	-----	-----	-----	-----	-----	-----
541	-1.51	-1.09	-0.94	-0.51	-0.58	-0.68
551	-1.85	-8.52	-4.63	-3.07	-2.88	-4.60
603	-----	-----	-----	-----	-----	-----
621	0.79	-0.83	1.06	0.16	0.73	-0.15
633	-0.16	0.37	0.88	1.00	0.40	-0.50
663	1.15	2.06	-0.01	-0.45	-0.37	-0.32
1016	-----	-----	-----	-----	-----	-----
1017	-0.22	1.12	0.43	0.37	0.23	0.71
1026	-0.61	-1.60	-1.08	-0.56	-0.60	-0.50
1059	0.28	-0.07	-0.15	0.05	0.20	0.60
1065	0.31	-0.32	-0.06	0.83	0.30	-0.62
1126	1.42	3.61	-0.80	1.28	0.40	2.22
1134	0.31	-0.39	0.60	0.33	0.30	0.21
1146	-0.96	-0.64	-0.24	0.72	0.76	0.56
1161	-0.61	-0.58	-0.34	0.22	-0.23	0.48
1194	-----	-----	-----	-----	-----	-----
1205	0.56	0.25	-0.80	-0.95	-1.06	0.33
1227	1.64	2.28	2.28	0.44	0.16	-0.07
1259	0.72	0.18	-1.27	-1.57	-1.63	-0.42
1299	0.41	-0.07	0.22	0.27	0.00	0.33
1397	0.12	0.88	1.34	0.77	0.20	0.17
1402	0.34	-0.26	0.32	0.27	0.03	0.88
1438	-----	-----	-----	-----	-----	-----
1459	0.50	0.06	-0.34	-1.40	-1.16	-2.08
1510	-1.08	-1.09	-0.34	0.33	0.73	-0.07
1521	0.18	-0.26	-0.06	0.11	-0.03	-0.11
1556	0.98	0.76	0.50	0.22	-0.03	0.60
1569	-0.35	0.44	0.32	-0.01	-0.17	0.68
1631	-----	-----	-----	-----	-----	-----
1634	0.22	0.12	-0.06	-0.23	-0.40	0.56
1635	-0.74	-0.32	0.41	0.50	0.60	0.21
1706	-0.20	1.07	0.04	-0.23	-0.20	0.05
1710	-0.51	1.64	0.22	-0.23	-0.43	-0.54
1724	-0.48	1.64	0.50	0.11	0.03	0.21
1728	-0.80	-1.15	-0.80	-0.40	-0.60	-0.15
1807	0.91	-1.28	-1.36	-0.73	-0.70	-0.11
1810	-0.29	0.63	0.13	-0.12	-0.20	0.13
1811	0.85	1.52	-0.71	-2.29	-1.43	-1.41
2146	-----	-----	-----	-----	-----	-----
6016	-----	-----	-----	-----	-----	-----
6168	-----	-----	-----	-----	-----	-----
6201	-0.26	-0.64	-0.34	-0.12	-0.20	0.13

APPENDIX 3

Number of participants per country

1 lab in ARGENTINA
1 lab in AUSTRIA
3 labs in BELGIUM
1 lab in BRAZIL
1 lab in CANADA
3 labs in CROATIA
1 lab in CYPRUS
2 labs in CZECH REPUBLIC
1 lab in FINLAND
5 labs in FRANCE
1 lab in GERMANY
1 lab in GREECE
2 labs in HUNGARY
1 lab in INDONESIA
1 lab in IRELAND
2 labs in ISRAEL
1 lab in KAZAKHSTAN
1 lab in MALAYSIA
1 lab in MAURITIUS
1 lab in MEXICO
6 labs in NETHERLANDS
2 labs in NIGERIA
2 labs in PERU
1 lab in PHILIPPINES
1 lab in POLAND
2 labs in PORTUGAL
1 lab in ROMANIA
1 lab in SERBIA
1 lab in SLOVENIA
3 labs in SPAIN
2 labs in SWEDEN
1 lab in THAILAND
3 labs in TURKEY
7 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) = outlier in Rosner's outlier test
R(0.05) = 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 the 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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