Results of Proficiency Test
Jet Fuel A1
March 2015

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1995, the Institute for Interlaboratory Studies organises every year proficiency tests for Jet Fuel A1. In the annual proficiency testing program of 2014/2015, it was decided to continue proficiency tests on Jet Fuel A1 and Jet Fuel Particle Size.
In the interlaboratory study for Jet Fuel A1 108 laboratories from 49 different countries have participated and for Particle Size Distribution 43 participants in 26 countries have participated. See appendix 4 for the number of participants per country. In this report, the results of the two proficiency tests are presented and discussed. This report is also electronically available through the iis internet site www.iisnl.com.

2 Set up

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test. In the main Jet Fuel A1 round robin, it was decided to send two identical samples (2*1 liter bottle, labelled #15017) for the analyses according to the "Aviation Fuel Quality Requirements for Jointly Operated Systems (AFQRJOS)", sometimes referred to as the "Joint Fuelling System Check List For Jet A-1". In the Particle Size round robin, it was decided to send one sample (0.5 L bottle, labelled #15018).
The participants were requested to report the analytical results using the indicated units on the report form and to report rounded and unrounded results. The unrounded results were preferably used for statistical evaluation.

2.1 ACCREDITATION

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

2.2 PROTOCOL

The protocol followed in the organisation was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol can be downloaded from the iis website http://www.iisnl.com.

2.3 CONFIDENTIALITY STATEMENT

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

more of the participating companies will be done only after receipt of a written agreement of the companies involved.

2.4 SAMPLES

2.4.1 JET FUEL A1 (MAIN SAMPLE)

The necessary bulk material consisted of a mix from different batches. The bulk material approximately 320 litre was homogenised in a mixing vessel. Out of this batch 315 amber glass bottles of one litre were filled, closed with inner and outer caps and labelled #15017. The homogeneity of the subsamples #15017 was checked by the determination of Density in accordance with ASTM D4052 on 10 stratified randomly selected samples.

	Density @ 15°C in kg/m^3
Sample #15017-1	794.57
Sample #15017-2	794.57
Sample #15017-3	794.55
Sample #15017-4	794.56
Sample #15017-5	794.55
Sample #15017-6	794.55
Sample #15017-7	794.55
Sample #15017-8	794.55
Sample #15017-9	794.55
Sample #15017-10	794.56

table 1: homogeneity test results of sub samples #15017

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

	Density @ 15°C in kg/m^3
r (observed)	0.02
reference method	D4052:11
0.3 x R (ref. method)	0.15

Table 2: evaluation of repeatability of subsamples #15017

The calculated repeatability is less than 0.3 times the reproducibility of the reference method. Therefore, homogeneity of all subsamples #15017 was assumed.

2.4.2 JET FUEL PARTICLE SIZE DETERMINATION

The bulk material for Particle Size was obtained from a German supplier. Approximately 90 litre bulk material was homogenized. Out of this batch 68 amber glass bottles of 0.5 liter were filled, closed with inner and outer caps and labelled #15018. The homogeneity of the subsamples #15018 was checked by the determination of Particle Size Distribution in accordance with IP564 on seven stratified randomly selected samples.

	> 4 µm	> 6 µm
Sample #15018-1	2002	363
Sample #15018-2	1870	339
Sample #15018-3	1723	309
Sample #15018-4	1761	273
Sample #15018-5	2122	356
Sample #15018-6	1946	367
Sample #15018-7	1947	397

Table 3: homogeneity test results of sub samples #15018

From the above test results, the calculated repeatabilities were calculated and compared with the target repeatabilities of the reference method in agreement with the procedure of ISO13528, Annex B2 in the next table:

	> 4 µm	> 6 µm
r (observed)	351	109
reference method	IP564:13	IP564:13
r (ref. method)	363	111

Table 4: evaluation of repeatabilities of subsamples #15018

The calculated repeatabilities for the particle sizes >4 µm and > 6 µm were in agreement with the corresponding target repeatabilities of the respective reference method. Therefore, homogeneity of the subsamples of #15018 was assumed.

Depending on their registration to each of the participating laboratories 2 * 1 litre bottle of Jet Fuel A1 labelled #15017 and/or a 0.5 litre bottle of Jet Fuel PS labelled #15018 was/were sent on February 25, 2015.

2.5 STABILITY OF THE SAMPLES

The stability of Jet Fuel A1, packed in the brown glass bottles was checked. The type of bottle was chosen in accordance with ASTM D4306:13. The material has been found sufficiently stable for the period of the proficiency test.

2.6 ANALYSIS

The participants were requested to determine on sample #15017: Aromatics by FIA, Aromatics by HPLC (in %M/M and %V/V), Colour Saybolt (ASTM D156 and ASTM 6045), Density @15°C, Distillation (IBP, 10%, 50%, 90% recovered and FBP), Existent Gum (unwashed), Flash Point, Freezing Point, JFTOT, Kinematic Viscosity at -20°C, Mercaptans, MSEP, Naphthalenes, Smoke Point, Specific Energy (on Sulphur free basis), Total Acidity and Total Sulphur. The participants were requested to determine Particle Size only on sample #15018.

The analyses should be performed according to the "Aviation Fuel Quality Requirements for Jointly Operated Systems (AFQRJOS)", also referred to as the "Joint Fuelling System Check List" or simply “Check List”.

To get comparable results a detailed report form, on which the units were prescribed as well as the required standards and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/. The detailed report form was also made available for download on the iis website www.iisnl.com. A SDS and a form to confirm receipt of the samples were added to the sample package.

3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were received. The original reported results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers
Directly after deadline, a reminder fax was sent to those laboratories that did not report resultsat that moment. Shortly after the deadline, the available results were screened for suspect data. A 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 raw data of these tests (no reanalysis). Additional or corrected results are used for data analysis and original results are placed under 'Remarks' in the result tables in appendix 1.

3.1 STATISTICS

Statistical calculations were performed as described in the report ‘iis Interlaboratory Studies-Protocol for the Organisation, Statistics and Evaluation’ of April 2014 (iis-protocol, version 3.3). For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. 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. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the results should be used with due care.
In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests. Outliers are marked by D(0.01) for

the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test and by R(0.05) for the Rosner General ESD test (see appendix 5, no 16). Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

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

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are under the X-axis.
The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 5; nos.14 and 15). Also a normal Gauss curve was projected over the Kernel Density Graph.

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. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the spread of this interlaboratory study. The target standard deviation was calculated from the literature reproducibility by division with 2.8.

The z-scores were calculated in accordance with:

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

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 the fit-for-useness of the reported test result.

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

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

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

4 EVALUATION

In this interlaboratory study, problems with sample despatch were encountered due to several reasons.
For the ”main Jet Fuel A1” PT, 9 participants reported the results after the final reporting date and another 6 participants did not report any results at all.
For the PT “Particle Size”, 3 participants reported the results after the final reporting date and another 8 participants did not report any results at all.
Finally 102 participants of the main round and the 35 participants of the particle size round reported in total 1803 numerical results. Observed were 44 outlying results, which is 2.4%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

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

In the iis PT reports, ASTM methods are referred to with a number (e.g. D2086) and an added designation for the year that the method was adopted or revised (e.g. D2086-08). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D2086-08(2013)). In the results tables of Appendix 1 only the method number and year of adoption or revision e.g. D2086-08 will be used.

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.

Since the Joint Fuelling System Check List for Jet-A1 is continuously updated, the users are advised to monitor the updates. The latest version at the time of this Round Robin is “DEF STAN 91-91/Issue 7, dated: February 2011, Note Amendent 2 Implementation date December 2012” and ASTM D1655:15. One must keep in mind that ISO-methods are not mentioned in the “Checklist”.

Aromatics by: FIA (D1319): This determination was not problematic. One statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier is in agreement with ASTM D1319:14.

Aromatics by: HPLC (D6379) The %M/M determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with ASTM D6379:11.
The %V/V determination may be not problematic. Regretfully, no precision data for the determination in %V/V is mentioned in ASTM D6379:11, the observed reproducibility is somewhat smaller than for the determination in %M/M.

Colour Saybolt: This determination was problematic for the manual test method ASTM D156. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D156:12.
The determination was very problematic for the automatic test method ASTM D6045:12. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the requirements of ASTM D6045:12.

Density: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in good agreement with the requirements of ASTM D4052:11.

Distillation: The determination of the distillation was problematic. In total five statistical outliers were observed. When compared against the automaded mode requirements of ASTM D86:12, the calculated reproducibilities for IBP, 10% rec, 50% rec and FBP, after rejection of the statistical outliers, are all in agreement. When compared against the manual mode requirements of ASTM D86:12, the calculated reproducibilities for 50% and 90% rec, after rejection of the statistical outliers are both in agreement.

Existent Gum: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of the ASTM D381:12. Sixteen participants reported to have used IP540:08, a method that is not equivalent to D381:12.

Flash Point: This determination was not problematic. Five test results were excluded as the test methods were not equivalent to IP170:10. The calculated reproducibility, after rejection of the suspect data is in agreement with the requirements of IP170:14.
In the Joint Fuelling System Checklist both the IP170/ISO13736 and the ASTM D56 are mentioned as test methods. When the test results from IP170/ISO13736 and ASTM D56 were evaluated separately, then both

calculated reproducibilities are in agreement with the respective reproducibility requirements.

Freezing Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM2386:06(2012). When the test results from ASTM D7153/IP529 and ASTM D2386/IP16 were evaluated separately, then the calculated reproducibility for the automatic methods ASTM D7153(2010)/IP529 is not in agreement but the calculated reproducibility for the manual methods D2386(2012)/IP16 is in full agreement with the respective reproducibility requirements.

JFTOT: The reported test results for tube rating vary over a range from 0 to <3.
The test results for Delta P vary over a range from 0 - 6.8. The large range may (partly) be explained by the use of tubes from different kind of brands (Falex or Alcor).
Eleven laboratories reported a higher volume than the maximum allowed (450 ± 45 mL may be pumped in a valid test, see ASTM D 3241:09-B table 2). It should be noted that some of the newer JFTOT equipment measures the total volume spent including the sample used to flush the system. The operator should make the appropioate correction(s). The operating tempature for the test is 260ºC as stated in de JIG-specification. One participant reported a temperature of only 150ºC.

Kinematic Viscosity: 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 ASTM D445:15.

Mercaptan Sulphur: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the requirements of ASTM D3227:13. One participant reported to have used UOP163, a method that is not equivalent to ASTM3227/IP342/ISO3012.

MSEP: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D3948:14.

Naphthalenes: This determination was not problematic. Six statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outliers is in agreement with the requirements of ASTM D1840:07(2013)-B. When the results from procedures A and B were evaluated separately, the calculated reproducibilities are respectively not in agreement with the requirements of ASTM D1840:07A and in full agreement with the requirements of ASTM D1840:07B(2013).

Smoke Point: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the manual mode requirements of ASTM D1322:14a, but not all with the automated mode requirements of ASTM D1322:14a.
When the automated and manual test results were evaluated separately, the calculated reproducibility for automated method is much smaller, but still not in agreement with the requirements of ASTM D1322:14a. However, the calculated reproducibility for the manual method is in agreement with the requirements of ASTM D1322:14a.

Specific Energy: This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D3338:09(2014).

Total Sulphur: This determination was not problematic. Two statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outliers is in agreement with the requirements of ASTM D5453:12.
When the XRF test results (D4294, D2622, ISO20884, ISO14596 ISO8750/IP336) and the UVF test results (D5453, ISO20846) are evaluated separately, than it can be observed that the spread for the various XRF test methods is smaller than the spread of the used UVF test methods.

Total Acidity: This determination was problematic at the low level 0.0020 mg KOH/g. One statistical outlier was observed.The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D3242:11.

Particle Size: The determination of the particle size distribution is problematic since the first PT organized by iis in 2009. In 2014 a separation was made between parcipants that used the IP564 (Parkin Hannifin) and the IP565 (Stanhope Seta AV) method. "*Parkin Hannifin and Stanhope Seta AV are the only manufacturers to date that have demonstrated to the Energy Institute compliance of their particle counters to IP564 and IP565 methods by the prevision of analytical data."*
When the test results of 2014 are compared with test results of 2015 similarities can be found between the data sets of 2014 and 2015.
Just as in 2014 the concensus values of the IP564 method are almost half of the concensus values of the IP565 method. The observed differences were calculated with the critical t-value test for >4 µm and both methods differ statistically for >4 µm according this test ($t_{calc}>t_{table}$, p=0.05).
The determination was problematic for participants that used IP564. In total twelve statistical outliers were observed, two of lab 311, four of lab 1049 and six of lab 1616. The calculated reproducibilities are in agreement for >14 µm and >30 µm with the requirements of IP564:13.
However, the calculated reproducibilities for >4 µm, >6 µm, > 21 µm and > 25 µm are not in agreement with the requirements of IP564:13.

The determination was vey problematic for participants that used the IP565. In total four statistical outliers were observed: two for lab 1710 and two for lab 1833. The reproducibilities for >14 µm, >21 µm, >25 µm and >30 µm are in agreement with the requirements of IP565:13, but the reproducibilities for >4 µm and >6 µm are not at all in agreement with the requirements of IP565:13.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of laboratories that participated.
The reproducibilities derived from literature standards (in casu ASTM standards) and the calculated reproducibilities of samples #15017 and #15018 are compared in the next tables.

Parameter	unit	n	Average	2.8 * sd	R (lit)
Aromatics by FIA	%V/V	58	17.08	2.03	2.85
Aromatics by HPLC	%M/M	18	20.25	2.07	2.07
Aromatics by HPLC	%V/V	19	18.00	1.99	unknown
Colour Saybolt (ASTM D156)		47	19.0	3.1	2.0
Colour Saybolt (ASTM D6045)		42	19.6	2.6	1.2
Density at 15°C	kg/m^3	97	794.6	0.3	0.5
Initial Boiling Point	°C	94	149.6	5.9	8.2
10% recovered	°C	94	167.2	3.7	3.7
50% recovered	°C	91	192.5	3.1	3.0
90% recovered	°C	93	235.8	4.0	3.5
Final Boiling Point	°C	93	264.0	5.2	7.1
Existent Gum	mg/100mL	58	0.9	1.2	3.2
Flash Point	°C	84	39.4	2.5	3.2
Freezing Point	°C	83	-54.8	2.3	2.5
Kinematic Viscosity @ -20°C	cSt	60	3.576	0.077	0.068
Mercaptan Sulphur	%M/M	58	0.0008	0.0003	0.0003
MSEP	rating	69	93.7	8.6	9.1
Naphthalenes	%V/V	47	0.89	0.09	0.09
Smoke Point	mm	71	24.3	2.9	3.8
Specific Energy	MJ/kg	57	43.31	0.06	0.05
Total Sulphur	mg/kg	78	877.1	89.6	111.1
Total Acidity	mg KOH/g	57	0.0020	0.0029	0.0018

table 5: comparison of the observed and target reproducibilities of sample #15017

Parameter	unit	n	Average	2.8 * sd	R (lit)
Particle Size >4 µm (IP564)	mL^{-1}	13	1149	1102	384
Particle Size >6 µm (IP564)	mL^{-1}	13	243	250	156
Particle Size >14 µm (IP564)	mL^{-1}	13	6.0	9.5	14.0
Particle Size >21 µm (IP564)	mL^{-1}	13	1.4	2.2	1.8
Particle Size >25 µm (IP564)	mL^{-1}	13	0.8	1.6	1.1
Particle Size >30 µm (IP564)	mL^{-1}	13	0.4	0.6	0.6
Particle Size >4 µm (IP565)	mL^{-1}	20	2195	4120	418
Particle Size >6 µm (IP565)	mL^{-1}	20	649	1265	229
Particle Size >14 µm (IP565)	mL^{-1}	18	11.0	18.9	23.3
Particle Size >21 µm (IP565)	mL^{-1}	18	2.2	4.4	5.2
Particle Size >25 µm (IP565)	mL^{-1}	18	1.2	2.9	2.9
Particle Size >30 µm (IP565)	mL^{-1}	19	0.6	1.6	1.4

table 6: comparison of the observed and target reproducibilities of sample #15018

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

4.3 COMPARISON OF THE PROFICIENCY TEST OF MARCH 2015 WITH PREVIOUS PTS

	March 2015	March 2014	March 2013	March 2012
Number of reporting labs	102	100	92	91
Number of results reported	1803	1741	1705	1704
Statistical outliers	44	29	45	53
Percentage outliers	2.4%	1.6%	2.6%	3.1%

table 7: Comparison with previous proficiency tests

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

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

Parameter	March 2015	March 2014	March 2013	March 2012
Aromatics by FIA	+	+	++	++
Aromatics by HPLC	+/-	-	+/-	+/-
Colour Saybolt	--	--	--	--
Density at 15°C	++	++	++	++
Distillation	+	+	+	++
Existent Gum	++	++	++	++
Flash Point	+	+	+/-	+/-
Freezing Point	+	-	+	++
Kinematic Viscosity @ -20°C	-	-	+	-
Mercaptan Sulphur	+/-	+	+/-	+/-
MSEP	+	+	--	+/-
Naphthalenes	+/-	+	-	+/-
Smoke Point	+	+/-	+	--
Specific Energy	-	-	++	-
Total Sulphur	++	+/-	-	+/-
Total Acidity	-	--	-	--
Particle Size Distribution	-	-	-	--

table 8: comparison determinations against the standard requirements

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

++: group performed much better than the standard
+ : group performed better than the standard
+/-: group performance equals the standard
- : group performed worse than the standard
-- : group performed much worse than the standard

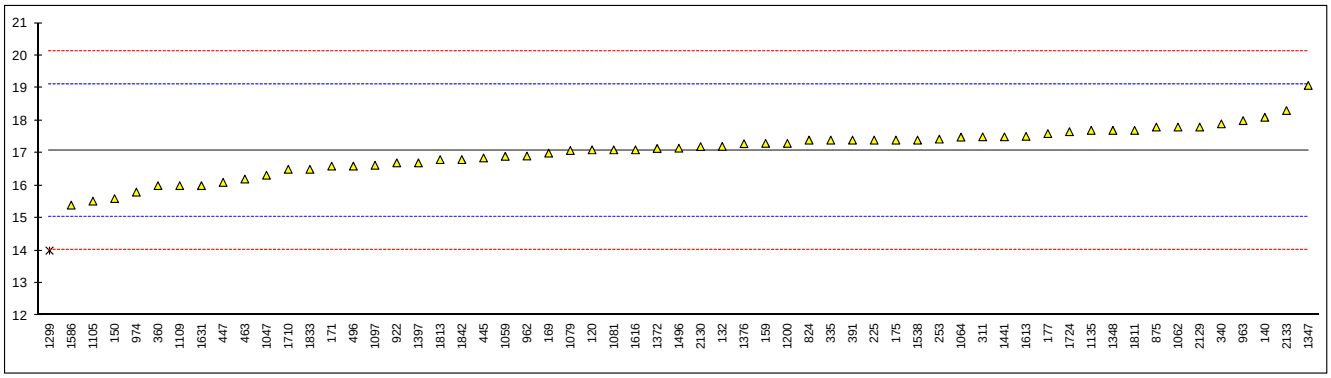
APPENDIX 1

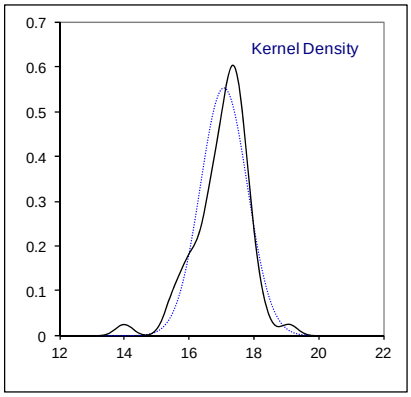
Determination of Aromatics by FIA on sample #15017; results in %V/V

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D1319	17.1		0.02	
131		-----		-----	
132	D1319	17.207		0.13	
140	D1319	18.1		1.01	
150	D1319	15.6		-1.45	
159	D1319	17.3		0.22	
169	D1319	17.0		-0.07	
171	D1319	16.6		-0.47	
175	D1319	17.4		0.32	
177	D1319	17.6		0.52	
194		-----		-----	
225	D1319	17.4		0.32	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D1319	17.43		0.35	
273		-----		-----	
311	D1319	17.5		0.42	
317		-----		-----	
334		-----		-----	
335	D1319	17.4		0.32	
336		-----		-----	
340	D1319	17.9		0.81	
353		-----		-----	
360	D1319	16.0		-1.06	
391	D1319	17.4		0.32	
398		-----		-----	
399		-----		-----	
445	D1319	16.85		-0.22	
447	D1319	16.1		-0.96	
463	D1319	16.2		-0.86	
468		-----		-----	
473		-----		-----	
496	D1319	16.60		-0.47	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671		-----		-----	
785		-----		-----	
824	D1319	17.4		0.32	
875	D1319	17.8		0.71	
922	D1319	16.7		-0.37	
962	D1319	16.91		-0.16	
963	D1319	18.0		0.91	
974	D1319	15.8		-1.26	
998		-----		-----	
1039		-----		-----	
1047	D1319	16.32		-0.74	
1049		-----		-----	
1059	D1319	16.9		-0.17	
1062	D1319	17.8		0.71	
1064	D1319	17.49		0.41	
1079	D1319	17.08		0.00	
1080		-----		-----	
1081	D1319	17.1		0.02	
1082		-----		-----	
1097	D1319	16.627		-0.44	
1105	D1319	15.52		-1.53	
1109	D1319	16.00		-1.06	
1126		-----		-----	
1135	D1319	17.7		0.61	
1146		-----		-----	
1150		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191		-----		-----	
1200	D1319	17.3		0.22	
1237		-----		-----	

