Results of Proficiency Test
Naphtha
April 2018

Organised by: Institute for Interlaboratory Studies (iis)
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies organizes a proficiency test (PT) for the analysis of Naphtha every year. The interlaboratory study on Naphtha was extended with PTs for the determination for Mercury, Arsenic/Lead and Vapour Pressure.
In the annual proficiency testing program of 2017/2018, it was decided to continue the 4 PTs on Naphtha. For participation registered; in the main PT, 107 laboratories in 43 different countries; in the PT for Mercury, 55 laboratories in 26 different countries; in the PT for Arsenic and Lead, 36 laboratories in 19 different countries and in the PT for Vapour Pressure, 63 laboratories in 26 different countries. See appendix 2 for the number of participants per country per PT. In this report, the results of the 2018 proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organizer of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. In this proficiency test, the participants received, depending on the registration, from one up to seven different samples of Naphtha, see table below. As the Mercury and Arsenic/Lead determination was problematic in previous round robins, it was decided to prepare also synthetic (artificial) Naphtha with a known amount of Arsenic and Lead and synthetic (artificial) Naphtha with a known amount of Mercury.

Samples	Type of bottle	Purpose	Matrix
#18045	0.5 L	For regular analyses	Real Naphtha
#18046	30 ml	For GC analyses	Real Naphtha
#18047	0.5 L	For Mercury	Artificial Naphtha
#18048	0.5 L	For Mercury	Real Naphtha
#18049	0.5 L	For Arsenic and Lead	Artificial Naphtha
#18050	0.5 L	For Arsenic and Lead	Real Naphtha
#18051	0.25 L	For DVPE	Real Naphtha

Table 1: Seven different Naphtha samples used in iis18N01

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

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC 17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). These PTs fall under the accredited scope. This ensures strict adherence to protocols for sample preparation and statistical evaluation and 100% confidentiality of participant's data. Feedback from the participants on the

reported data is encouraged and customer's satisfaction is measured on regular basis by sending out questionnaires.

2.2 PROTOCOL

The protocol followed in the organisation of these proficiency tests was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4). This protocol is electronically available through the iis website site www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

One drum with approx. 200 litres of light Naphtha was obtained from a local refinery. This batch was used to prepare five different samples.
After homogenisation, a part of the batch was divided over 128 brown glass bottles of 0.5 litre and labelled #18045. The homogeneity of subsamples #18045 was checked by determination of Density at 15°C in accordance with ISO 12185 on 8 stratified randomly selected samples, see table 2.

	Density at 15°C in kg/m^3		Density at 15°C in kg/m^3
sample #18045-1	720.26	sample #18045-5	720.28
sample #18045-2	720.26	sample #18045-6	720.27
sample #18045-3	720.28	sample #18045-7	720.27
sample #18045-4	720.27	sample #18045-8	720.27

Table 2: homogeneity test results of subsamples #18045

A second part, approximately 15 kg, was taken from the Naphtha batch and spiked with 1116 mg MTBE (98% pure) and 1116 mg Methanol (99.97% pure) especially for the GC analyses. After homogenisation 128 amber glass bottles of 30 ml were filled and labelled #18046. The homogeneity of subsamples #18046 was checked by determination of MTBE in accordance with an in house test method on 8 stratified randomly selected samples, see table 3.

	MTBE in mg/kg		MTBE in mg/kg
sample #18046-1	94.4	sample #18046-5	96.2
sample #18046-2	96.1	sample #18046-6	95.1
sample #18046-3	94.8	sample #18046-7	95.5
sample #18046-4	93.6	sample #18046-8	96.1

Table 3: homogeneity test results of subsamples #18046

A third part, approximately 25 kg, was taken from the Naphtha batch and spiked with 5 gram Conostan Hg std (100 mg/kg) and with 438 µg $HgCl_2$ especially for Mercury determination. After homogenisation 71 amber glass bottles of 0.5 litres were filled and labelled #18048. The homogeneity of subsamples #18048 was checked by determination of Mercury in accordance with UOP938-B on 4 stratified randomly selected samples, see table 4.

	Mercury in µg/kg
sample #18048-1	41.5
sample #18048-2	42.0
sample #18048-3	42.6
sample #18048-4	41.8

Table 4: homogeneity test results of subsamples #18048

A fourth part, approximately 22 kg, was taken from the Naphtha batch and spiked with 11 gram Conostan As std (100mg/kg) and with 1.9 gram AvGas (0.54 g Pb/L) especially for Arsenic and Lead determination. After homogenisation 54 amber glass bottles of 0.5 litres were filled and labelled #18050. The homogeneity of subsamples #18050 was checked by determination of Lead in accordance with an in house test method on 4 stratified randomly selected samples, see table 5.

	Lead in µg/kg
sample #18050-1	72
sample #18050-2	68
sample #18050-3	69
sample #18050-4	74

Table 5: homogeneity test results of subsamples #18050

The fifth part, approximately 25 litres, of the Naphtha batch was taken especially for DVPE determination and after homogenisation divided over 87 brown glass bottles of 0.25 litres and labelled #18051. The homogeneity of subsamples #18051 was checked by determination of DVPE in accordance with ASTM D5191 on 8 stratified randomly selected samples, see table 6.

	DVPE in psi		DVPE in psi
sample #18051-1	6.19	sample #18051-5	6.21
sample #18051-2	6.18	sample #18051-6	6.21
sample #18051-3	6.16	sample #18051-7	6.24
sample #18051-4	6.19	sample #18051-8	6.25

Table 6: homogeneity test results of subsamples #18051

Furthermore, a batch of approx. 60 kg of artificial Naphtha was prepared, see table 7.

Gasoline 100/140	43.3 kg
Petroleum Ether 40/60	4.8 kg
Cyclo Hexane	5.8 kg
Mixed-Xylenes	6.5 kg

Table 7: composition of artificial Naphtha

A part, approximately 25 kg, of the artificial Naphtha batch was spiked with 3 gram Conostan Hg std (100mg/kg) and with 312 µg $HgCl_2$ especially for Mercury determination. After homogenisation 62 amber glass bottles of 0.5 litres were filled and labelled #18047. The homogeneity of subsamples #18047 was checked by determination of Mercury in accordance with UOP938-B on 4 stratified randomly selected samples, see table 8.

	Mercury in µg/kg
sample #18047-1	18.3
sample #18047-2	18.7
sample #18047-3	18.6
sample #18047-4	18.3

Table 8: homogeneity test results of subsamples #18047

Another part, approximately 22 kg of the artificial Naphtha batch, was spiked with 4 gram Conostan As std (100mg/kg) and with 21.5 gram AvGas (0.54 g Pb/L) especially for Arsenic and Lead. After homogenisation of this, part 56 amber glass bottles of 0.5 litres were filled and labelled #18049. The homogeneity of subsamples #18049 was checked by determination of Arsenic and Lead in accordance with an in house test method on 4 stratified randomly selected samples, see table 9.

	Lead in µg/kg
sample #18049-1	920
sample #18049-2	845
sample #18049-3	865
sample #18049-4	810

Table 9: homogeneity test results of subsamples #18049

From the test results given in tables 2 - 9, besides table 7, the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibilities of the reference test methods or with 0.3 times the reproducibility using the Horwitz equation in agreement with the procedure of ISO 13528, Annex B2 in the next table;

	Density in kg/m^3	MTBE in mg/kg	Mercury in µg/kg	Lead in µg/kg	DVPE in psi
r (#18045)	0.02	--	--	--	--
r (#18046)	--	2.6	--	--	--
r (#18047)	--	--	0.6	--	--
r (#18048)	--	--	1.3	--	--
r (#18049)	--	--	--	128.8	--
r (#18050)	--	--	--	7.7	--
r (#18051)	--	--	--	--	0.08
0.3*R (ref.)	0.15	6.4	4.5 / 9.1	118.2 / 14.2	0.12
reference	ISO12185:96	Horwitz	Horwitz	Horwitz	D5191:15

Table 10: repeatabilities of subsamples #18045, #18046, #18047, #18048, #18049, #18050 and #18051

The calculated repeatabilities of all samples, #18045 through #18051, were all in agreement with 0.3 times the corresponding reproducibilities of the reference test methods or with 0.3 times the estimated reproducibilities using the Horwitz equation. Therefore, the homogeneity of all prepared subsamples was assumed.
To each of the participating laboratories, depending on its registration, one or more of the following samples were sent on March 28, 2017. An SDS was added to the sample package.

Bottle size	Sample id.	Determinations
1 x 0.5 litre	#18045	Regular tests
1 x 0.03 litre	#18046	PIONA/PONA only
1 x 0.5 litre, each	#18047 & #18048	Mercury only
1 x 0.5 litre, each	#18049 & #18050	Arsenic/Lead only
1 x 0.25 litre	#18051	Vapour Pressure only

Table 11: bottle sizes, sample identification and determinations

2.5 STABILITY OF THE SAMPLES

The stability of the Naphtha, packed in the brown glass bottles, was checked. The material was found to be sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were asked to determine the following analyses;
on sample #18045: Organic Chlorides, Colour Saybolt (Manual and/or Automated), Copper Corrosion 3hrs at 50°C, Density at 15°C, Distillation (IBP, 50% recovered and FBP), Mercaptan Sulphur as S and Sulphur.
on sample #18046: Oxygenates: Acetone, DIPE, MEK, Methanol, MTBE, TAME, Total Oxygenates, PIONA / PONA / PNA GC Determination (n-Paraffines, i-Paraffines, Olefins, Naphthenes, Aromatics, C4 & lighter hydrocarbons and Compounds with BP > 200°C) and Detail Hydrocarbon Analysis (DHA) (Pentane, Benzene, Cyclohexane, 2- or 3-Methylpentane, Heptane, Toluene and Octane).
on samples #18047 and #18048: Mercury only.
on samples #18049 and #18050: Arsenic and Lead only.
on sample #18051: TVP / DVPE only.