1284		-----		-----
1299	D1319	14.0	R(0.01)	-3.03
1318		-----		-----
1347	D1319	19.08		1.97
1348	D1319	17.7		0.61
1372	D1319	17.143		0.07
1376	D1319	17.29		0.21
1397	D1319	16.7		-0.37
1441	D1319	17.5		0.42
1496	D1319	17.15		0.07
1531		-----		-----
1538	D1319	17.4		0.32
1586	D1319	15.4		-1.65
1587		-----		-----
1610		-----		-----
1613	D1319	17.515		0.43
1616	D1319	17.1		0.02
1631	D1319	16.0		-1.06
1634		-----		-----
1678		-----		-----
1710	D1319	16.5		-0.57
1720		-----		-----
1724	D1319	17.66		0.58
1755		-----		-----
1757		-----		-----
1776		-----		-----
1782		-----		-----
1811	D1319	17.70		0.61
1813	D1319	16.80		-0.27
1833	D1319	16.5		-0.57
1842	D1319	16.8		-0.27
1881		-----		-----
1961		-----		-----
2129	D1319	17.8		0.71
2130	D1319	17.2		0.12
2133	D1319	18.31		1.21

normality	OK
n	58
outliers	1
mean (n)	17.076
st.dev. (n)	0.7232
R(calc.)	2.025
R(D1319:14)	2.846



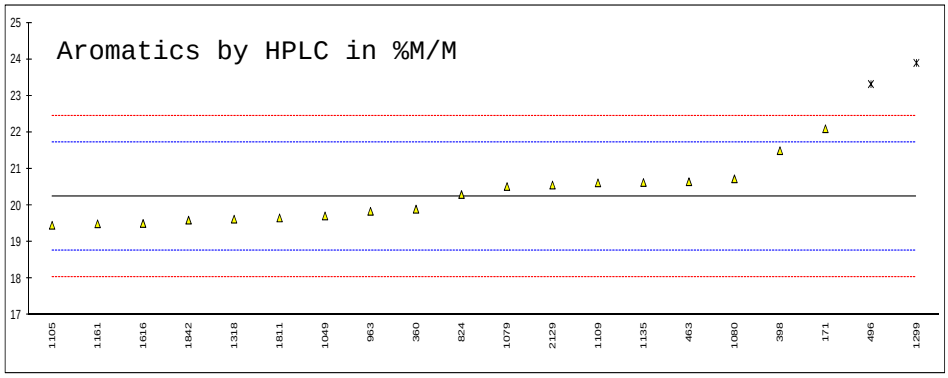


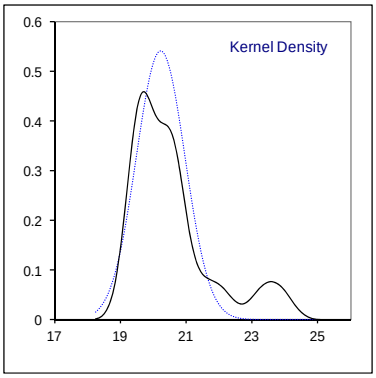
Determination of Aromatics by HPLC on sample #15017; results in %M/M & %V/V

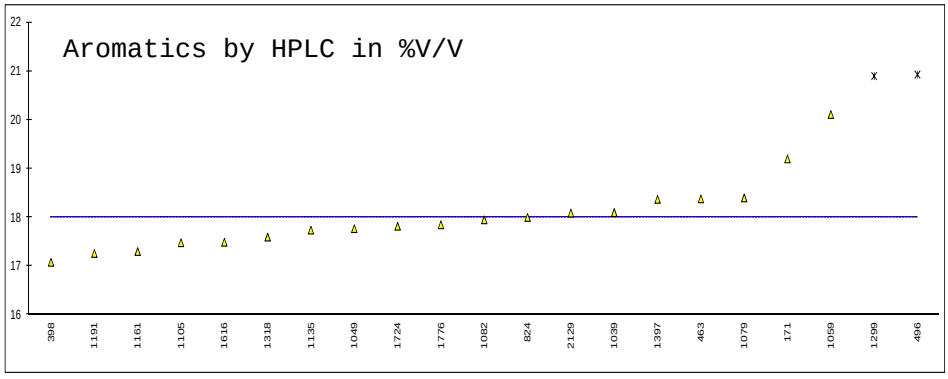
lab	method	%M/M	mark	z(targ)	%V/V	mark	z(targ)	Remarks
90		-----		-----	-----		-----	
120		-----		-----	-----		-----	
131		-----		-----	-----		-----	
132		-----		-----	-----		-----	
140		-----		-----	-----		-----	
150		-----		-----	-----		-----	
159		-----		-----	-----		-----	
169		-----		-----	-----		-----	
171	D6379	22.1		2.51	19.2	C	-----	first reported:19.9
175		-----		-----	-----		-----	
177		-----		-----	-----		-----	
194		-----		-----	-----		-----	
225		-----		-----	-----		-----	
228		-----		-----	-----		-----	
237		-----		-----	-----		-----	
238		-----		-----	-----		-----	
253		-----		-----	-----		-----	
273		-----		-----	-----		-----	
311		-----		-----	-----		-----	
317		-----		-----	-----		-----	
334		-----		-----	-----		-----	
335		-----		-----	-----		-----	
336		-----		-----	-----		-----	
340		-----		-----	-----		-----	
353		-----		-----	-----		-----	
360	D6379	19.90		-0.47	-----		-----	
391		-----		-----	-----		-----	
398	D6379	21.50		1.70	17.08		-----	
399		-----		-----	-----		-----	
445		-----		-----	-----		-----	
447		-----		-----	-----		-----	
463	D6379	20.65		0.55	18.38		-----	
468		-----		-----	-----		-----	
473		-----		-----	-----		-----	
496	D6379	23.32	R(0.05)	4.16	20.93	R(0.05)	-----	
594		-----		-----	-----		-----	
601		-----		-----	-----		-----	
604		-----		-----	-----		-----	
606		-----		-----	-----		-----	
633		-----		-----	-----		-----	
634		-----		-----	-----		-----	
671		-----		-----	-----		-----	
785		-----		-----	-----		-----	
824	D6379	20.3		0.07	18.0		-----	
875		-----		-----	-----		-----	
922		-----		-----	-----		-----	
962		-----		-----	-----		-----	
963	D6379	19.841		-0.55	-----		-----	
974		-----		-----	-----		-----	
998		-----		-----	-----		-----	
1039		-----		-----	18.1		-----	
1047		-----		-----	-----		-----	
1049	D6379	19.716		-0.72	17.769		-----	
1059		-----		-----	20.11		-----	
1062		-----		-----	-----		-----	
1064		-----		-----	-----		-----	
1079	D6379	20.52		0.37	18.40		-----	
1080	D6379	20.73		0.66	-----		-----	
1081		-----		-----	-----		-----	
1082		-----		-----	17.95		-----	
1097		-----		-----	-----		-----	
1105	D6379	19.46		-1.06	17.48		-----	
1109	D6591	20.62		0.51	-----		-----	
1126		-----		-----	-----		-----	
1135	D6379	20.63	C	0.52	17.74	C	-----	first reported:23.07 % M/M,18.33 % V/V
1146		-----		-----	-----		-----	
1150		-----		-----	-----		-----	
1161	EN12916	19.5		-1.01	17.3		-----	
1167		-----		-----	-----		-----	
1191		-----		-----	17.26		-----	
1200		-----		-----	-----		-----	
1237		-----		-----	-----		-----	
1284		-----		-----	-----		-----	

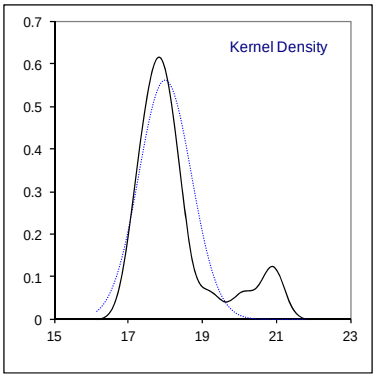
1299	IP436	23.9	R(0.05)	4.95	20.9	R(0.05)	-----
1318	D6379	19.627		-0.84	17.597		-----
1347		-----		-----	-----		-----
1348		-----		-----	-----		-----
1372		-----		-----	-----		-----
1376		-----		-----	-----		-----
1397		-----		-----	18.37		-----
1441		-----		-----	-----		-----
1496		-----		-----	-----		-----
1531		-----		-----	-----		-----
1538		-----		-----	-----		-----
1586		-----		-----	-----		-----
1587		-----		-----	-----		-----
1610		-----		-----	-----		-----
1613		-----		-----	-----		-----
1616	D6379	19.51		-1.00	17.49		-----
1631		-----		-----	-----		-----
1634		-----		-----	-----		-----
1678		-----		-----	-----		-----
1710		-----		-----	-----		-----
1720		-----		-----	-----		-----
1724		-----		-----	17.82		-----
1755		-----		-----	-----		-----
1757		-----		-----	-----		-----
1776		-----		-----	17.85		-----
1782		-----		-----	-----		-----
1811	D6379	19.66		-0.79	-----		-----
1813		-----		-----	-----		-----
1833		-----		-----	-----		-----
1842	IP436	19.6		-0.87	-----		-----
1881		-----		-----	-----		-----
1961		-----		-----	-----		-----
2129	D6379	20.56		0.43	18.09		-----
2130		-----		-----	-----		-----
2133		-----		-----	-----		-----

normality	suspect	not OK
n	18	19
outliers	2	2
mean (n)	20.246	17.999
st.dev. (n)	0.7395	0.7113
R(calc.)	2.071	1.992
R(D6379:11)	2.067	unknown







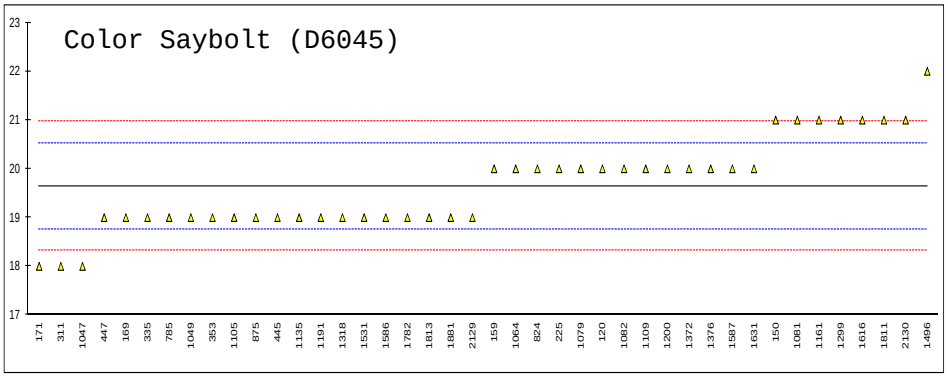


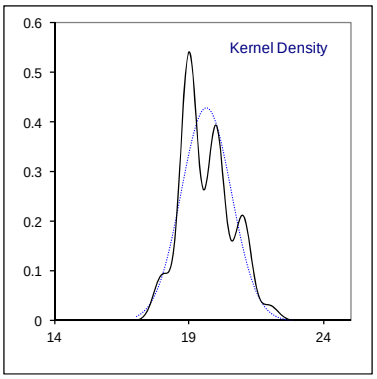
Determination of Colour Saybolt (D6045 / D156) on sample #15017;

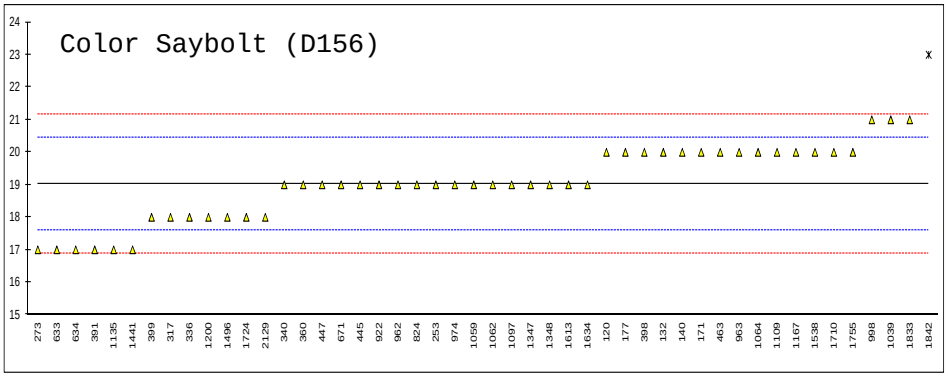
lab	method	cell size	automated	mark	z(targ)	method	manual	mark	z(targ)
90		-----	-----		-----		-----		-----
120	D6045	50	20		0.81	D156	20		1.37
131		-----	-----		-----		-----		-----
132		-----	-----		-----	D156	20		1.37
140		-----	-----		-----	D156	20		1.37
150	D6045	-----	21		3.06		-----		-----
159	D6045	-----	20		0.81		-----		-----
169		-----	19		-1.45		-----		-----
171	D6045	-----	18		-3.71	D156	20		1.37
175		-----	-----		-----		-----		-----
177		-----	-----		-----	D156	20		1.37
194		-----	-----		-----		-----		-----
225	D6045	50	20		0.81		-----		-----
228		-----	-----		-----		-----		-----
237		-----	-----		-----		-----		-----
238		-----	-----		-----		-----		-----
253		-----	-----		-----	D156	19		-0.03
273		-----	-----		-----	D156	17		-2.83
311	D6045	-----	18		-3.71		-----		-----
317		-----	-----		-----	D156	18		-1.43
334		-----	-----		-----		-----		-----
335	D6045	50	19		-1.45		-----		-----
336		-----	-----		-----	D156	18		-1.43
340		-----	-----		-----	D156	19		-0.03
353	D6045	50.0	19		-1.45		-----		-----
360		-----	-----		-----	D156	19		-0.03
391		-----	-----		-----	D156	17		-2.83
398		-----	-----		-----	D156	20		1.37
399		-----	-----		-----	D156	18		-1.43
445	D6045	50	19		-1.45	D156	19		-0.03
447	D6045	100	19		-1.45	D156	19		-0.03
463		-----	-----		-----	D156	20		1.37
468		-----	-----		-----		-----		-----
473		-----	-----		-----		-----		-----
496		-----	-----		-----		-----		-----
594		-----	-----		-----		-----		-----
601		-----	-----		-----		-----		-----
604		-----	-----		-----		-----		-----
606		-----	-----		-----		-----		-----
633		-----	-----		-----	D156	17		-2.83
634		-----	-----		-----	D156	17		-2.83
671		-----	-----		-----	D156	19		-0.03
785	D6045	50.00	19		-1.45		-----		-----
824	D6045	50	20		0.81	D156	19		-0.03
875	D6045	50	19		-1.45		-----		-----
922		-----	-----		-----	D156	19		-0.03
962		-----	-----		-----	D156	19		-0.03
963		-----	-----		-----	D156	20		1.37
974		-----	-----		-----	D156	19		-0.03
998		-----	-----		-----	D156	21		2.77
1039		-----	-----		-----	D156	21		2.77
1047	D6045	50.0	18.0		-3.71		-----		-----
1049	D6045	50	19		-1.45		-----		-----
1059		-----	-----		-----	D156	19		-0.03
1062		-----	-----		-----	D156	19		-0.03
1064	D6045	50	20		0.81	D156	20		1.37
1079	D6045	100	20		0.81		-----		-----
1080		-----	-----		-----		-----		-----
1081	D6045	-----	21		3.06		-----		-----
1082	D6045	-----	20		0.81		-----		-----
1097		-----	-----		-----	INH-003	19		-0.03
1105	D6045	50	19		-1.45		-----		-----
1109	D6045	100	20		0.81	D156	20		1.37
1126		-----	-----		-----		-----		-----
1135	D6045	100	19		-1.45	D156	17		-2.83
1146		-----	-----		-----		-----		-----
1150		-----	-----		-----		-----		-----
1161	D6045	-----	21		3.06		-----		-----
1167		-----	-----		-----	D156	20		1.37
1191	D6045	-----	19		-1.45		-----		-----
1200	D6045	-----	20		0.81	D156	18		-1.43
1237		-----	-----		-----		-----		-----
1284		-----	-----		-----		-----		-----
1299	D6045	-----	21		3.06		-----		-----

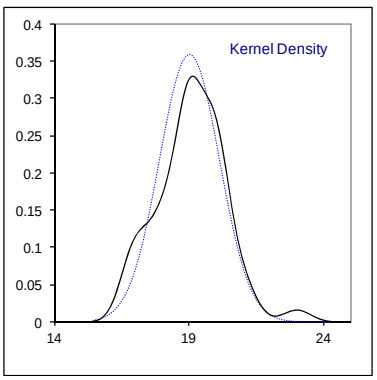
1318	D6045	100	19	-1.45		-----		-----
1347		-----	-----	-----	D156	19		-0.03
1348		-----	-----	-----	D156	19		-0.03
1372	D6045	100	20	0.81		-----		-----
1376	D6045	-----	20	0.81		-----		-----
1397		-----	-----	-----		-----		-----
1441		-----	-----	-----	D156	17		-2.83
1496	D6045	-----	22	5.32	D156	18		-1.43
1531	D6045	-----	19	-1.45		-----		-----
1538		-----	-----	-----	D156	20		1.37
1586	D6045	50	19	-1.45		-----		-----
1587	D6045	50	20.0	0.81		-----		-----
1610		-----	-----	-----		-----		-----
1613		-----	-----	-----	D156	19		-0.03
1616	D6045	-----	21	3.06		-----		-----
1631	D6045	-----	20	0.81		-----		-----
1634		-----	-----	-----	D156	19		-0.03
1678		-----	-----	-----		-----		-----
1710		-----	-----	-----	D156	20		1.37
1720		-----	-----	-----		-----		-----
1724		-----	-----	-----	D156	18		-1.43
1755		-----	-----	-----	D156	20		1.37
1757		-----	-----	-----		-----		-----
1776		-----	-----	-----		-----		-----
1782	D6045	50	19	-1.45		-----		-----
1811	D6045	-----	21	3.06		-----		-----
1813	D6045	100	19	-1.45		-----		-----
1833		-----	-----	-----	D156	21		2.77
1842		-----	-----	-----	D156	23	R(0.05)	5.57
1881	D6045	50	19.0	-1.45		-----		-----
1961		-----	-----	-----		-----		-----
2129	D6045	50	19.0	-1.45	D156	18.0		-1.43
2130	D6045	50	21	3.06		-----		-----
2133		-----	-----	-----		-----		-----

normality	OK	normality	OK
n	42	n	47
outliers	0	outliers	1
mean (n)	19.6	mean (n)	19.0
st.dev. (n)	0.93	st.dev. (n)	1.11
R(calc.)	2.6	R(calc.)	3.1
R(D6045:12)	1.2	R(D156:12)	2.0







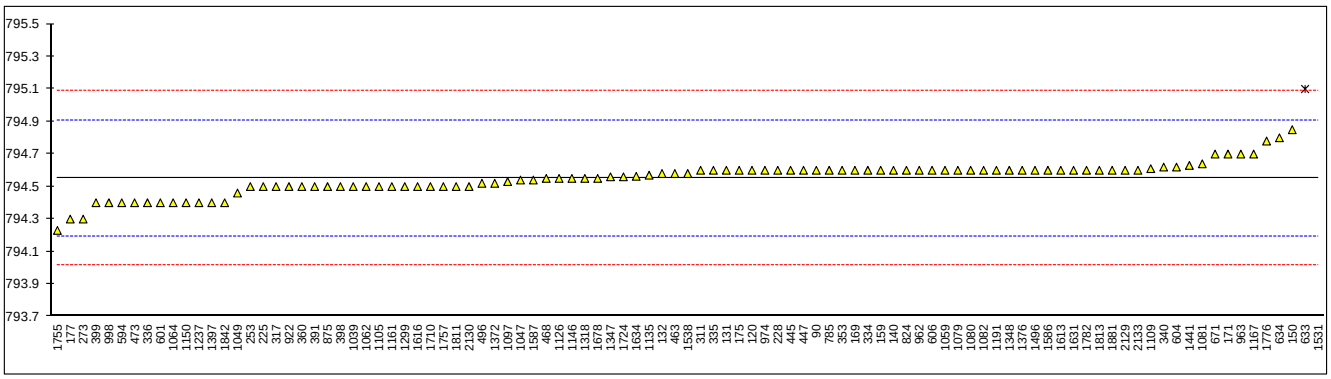


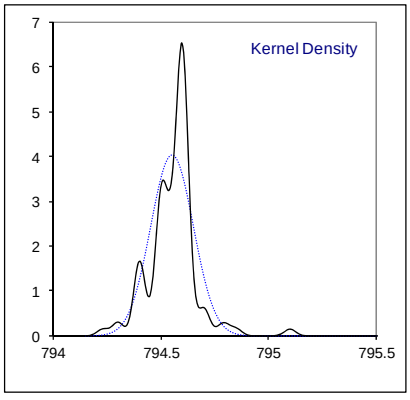
Determination of Density at 15°C on sample #15017; results in kg/m^3

lab	method	value	mark	z(targ)	remarks
90	D4052	794.6		0.27	
120	D4052	794.6		0.27	
131	D4052	794.6		0.27	
132	D4052	794.58		0.16	
140	D4052	794.6		0.27	
150	D4052	794.85		1.67	
159	D4052	794.6		0.27	
169	D4052	794.6		0.27	
171	D4052	794.7		0.83	
175	D4052	794.6		0.27	
177	D4052	794.3		-1.41	
194		-----		-----	
225	D4052	794.5		-0.29	
228	D4052	794.6		0.27	
237		-----		-----	
238		-----		-----	
253	D4052	794.5		-0.29	
273	D4052	794.3		-1.41	
311	D4052	794.6		0.27	
317	D4052	794.5		-0.29	
334	D4052	794.6		0.27	
335	D4052	794.6		0.27	
336	D4052	794.4		-0.85	
340	D4052	794.62		0.38	
353	IP365	794.6		0.27	
360	D4052	794.5		-0.29	
391	D4052	794.5		-0.29	
398	D4052	794.5		-0.29	
399	D4052	794.4		-0.85	
445	D4052	794.6		0.27	
447	D4052	794.6		0.27	
463	D4052	794.58		0.16	
468	D4052	794.55		-0.01	
473	D4052	794.4	C	-0.85	first reported:0.7944
496	D4052	794.52		-0.18	
594	INH-3900	794.4		-0.85	
601	D1298	794.4		-0.85	
604	D4052	794.62		0.38	
606	D4052	794.6		0.27	
633	D1298	795.1	R(0.01)	3.07	
634	D4052	794.8		1.39	
671	D4052	794.7		0.83	
785	D4052	794.6		0.27	
824	ISO12185	794.6		0.27	
875	D4052	794.5		-0.29	
922	D4052	794.5		-0.29	
962	D4052	794.6		0.27	
963	D4052	794.7		0.83	
974	D4052	794.6		0.27	
998	D4052	794.4		-0.85	
1039	D4052	794.5		-0.29	
1047	D4052	794.54		-0.06	
1049	D4052	794.46		-0.51	
1059	ISO12185	794.6		0.27	
1062	D4052	794.5		-0.29	
1064	D4052	794.4		-0.85	
1079	D4052	794.6		0.27	
1080	D4052	794.6		0.27	
1081	D4052	794.64		0.50	
1082	D4052	794.6		0.27	
1097	ISO12185	794.53		-0.12	
1105	D4052	794.5		-0.29	
1109	D4052	794.61		0.33	
1126	D4052	794.55		-0.01	
1135	D4052	794.57		0.10	
1146	D4052	794.55		-0.01	
1150	ISO12185	794.4		-0.85	
1161	ISO12185	794.5		-0.29	
1167	ISO12185	794.7		0.83	
1191	D4052	794.6		0.27	
1200		-----		-----	
1237	ISO12185	794.4		-0.85	
1284		-----		-----	
1299	D4052	794.5		-0.29	