It was explicitly requested to treat the samples as if they were routine samples. Therefore, each laboratory is advised to perform only those analyses that normally are done in daily routine (but the laboratories are allowed to do all analyses). Furthermore, it was requested to report the test results using the indicated units on the report form and not to round the test results more, but report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical calculations.

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

3 RESULTS

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

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

3.1 STATISTICS

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation' of March 2017 (iis-protocol, version 3.4).
For the statistical evaluation, the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as '<…' or '>…' were not used in the statistical evaluation.

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

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

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

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

3.2 GRAPHICS

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

3.3 Z-SCORES

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

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

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

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

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

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

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

4 EVALUATION

In this interlaboratory study, major problems with sample dispatch were encountered during the execution. Laboratories in Brazil, India and Russia received the samples late or not at all due to several problems (i.e. customs clearance). Some laboratories reported that equipment was in repair or broken and could therefore not analyse the samples (1 participant mentioned this for the Hg samples #18047 and #18048 and 1 participant for the As/Pb samples #18049 and #18050).
Not all laboratories were able to report all analyses requested. Finally reported: 98 participants for sample #18045, 65 participants for sample #18046, 44 participants for sample #18047 and #18048, 24 participants for sample #18049 and #18050 and 56 participants for sample #18051, in total 1831 numerical test results. Observed were in total 88 outlying test results, which is 4.8%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

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

4.1 EVALUATION PER SAMPLE AND PER TEST

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

Unfortunately, a suitable reference test method providing the precision data is not available for all determinations. For the tests that have no available precision data the calculated reproducibility was compared against the reproducibility estimated from the Horwitz equation.

In the iis PT reports, ASTM test methods are referred to with a number (e.g. D5808) and an added designation for the year that the test method was adopted or revised (e.g. D5808:09a). If applicable, a designation in parentheses is added to designate the year of reapproval (e.g. D5808:09a(2014)). In the test results tables of Appendix 1 only the test method number and year of adoption or revision e.g. D5808:09a will be used.

Sample #18045

Organic Chloride: The Organic Chloride was near or below the limit of detection of method UOP779:08. Therefore, no statistical conclusions were drawn.

Colour Saybolt: This determination was very problematic both the manual and the automated modes. One statistical outlier was observed at each mode. The calculated reproducibilities after rejection of the statistical outliers for the manual and the automated modes are both not at all in agreement with the respective requirements of ASTM D156:15 and ASTM D6045:12.
A partly explanation for the higher variation in the manual mode might be that with the manual mode the filter was in reality not 1 but 0.5. In this case Saybolt values +23 becomes +28, +24 becomes +29 and +25 becomes +30. Another cause might be that inappropriate cleaning of the bottom of the sample tube results in low intensity of light which leads to erroneous test results.
A partly explanation for the higher variation in the automated mode might be effect of different cuvettes (33, 50 or 100 mm) used. Test method ASTM D6045:12 advise the use of a 100 mm cuvette. Another cause might be the aging of the lamp.

Copper Corrosion: All reporting participants agreed on classification 3B or 4A except seven which reported false negative test results.

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

Distillation: This determination was not problematic for 50% recovered and FBP but problematic for IBP (for the automatic mode only). In total two statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D86:17 (automated mode) for 50% recovered and FBP but not for IBP. For the manual mode, the calculated reproducibilities are in agreement with the requirements of ASTM D86:17.

Mercaptan Sulphur: This determination was very problematic. Seven statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirement of ASTM D3227:16.

Sulphur: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the requirement of ASTM D4294:16e1.

Sample #18046

Acetone: No significant conclusions were drawn. All laboratories agreed on a value “less 10 mg/kg”.

DIPE: No significant conclusions were drawn. All laboratories agreed on a value “less 10 mg/kg”.

MEK: This determination may be problematic at the level of 2.7 mg/kg. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the estimated reproducibility using the Horwitz equation.

Methanol: This determination may be problematic. The reported test results vary over a wide range of 0-95 mg/kg. The samples were spiked with Methanol. Therefore, the minimum Methanol concentration to be found is known (75 mg/kg). The laboratories should be able to find at least 61 mg/kg [75 $mg/kg_{(added\ amount)}$ – 14 $mg/kg_{(R\ Horwitz)}$]. Twenty-one laboratories (>50%) reported a test result below this minimum concentration of 61 mg/kg. Therefore, it was decided not to calculate z-scores.

MTBE: This determination appeared to be not problematic at the level of 109 mg/kg. The samples were spiked with MTBE. Therefore, the minimum MTBE concentration to be found is known (75 mg/kg). The laboratories should be able to find at least 51 mg/kg [75 $mg/kg_{(added\ amount)}$ – 24 $mg/kg_{(R\ Horwitz)}$]. All laboratories were able to find at least 51 mg/kg MTBE except four laboratories which reported a test result below the minimum concentration of 51 mg/kg. No statistical outliers were observed. The calculated reproducibility after rejection of the suspect data is in full agreement with the estimated reproducibility using the Horwitz equation.

TAME: No significant conclusions were drawn. All laboratories agreed on a value “less 10 mg/kg”.

Total Oxygenates: This determination may not be problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the estimated reproducibility using the Horwitz equation (based on 5 components).

PONA/PIONA (General): For this determination test results, could be reported for 7 groups of compounds; n-Paraffines, i-Paraffines, Naphthenes, Aromatics, C4 and lighter and compounds with BP >200°C. Test results could be reported in %V/V and %M/M. This gives in total 14 parameters (see appendix 1). The test results are related as in general the sum of the groups is normalized to 100% (per unit). When four or more of the test results are observed as statistical outliers the other related test results were also excluded from the statistical calculations. The determination is discussed per group of compounds in more details below.
Most observed reproducibilities in this 2018 PT were better than the observed reproducibilities in previous rounds (see table 12):

	2018	2017	2016	2015	2014	2013	2012	2011	ASTM
n-Paraffines	2.6%	9.8%	6.8%	3.3%	8.5%	7.6%	5.7%	6.8%	3.2%
i-Paraffines	1.8%	7.3%	6.5%	1.6%	6.0%	5.9%	4.0%	5.4%	3.1%
Olefins *)	76%	144%	186%	n.e.	325%	225%	259%	271%	250%
Naphthenes	1.7%	5.6%	5.2%	5.3%	3.0%	3.4%	5.9%	13%	1.9%
Aromatics	6.3%	13%	11%	10%	12%	13%	8.8%	5.7%	8.9%
C4 & lighter	15%	28%	28%	32%	44%	19%	19%	27%	17%

Table 12: comparison of observed relative reproducibilities (%M/M) compared to the target relative reproducibility

*) the high values for Olefins are probably due to low concentrations in Naphtha.

n-Paraffines: This determination was very problematic for both %V/V and %M/M. For %V/V one test result was excluded. For %M/M one statistical outlier was observed. The calculated reproducibilities after rejection of the suspect data are not at all in agreement with the requirements of ASTM D5443:14 or with the requirements of test method ASTM D6839:17.

i-Paraffines: This determination was very problematic for both %V/V and %M/M. For both %V/V and %M/M nine statistical outliers were detected. The calculated reproducibilities after rejection of the statistical outliers are not at all in agreement with the requirements of ASTM D5443:14 or with the requirements of test method ASTM D6839:17.

Naphthenes: This determination was problematic for both %V/V and %M/M depending on the test method used. For %V/V three statistical outliers were observed and eighteen test results were excluded. For %M/M two statistical outliers were observed and sixteen test results were excluded. The test results of test methods; ASTM D5134, ASTM D6729, ASTM D6730, GOST R 52714, ISO 22854 were excluded as these test methods are meant for DHA. It appeared that DHA test methods are not suitable for the (more complex) Naphthenes determination.
The calculated reproducibilities after rejection of the suspect data are not at all in agreement with the requirements of ASTM D5443:14 but in agreement with the requirements of ASTM D6839:17.

Aromatics: This determination was problematic for %V/V and %M/M. For %V/V two statistical outliers were observed and one other test result was excluded. For %M/M three statistical outliers were observed. The calculated reproducibilities after rejection of the suspect data are not in agreement with the requirements of ASTM D5443:14 and ASTM D6839:17.

≤ C4: This determination was very problematic for both %V/V and %M/M. For both groups three statistical outliers were observed and one other test result was excluded. The calculated reproducibilities after rejection of the suspect data are not at all in agreement with the requirements of ASTM D5134:14(2017).

BP>200°C: Three statistical outliers were observed for the test results in %V/V and %M/M. No precision data is available for the determination of this group. Therefore, no significant conclusions were drawn.

Olefines: This determination was not problematic for both %V/V and %M/M. For both groups in total three statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D6839:16.

Pentane (DHA): This determination was problematic at a concentration of 6.6%M/M. Four statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirement of ASTM D5134:14(2017).

Benzene (DHA): This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D5134:14(2017).

Cyclohexane (DHA): This determination was not problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D5134:14(2017).

2-Methylpentane (DHA): This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D5134:14(2017).

3-Methylpentane (DHA): This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D5134:14(2017).

Heptane (DHA): When the test results were evaluated against the requirement of ASTM D5134:14(2017) the determination was very problematic: R(calc.)=0.28, while R(D5134:13)=0.07. In PT of 2016 (iis16N01) it was observed that the raw data of the interlaboratory study RR:D02-1265 by ASTM to calculate the precision of n-Heptane do not match, see report iis16N01 of the PT on Naphtha of 2016. The estimated reproducibility using the Horwitz equation describes the reproducibility of n-Heptane much better. Therefore, the estimated reproducibility from the Horwitz equation was used to calculate the z-scores.
The determination of n-Heptane may not be problematic. Five statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility using the Horwitz equation.