1318	D4052	794.55	C	-0.01	first reported:0.79455
1347	D4052	794.56		0.05	
1348	D4052	794.6		0.27	
1372	D4052	794.52		-0.18	
1376	D4052	794.6		0.27	
1397	D4052	794.4		-0.85	
1441	D4052	794.63		0.44	
1496	D1298	794.6		0.27	
1531	D4052	796.3	R(0.01)	9.79	
1538	D4052	794.58		0.16	
1586	D4052	794.6		0.27	
1587	D4052	794.54		-0.06	
1610		-----		-----	
1613	D4052	794.6		0.27	
1616	D4052	794.5		-0.29	
1631	D4052	794.6		0.27	
1634	D4052	794.563		0.07	
1678	ISO12185	794.55		-0.01	
1710	D4052	794.5		-0.29	
1720		-----		-----	
1724	D4052	794.56		0.05	
1755	D4052	794.23		-1.80	
1757	D7777	794.5	C	-0.29	first reported:793.80
1776	D4052	794.78		1.28	
1782	D4052	794.6		0.27	
1811	D4052	794.50		-0.29	
1813	D4052	794.6		0.27	
1833		-----		-----	
1842	D4052	794.4		-0.85	
1881	D4052	794.6		0.27	
1961		-----		-----	
2129	D4052	794.6		0.27	
2130	D4052	794.5		-0.29	
2133	D4052	794.60		0.27	

normality	suspect
n	97
outliers	2
mean (n)	794.55
st.dev. (n)	0.099
R(calc.)	0.28
R(D4052:11)	0.50



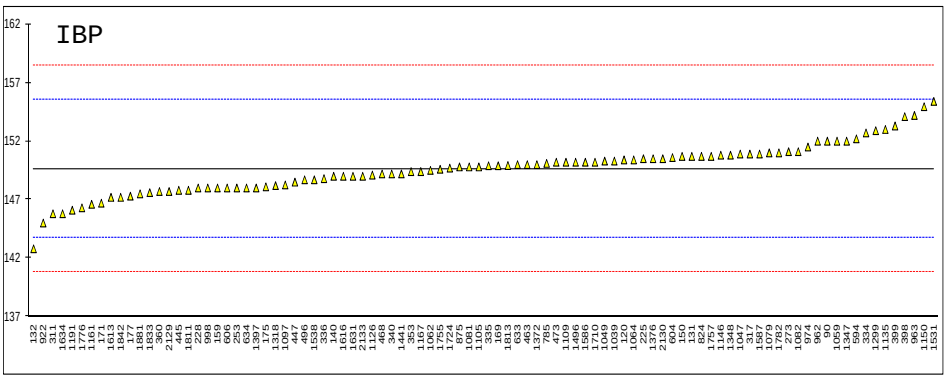


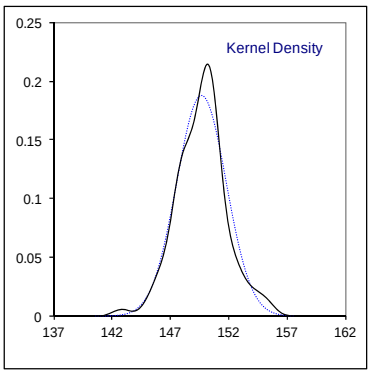
Determination of Distillation ASTM D86 on sample #15017; results in °C

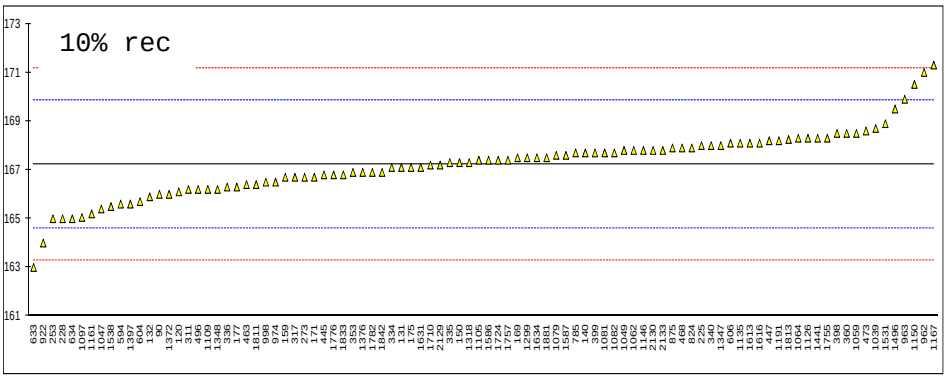
lab	method	mode	IBP	mark	10%	mark	50%	mark	90%	mark	FBP	mark
90	D86	Manual	152.0		166.0		191.0		234.0		263	
120	D86	Automated	150.4		166.1		191.8		234.9		262.8	
131	D86	Automated	150.7		167.1		192.7		236.2		261.4	
132	D86	Automated	142.8		165.9		192.2		236.2		262.0	
140	D86	Automated	149.0		167.7		192.6		235.0		263.7	
150	D86	Automated	150.7		167.3		191.8		234.3		263.2	
159	D86	Automated	148.0		166.7		193.8		236.7		263.4	
169	D86	Automated	149.9		167.5		193.2		235.8		264.3	
171	D86	Automated	146.7		166.7		192.8		236.0		262.8	
175	D86	Automated	148.1		167.1		193.0		236.9		266.0	
177	D86	Automated	147.3		166.3		191.5		233.8		262.5	
194			-----		-----		-----		-----		-----	
225	D86	Manual	150.5		168.0		192.0		232.0		261.0	
228	D86	Manual	148.0		165.0		190.0		234.0		262.0	
237			-----		-----		-----		-----		-----	
238			-----		-----		-----		-----		-----	
253	D86	Manual	148.0		165.0		189.5		234.0		261.0	
273	D86	Automated	151.1		166.7		193.6		237.3		262.5	
311	D86	Automated	145.8		166.2		191.9		234.6		261.2	
317	D86	Automated	150.9		166.7		192.5		235.2		262.0	
334	D86		152.7		167.1		192.3		235.1		267.7	
335	D86	Automated	149.9		167.3		192.3	C	236.2		262.2	
336	D86	Automated	148.8		166.3		191.7		235.1		261.1	
340	D86	Automated	149.2		168.0		193.6		237.8		263.7	
353	IP123	Automated	149.4		166.9		193.6		238.0		265.8	
360	D86	Automated	147.7		168.5		193.1		237.3		264.8	
391			-----		-----		-----		-----		-----	
398	D86	Automated	154.1		168.5		193.3		236.7		268.2	
399	D86	Automated	153.3		167.7		193.1		235.0		268.1	
445	D86	Automated	147.8		166.8		192.4		236.2		264.5	
447	D86	Automated	148.5		168.2		193.4		237.4		265.4	
463	D86	Automated	150.0		166.4		192.8		236.5		265.1	
468	D86	Automated	149.2		167.9		193.2		237.8		265.5	
473	D86	Automated	150.2		168.6		193.4		237.0		263.7	
496	D86	Automated	148.7		166.2		192.2		235.0		264.0	
594	INH-2177	Automated	152.2		165.6		192.7		236.2		264.9	
601			-----		-----		-----		-----		-----	
604	D86	Automated	150.6		165.7		190.5		236.0		262.0	
606	D86	Automated	148.0		168.1		193.1		235.7		265.8	
633	D86	Manual	150.0		163.0		190.0		229.0	R(0.01)	256.0	R(0.01)
634	D86	Manual	148.0		165.0		190.0		235.0		264.0	
671			-----		-----		-----		-----		-----	
785	D86	Automated	150.1		167.7		193.1		235.6		265.0	
824	D86	Automated	150.7		167.9		193.3		237.8		264.0	
875	D86	Automated	149.8		167.9		193.2		236.8		266.0	
922	D86	Manual	145.0		164.0		190.0		233.0	C	261.0	
962	D86	Manual	152.0		171.0	C	197.0	C,R(0.01)	239.0		264.5	
963	D86	Automated	154.2		169.9		195.5		236.8		266.0	
974	D86	Automated	151.5		166.5		191.7		235.5		262.4	
998	D86	Manual	148.0		166.5		191.0		233.5		265.0	
1039	ISO3405		150.3		168.7		192.8		236.3		264.7	
1047	D86	Automated	150.9		165.4		191.8		237.6		263.7	
1049	D86	Automated	150.3		167.8		192.9		235.7		264.4	
1059	ISO3405	Automated	152.0		168.5		193.5		235.9		266.3	
1062	D86	Automated	149.5		167.8		193.2		235.5		263.7	
1064	D86	Automated	150.4		168.3		194.0		237.6		266.1	
1079	D86	Automated	151.0		167.6		193.8		236.9		264.4	
1080			-----		-----		-----		-----		-----	
1081	D86	Automated	149.8		167.7		192.3		234.3		263.6	
1082	D86	Automated	151.1		167.7		192.9		236.4		263.1	
1097	ISO3405	Automated	148.26		165.05		190.36		232.80		260.55	
1105	D86	Automated	149.8		167.4		191.8		234.5		262.9	
1109	D86	Automated	150.2		166.2		191.4		234.5		265.3	
1126	D86	Automated	149.1		168.3		197.0	R(0.01)	236.8		265.2	
1135	D86	Automated	153.0		168.1		193.6		237.2		266.6	
1146	ISO3405	Automated	150.8		167.8		192.6		235.4		263.1	
1150	ISO3405	Automated	154.95		170.51		193.78	C	238.75	C	267.18	
1161	ISO3405	Automated	146.6		165.2		190.2		234.9		265.7	
1167	ISO3405	Automated	149.4		171.3		197.5	R(0.01)	234.4		266.0	
1191	D86	Automated	146.1		168.2		193.3		236.8		263.7	
1200			-----		-----		-----		-----		-----	
1237			-----		-----		-----		-----		-----	
1284			-----		-----		-----		-----		-----	
1299	D86	Automated	152.9		167.5		193.1		237.2		265.8	

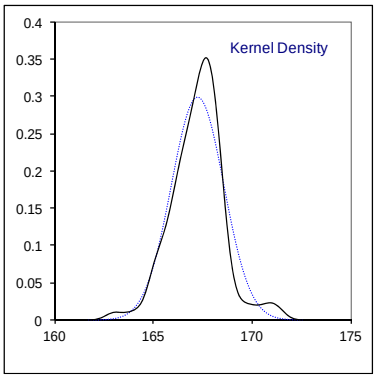
1318	D86	Automated	148.2		167.3		192.4		235.3		264.3			
1347	D86	Manual	152		168		193		235		263			
1348	D86	Automated	150.8		166.2		191.1		235.2		261.8			
1372	D86	Manual	150		166		193		237		263			
1376	D86	Automated	150.5		166.9		193.9		236.0		266.5			
1397	D86		148.0		165.6		191.3		233.4		261.1			
1441	D86	Automated	149.2		168.3		192.1		236.0		263.9			
1496	D86	Automated	150.2		169.5		193.4		236.9		265.1			
1531	D86	Automated	155.4		168.9		194.0		234.7		268.9			
1538	D86	Automated	148.7		165.5		191.0		234.7		259.8			
1586	D86	Automated	150.2		167.4		192.8		236.9		262.6			
1587	D86	Automated	150.9		167.6		192.5		234.9		264.4			
1610			-----		-----		-----		-----		-----			
1613	D86	Automated	147.2		168.1		193.0		234.5		265.4			
1616	D86	Automated	149.0		168.1		192.3		234.5		262.9			
1631	D86	Automated	149.0		167.1		192.4		235.7		264.1			
1634	D86	Automated	145.8		167.5		193.6		238.1		264.9			
1678			-----		-----		-----		-----		-----			
1710	D86	Automated	150.2		167.2		193.1		237.0		263.1			
1720			-----		-----		-----		-----		-----			
1724	ISO3405	Automated	149.7		167.4		193.5		235.8		265.2			
1755	D86	Automated	149.6		168.3		193.8		238.0		266.7			
1757	D86	Automated	150.7		167.4		192.7		238.0		262.5			
1776	ISO3405	Automated	146.3		166.8		191.9		235.7		263.6			
1782	D86	Automated	151.0		166.9		191.3		233.8		260.1			
1811	D86	Automated	147.8		166.4		191.8		234.6		263.2			
1813	D86	Automated	149.92		168.25		193.37		237.50		265.24			
1833	D86	Automated	147.6		166.8		192.0		234.2		264.5			
1842	D86	Automated	147.2		166.9		193.1		237.1		265.5			
1881	D86	Manual	147.5	C	167.5	C	193.0	C	234.0	C	262.0	C		
1961			-----		-----		-----		-----		-----			
2129	D86	Automated	147.7		167.2		192.1		234.0		262.6			
2130	D86	Automated	150.5		167.8		192.3		235.4		264.3			
2133	D86	Automated	149.0		167.8		193.2		235.2		264.0			
	normality		suspect		suspect		OK		OK		OK			
	n		94		94		91		93		93			
	outliers		0		0		3		1		1			
	mean (n)		149.64		167.24		192.49		235.78		263.99			
	st.dev. (n)		2.120		1.333		1.104		1.421		1.870			
	R(calc.)		5.94		3.73		3.09		3.98		5.24			
	R(D86:12)	Automated	8.23		3.68		2.97		3.54		7.10			
	R(D86:12)	Manual	4.44		2.94		3.00		3.70		4.29			

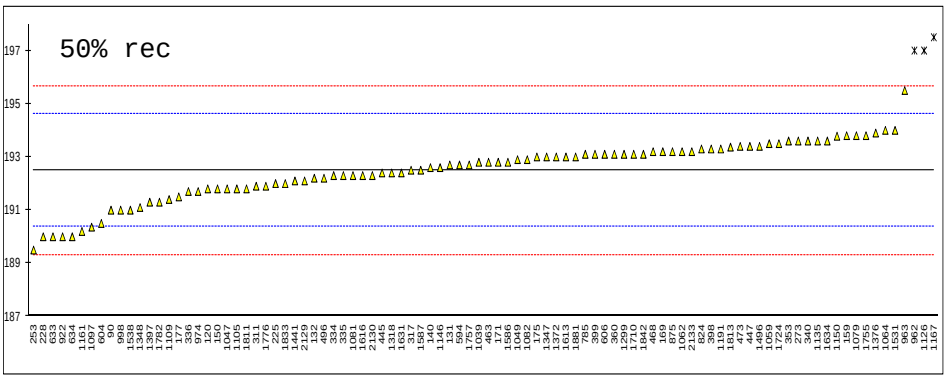
Lab 335 first reported 50% rec: 172.7
Lab 922 first reported 90% rec: 229.0
Lab 962 first reported 10% rec: 172.0, 50% rec: 198.0
Lab 1150 first reported 50% rec: 195.80, 90% rec: 240.75
Lab 1881 first reported IBP: 149.0, 10% rec: 163.5, 50% rec: 188.5, 90% rec: 231.0, FBP: 263.0

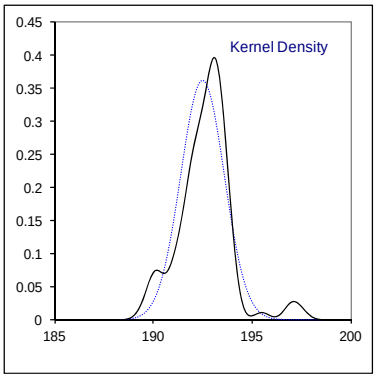

IBP

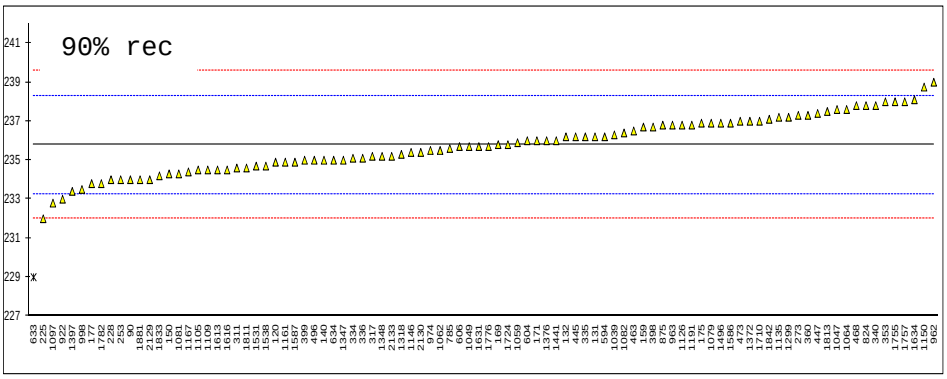

Kernel Density

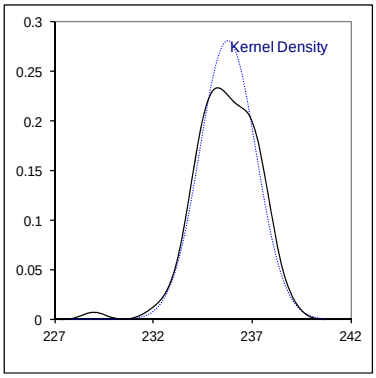

10% rec

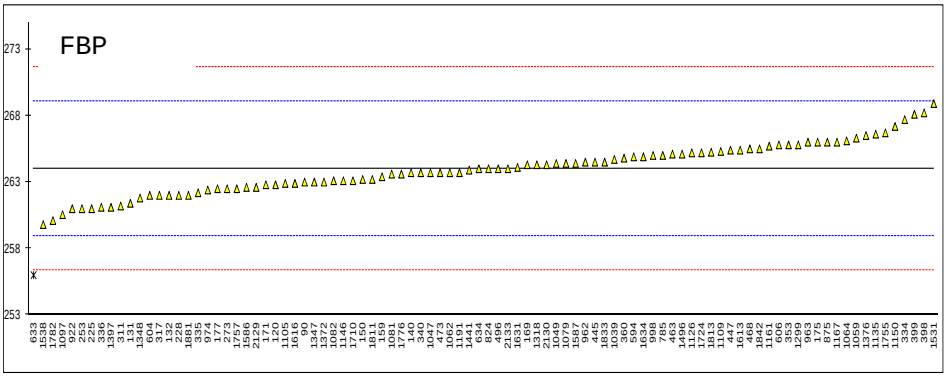

Kernel Density

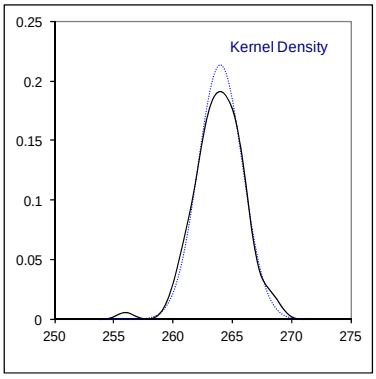

50% rec


Kernel Density


90% rec


Kernel Density


FBP


Kernel Density

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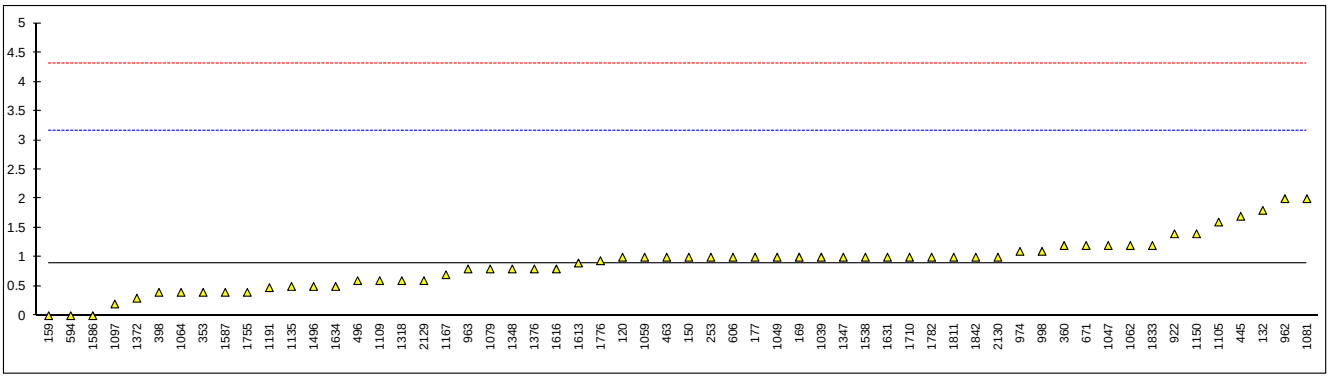
Determination of Existent Gum on sample #15017; results in mg/100 mL