Toluene (DHA): When the test results were evaluated against the requirement of ASTM D5134:14(2017) the determination was very problematic: R(calc.)=0.10, while R(D5134:13)=0.04. Therefore, analogue to the approach with n-Heptane the estimated reproducibility using the Horwitz equation was used to calculate z-scores.
This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility using the Horwitz equation.

Octane (DHA): This determination was problematic at a concentration of 5.4%M/M. Three statistical outliers were observed and one other test result was excluded. The calculated reproducibility after rejection of the suspect data is not in agreement with the requirement of ASTM D5134:14(2017).

Samples #18047 and #18048

Mercury: For sample #18047 (artificial Naphtha), this determination was not problematic. Sample #18047 was spiked up to a level of 25 µg/kg Hg. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility using the Horwitz equation. The average recovery of Mercury may be low: “<58%”.

For sample #18048 (real Naphtha), this determination was not problematic. Sample #18048 was spiked up to a level of 33 µg/kg Hg. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the estimated reproducibility using the Horwitz equation. The average recovery of Mercury may be good: “<110%”.

Samples #18049 and #18050

Arsenic: For sample #18049 (artificial Naphtha), this determination was problematic for a number of laboratories. Sample #18049 was spiked up to a level of 202 µg As/kg. Therefore, the minimum As concentration to be found was known. The laboratories should be able to find at least 99 µg/kg [202 µg/kg$_{(added\ amount)}$ – 103 µg/kg$_{(R\ Horwitz)}$]. Six test results below this minimum of 99 µg As/kg were excluded from the statistical evaluation. No statistical outliers were observed.
The calculated reproducibility after rejection of the suspect data is in agreement with the estimated reproducibility using the Horwitz equation. The average recovery of Arsenic may be satisfactory: “<87%”.

For sample #18050 (real Naphtha), this determination was very problematic. Sample #18050 was spiked up to a level of 503 µg As/kg. No statistical outliers were observed. The calculated reproducibility is not at all in agreement with the estimated reproducibility using the Horwitz equation. The average recovery of Arsenic may be satisfactory: “<88%”.

Lead: For sample #18049 (artificial Naphtha), this determination may be not problematic. Sample #18049 was spiked up to a level of 748 µg Pb/kg. Therefore, the minimum As concentration to be found was known. The laboratories should be able to find at least 355 µg/kg [748 µg/kg$_{(added\ amount)}$ – 393 µg/kg$_{(R\ Horwitz)}$]. Two test results below this minimum of 355 µg Pb/kg were excluded from the statistical evaluation. No statistical outliers were observed. The calculated reproducibility after rejection of the suspect data is in full agreement with the estimated reproducibility using the Horwitz equation. The average recovery of Lead may be good: “<121%”.

For sample #18050 (real Naphtha), this determination may be not problematic. Sample #18050 was spiked up to a level of 66 µg Pb/kg. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in full agreement with the estimated reproducibility using the Horwitz equation. The average recovery of Lead may be satisfactory: “<77%”.

Sample #18051

TVP: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D5191:15.

DVPE: This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D5191:15.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of the participating laboratories. The target reproducibilities derived from the reference test methods (in casu ASTM test methods) or the estimated reproducibility using the Horwitz equation and the calculated reproducibilities (2.8 * sd) of the samples (see appendix 1) are compared in the next table.

Parameter	unit	n	average	2.8 * sd	R (lit)
Organic Chloride	mg/kg	30	0.5	0.6	(1.3)
Color Saybolt (automated)		48	28.2	3.2	1.2
Color Saybolt (manual)		38	27.7	5.1	2
Copper Corrosion		66	3B, 4A	n.a.	n.a.
Density at 15°C	kg/L	91	0.7204	0.0004	0.0005
Initial Boiling Point	°C	85	38.2	5.4	4.7
50% recovered	°C	82	108.4	2.4	4.1
Final Boiling Point	°C	85	166.4	7.5	7.1
Mercaptan Sulphur	mg/kg	53	74.6	17.1	6.2
Sulphur	mg/kg	77	328.7	56.9	80.4

Table 13: comparison of the observed and target reproducibilities of the sample #18045

Parameter	unit	n	average	2.8 * sd	R (lit)
Acetone	mg/kg	26	<10	n.a.	n.a.
DIPE	mg/kg	26	<10	n.a.	n.a.
MEK	mg/kg	22	2.7	1.4	1.2
Methanol	mg/kg	12	78	30	(18)
MTBE	mg/kg	33	109	25	24
TAME	mg/kg	31	<10	n.a.	n.a.
Total Oxygenates	%M/M	24	0.018	0.009	0.008
n-Paraffines	%V/V	48	32.4	2.5	1.0
i-Paraffines	%V/V	45	32.8	1.8	1.0
Naphthenes	%V/V	28	29.5	1.5	0.6
Aromatics	%V/V	48	5.35	0.92	0.65
C4 & lighter	%V/V	38	2.12	1.10	0.32
Compounds bp >200 °C	%V/V	8	0.06	0.21	n.a.
Olefins	%V/V	42	0.11	0.23	0.26
n-Paraffines	%M/M	46	30.4	2.2	0.9
i-Paraffines	%M/M	43	31.4	1.6	1.0
Naphthenes	%M/M	30	31.9	1.6	0.6
Aromatics	%M/M	46	6.5	1.1	0.7
C4 & lighter	%M/M	36	1.7	0.8	0.3
Compounds bp >200 °C	%M/M	8	0.06	0.25	n.a.
Olefins	%M/M	41	0.12	0.25	0.27
Pentane (DHA)	%M/M	39	6.55	0.88	0.49
Benzene (DHA)	%M/M	41	0.52	0.05	0.06

Parameter	unit	n	average	2.8 * sd	R (lit)
Cyclohexane (DHA)	%M/M	36	1.98	0.20	0.22
2-Methylpentane (DHA)	%M/M	35	3.39	0.34	1.15
3-Methylpentane (DHA)	%M/M	35	2.31	0.19	0.79
Heptane (DHA)	%M/M	39	5.96	0.28	0.51
Toluene (DHA)	%M/M	39	1.34	0.10	0.14
Octane (DHA)	%M/M	38	5.37	0.60	0.38

Table 14: comparison of the observed and target reproducibilities of the sample #18046

Parameter	unit	n	average	2.8 * sd	R (lit)
Mercury as Hg #18047	µg/kg	41	14.5	10.3	12.3
Mercury as Hg #18048	µg/kg	38	36.3	23.9	26.8

Table 15: comparison of the observed and target reproducibility of sample #18047 and #18048

Parameter	unit	n	average	2.8 * sd	R (lit)
Arsenic as As #18049	µg/kg	3	176.7	8.1	(102.7)
Arsenic as As #18050	µg/kg	10	442.3	804.7	224.0
Lead as Pb #18049	µg/kg	17	904.5	436.9	411.4
Lead as Pb #18050	µg/kg	20	51.2	35.1	35.9

Table 16: comparison of the observed and target reproducibilities of the samples #18049 and #18050

Parameter	unit	n	average	2.8 * sd	R (lit)
TVP	psi	47	7.10	0.32	0.40
DVPE	psi	53	6.30	0.38	0.40

Table 17: comparison of the observed and target reproducibilities of the sample #18051

For R(lit) given between brackets no z-scores were calculated, see discussion in paragraph 4.1.

Without further statistical calculations, it can be concluded that for a number of tests there is not a reasonable compliance of the group of participating laboratories with the relevant reference test methods. The problematic tests have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE PROFICIENCY TEST OF APRIL 2018 WITH PREVIOUS PTS

	April 2018	April 2017	April 2016	April 2015	April 2014
Number of reporting labs	104	100	93	84	74
Number of test results reported	1831	1723	1664	1560	1304
Statistical outliers	88	84	88	52	49
Percentage outliers	4.8%	4.9%	5.3%	3.3%	3.8%

Table 18: comparison with previous proficiency tests

In proficiency tests, outlier percentages of 3% - 7.5% are quite normal.
The performance of the determinations of the proficiency tests was compared against the requirements of the respective reference test methods. The conclusions are given the following table:

Determination	April 2018	April 2017	April 2016	April 2015	April 2014
Organic Chloride	n.e.	+/-	--	+	--
Colour Saybolt	--	++	--	++	++
Density at 15°C	+	+/-	+/-	++	++
Distillation	+/-	+/-	-	++	+
Mercaptan Sulphur	--	-	-	n.a.	--
Sulphur	+	+/-	+/-	n.a.	--
Acetone	n.e.	-	n.e.	n.e.	n.e.
DIPE	n.e.	n.e.	n.e.	n.e.	n.e.
MEK	-	-	+/-	n.e.	n.e.
Methanol	-	--	n.e.	--	--
MTBE	+/-	-	+	+/-	--
TAME	n.e.	+	+/-	n.e.	n.e.
Total Oxygenates	+/-	+/-	+/-	+	--
n-Paraffines	--	--	--	-	--
i-Paraffines	-	--	--	+	--
Naphthenes	--	--	--	--	--
Aromatics	-	+/-	+/-	++	+
C4 & lighter	--	--	--	--	--
Olefins	n.e.	+	+	n.e.	--
DHA analyses	+/-	+	+/-	+/-	n.e.
Mercury	+	++	+	+	++
Arsenic	+/-	+/-	+	+/-	+/-
Lead	+/-	-	+/-	--	--
Total Vapour Pressure	+	++	+	++	++
DVPE acc. to D5191	+	+	+	++	++

Table 19: comparison of the determinations against the requirements of the reference test methods