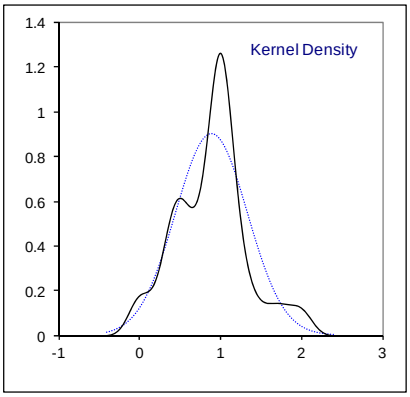
lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D381	1.0		0.10	
131		-----		-----	
132	D381	1.8		0.80	
140		-----		-----	
150	D381	1.0		0.10	
159	D381	0		-0.78	
169	D381	1.0		0.10	
171	D381	<1		-----	
175	D381	<1		-----	
177	D381	1.0		0.10	
194		-----		-----	
225	D381	<1		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D381	1.0		0.10	
273	D381	<0.5		-----	
311	IP540	<1		-----	
317	D381	<1		-----	
334		-----		-----	
335	IP540	<1		-----	
336		-----		-----	
340	D381	<1		-----	
353	D381	0.4		-0.43	
360	D381	1.2		0.27	
391	D381	<1		-----	
398	D381	0.4		-0.43	
399		-----		-----	
445	IP540	1.7		0.71	
447	D381	<1		-----	
463	D381	1		0.10	
468		-----		-----	
473	D381	<1		-----	
496	D381	0.6		-0.25	
594	INH-1567	0.0		-0.78	
601		-----		-----	
604		-----		-----	
606	IP540	1.0		0.10	
633		-----		-----	
634		-----		-----	
671	D381	1.2		0.27	
785		-----		-----	
824	D381	<1		-----	
875		-----		-----	
922	D381	1.4		0.45	
962	D381	2		0.98	
963	D381	0.8		-0.08	
974	D381	1.1		0.19	
998	D381	1.1		0.19	
1039	IP540	1		0.10	
1047	ISO6246	1.2		0.27	
1049	D381	1		0.10	
1059	D381	1.0		0.10	
1062	D381	1.2		0.27	
1064	D381	0.4		-0.43	
1079	D381	0.8		-0.08	
1080		-----		-----	
1081	D381	2.0		0.98	
1082	D381	<1	C	-----	first reported:-2.8
1097	IP540	0.2		-0.60	
1105	D381	1.6		0.62	
1109	IP540	0.6		-0.25	
1126		-----		-----	
1135	D381	0.5		-0.34	
1146		-----		-----	
1150	ISO6246	1.4		0.45	
1161		-----		-----	
1167	ISO6246	0.7		-0.17	
1191	IP540	0.4800		-0.36	
1200		-----		-----	
1237		-----		-----	
1284		-----		-----	
1299	D381	<1		-----	

1318	D381	0.6	-0.25
1347	D381	1.0	0.10
1348	D381	0.8	-0.08
1372	D381	0.3	-0.52
1376	D381	0.8	-0.08
1397		-----	-----
1441		-----	-----
1496	D381	0.5	-0.34
1531		-----	-----
1538	IP540	1.0	0.10
1586	D381	0	-0.78
1587	IP540	0.4	-0.43
1610		-----	-----
1613	D381	0.9	0.01
1616	D381	0.8	-0.08
1631	IP540	1.0	0.10
1634	D381	0.5	-0.34
1678		-----	-----
1710	IP540	1	0.10
1720		-----	-----
1724	D381	<1	-----
1755	D381	0.4	-0.43
1757		-----	-----
1776	IP540	0.94	0.05
1782	D381	1.0	0.10
1811	D381	1.00	0.10
1813	IP540	<1	-----
1833	IP540	1.2	0.27
1842	IP540	1	0.10
1881		-----	-----
1961		-----	-----
2129	D381	0.6	-0.25
2130	D381	1	0.10
2133	D381	<0.01	-----

normality	OK
n	58
outliers	0
mean (n)	0.888
st.dev. (n)	0.4433
R(calc.)	1.241
R(D381:12)	3.189

Compare R(IP540:08) = 2.333



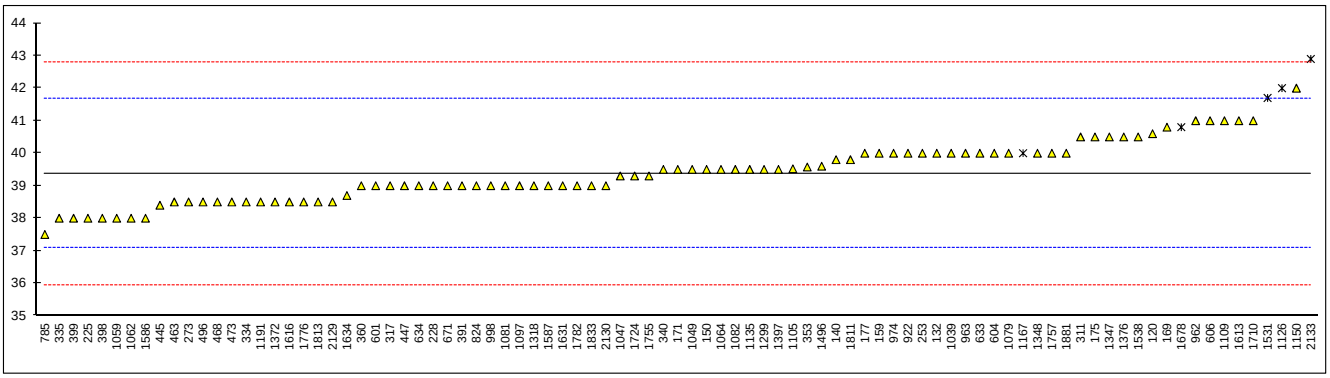


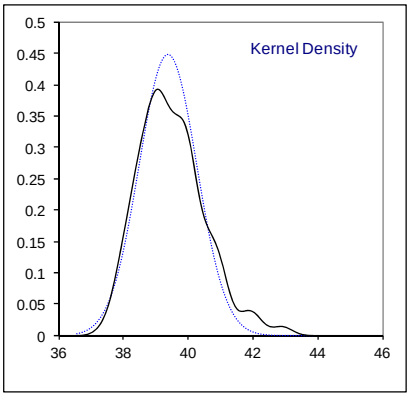
Determination of Flash Point on sample #15017; results in °C

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D56	40.6		1.08	
131		-----		-----	
132	D56	40.0		0.55	
140	D56	39.8		0.38	
150	D56	39.5		0.11	
159	D56	40		0.55	
169	D56	40.8		1.25	
171	D56	39.5		0.11	
175	D56	40.5		0.99	
177	IP170	40.0		0.55	
194		-----		-----	
225	IP170	38.0		-1.20	
228	IP523	39.0		-0.32	
237		-----		-----	
238		-----		-----	
253	IP170	40.0		0.55	
273	IP170	38.5		-0.76	
311	IP170	40.5		0.99	
317	IP170	39.0		-0.32	
334	IP170	38.5		-0.76	
335	IP170	38.0		-1.20	
336		-----		-----	
340	IP170	39.5		0.11	
353	IP170	39.575		0.18	
360	D56	39.0		-0.32	
391	IP170	39.0		-0.32	
398	D3828	38.0		-1.20	
399	IP170	38.0		-1.20	
445	IP170	38.4		-0.85	
447	IP170	39.0		-0.32	
463	IP170	38.5		-0.76	
468	IP170	38.5		-0.76	
473	IP170	38.5		-0.76	
496	ISO13736	38.5		-0.76	
594		-----		-----	
601	IP170	39.0		-0.32	
604	IP170	40.0		0.55	
606	IP170	41.0		1.43	
633	D56	40.0		0.55	
634	D56	39.0		-0.32	
671	IP170	39		-0.32	
785	ISO13736	37.5		-1.64	
824	IP170	39.0		-0.32	
875		-----		-----	
922	IP170	40.0		0.55	
962	IP170	41.0		1.43	
963	IP170	40.0		0.55	
974	IP170	40.0		0.55	
998	IP170	39.0		-0.32	
1039	IP170	40.0		0.55	
1047	D56	39.30		-0.06	
1049	ISO13736	39.5		0.11	
1059	IP170	38.0		-1.20	
1062	IP170	38.0		-1.20	
1064	IP170	39.5		0.11	
1079	IP170	40.0		0.55	
1080		-----		-----	
1081	IP170	39.0		-0.32	
1082	D56	39.5		0.11	
1097	ISO13736	39.0		-0.32	
1105	IP170	39.52		0.13	
1109	IP170	41.0		1.43	
1126	D93	42	ex	2.30	result excluded, method not equivalent
1135	IP170	39.5		0.11	
1146		-----		-----	
1150	D56	42.0		2.30	
1161		-----		-----	
1167	ISO2719	40.0	ex	0.55	result excluded, method not equivalent
1191	IP170	38.5		-0.76	
1200		-----		-----	
1237		-----		-----	
1284		-----		-----	
1299	IP170	39.5		0.11	

1318	IP170	39.0		-0.32	
1347	IP170	40.5		0.99	
1348	IP170	40.0		0.55	
1372	IP170	38.5		-0.76	
1376	D56	40.5		0.99	
1397	D56	39.5		0.11	
1441		-----		-----	
1496	IP170	39.6		0.20	
1531	D93	41.7	ex	2.04	result excluded, method not equivalent
1538	D56	40.5		0.99	
1586	IP170	38		-1.20	
1587	IP170	39.0		-0.32	
1610		-----		-----	
1613	D56	41.0		1.43	
1616	IP170	38.5		-0.76	
1631	IP170	39.0		-0.32	
1634	IP170	38.7		-0.59	
1678	D7094	40.8	ex	1.25	result excluded, method not equivalent
1710	D56	41.0		1.43	
1720		-----		-----	
1724	IP170	39.3		-0.06	
1755	D56	39.3		-0.06	
1757	D56	40.0		0.55	
1776	IP170	38.5		-0.76	
1782	IP170	39.0		-0.32	
1811	D56	39.8		0.38	
1813	IP170	38.5		-0.76	
1833	IP170	39.0		-0.32	
1842		-----		-----	
1881	IP170	40.0		0.55	
1961		-----		-----	
2129	IP170	38.5		-0.76	
2130	IP170	39.0		-0.32	
2133	D93	42.9	ex	3.09	result excluded, method not equivalent

			Only IP170/ISO13736	Only D56
	normality	OK	OK	OK
	n	84	60	22
	outliers	0 + 5 excl.	0	0
	mean (n)	39.37	39.15	40.05
	st.dev. (n)	0.891	0.814	0.748
	R(calc.)	2.50	2.28	2.09
	R(IP170:14)	3.20	3.20	4.30



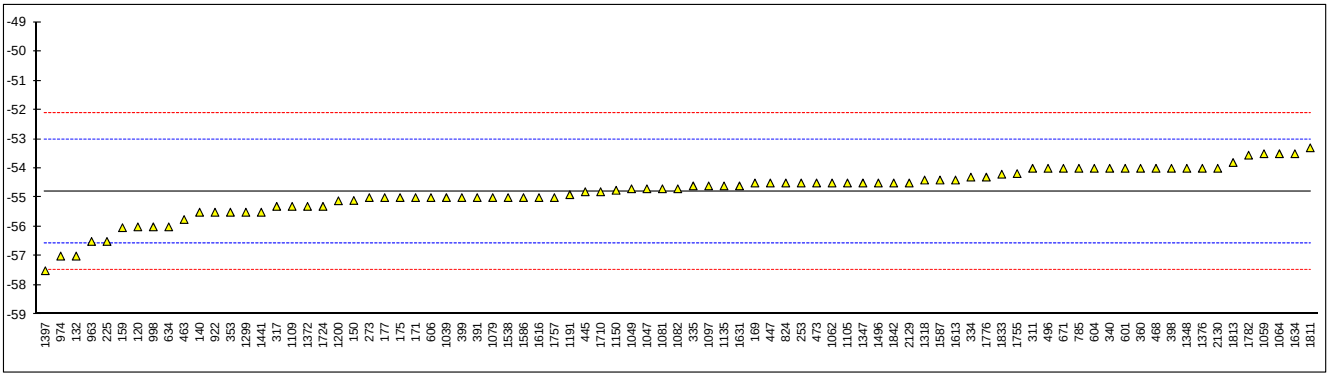


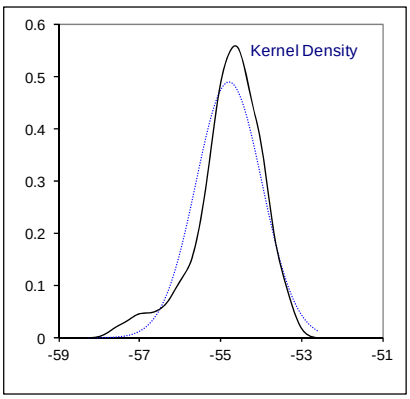
Determination of Freezing Point (D7153 / D2386) on sample #15017; results in °C

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D2386	-56		-1.36	
131		-----		-----	
132	D2386	-57.0		-2.48	
140	D5972	-55.5		-0.80	
150	D2386	-55.1		-0.35	
159	D2386	-56.03		-1.39	
169	D2386	-54.5		0.32	
171	D2386	-55.0		-0.24	
175	D2386	-55		-0.24	
177	D2386	-55.0		-0.24	
194		-----		-----	
225	D2386	-56.5		-1.92	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D2386	-54.5		0.32	
273	D2386	-55		-0.24	
311	D2386	-54.0		0.88	
317	D5972	-55.3		-0.57	
334	D7153	-54.3		0.55	
335	IP529	-54.6		0.21	
336		-----		-----	
340	D2386	-54.0		0.88	
353	IP16	-55.5		-0.80	
360	D2386	-54.0		0.88	
391	D2386	-55.0		-0.24	
398	D2386	-54.0		0.88	
399	D2386	-55.0		-0.24	
445	IP529	-54.8		-0.01	
447	D2386	-54.5		0.32	
463	D2386	-55.75		-1.08	
468	D2386	-54.0		0.88	
473	D2386	-54.5		0.32	
496	D2386	-54		0.88	
594		-----		-----	
601	D2386	-54.0		0.88	
604	D2386	-54.0		0.88	
606	D2386	-55.0		-0.24	
633		-----		-----	
634	D2386	-56.0		-1.36	
671	D2386	-54.0		0.88	
785	D2386	-54.0		0.88	
824	D2386	-54.5		0.32	
875		-----		-----	
922	D2386	-55.5		-0.80	
962		-----		-----	
963	D2386	-56.5		-1.92	
974	D2386	-57.0		-2.48	
998	D2386	-56.0		-1.36	
1039	IP529	-55.0		-0.24	
1047	D2386	-54.7		0.10	
1049	D7153	-54.7		0.10	
1059	D2386	-53.5		1.44	
1062	D2386	-54.5		0.32	
1064	D2386	-53.5		1.44	
1079	D5972	-55.0		-0.24	
1080		-----		-----	
1081	D7153	-54.7		0.10	
1082	IP529	-54.7		0.10	
1097	IP529	-54.6		0.21	
1105	D7153	-54.5		0.32	
1109	D5972	-55.3		-0.57	
1126		-----		-----	
1135	D2386	-54.6		0.21	
1146		-----		-----	
1150	D2386	-54.75		0.04	
1161		-----		-----	
1167		-----		-----	
1191	IP529	-54.9		-0.12	
1200	D5972	-55.11		-0.36	
1237		-----		-----	
1284		-----		-----	
1299	D2386	-55.5		-0.80	

1318	D7153	-54.4	0.44
1347	D2386	-54.5	0.32
1348	D2386	-54.0	0.88
1372	D7153	-55.3	-0.57
1376	D2386	-54.0	0.88
1397	D2386	-57.5	-3.04
1441	D2386	-55.5	-0.80
1496	D5972	-54.5	0.32
1531		-----	-----
1538	D2386	-55.0	-0.24
1586	D2386	-55	-0.24
1587	IP529	-54.4	0.44
1610		-----	-----
1613	D7153	-54.4	0.44
1616	D7153	-55.0	-0.24
1631	D7153	-54.6	0.21
1634	D2386	-53.5	1.44
1678		-----	-----
1710	D7153	-54.8	-0.01
1720		-----	-----
1724	D5972	-55.3	-0.57
1755	D2386	-54.18	0.68
1757	D2386	-55.0	-0.24
1776	IP529	-54.3	0.55
1782	D2386	-53.55	1.39
1811	D2386	-53.3	1.67
1813	D5972	-53.8	1.11
1833	IP435	-54.2	0.66
1842	D2386	-54.5	0.32
1881		-----	-----
1961		-----	-----
2129	D2386	-54.5	0.32
2130	IP16	-54.0	0.88
2133		-----	-----

		Automatic methods: D7153/IP529	Manual methods: D2386/IP16
normality	suspect	OK	OK
n	83	26	57
outliers	0	0	0
mean (n)	-54.79	-54.71	-54.82
st.dev. (n)	0.817	0.384	0.953
R(calc.)	2.29	1.08	2.67
R(D2386:06)	2.50	0.80	2.50





Determination of JFTOT at 260 °C; Tube Rating, Delta P in mmHg, Pumped Vol. in mL, Temp. in °C

lab	method	Tube	mark	Delta P	mark	Volume	mark	temp	mark	remarks
90		-----		-----		-----		-----		
120	D3241	1		0		475		260		
131		-----		-----		-----		-----		
132	D3241	<1		0.1		450		260		
140	D3241	<1		0		450		260.0		
150	D3241	<1		0		450		150	temp	min temp: 260
159	D3241	1		0		510	vol	260		Sample volume: 450 ± 45 ml
169	D3241	<2		1		450		260		
171	D3241	<1		0		450		260		
175	D3241	<1		1		440		260		
177	D3241	1		0		450		260		
194		-----		-----		-----		-----		
225	D3241	<3		2.7		-----		260		
228		-----		-----		-----		-----		
237		-----		-----		-----		-----		
238		-----		-----		-----		-----		
253	D3241	<1		0.0		453.6		260.0		
273		-----		-----		-----		-----		
311	D3241	1		3		460		260		
317		-----		-----		-----		-----		
334	D3241	1		0		495		260		
335	D3241	<1		0		510	vol	260		Sample volume: 450 ± 45 ml
336		-----		-----		-----		-----		
340	D3241	1		0		450		260		
353		-----		-----		-----		-----		
360	D3241	0		1		450		260		
391	D3241	0		4.5		450		260		
398		-----		-----		-----		-----		
399	D3241	1		0		510	vol	260		Sample volume: 450 ± 45 ml
445	D3241	1		<1		460		260		
447	D3241	1		<1		450		260		
463		-----		-----		-----		-----		
468		-----		-----		-----		-----		
473		-----		-----		-----		-----		
496		-----		-----		-----		-----		
594		-----		-----		-----		-----		
601		-----		-----		-----		-----		
604		-----		-----		-----		-----		
606		-----		-----		-----		-----		
633		-----		-----		-----		-----		
634		-----		-----		-----		-----		
671	D3241	1		6.8		450		260		
785		-----		-----		-----		-----		
824	D3241	<1		0		510	vol	260		Sample volume: 450 ± 45 ml
875		-----		-----		-----		-----		
922		-----		-----		-----		-----		
962		-----		-----		-----		-----		
963	D3241	1		0.0		450		260		
974	D3241	<1		0		450		260		
998		-----		-----		-----		-----		
1039	D3241	<1		0.1		460		260		
1047	D3241	<1		3		450		260		
1049	D3241	<1		0.0		450		260		
1059		-----		-----		-----		-----		
1062	D3241	0		<3		530	vol	260		Sample volume: 450 ± 45 ml
1064	D3241	1		0.0		450		260		
1079	D3241	<1		0.1		450		260		
1080		-----		-----		-----		-----		
1081	D3241	<1		0		-----		-----		
1082	D3241	1A		0		-----		-----		
1097	D3241	1		0		455		260		
1105	D3241	<1		0		440		260		
1109	D3241	<1		0.0		450		260		
1126		-----		-----		-----		-----		
1135	D3241	1		0		510	vol	260		Sample volume: 450 ± 45 ml
1146	D3241	1		0.1		450		260		
1150		-----		-----		-----		-----		
1161		-----		-----		-----		-----		
1167		-----		-----		-----		-----		
1191	D3241	1A		<1		-----		-----		
1200		-----		-----		-----		-----		
1237	D3241	<1		0.0		455		260		
1284		-----		-----		-----		-----		

1299		-----	-----	-----		-----	
1318	D3241	<1	0.0	450		260	
1347	D3241	1	0	450		260	
1348	D3241	1	0	500		260	Sample volume: 450 ± 45 ml
1372	D3241	<1	1	460		260	
1376	D3241	1	1	460		260	
1397		-----	-----	-----		-----	
1441	D3241	0	0.0	700	vol	260.1	Sample volume: 450 ± 45 ml
1496	D3241	0	0.0	450		260	
1531		-----	-----	-----		-----	
1538	D3241	1	<0,1	450		260	
1586	D3241	1	6.1	510	vol	260	Sample volume: 450 ± 45 ml
1587	D3241	<1	0.1	510	vol	260	Sample volume: 450 ± 45 ml
1610		-----	-----	-----		-----	
1613	D3241	<1	0.0	450		260	
1616	D3241	1	1	450		260	
1631	D3241	1.0	0.0	-----		260	
1634	D3241	1	0.0	500		260	Sample volume: 450 ± 45 ml
1678		-----	-----	-----		-----	
1710	D3241	1	0	450		260	
1720		-----	-----	-----		-----	
1724	D3241	1	0	-----		260	
1755	D3241	1	0	450		260	
1757		-----	-----	-----		-----	
1776		-----	-----	-----		-----	
1782		-----	-----	-----		-----	
1811		-----	-----	-----		-----	
1813	D3241	1	0	450		260	
1833	D3242	<1	0.0	510	vol	260	Sample volume: 450 ± 45 ml
1842		-----	-----	-----		-----	
1881		-----	-----	-----		-----	
1961	D3241	0	0.0	460		260	
2129	D3241	1	0	450		260	
2130	D3241	<1	0.0	450		260	
2133	D3241	<1	0.0	510	vol	260	Sample volume: 450 ± 45 ml

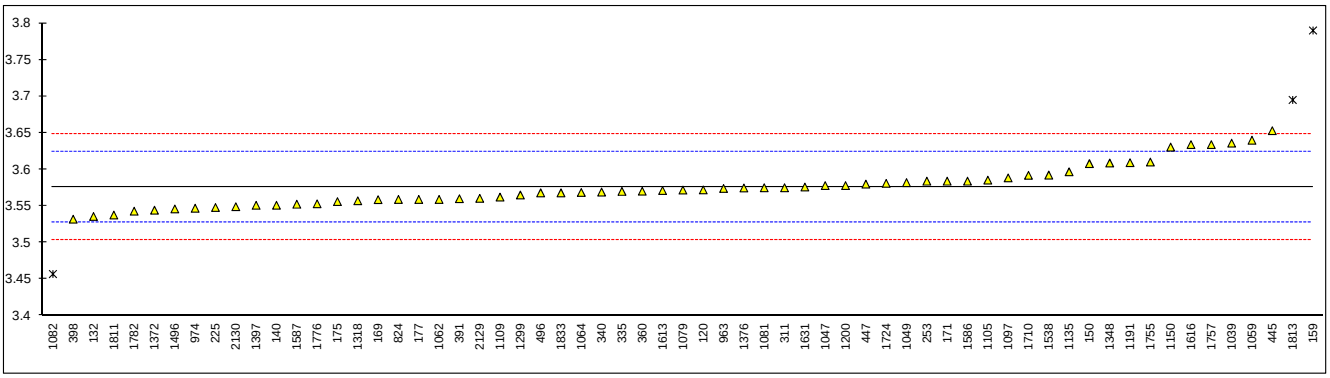
normality	suspect	not OK
n	34	51
outliers	0	0
mean (n)	0.82	0.13
st.dev. (n)	0.387	0.323
R(calc.)	1.08	0.90
R(D3241:12)	n.a.	n.a

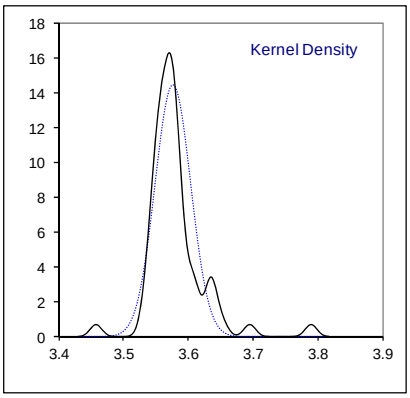
Determination of Kinematic Viscosity at -20°C on sample #15017; results in cSt

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D445	3.572		-0.16	
131		-----		-----	
132	D445	3.5357		-1.66	
140	D445	3.5511		-1.03	
150	D445	3.608		1.32	
159	D445	3.790	R(0.01)	8.82	
169	D445	3.5587		-0.71	
171	D445	3.584		0.33	
175	D445	3.556		-0.82	
177	D445	3.559		-0.70	
194		-----		-----	
225	D445	3.548		-1.15	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D445	3.584		0.33	
273		-----		-----	
311	D445	3.575		-0.04	
317		-----		-----	
334		-----		-----	
335	D445	3.570		-0.25	
336		-----		-----	
340	D445	3.5691		-0.28	
353		-----		-----	
360	D445	3.5703		-0.23	
391	D445	3.560		-0.66	
398	D445	3.532		-1.81	
399		-----		-----	
445	D445	3.653		3.17	
447	D445	3.580		0.16	
463		-----		-----	
468		-----		-----	
473		-----		-----	
496	D445	3.568		-0.33	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671		-----		-----	
785		-----		-----	
824	ISO3104	3.559		-0.70	
875		-----		-----	
922		-----		-----	
962		-----		-----	
963	D445	3.574		-0.08	
974	D445	3.547		-1.20	
998		-----		-----	
1039	D445	3.636		2.47	
1047	D445	3.578		0.08	
1049	D445	3.582		0.25	
1059	D445	3.640		2.64	
1062	D445	3.559		-0.70	
1064	D445	3.5685		-0.31	
1079	D445	3.57177		-0.17	
1080		-----		-----	
1081	D445	3.575		-0.04	
1082	D445	3.457	R(0.01)	-4.90	
1097	ISO3104	3.5884		0.51	
1105	D445	3.5854		0.39	
1109	D445	3.5622		-0.57	
1126		-----		-----	
1135	D445	3.5968		0.86	
1146		-----		-----	
1150	ISO3104	3.6306		2.25	
1161		-----		-----	
1167		-----		-----	
1191	D445	3.6092		1.37	
1200	D445	3.578		0.08	
1237		-----		-----	
1284		-----		-----	
1299	D445	3.565		-0.45	

1318	D7042	3.5571		-0.78	
1347		-----		-----	
1348	D445	3.6088		1.35	
1372	D445	3.54432		-1.31	
1376	D445	3.5747		-0.05	
1397	D7042	3.551		-1.03	
1441		-----		-----	
1496	D445	3.546		-1.24	
1531		-----		-----	
1538	D445	3.5923		0.67	
1586	D445	3.584		0.33	
1587	D445	3.55248		-0.97	
1610		-----		-----	
1613	D445	3.5711		-0.20	
1616	D445	3.634		2.39	
1631	D445	3.576		0.00	
1634		-----		-----	
1678		-----		-----	
1710	D445	3.592		0.66	
1720		-----		-----	
1724	ISO3104	3.581		0.21	
1755	D445	3.6101		1.41	
1757	D445	3.634	C	2.39	first reported:3.662
1776	D445	3.553		-0.95	
1782	D7042	3.543		-1.36	
1811	D445	3.5377	C	-1.58	first reported:2.9006
1813	D445	3.695	R(0.01)	4.90	
1833	D445	3.568		-0.33	
1842		-----		-----	
1881		-----		-----	
1961		-----		-----	
2129	D445	3.56053		-0.64	
2130	D445	3.549		-1.11	
2133		-----		-----	

normality	OK
n	60
outliers	3
mean (n)	3.5760
st.dev. (n)	0.02761
R(calc.)	0.0773
R(D445:15)	0.0679



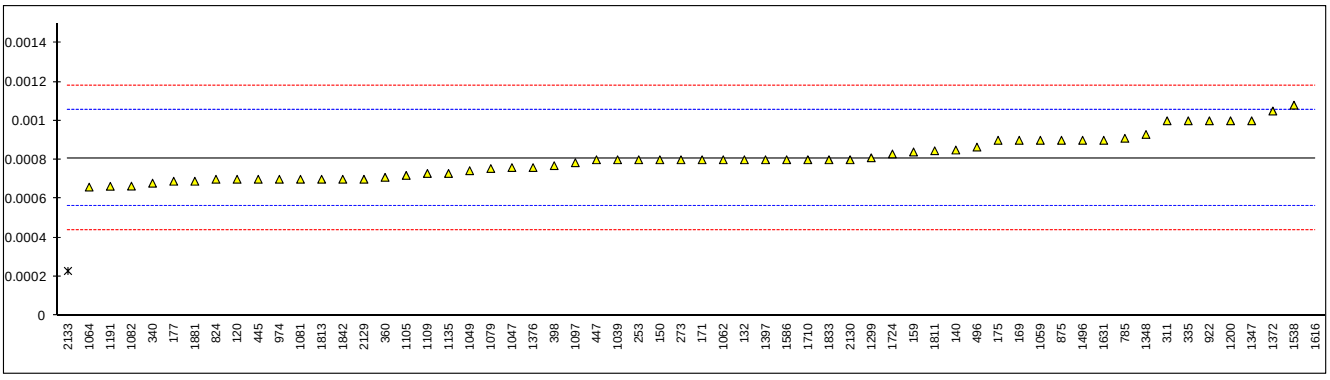


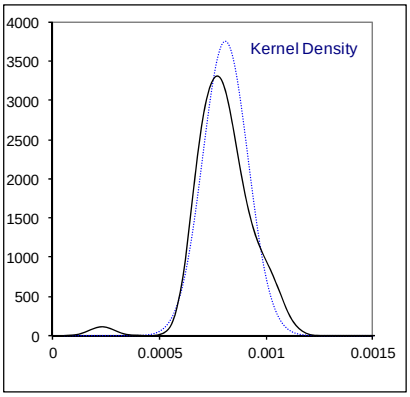
Determination of Mercaptan Sulphur on sample #15017; results in % M/M

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D3227	0.0007		-0.89	
131		-----		-----	
132	D3227	0.0008		-0.07	
140	D3227	0.00085		0.33	
150	D3227	0.0008		-0.07	
159	D3227	0.00084		0.25	
169	D3227	0.0009		0.74	
171	D3227	0.0008		-0.07	
175	D3227	0.0009		0.74	
177	D3227	0.000690		-0.97	
194		-----		-----	
225		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D3227	0.0008		-0.07	
273	D3227	0.0008		-0.07	
311	D3227	0.0010		1.55	
317		-----		-----	
334		-----		-----	
335	D3227	0.0010		1.55	
336		-----		-----	
340	D3227	0.00068		-1.05	
353		-----		-----	
360	D3227	0.00071		-0.81	
391		-----		-----	
398	D3227	0.00077		-0.32	
399		-----		-----	
445	D3227	0.0007		-0.89	
447	D3227	0.0008		-0.07	
463		-----		-----	
468		-----		-----	
473		-----		-----	
496	D3227	0.000865		0.46	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671		-----		-----	
785	D3227	0.00091		0.82	
824	D3227	0.0007		-0.89	
875	UOP163	0.0009		0.74	
922	D3227	0.0010		1.55	
962		-----		-----	
963		-----		-----	
974	D3227	0.0007		-0.89	
998		-----		-----	
1039	D3227	0.0008		-0.07	
1047	D3227	0.00076		-0.40	
1049	D3227	0.000744		-0.53	
1059	D3227	0.0009		0.74	
1062	D3227	0.0008		-0.07	
1064	D3227	0.00066		-1.21	
1079	D3227	0.000755		-0.44	
1080		-----		-----	
1081	D3227	0.0007		-0.89	
1082	ISO3012	0.000665		-1.17	
1097	ISO3012	0.000785		-0.20	
1105	D3227	0.00072		-0.72	
1109	D3227	0.00073		-0.64	
1126		-----		-----	
1135	D3227	0.00073		-0.64	
1146		-----		-----	
1150		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191	D3227	0.000664		-1.18	
1200	D3227	0.0010		1.55	
1237		-----		-----	
1284		-----		-----	
1299	D3227	0.00081		0.01	

1318		-----		-----	
1347	D3227	0.0010		1.55	
1348	IP342	0.00093		0.98	
1372	D3227	0.00105		1.96	
1376	D3227	0.00076		-0.40	
1397	D3227	0.0008		-0.07	
1441		-----		-----	
1496	D3227	0.00090		0.74	
1531		-----		-----	
1538	D3227	0.00108		2.21	
1586	D3227	0.0008	C	-0.07	first reported:0.0003
1587		-----		-----	
1610		-----		-----	
1613		-----		-----	
1616	D3227	0.0031	R(0.01)	18.65	
1631	D3227	0.0009		0.74	
1634		-----		-----	
1678		-----		-----	
1710	D3227	0.0008		-0.07	
1720		-----		-----	
1724	D3227	0.00083		0.17	
1755		-----		-----	
1757		-----		-----	
1776		-----		-----	
1782		-----		-----	
1811	D3227	0.000846		0.30	
1813	D3227	0.0007		-0.89	
1833	D3227	0.0008		-0.07	
1842	IP342	0.0007		-0.89	
1881	D3227	0.00069		-0.97	
1961		-----		-----	
2129	D3227	0.0007		-0.89	
2130	D3227	0.0008		-0.07	
2133	D3227	0.00023	R(0.01)	-4.71	

normality	OK
n	58
outliers	2
mean (n)	0.00081
st.dev. (n)	0.000106
R(calc.)	0.00030
R(D3227:13)	0.00034



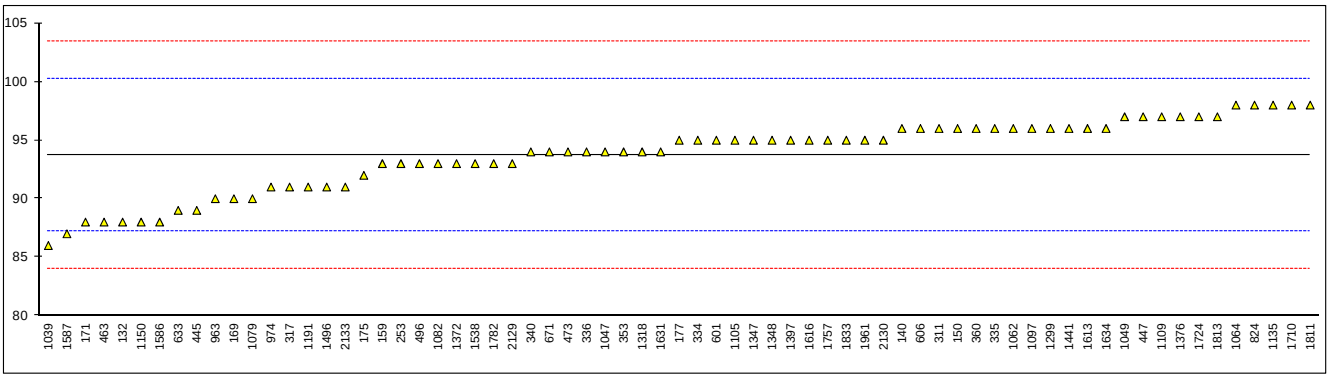


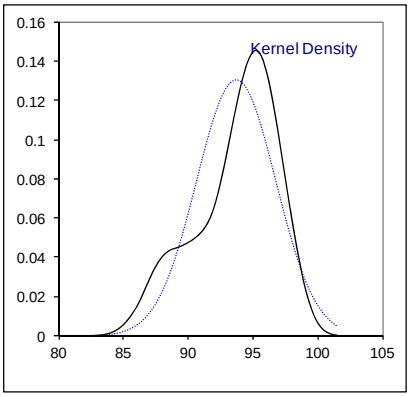
Determination of MSEP on sample #15017;

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120		-----		-----	
131		-----		-----	
132	D3948	88		-1.77	
140	D3948	96		0.70	
150	D3948	96		0.70	
159	D3948	93		-0.23	
169	D3948	90		-1.15	
171	D3948	88		-1.77	
175	D3948	92		-0.54	
177	D3948	95		0.39	
194		-----		-----	
225		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D3948	93		-0.23	
273		-----		-----	
311	D3948	96		0.70	
317	D3948	91		-0.84	
334	D3948	95		0.39	
335	D3948	96		0.70	
336	D3948	94		0.08	
340	D3948	94		0.08	
353	D3948	94		0.08	
360	D3948	96		0.70	
391		-----		-----	
398		-----		-----	
399		-----		-----	
445	D3948	89		-1.46	
447	D3948	97		1.00	
463	D3948	88		-1.77	
468		-----		-----	
473	D3948	94		0.08	
496	D3948	93		-0.23	
594		-----		-----	
601	D3948	95		0.39	
604		-----		-----	
606	D3948	96		0.70	
633	D3948	89		-1.46	
634		-----		-----	
671	D3948	94		0.08	
785		-----		-----	
824	D3948	98		1.31	
875		-----		-----	
922		-----		-----	
962		-----		-----	
963	D3948	90		-1.15	
974	D3948	91		-0.84	
998		-----		-----	
1039	D3948	86		-2.38	
1047	D3948	94		0.08	
1049	D3948	97		1.00	
1059		-----		-----	
1062	D3948	96		0.70	
1064	D3948	98		1.31	
1079	D3948	90		-1.15	
1080		-----		-----	
1081		-----		-----	
1082	D3948	93		-0.23	
1097	D3948	96		0.70	
1105	D3948	95		0.39	
1109	D3948	97		1.00	
1126		-----		-----	
1135	D3948	98		1.31	
1146		-----		-----	
1150	D3948	88		-1.77	
1161		-----		-----	
1167		-----		-----	
1191	D3948	91		-0.84	
1200		-----		-----	
1237		-----		-----	
1284		-----		-----	
1299	D3948	96		0.70	

1318	D3948	94	0.08
1347	D3948	95	0.39
1348	D3948	95	0.39
1372	D3948	93	-0.23
1376	D3948	97	1.00
1397	D3948	95	0.39
1441	D3948	96	0.70
1496	D3948	91	-0.84
1531		-----	-----
1538	D3948	93	-0.23
1586	D3948	88	-1.77
1587	D3948	87	-2.08
1610		-----	-----
1613	D3948	96	0.70
1616	D3948	95	0.39
1631	D3948	94	0.08
1634	D3948	96	0.70
1678		-----	-----
1710	D3948	98	1.31
1720		-----	-----
1724	D3948	97	1.00
1755		-----	-----
1757	D3948	95	0.39
1776		-----	-----
1782	D3948	93	-0.23
1811	D3948	98.0	1.31
1813	D3948	97	1.00
1833	D3948	95	0.39
1842		-----	-----
1881		-----	-----
1961	D3948	95	0.39
2129	D3948	93	-0.23
2130	D3948	95	0.39
2133	D3948	91	-0.84

normality	OK
n	69
outliers	0
mean (n)	93.74
st.dev. (n)	3.061
R(calc.)	8.57
R(D3948:14)	9.09



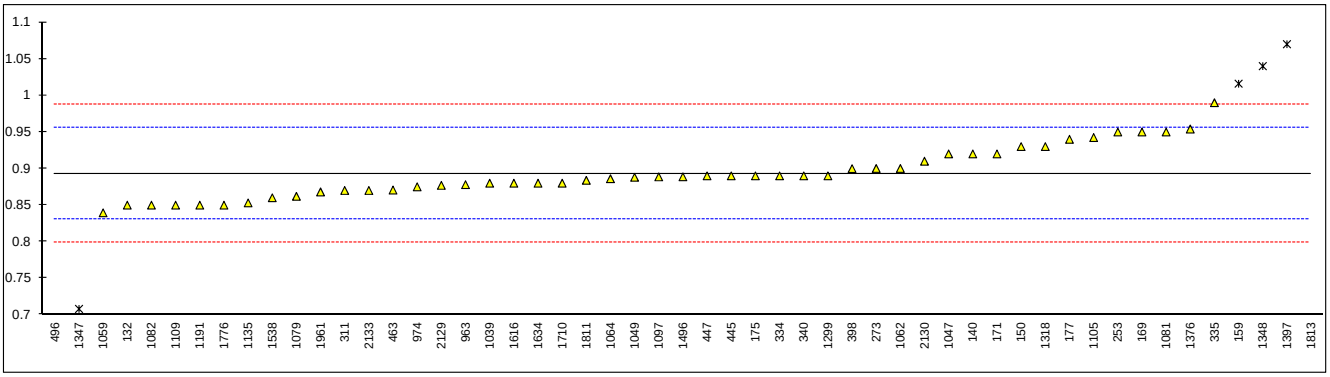


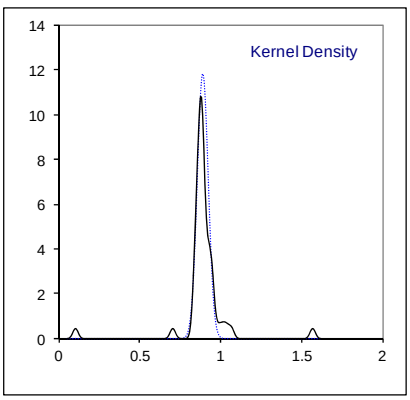
Determination of Naphthalenes on sample #15017; results in %V/V

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120		-----		-----	
131		-----		-----	
132	D1840 - meth.B	0.85		-1.37	
140	D1840 - meth.A	0.92		0.86	
150	D1840 - meth.A	0.93		1.18	
159	D1840 - meth.B	1.016	C,G(0.05)	3.92	first reported:1.02
169	D1840 - meth.B	0.95	C	1.81	first reported:1.18
171	D1840 - meth.A	0.92		0.86	
175	D1840 - meth.B	0.89		-0.10	
177	D1840 - meth.A	0.94		1.50	
194		-----		-----	
225		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D1840 - meth.B	0.95		1.81	
273	D1840 - meth.B	0.90		0.22	
311	D1840 - meth.B	0.87		-0.74	
317		-----		-----	
334	D1840 - meth.B	0.89		-0.10	
335	D1840 - meth.A	0.99		3.09	
336		-----		-----	
340	D1840 - meth.A	0.89		-0.10	
353		-----		-----	
360		-----		-----	
391		-----		-----	
398	D1840 - meth.A	0.8999		0.22	
399		-----		-----	
445	D1840 - meth.B	0.89		-0.10	
447	D1840 - meth.B	0.89		-0.10	
463	D1840 - meth.B	0.8706		-0.72	
468		-----		-----	
473		-----		-----	
496	D1840 - meth.B	0.108	G(0.01)	-25.03	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671		-----		-----	
785		-----		-----	
824		-----		-----	
875		-----		-----	
922		-----		-----	
962		-----		-----	
963	D1840 - meth.B	0.878		-0.48	
974	D1840	0.875		-0.58	
998		-----		-----	
1039	D1840 - meth.A	0.88		-0.42	
1047	D1840 - meth.A	0.92		0.86	
1049	D1840 - meth.A	0.888		-0.16	
1059	D1840 - meth.B	0.8395		-1.71	
1062	D1840	0.90		0.22	
1064	D1840 - meth.A	0.886		-0.23	
1079	D1840 - meth.A	0.862		-0.99	
1080		-----		-----	
1081	D1840 - meth.A	0.95		1.81	
1082	D1840 - meth.A	0.85		-1.37	
1097	D1840 - meth.A	0.8886		-0.14	
1105	D1840 - meth.A	0.9424		1.57	
1109	D1840 - meth.B	0.850		-1.37	
1126		-----		-----	
1135	D1840 - meth.B	0.853		-1.28	
1146		-----		-----	
1150		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191	D1840 - meth.A	0.85		-1.37	
1200		-----		-----	
1237		-----		-----	
1284		-----		-----	
1299	D1840 - meth.A	0.89		-0.10	