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

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

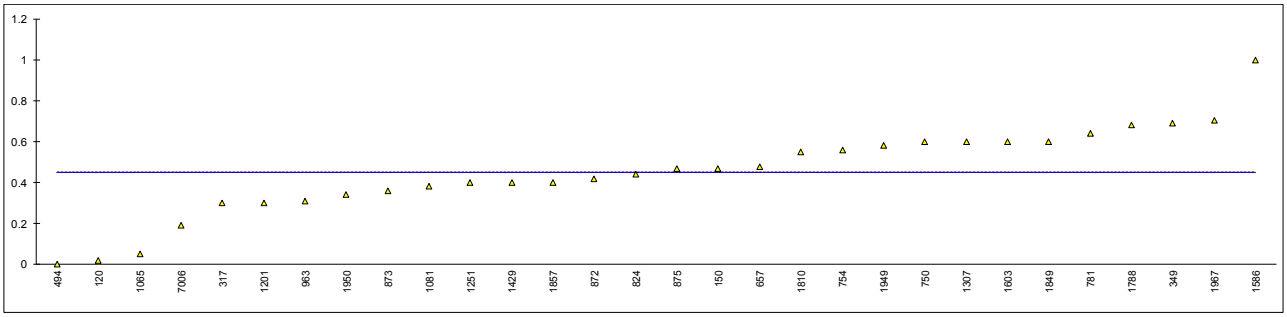
APPENDIX 1

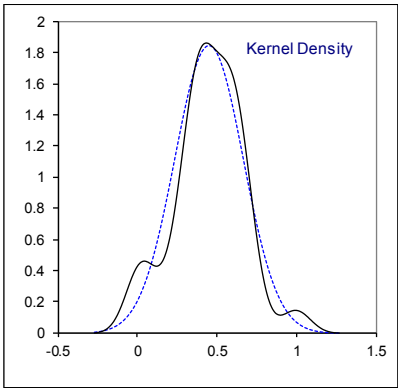
Determination of Chlorides, Organic Total on sample #18045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D5808	0.01721		-----	
140		-----		-----	
150	D7359	0.47		-----	
158		-----		-----	
171	D5808	<1		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	UOP779	0.3		-----	
323	UOP779	<1		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349	UOP588	0.69	C	-----	First reported 2.94
360		-----		-----	
399		-----		-----	
444	IP510	<2		-----	
445	IP510	<2		-----	
494	EN14077	0.0		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	UOP779	0.479		-----	
663		-----		-----	
750	D4929A	0.6		-----	
753		-----		-----	
754	UOP779	0.56		-----	
759		-----		-----	
779		-----		-----	
781	UOP779	0.64		-----	
785		-----		-----	
786		-----		-----	
798		-----		-----	
824	UOP779	0.44		-----	
840		-----		-----	
855	UOP779	<1		-----	
862	D5808	<1		-----	
864	D5808	<1		-----	
868	D5808	<1		-----	
872	UOP779	0.42		-----	
873	UOP779	0.36		-----	
874		-----		-----	
875	UOP779	0.47		-----	
912		<1		-----	
922		-----		-----	
962		-----		-----	
963	UOP779	0.31		-----	
974		-----		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5808	0.05		-----	
1067	UOP779	< 1.0		-----	
1069	UOP779	<2		-----	
1081	D5808	0.38086		-----	
1134		-----		-----	
1145		-----		-----	
1201	UOP779	0.3		-----	
1212		-----		-----	
1251	UOP779	0.4	C	-----	First reported 3.92
1257		-----		-----	
1307	D5808	0.60		-----	
1320		-----		-----	
1381		-----		-----	
1429	D7359	0.4		-----	
1556		-----		-----	
1585		-----		-----	
1586	EN14077	1		-----	
1603	In house	0.6	C	-----	First reported 2

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788	D5808	0.68		-----	
1796		-----		-----	
1810	D4929	0.55		-----	
1823		-----		-----	
1849	D7359	0.6		-----	
1857	UOP779	0.4		-----	
1949	UOP779	0.58		-----	
1950	UOP779	0.34		-----	
1960		-----		-----	
1967	UOP779	0.702		-----	
1982		-----		-----	
1995		-----		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185		-----		-----	
6186	D5808	<1		-----	
6200		-----		-----	
6201		-----		-----	
7006		0.192		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK	
	n	30	
	outliers	0	
	mean (n)	0.451	
	st.dev. (n)	0.2164	
	R(calc.)	0.606	
	st.dev.(UOP779:08)	(0.0377)	
	R(UOP779:08)	(0.106)	application range 0.3-1000 mg/kg
Compare			
	R(D5808:09a)	(1.3)	application range 1-25 mg/kg
	R(Horwitz)	(0.228)	