1318	D1840 - meth.B	0.93		1.18
1347	D1840 - meth.B	0.708	G(0.05)	-5.90
1348	D1840 - meth.B	1.04	G(0.05)	4.68
1372		-----		-----
1376	D1840 - meth.A	0.954		1.94
1397	D6379	1.07	G(0.05)	5.64
1441		-----		-----
1496	D1840 - meth.B	0.8887		-0.14
1531		-----		-----
1538	D1840 - meth.B	0.86		-1.05
1586		-----		-----
1587		-----		-----
1610		-----		-----
1613		-----		-----
1616	D1840-B	0.88		-0.42
1631		-----		-----
1634	D1840 - meth.B	0.88		-0.42
1678		-----		-----
1710	D1840 - meth.A	0.88		-0.42
1720		-----		-----
1724		-----		-----
1755		-----		-----
1757		-----		-----
1776	D1840 - meth.B	0.85		-1.37
1782		-----		-----
1811	D1840 - meth.A	0.8838		-0.30
1813	D1840 - meth.A	1.571	G(0.01)	21.61
1833		-----		-----
1842		-----		-----
1881		-----		-----
1961	D1840 - meth.B	0.868		-0.80
2129	D1840 - meth.B	0.877		-0.51
2130	D1840 - meth.B	0.91		0.54
2133	D1840 - meth.A	0.870		-0.74

		Only D1840-A	Only D1840-B
normality	OK	OK	OK
n	47	24	25
outliers	6	1	3
mean (n)	0.893	0.902	0.889
st.dev. (n)	0.0338	0.0352	0.0299
R(calc.)	0.095	0.099	0.084
R(D1840:07-B)	0.088	0.057	0.088



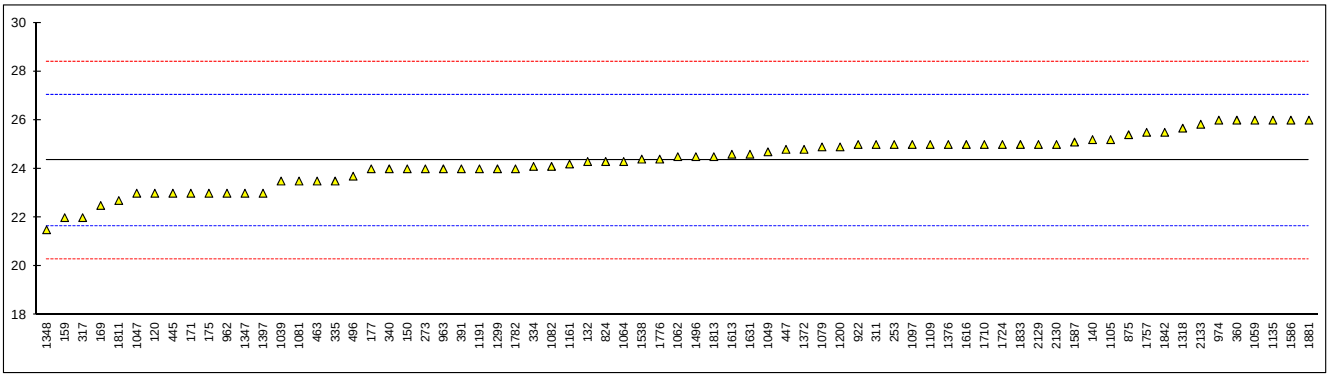


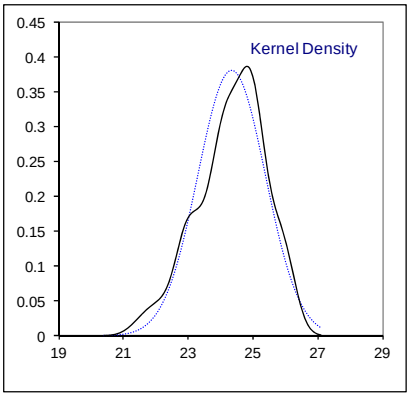
Determination of Smoke Point on sample #15017; results in mm.

lab	method	mode	value	mark	z(targ)	remarks
90			-----		-----	
120	D1322		23		-1.00	
131			-----		-----	
132	D1322	Manual	24.3		-0.04	
140	D1322	Manual	25.2		0.63	
150	D1322	Manual	24		-0.26	
159	D1322	Manual	22		-1.74	
169	D1322	Manual	22.5		-1.37	
171	D1322	Manual	23.0		-1.00	
175	D1322	Manual	23		-1.00	
177	D1322	Manual	24		-0.26	
194			-----		-----	
225			-----		-----	
228			-----		-----	
237			-----		-----	
238			-----		-----	
253	D1322	Manual	25.0		0.48	
273	D1322	Manual	24		-0.26	
311	D1322	Manual	25.0		0.48	
317	D1322	Manual	22.0		-1.74	
334	D1322		24.1		-0.18	
335	D1322	Manual	23.5		-0.63	
336			-----		-----	
340	D1322	Manual	24.0		-0.26	
353			-----		-----	
360	D1322	Manual	26.0		1.22	
391	D1322	Manual	24		-0.26	
398			-----		-----	
399			-----		-----	
445	D1322	Manual	23.0		-1.00	
447	D1322	Manual	24.8		0.34	
463	D1322	Manual	23.50		-0.63	
468		Manual	-----		-----	
473			-----		-----	
496	D1322	Manual	23.7		-0.48	
594			-----		-----	
601			-----		-----	
604			-----		-----	
606			-----		-----	
633			-----		-----	
634			-----		-----	
671			-----		-----	
785			-----		-----	
824	D1322	Automated	24.3		-0.04	
875	D1322		25.4		0.78	
922	D1322	Manual	25.0		0.48	
962	D1322	Manual	23		-1.00	
963	D1322	Manual	24.0		-0.26	
974	D1322	Manual	26.0		1.22	
998			-----		-----	
1039	D1322	Manual	23.5		-0.63	
1047	D1322	Manual	23.0		-1.00	
1049	D1322	Automated	24.7		0.26	
1059	D1322	Manual	26.0		1.22	
1062	D1322	Manual	24.5		0.11	
1064	D1322	Automated	24.3		-0.04	
1079	D1322	Automated	24.9		0.41	
1080			-----		-----	
1081	D1322	Manual	23.5		-0.63	
1082	D1322	Automated	24.1		-0.18	
1097	D1322	Manual	25.0		0.48	
1105	D1322	Automated	25.2		0.63	
1109	D1322	Manual	25.0		0.48	
1126			-----		-----	
1135	D1322	Manual	26.0		1.22	
1146			-----		-----	
1150			-----		-----	
1161	ISO3014	Manual	24.2		-0.11	
1167			-----		-----	
1191	D1322	Automated	24.0		-0.26	
1200	D1322	Automated	24.9		0.41	
1237			-----		-----	
1284			-----		-----	
1299	D1322	Automated	24.0		-0.26	

1318	D1322	Manual	25.669	0.98
1347	D1322	Manual	23	-1.00
1348	D1322	Manual	21.5	-2.11
1372	D1322	Automated	24.8	0.34
1376	D1322	Manual	25.0	0.48
1397	D1322	Manual	23	-1.00
1441			-----	-----
1496	D1322	Manual	24.5	0.11
1531			-----	-----
1538	D1322	Automated	24.4	0.04
1586	D1322	Manual	26	1.22
1587	D1322		25.1	0.56
1610			-----	-----
1613	D1322	Automated	24.6	0.19
1616	D1322	Manual	25	0.48
1631	D1322	Manual	24.6	0.19
1634			-----	-----
1678			-----	-----
1710	D1322	Manual	25	0.48
1720			-----	-----
1724	D1322	Manual	25	0.48
1755			-----	-----
1757	D1322	Manual	25.5	0.85
1776	D1322	Automated	24.4	0.04
1782	D1322	Manual	24.0	-0.26
1811	D1322	Manual	22.70	-1.22
1813	D1322	Manual	24.5	0.11
1833	D1322	Automated	25.0	0.48
1842	D1322		25.5	0.85
1881	D1322	Manual	26.0	1.22
1961			-----	-----
2129	D1322	Manual	25.0	0.48
2130	D1322	Manual	25.0	0.48
2133	D1322	Manual	25.83	1.10

		D1322:14a-A	D1322:14a-M
normality	OK	OK	OK
n	71	15	53
outliers	0	0	0
mean (n)	24.348	24.600	24.291
st.dev. (n)	1.0480	0.4326	1.1641
R(calc.)	2.934	1.211	3.260
R(D1322:14a-M)	3.778	--	3.772
R(D1322:14a-A)	0.897	0.901	--



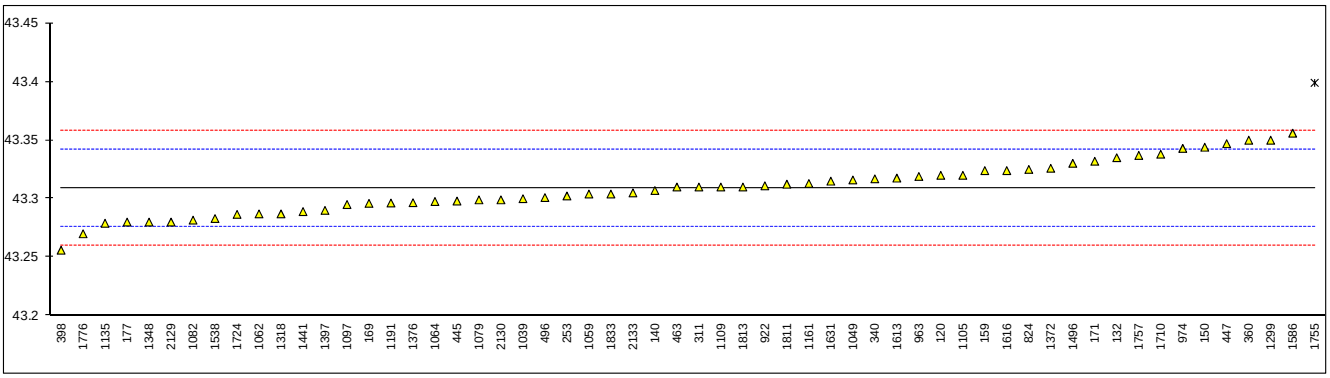


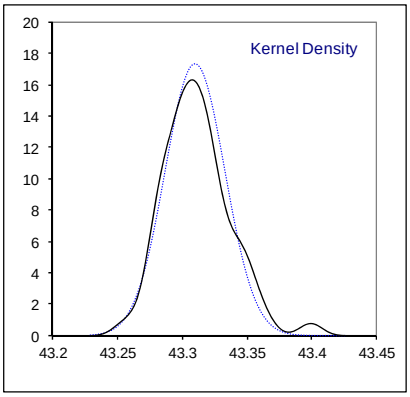
Determination of Specific Energy on sample #15017; results in MJ/kg

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D3338	43.320		0.67	
131		-----		-----	
132	D3338	43.335	C	1.58	first reported:43.032
140	D3338	43.307		-0.12	
150	D3338	43.344	C	2.13	first reported:43.043
159	D3338	43.324	C	0.91	first reported:18613
169	D3338	43.296		-0.79	
171	D3338	43.332		1.40	
175		-----		-----	
177	D3338	43.28		-1.76	
194		-----		-----	
225		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D3338	43.3023		-0.41	
273		-----		-----	
311	D3338	43.31		0.06	
317		-----		-----	
334		-----		-----	
335		-----		-----	
336		-----		-----	
340	D3338	43.317		0.49	
353		-----		-----	
360	D3338	43.350		2.50	
391		-----		-----	
398	D3338	43.256		-3.23	
399		-----		-----	
445	D3338	43.298		-0.67	
447	D3338	43.347		2.31	
463	D3338	43.31		0.06	
468		-----		-----	
473		-----		-----	
496	D3338	43.301		-0.49	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671		-----		-----	
785		-----		-----	
824	D3338	43.325		0.97	
875		-----		-----	
922	D3338	43.311		0.12	
962		-----		-----	
963	D3338	43.319		0.61	
974	D3338	43.343		2.07	
998		-----		-----	
1039	D3338	43.300	C	-0.55	first reported:43300
1047		-----		-----	
1049	D3338	43.316017		0.43	
1059	D3338	43.304		-0.30	
1062	D3338	43.287		-1.34	
1064	D3338	43.2976		-0.69	
1079	D3338	43.299		-0.61	
1080		-----		-----	
1081		-----		-----	
1082	D3338	43.2817		-1.66	
1097	D3338	43.295		-0.85	
1105	D3338	43.32		0.67	
1109	D3338	43.31		0.06	
1126		-----		-----	
1135	D3338	43.279		-1.83	
1146		-----		-----	
1150		-----		-----	
1161	D3338	43.313		0.24	
1167		-----		-----	
1191	D3338	43.2963		-0.77	
1200		-----		-----	
1237		-----		-----	
1284		-----		-----	
1299	D3338	43.35		2.50	

1318	D3338	43.287		-1.34
1347		-----		-----
1348	D3338	43.28		-1.76
1372	D3338	43.3260		1.04
1376	D3338	43.2966		-0.75
1397	D3338	43.29		-1.16
1441	D3338	43.289		-1.22
1496	D3338	43.3302		1.29
1531		-----		-----
1538	D3338	43.283		-1.58
1586	D3338	43.356		2.86
1587		-----		-----
1610		-----		-----
1613	D3338	43.3176		0.52
1616	D3338	43.324		0.91
1631	D3338	43.315		0.37
1634		-----		-----
1678		-----		-----
1710	D3338	43.338		1.77
1720		-----		-----
1724	D3338	43.2866		-1.36
1755	D4529	43.399	R(0.05)	5.48
1757	D4529	43.337		1.71
1776	D3338	43.27		-2.37
1782		-----		-----
1811	D3338	43.3124		0.21
1813	D3338	43.31		0.06
1833	D3338	43.304		-0.30
1842		-----		-----
1881		-----		-----
1961		-----		-----
2129	D3338	43.28		-1.76
2130	D3338	43.299		-0.61
2133	D3338	43.305		-0.24

normality	OK
n	57
outliers	1
mean (n)	43.3090
st.dev. (n)	0.02199
R(calc.)	0.0616
R(D3338:09)	0.0460





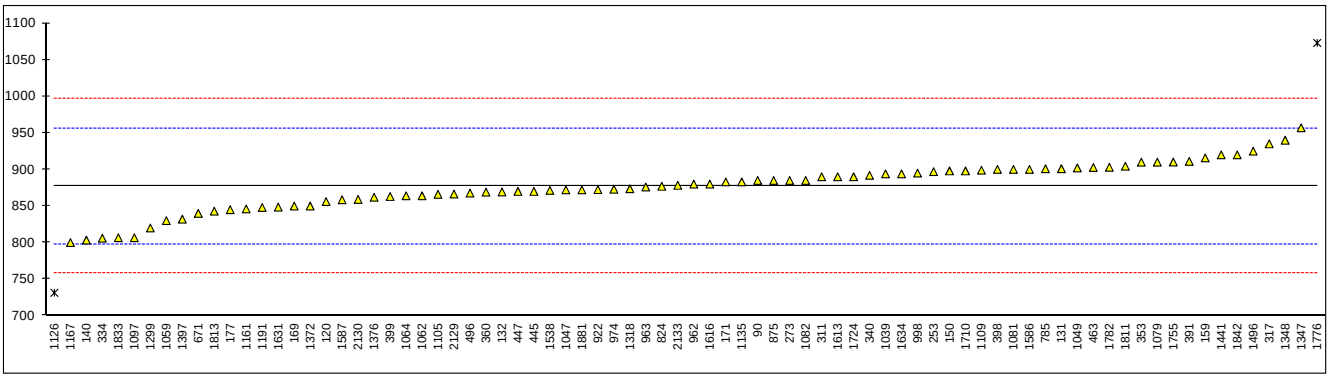
Determination of Total Sulphur on sample #15017; results in mg/kg

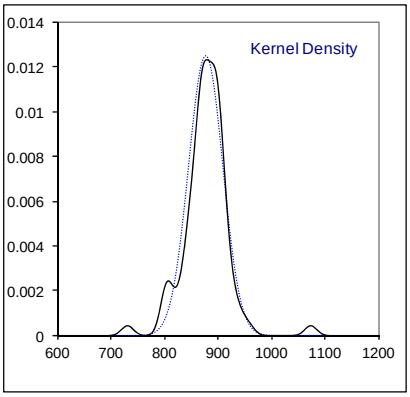
lab	method	value	mark	z(targ)	remarks
90	D4294	885		0.20	
120	D4294	856		-0.53	
131	D5453	901		0.60	
132	D2622	869.3		-0.20	
140	D5453	803.4		-1.86	
150	D2622	898.0		0.53	
159	D4294	915.8		0.97	
169	D4294	850		-0.68	
171	D5453	883		0.15	
175		-----		-----	
177	D4294	845		-0.81	
194		-----		-----	
225		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D4294	897		0.50	
273	D5453	885		0.20	
311	D2622	890		0.32	
317	D2622	935		1.46	
334	D5453	806		-1.79	
335		-----		-----	
336		-----		-----	
340	D4294	892		0.37	
353	IP336	910		0.83	
360	D5453	869		-0.21	
391	ISO8754	911		0.85	
398	D4294	900		0.58	
399	D4294	863		-0.36	
445	IP336	870		-0.18	
447	IP336	870		-0.18	
463	D4294	902.65		0.64	
468		-----		-----	
473		-----		-----	
496	D2622	867.6		-0.24	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671	D5453	839.83		-0.94	
785	D4294	901		0.60	
824	D5453	877		0.00	
875	D4294	885		0.20	
922	D5453	872.4	C	-0.12	first reported: 775.2
962	D4294	880	C	0.07	first reported:88
963	D5453	876		-0.03	
974	D4294	873		-0.10	
998	D4294	895		0.45	
1039	D2622	894	C	0.42	first reported:0.089
1047	ISO8754	872		-0.13	
1049	D5453	902.1		0.63	
1059	ISO14596	830		-1.19	
1062	D5453	864		-0.33	
1064	D5453	863.9		-0.33	
1079	D2622	910		0.83	
1080		-----		-----	
1081	D4294	900		0.58	
1082	D4294	885		0.20	
1097	D5453	806.66		-1.78	
1105	D4294	866		-0.28	
1109	D4294	899		0.55	
1126	D5453	731.4	C,R(0.01)	-3.67	first reported:412.9
1135	D5453	883		0.15	
1146		-----		-----	
1150		-----		-----	
1161		846		-0.78	
1167	D5453	800	C	-1.94	probably unit error, reported: 0.08
1191	D4294	848		-0.73	
1200		-----		-----	
1237		-----		-----	
1284		-----		-----	
1299	D2622	820	C	-1.44	first reported:8.2

1318	D5453	873.6		-0.09
1347	D5453	957		2.01
1348	D4294	940		1.58
1372	D4294	850		-0.68
1376	D5453	862		-0.38
1397	D2622	832.067		-1.14
1441	D5453	920		1.08
1496	D4294	925		1.21
1531		-----		-----
1538	D4294	871.4		-0.14
1586	D4294	900		0.58
1587	D4294	858.6		-0.47
1610		-----		-----
1613	D4294	890		0.32
1616	D4294	880		0.07
1631	D5453	848.5		-0.72
1634	D5453	894		0.42
1678		-----		-----
1710	D2622	898		0.53
1720		-----		-----
1724	IP336	890		0.32
1755	D2622	910.187		0.83
1757		-----		-----
1776	ISO20846	1073	R(0.01)	4.93
1782	D4294	903		0.65
1811	D5453	904.40		0.69
1813	D2622	843		-0.86
1833	D5453	806.6		-1.78
1842	D5453	920		1.08
1881	D4294	872		-0.13
1961		-----		-----
2129	D5453	866.41		-0.27
2130	D5453	859	C	-0.46
2133	D4294	878.3		0.03

first reported:735

			UVF data	XRF data
	normality	OK	OK	OK
	n	78	27	50
	outliers	2	2	0
	mean (n)	877.14	868.29	882.54
	st.dev. (n)	31.994	39.231	26.442
	R(calc.)	89.58	109.85	74.04
	R(D5453:12)	111.13	110.01	151.95 R(D4294:10)



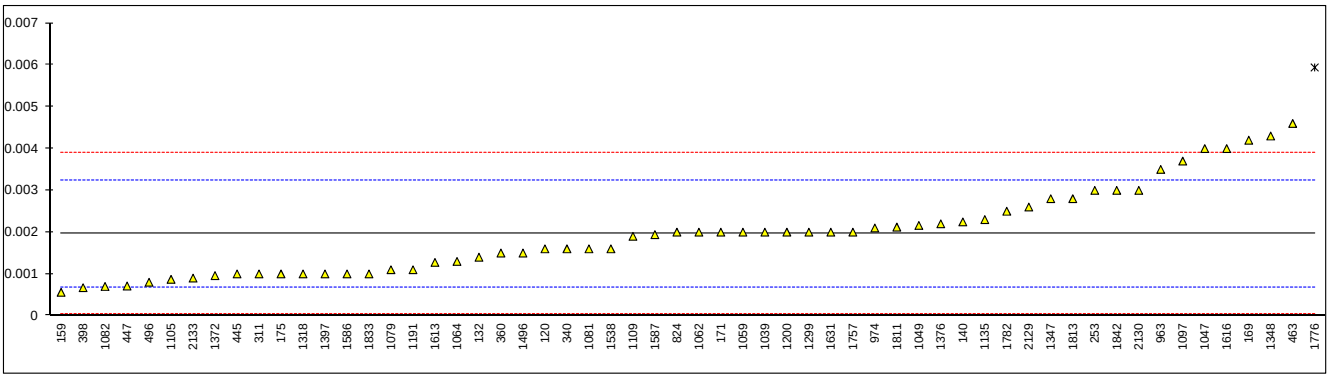


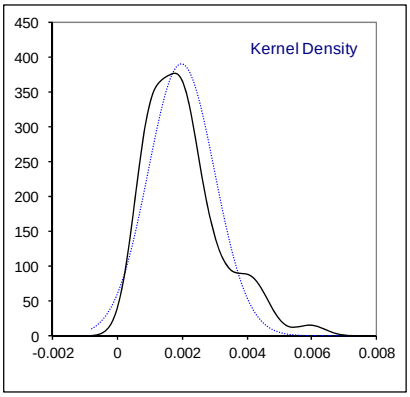
Determination of Total Acidity on sample #15017; results in mg KOH/g

lab	method	value	mark	z(targ)	remarks
90		-----		-----	
120	D3242	0.0016		-0.56	
131		-----		-----	
132	D3242	0.0014		-0.87	
140	D3242	0.002244		0.44	
150	D3242	<0.001		-----	
159	D3242	0.00056		-2.18	
169	D3242	0.0042	C	3.49	first reported:0.01715
171	D3242	0.002		0.06	
175	D3242	0.001		-1.50	
177	D3242	<0.01		-----	
194		-----		-----	
225		-----		-----	
228		-----		-----	
237		-----		-----	
238		-----		-----	
253	D3242	0.0030		1.62	
273		-----		-----	
311	D3242	0.001		-1.50	
317		-----		-----	
334		-----		-----	
335		-----		-----	
336		-----		-----	
340	D3242	0.0016		-0.56	
353		-----		-----	
360	D3242	0.0015		-0.72	
391		-----		-----	
398	D3242	0.00067	C	-2.01	first reported:0.0067
399		-----		-----	
445	D3242	0.001		-1.50	
447	D3242	0.000711		-1.95	
463	D3242	0.0046		4.11	
468		-----		-----	
473		-----		-----	
496	D3242	0.0008		-1.81	
594		-----		-----	
601		-----		-----	
604		-----		-----	
606		-----		-----	
633		-----		-----	
634		-----		-----	
671		-----		-----	
785		-----		-----	
824	D3242	0.002		0.06	
875		-----		-----	
922		-----		-----	
962		-----		-----	
963	D3242	0.0035		2.40	
974	D3242	0.0021		0.22	
998		-----		-----	
1039	D3242	0.002		0.06	
1047	D3242	0.004		3.18	
1049	D3242	0.00216		0.31	
1059	D3242	0.002		0.06	
1062	D3242	0.0020		0.06	
1064	D3242	0.0013		-1.03	
1079	D3242	0.0011		-1.34	
1080		-----		-----	
1081	D3242	0.0016	C	-0.56	first reported:2
1082	D3242	0.0007		-1.96	
1097	D3242	0.0037		2.71	
1105	D3242	0.00087		-1.70	
1109	D3242	0.0019		-0.09	
1126		-----		-----	
1135	D3242	0.0023		0.53	
1146		-----		-----	
1150		-----		-----	
1161		-----		-----	
1167		-----		-----	
1191	D3242	0.0011		-1.34	
1200	D3242	0.002		0.06	
1237		-----		-----	
1284		-----		-----	
1299	D3242	0.002		0.06	

1318	D3242	0.001		-1.50
1347	D3242	0.0028		1.31
1348	D3242	0.0043		3.65
1372	D3242	0.00096		-1.56
1376	D3242	0.0022		0.37
1397	D3242	0.001		-1.50
1441		-----		-----
1496	D3242	0.0015		-0.72
1531		-----		-----
1538	D3242	0.0016		-0.56
1586	D3242	0.001		-1.50
1587	D3242	0.00194		-0.03
1610		-----		-----
1613	D3242	0.001276		-1.07
1616	D3242	0.004		3.18
1631	D3242	0.002		0.06
1634		-----		-----
1678		-----		-----
1710		-----		-----
1720		-----		-----
1724	D3242	<0.001		-----
1755		-----		-----
1757	D3242	0.002		0.06
1776	D3242	0.00594	R(0.01)	6.20
1782	D3242	0.0025		0.84
1811	D3242	0.00212		0.25
1813	D3242	0.0028		1.31
1833	D3242	0.001		-1.50
1842	IP354	0.003		1.62
1881		-----		-----
1961		-----		-----
2129	D3242	0.0026		1.00
2130	D3242	0.003		1.62
2133	D3242	0.00090		-1.65

normality	OK
n	57
outliers	1
mean (n)	0.00196
st.dev. (n)	0.001021
R(calc.)	0.00286
R(D3242:11)	0.00179



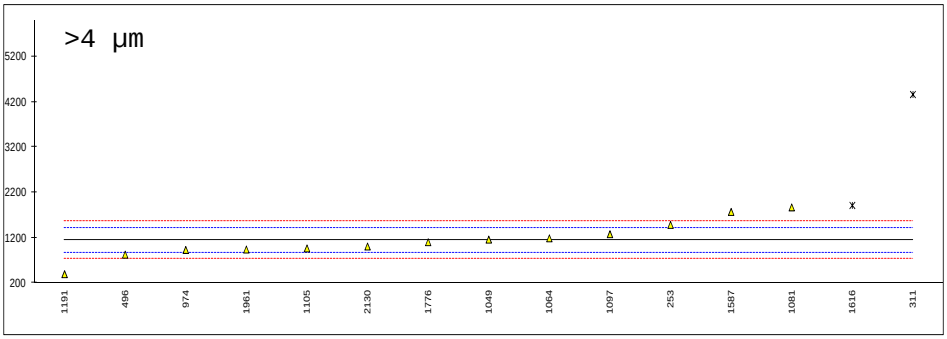


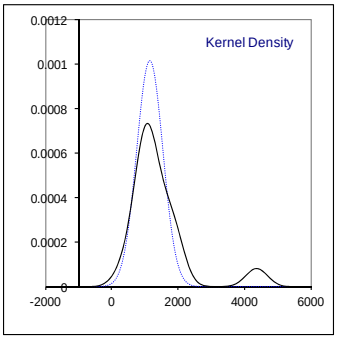
Determination of Particle Size Distribution on sample #15018 acc. to IP564, results in ml^{-1}

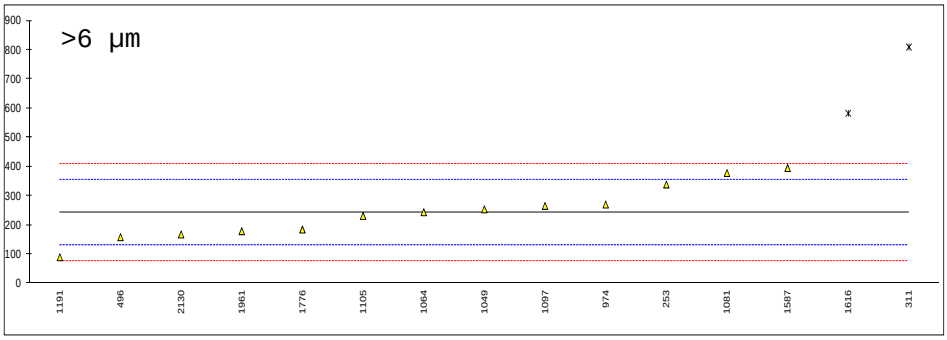
lab	method	>4 µm	>6 µm	>14 µm	>21 µm	>25 µm	>30 µm
131		-----	-----	-----	-----	-----	-----
150		-----	-----	-----	-----	-----	-----
171		-----	-----	-----	-----	-----	-----
237		-----	-----	-----	-----	-----	-----
253	IP564	1485.7	339.0	10.8	1.2	1.0	0.8
311	IP564	**4364.5**	**809.9**	5.3	1.5	0.9	0.7
334		-----	-----	-----	-----	-----	-----
335		-----	-----	-----	-----	-----	-----
360		-----	-----	-----	-----	-----	-----
445		-----	-----	-----	-----	-----	-----
496	IP564	828.2	158.4	6.5	1.5	0.9	0.3
824		-----	-----	-----	-----	-----	-----
922		-----	-----	-----	-----	-----	-----
963		-----	-----	-----	-----	-----	-----
974	IP564	932.4	270.3	12.9	3.0	2.3	0.4
1039		-----	-----	-----	-----	-----	-----
1049	IP564	1160.8	253.9	**18.6**	**7.2**	**3.9**	**1.4**
1059		-----	-----	-----	-----	-----	-----
1064	IP564	1189.2	243.9	3.0	0.8	0.5	0.3
1081	IP564	1872	378	7	1.1	0.5	0.3
1095		-----	-----	-----	-----	-----	-----
1097	IP564	1279.7	265.5	1.9	0.4	0.2	0.1
1105	IP564	966.8	231.3	7.6	1.4	0.5	0.2
1109		-----	-----	-----	-----	-----	-----
1191	IP564	397.2	89.6	2.7	1.4	0.8	0.6
1200		-----	-----	-----	-----	-----	-----
1299		-----	-----	-----	-----	-----	-----
1538		-----	-----	-----	-----	-----	-----
1587	IP564	1772.9	395.4	9.2	3.0	1.6	0.6
1610		-----	-----	-----	-----	-----	-----
1613		-----	-----	-----	-----	-----	-----
1616	IP564	***1914.8***	**582.7**	**21.2**	**5.4**	**3.0**	**2.1**
1631		-----	-----	-----	-----	-----	-----
1634		-----	-----	-----	-----	-----	-----
1710		-----	-----	-----	-----	-----	-----
1720		-----	-----	-----	-----	-----	-----
1724		-----	-----	-----	-----	-----	-----
1776	IP564	1103.5	184.8	4.2	1.2	0.7	0.4
1811		-----	-----	-----	-----	-----	-----
1813		-----	-----	-----	-----	-----	-----
1833		-----	-----	-----	-----	-----	-----
1961	IP564	941.2	178.9	3.7	0.9	0.5	0.2
2130	IP564	1007.4	167.7	3.0	0.7	0.4	0.2
	normality	OK	OK	OK	not OK	not OK	OK
	n	13	13	13	13	13	13
	outliers	2	2	2	2	2	2
	mean (n)	1149.0	242.82	5.98	1.39	0.83	0.39
	st.dev. (n)	393.46	89.456	3.409	0.786	0.565	0.218
	R(calc.)	1101.7	250.48	9.54	2.20	1.58	0.61
	R(IP564:13)	384.2	156.17	13.96	1.77	1.11	0.65

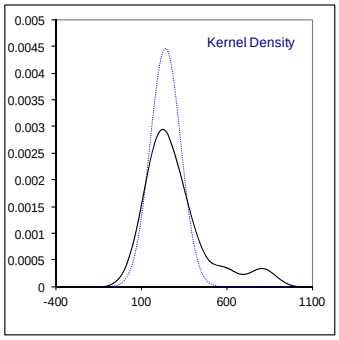
Bold and underlined test results: **statistical outliers acc. to Grubbs/Dixon/Rosner outlier test.**
Bold and underlined and Italic test result : **excluded**

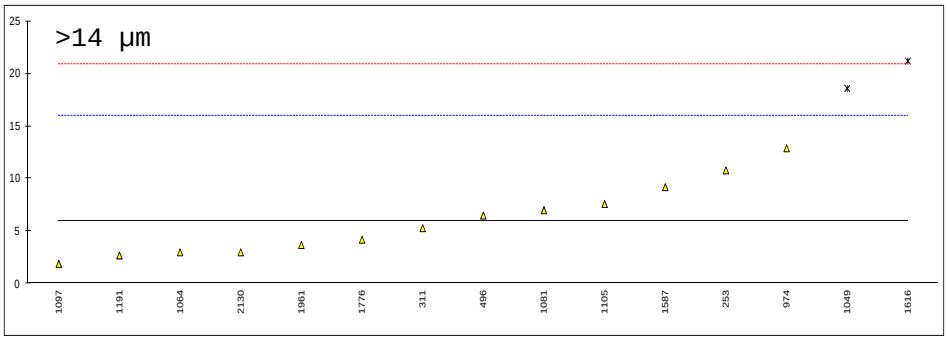
Lab 974 first reported >30 µm 1.4

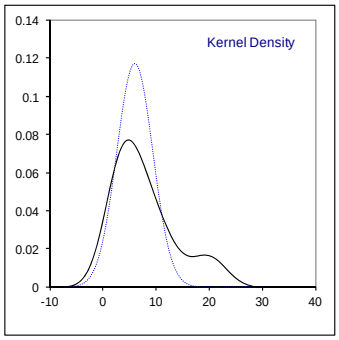


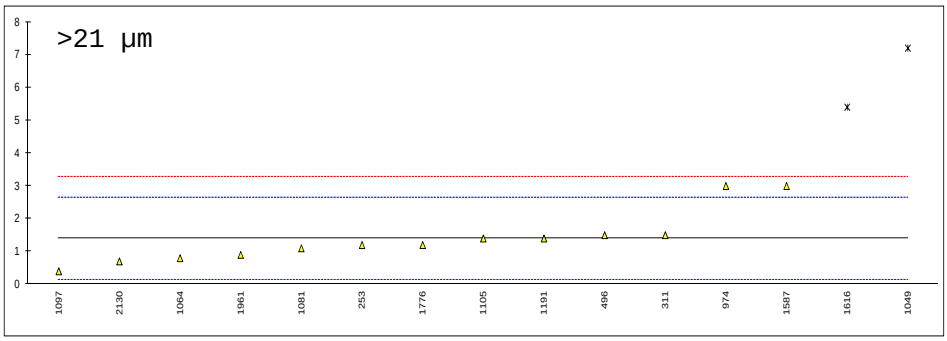


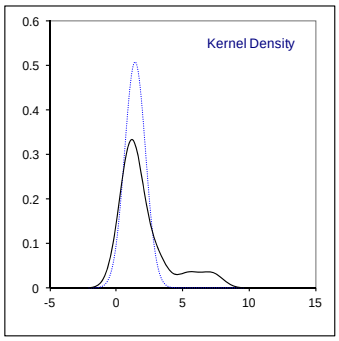

>6 µm
1191 496 2130 1961 1776 1105 1064 1049 1097 974 253 1081 1587 1616 311

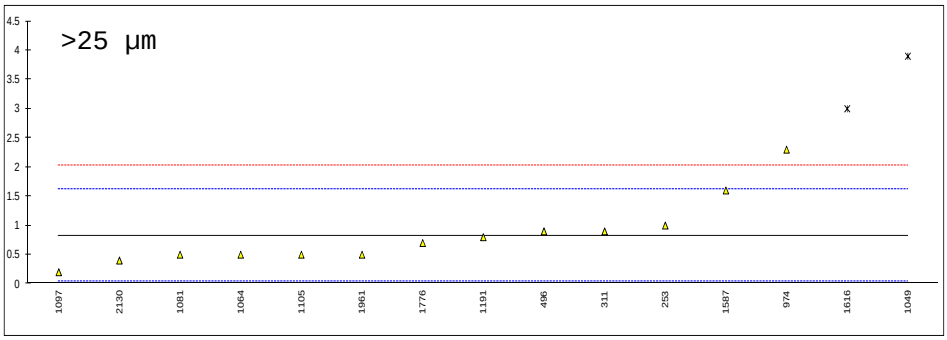

Kernel Density

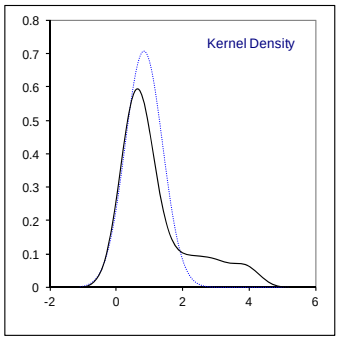

>14 µm
1097 1191 1064 2130 1961 1776 311 496 1081 1105 1587 253 974 1049 1616

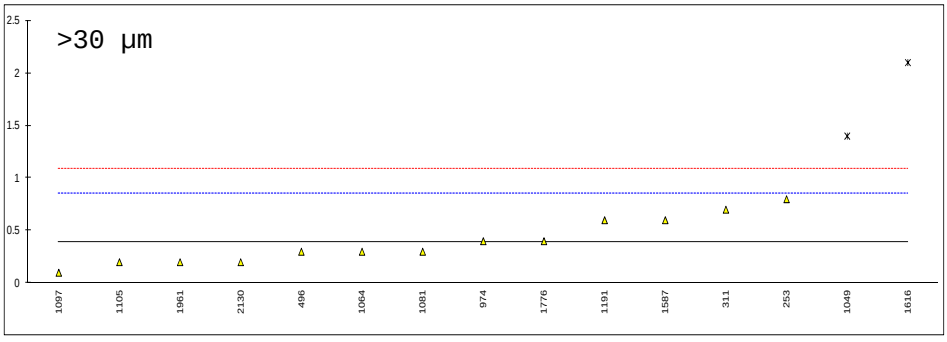

Kernel Density

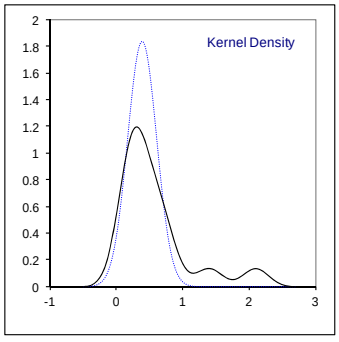

>21 µm
1097 2130 1064 1961 1081 253 1776 1105 1191 496 311 974 1587 1616 1049


Kernel Density


>25 µm
1097 2130 1081 1064 1105 1961 1776 1191 496 311 253 1587 974 1616 1049


Kernel Density

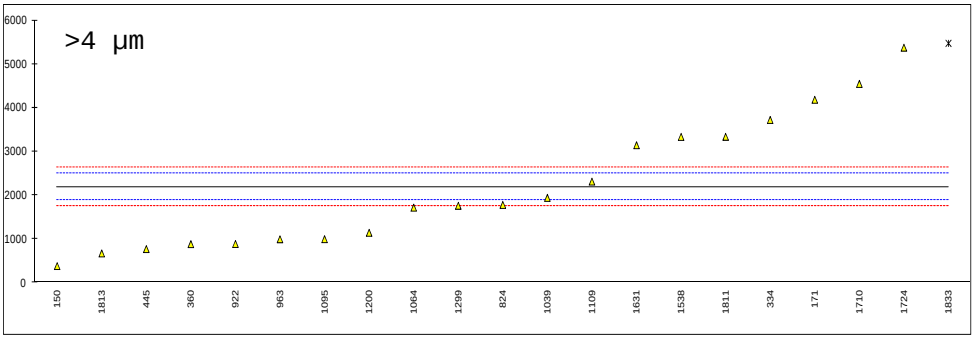

>30 µm
1097 1105 1961 2130 496 1064 1081 974 1776 1191 1587 311 253 1049 1616

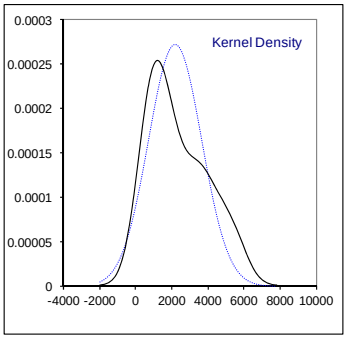

Kernel Density

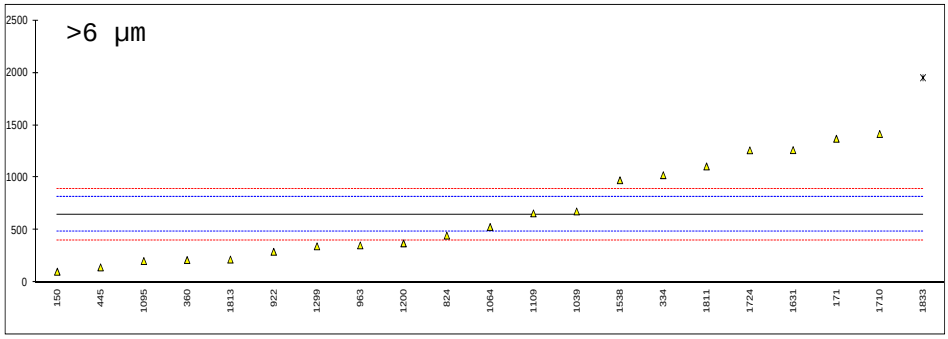
Determination of Particle Size Distribution on sample #15018 acc. to IP565, results in ml^{-1}

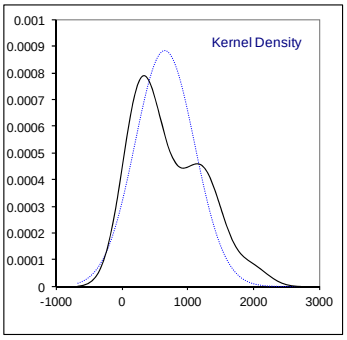
lab	method	>4 µm	>6 µm	>14 µm	>21 µm	>25 µm	>30 µm
131		-----	-----	-----	-----	-----	-----
150	IP565	382	103	<9	<2	<1	0
171	IP565	4184	1370	11	2	1	1
237		-----	-----	-----	-----	-----	-----
253		-----	-----	-----	-----	-----	-----
311		-----	-----	-----	-----	-----	-----
334	IP565	3723	1023	14.6	2.6	1	1
335		-----	-----	-----	-----	-----	-----
360	IP565	884.5	214.0	3.6	1.1	0.7	0.3
445	IP565	772.0	143.8	5.4	1.5	0.5	0.1
496		-----	-----	-----	-----	-----	-----
824	IP565	1781.5	447.3	6.3	1.3	0.8	0.6
922	IP565	888.4	292.6	4.4	0.6	0.3	0.2
963	IP565	995.8	353.5	8.1	1.1	0.5	0.2
974		-----	-----	-----	-----	-----	-----
1039	IP565	1943	677	10	2	<1	<1
1049		-----	-----	-----	-----	-----	-----
1059		-----	-----	-----	-----	-----	-----
1064	IP565	1718.1	529.1	14.1	0.7	0.1	0.0
1081		-----	-----	-----	-----	-----	-----
1095	IP565	998	205	3	1	1	0
1097		-----	-----	-----	-----	-----	-----
1105		-----	-----	-----	-----	-----	-----
1109	IP565	2313.6	658.8	11.5	1.3	0.6	0.2
1191		-----	-----	-----	-----	-----	-----
1200	IP565	1143.6	373.2	5.2	0.7	0.2	0.1
1299	IP577	1760.8	345.1	13.7	4.1	2.9	1.6
1538	IP565	3335.6	974.4	18.6	4.8	2.8	1.6
1587		-----	-----	-----	-----	-----	-----
1610		-----	-----	-----	-----	-----	-----
1613		-----	-----	-----	-----	-----	-----
1616		-----	-----	-----	-----	-----	-----
1631	IP565	3144.3	1262.0	24.2	5.5	2.7	1.3
1634		-----	-----	-----	-----	-----	-----
1710	IP565	4546.4	1416.0	**36.7**	**7.5**	3.3	1.3
1720		-----	-----	-----	-----	-----	-----
1724	IP565	5374.3	1260.0	23.9	4.1	1.7	0.7
1776		-----	-----	-----	-----	-----	-----
1811	IP565	3336.7	1106.1	17.4	3.7	1.5	0.8
1813	IP565	672.4	218.5	3.9	0.9	0.5	0.2
1833	IP565	***5472.8***	***1951.4***	**42.2**	**7.9**	***3.7***	***1.0***
1961		-----	-----	-----	-----	-----	-----
2130		-----	-----	-----	-----	-----	-----
	normality	OK	OK	OK	OK	OK	OK
	n	20	20	18	18	18	19
	outliers	0 (+1excl)	0 (+1excl)	2	2	0 (+1excl)	0 (+1excl)
	mean (n)	2194.90	648.62	11.05	2.17	1.23	0.59
	st.dev. (n)	1471.291	451.643	6.768	1.573	1.024	0.561
	R(calc.)	4119.61	1264.60	18.95	4.40	2.87	1.57
	R(IP565:13)	417.77	228.92	23.31	5.21	2.94	1.39

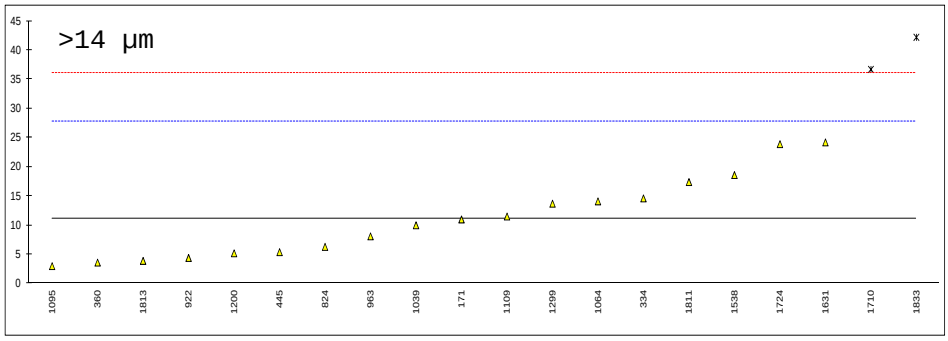
Bold and underlined test results: **statistical outliers acc. to Grubbs/Dixon/Rosner outlier test.**
Bold and underlined and Italic test result : **excluded**

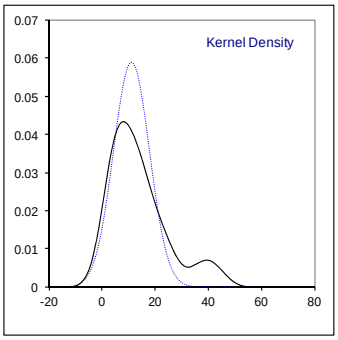


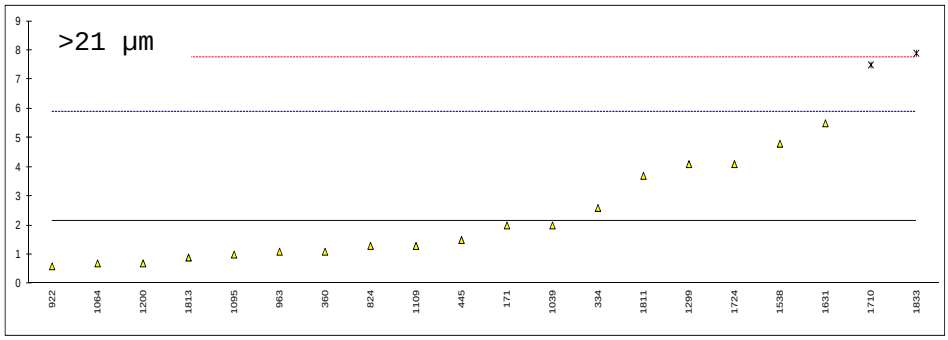


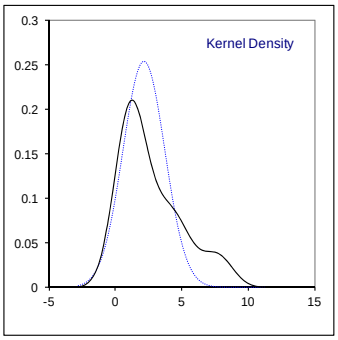

>6 µm
2500
2000
1500
1000
500
0
150 445 1095 360 1813 922 1299 963 1200 824 1064 1109 1039 1538 334 1811 1724 1631 171 1710 1833

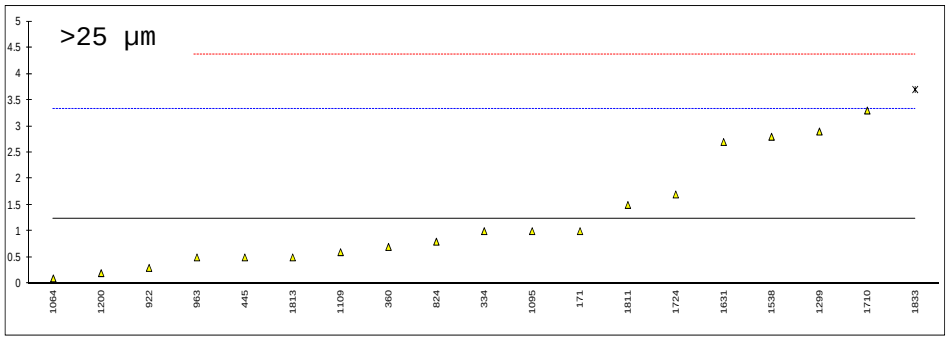

Kernel Density
0.001
0.0009
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
-1000 0 1000 2000 3000

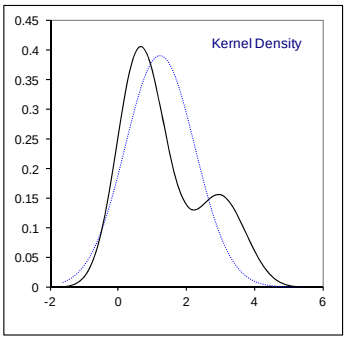

>14 µm
45
40
35
30
25
20
15
10
5
0
1095 360 1813 922 1200 445 824 963 1039 171 1109 1299 1064 334 1811 1538 1724 1631 1710 1833

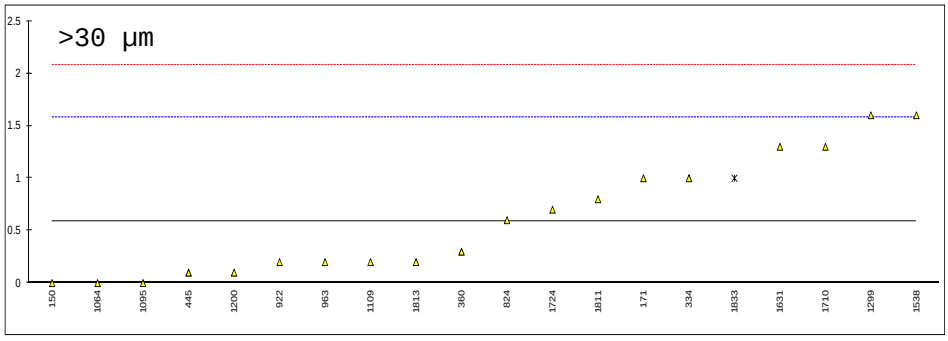

Kernel Density
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-20 0 20 40 60 80

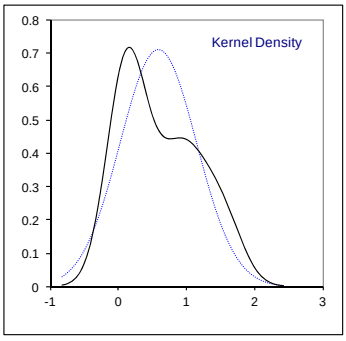

>21 µm
9
8
7
6
5
4
3
2
1
0
922 1064 1200 1813 1095 963 360 824 1109 445 171 1039 334 1811 1299 1724 1538 1631 1710 1833


Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
-5 0 5 10 15


>25 µm
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1064 1200 922 963 445 1813 1109 360 824 334 1095 171 1811 1724 1631 1538 1299 1710 1833


Kernel Density
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-2 0 2 4 6


>30 µm
2.5
2
1.5
1
0.5
0
150 1064 1095 445 1200 922 963 1109 1813 360 824 1724 1811 171 334 1833 1631 1710 1299 1538


Kernel Density
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-1 0 1 2 3

APPENDIX 2

z-scores distillation ASTM D86.

lab	method	IBP	10% rec.	50% rec.	90%rec.	FBP
90	D86	0.80	-0.95	-1.41	-1.41	-0.39
120	D86	0.26	-0.87	-0.65	-0.70	-0.47
131	D86	0.36	-0.11	0.20	0.33	-1.02
132	D86	-2.33	-1.02	-0.27	0.33	-0.79
140	D86	-0.22	0.35	0.10	-0.62	-0.12
150	D86	0.36	0.04	-0.65	-1.17	-0.31
159	D86	-0.56	-0.41	1.23	0.73	-0.23
169	D86	0.09	0.20	0.67	0.02	0.12
171	D86	-1.00	-0.41	0.29	0.17	-0.47
175	D86	-0.52	-0.11	0.48	0.89	0.79
177	D86	-0.79	-0.72	-0.93	-1.57	-0.59
194		-----	-----	-----	-----	-----
225	D86	0.29	0.58	-0.46	-2.99	-1.18
228	D86	-0.56	-1.71	-2.35	-1.41	-0.79
237		-----	-----	-----	-----	-----
238		-----	-----	-----	-----	-----
253	D86	-0.56	-1.71	-2.82	-1.41	-1.18
273	D86	0.50	-0.41	1.05	1.20	-0.59
311	D86	-1.30	-0.79	-0.56	-0.93	-1.10
317	D86	0.43	-0.41	0.01	-0.46	-0.79
334	D86	1.04	-0.11	-0.18	-0.54	1.46
335	D86	0.09	0.04	-0.18	0.33	-0.71
336	D86	-0.28	-0.72	-0.75	-0.54	-1.14
340	D86	-0.15	0.58	1.05	1.60	-0.12
353	IP123	-0.08	-0.26	1.05	1.76	0.71
360	D86	-0.66	0.96	0.57	1.20	0.32
391		-----	-----	-----	-----	-----
398	D86	1.52	0.96	0.76	0.73	1.66
399	D86	1.25	0.35	0.57	-0.62	1.62
445	D86	-0.62	-0.34	-0.09	0.33	0.20
447	D86	-0.39	0.73	0.86	1.28	0.55
463	D86	0.12	-0.64	0.29	0.57	0.44
468	D86	-0.15	0.50	0.67	1.60	0.59
473	D86	0.19	1.03	0.86	0.97	-0.12
496	D86	-0.32	-0.79	-0.27	-0.62	0.00
594	INH-2177	0.87	-1.25	0.20	0.33	0.36
601		-----	-----	-----	-----	-----
604	D86	0.33	-1.17	-1.88	0.17	-0.79
606	D86	-0.56	0.65	0.57	-0.06	0.71
633	D86	0.12	-3.23	-2.35	**-5.37**	**-3.15**
634	D86	-0.56	-1.71	-2.35	-0.62	0.00
671		-----	-----	-----	-----	-----
785	D86	0.16	0.35	0.57	-0.14	0.40
824	D86	0.36	0.50	0.76	1.60	0.00
875	D86	0.06	0.50	0.67	0.81	0.79
922	D86	-1.58	-2.47	-2.35	-2.20	-1.18
962	D86	0.80	2.86	**4.25**	2.55	0.20
963	D86	1.55	2.02	2.84	0.81	0.79
974	D86	0.63	-0.57	-0.75	-0.22	-0.63
998	D86	-0.56	-0.57	-1.41	-1.80	0.40
1039	ISO3405	0.23	1.11	0.29	0.41	0.28
1047	D86	0.43	-1.40	-0.65	1.44	-0.12
1049	D86	0.23	0.42	0.39	-0.06	0.16
1059	ISO3405	0.80	0.96	0.95	0.10	0.91
1062	D86	-0.05	0.42	0.67	-0.22	-0.12
1064	D86	0.26	0.80	1.42	1.44	0.83
1079	D86	0.46	0.27	1.23	0.89	0.16
1080		-----	-----	-----	-----	-----
1081	D86	0.06	0.35	-0.18	-1.17	-0.16
1082	D86	0.50	0.35	0.39	0.49	-0.35
1097	ISO3405	-0.47	-1.67	-2.01	-2.36	-1.36
1105	D86	0.06	0.12	-0.65	-1.01	-0.43
1109	D86	0.19	-0.79	-1.03	-1.01	0.51
1126	D86	-0.18	0.80	**4.25**	0.81	0.48
1135	D86	1.14	0.65	1.05	1.12	1.03
1146	ISO3405	0.40	0.42	0.10	-0.30	-0.35
1150	ISO3405	1.81	2.49	1.21	2.35	1.26
1161	ISO3405	-1.03	-1.56	-2.16	-0.70	0.67
1167	ISO3405	-0.08	3.09	**4.72**	-1.09	0.79
1191	D86	-1.20	0.73	0.76	0.81	-0.12
1200		-----	-----	-----	-----	-----

1237		-----	-----	-----	-----	-----
1284		-----	-----	-----	-----	-----
1299	D86	1.11	0.20	0.57	1.12	0.71
1318	D86	-0.49	0.04	-0.09	-0.38	0.12
1347	D86	0.80	0.58	0.48	-0.62	-0.39
1348	D86	0.40	-0.79	-1.31	-0.46	-0.87
1372	D86	0.12	-0.95	0.48	0.97	-0.39
1376	D86	0.29	-0.26	1.33	0.17	0.99
1397	D86	-0.56	-1.25	-1.12	-1.88	-1.14
1441	D86	-0.15	0.80	-0.37	0.17	-0.04
1496	D86	0.19	1.72	0.86	0.89	0.44
1531	D86	1.96	1.26	1.42	-0.85	1.93
1538	D86	-0.32	-1.33	-1.41	-0.85	-1.65
1586	D86	0.19	0.12	0.29	0.89	-0.55
1587	D86	0.43	0.27	0.01	-0.70	0.16
1610		-----	-----	-----	-----	-----
1613	D86	-0.83	0.65	0.48	-1.01	0.55
1616	D86	-0.22	0.65	-0.18	-1.01	-0.43
1631	D86	-0.22	-0.11	-0.09	-0.06	0.04
1634	D86	-1.30	0.20	1.05	1.84	0.36
1678		-----	-----	-----	-----	-----
1710	D86	0.19	-0.03	0.57	0.97	-0.35
1720		-----	-----	-----	-----	-----
1724	ISO3405	0.02	0.12	0.95	0.02	0.48
1755	D86	-0.01	0.80	1.23	1.76	1.07
1757	D86	0.36	0.12	0.20	1.76	-0.59
1776	ISO3405	-1.13	-0.34	-0.56	-0.06	-0.16
1782	D86	0.46	-0.26	-1.12	-1.57	-1.54
1811	D86	-0.62	-0.64	-0.65	-0.93	-0.31
1813	D86	0.10	0.77	0.83	1.36	0.49
1833	D86	-0.69	-0.34	-0.46	-1.25	0.20
1842	D86	-0.83	-0.26	0.57	1.05	0.59
1881	D86	-0.73	0.20	0.48	-1.41	-0.79
1961		-----	-----	-----	-----	-----
2129	D86	-0.66	-0.03	-0.37	-1.41	-0.55
2130	D86	0.29	0.42	-0.18	-0.30	0.12
2133	D86	-0.22	0.42	0.67	-0.46	0.00

Z-scores underlined and bold belong to the statistical outliers acc. to Grubbs/Dixon/Rosner outlier test.

APPENDIX 3

z-scores Particle Size Distribution on sample #15018 acc. to IP564 and IP565.

	IP 564						IP565					
lab	>4 µm	>6 µm	>14 µm	>21 µm	>25 µm	>30 µm	>4 µm	>6 µm	>14 µm	>21 µm	>25 µm	>30 µm
131	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
150	-----	-----	-----	-----	-----	-----	-12.15	-6.67	-----	-----	-----	-1.19
171	-----	-----	-----	-----	-----	-----	13.33	8.82	-0.01	-0.09	-0.22	0.83
237	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
253	2.45	1.72	0.97	-0.31	0.43	1.76	-----	-----	-----	-----	-----	-----
311	**23.43**	**10.17**	-0.14	0.17	0.17	1.33	-----	-----	-----	-----	-----	-----
334	-----	-----	-----	-----	-----	-----	10.24	4.58	0.43	0.23	-0.22	0.83
335	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
360	-----	-----	-----	-----	-----	-----	-8.78	-5.32	-0.89	-0.57	-0.50	-0.58
445	-----	-----	-----	-----	-----	-----	-9.54	-6.17	-0.68	-0.36	-0.69	-0.98
496	-2.34	-1.51	0.10	0.17	0.17	-0.40	-----	-----	-----	-----	-----	-----
824	-----	-----	-----	-----	-----	-----	-2.77	-2.46	-0.57	-0.47	-0.41	0.02
922	-----	-----	-----	-----	-----	-----	-8.76	-4.35	-0.80	-0.84	-0.88	-0.78
963	-----	-----	-----	-----	-----	-----	-8.04	-3.61	-0.35	-0.57	-0.69	-0.78
974	-1.58	0.49	1.39	2.55	3.70	0.03	-----	-----	-----	-----	-----	-----
1039	-----	-----	-----	-----	-----	-----	-1.69	0.35	-0.13	-0.09	-----	-----
1049	0.09	0.20	**2.53**	**9.21**	**7.73**	**4.35**	-----	-----	-----	-----	-----	-----
1059	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1064	0.29	0.02	-0.60	-0.94	-0.83	-0.40	-3.20	-1.46	0.37	-0.79	-1.08	-1.19
1081	5.27	2.42	0.20	-0.46	-0.83	-0.40	-----	-----	-----	-----	-----	-----
1095	-----	-----	-----	-----	-----	-----	-8.02	-5.43	-0.97	-0.63	-0.22	-1.19
1097	0.95	0.41	-0.82	-1.57	-1.59	-1.26	-----	-----	-----	-----	-----	-----
1105	-1.33	-0.21	0.32	0.01	-0.83	-0.83	-----	-----	-----	-----	-----	-----
1109	-----	-----	-----	-----	-----	-----	0.80	0.12	0.05	-0.47	-0.60	-0.78
1191	-5.48	-2.75	-0.66	0.01	-0.08	0.90	-----	-----	-----	-----	-----	-----
1200	-----	-----	-----	-----	-----	-----	-7.05	-3.37	-0.70	-0.79	-0.98	-0.98
1299	-----	-----	-----	-----	-----	-----	-2.91	-3.71	0.32	1.04	1.59	2.03
1538	-----	-----	-----	-----	-----	-----	7.65	3.98	0.91	1.41	1.50	2.03
1587	4.55	2.74	0.64	2.55	1.94	0.90	-----	-----	-----	-----	-----	-----
1610	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1613	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1616	***5.58***	**6.09**	**3.05**	**6.36**	**5.46**	**7.36**	-----	-----	-----	-----	-----	-----
1631	-----	-----	-----	-----	-----	-----	6.36	7.50	1.58	1.79	1.40	1.43
1634	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1710	-----	-----	-----	-----	-----	-----	15.76	9.39	**3.08**	**2.87**	1.98	1.43
1720	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1724	-----	-----	-----	-----	-----	-----	21.31	7.48	1.54	1.04	0.45	0.22
1776	-0.33	-1.04	-0.36	-0.31	-0.33	0.03	-----	-----	-----	-----	-----	-----
1811	-----	-----	-----	-----	-----	-----	7.65	5.60	0.76	0.82	0.26	0.42
1813	-----	-----	-----	-----	-----	-----	-10.20	-5.26	-0.86	-0.68	-0.69	-0.78
1833	-----	-----	-----	-----	-----	-----	21.97	15.93	**3.74**	**3.08**	2.36	0.83
1961	-1.51	-1.15	-0.46	-0.78	-0.83	-0.83	-----	-----	-----	-----	-----	-----
2130	-1.03	-1.35	-0.60	-1.10	-1.08	-0.83	-----	-----	-----	-----	-----	-----

Z-scores underlined and bold belong to the statistical outliers acc. to Grubbs/Dixon/Rosner outlier test.

Z-score underlined, bold and Italic test result: excluded

APPENDIX 4

Number of participants per country

1 lab in	AFGHANISTAN
2 labs in	AUSTRALIA
4 labs in	BELGIUM
4 labs in	BULGARIA
1 lab in	CANADA
2 labs in	CHINA, People's Republic
1 lab in	COTE D'IVOIRE
1 lab in	CROATIA
1 lab in	CYPRUS
1 lab in	CZECH REPUBLIC
1 lab in	DENMARK
1 lab in	DJIBOUTI
1 lab in	EGYPT
2 labs in	FINLAND
5 labs in	FRANCE
1 lab in	FRENCH GUIANA
2 labs in	GERMANY
1 lab in	GREECE
1 lab in	GUAM
2 labs in	HUNGARY
1 lab in	IRELAND
3 labs in	ITALY
1 lab in	JORDAN
2 labs in	LEBANON
1 lab in	LITHUANIA
3 labs in	MALAYSIA
1 lab in	MALTA
7 labs in	NETHERLANDS
2 labs in	NIGERIA
2 labs in	NORWAY
1 lab in	PAKISTAN
2 labs in	PHILIPPINES
2 labs in	POLAND
2 lab in	PORTUGAL
2 labs in	QATAR
2 labs in	RUSSIAN FEDERATION
3 labs in	SAUDI ARABIA
2 labs in	SLOVENIA
1 lab in	SOUTH AFRICA
1 lab in	SOUTH KOREA
1 lab in	SPAIN
1 lab in	SUDAN
4 labs in	SWEDEN
1 lab in	TOGO
5 labs in	TURKEY
3 labs in	UNITED ARAB EMIRATES
6 labs in	UNITED KINGDOM
11 labs in	UNITED STATES OF AMERICA
1 lab in	URUGUAY

APPENDIX 5

Abbreviations:

C = final result after checking of first reported suspect result
U = reported in wrong unit
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 outlier test
R(0.05) = straggler in Rosner outlier test
ex = excluded from calculations
E = error in calculations
n.a. = not applicable
W = withdrawn on request participant
fr. = first reported
U = reported in a deviating unit
SDS = Safety Data Sheet

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