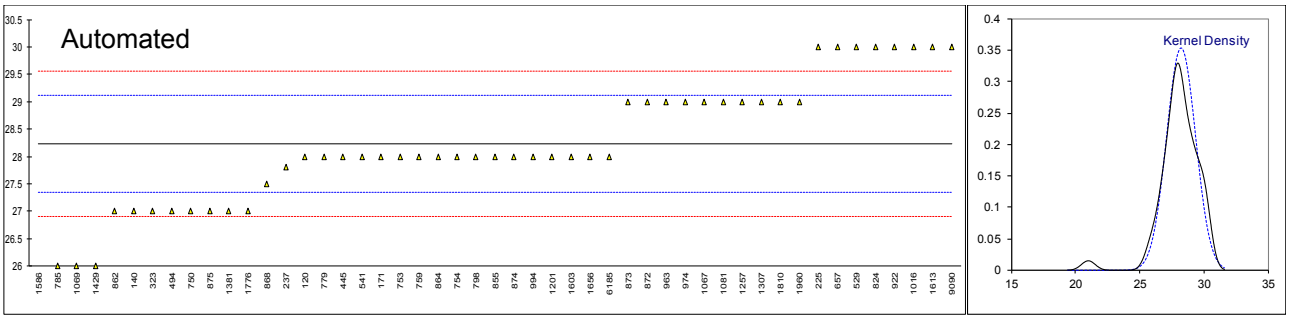


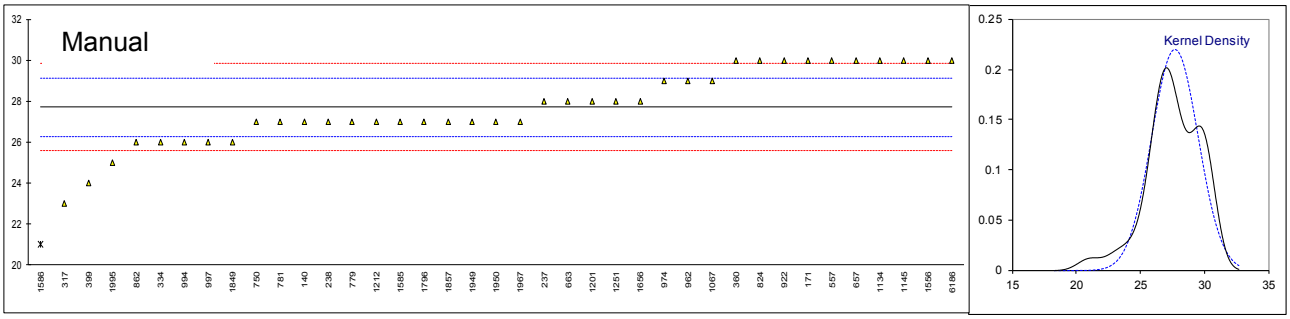
Determination of Color Saybolt Automated (D6045) and manual (D156) on sample #18045

lab	automatic	auto	cuvette	mark	z(targ)	manual	filter	value	mark	z(targ)
120	D6045	28	50		-0.53		-----	-----		-----
140	D6045	27	50		-2.79	D156	0.5	27		-0.99
150	D6045	>+30	100		-----		-----	-----		-----
158	D6045	>30	-----		-----		-----	-----		-----
171	D6045	28	-----		-0.53	D156	-----	30		3.21
225	D6045	30	50		3.98		-----	-----		-----
237	D6045	27.8	-----		-0.98	D156	1	28		0.41
238		-----	-----		-----	D156	-----	27		-0.99
317		-----	-----		-----	D156	1	23		-6.59
323	D6045	27	50		-2.79		-----	-----		-----
333		-----	-----		-----		-----	-----		-----
334		-----	-----		-----	D156	-----	26		-2.39
336		-----	-----		-----		-----	-----		-----
337		-----	-----		-----		-----	-----		-----
349		-----	-----		-----		-----	-----		-----
360		-----	-----		-----	D156	0.5	30		3.21
399		-----	-----		-----	D156	-----	24		-5.19
444		-----	-----		-----		-----	-----		-----
445	D6045	28	50		-0.53		-----	-----		-----
494	D6045	27	50		-2.79		-----	-----		-----
529	D6045	30	50		3.98		-----	-----		-----
541	D6045	28	100		-0.53		-----	-----		-----
557		-----	-----		-----	D156	0.5	30		3.21
608		-----	-----		-----		-----	-----		-----
657	D6045	30	100		3.98	D156	0.5	30		3.21
663		-----	-----		-----	D156	-----	28		0.41
750	D6045	27	100		-2.79	D156	0.5	27		-0.99
753	D6045	28	100		-0.53		-----	-----		-----
754	D6045	28	100		-0.53		-----	-----		-----
759	D6045	28	-----		-0.53		-----	-----		-----
779	D6045	28	50		-0.53	D156	0.5	27		-0.99
781		-----	-----		-----	D156	-----	27		-0.99
785	D6045	26	50		-5.05		-----	-----		-----
786		-----	-----		-----		-----	-----		-----
798	D6045	28	-----		-0.53		-----	-----		-----
824	D6045	30	50		3.98	D156	-----	30		3.21
840		-----	-----		-----		-----	-----		-----
855	D6045	28	50		-0.53		-----	-----		-----
862	D6045	27	50		-2.79	D156	1	26		-2.39
864	D6045	28	100		-0.53		-----	-----		-----
868	D6045	27.5	-----		-1.66		-----	-----		-----
872	D6045	29	100		1.73		-----	-----		-----
873	D6045	29	50		1.73		-----	-----		-----
874	D6045	28	-----		-0.53		-----	-----		-----
875	D6045	27	50		-2.79		-----	-----		-----
912		-----	-----		-----		-----	-----		-----
922	D6045	30	100		3.98	D156	0.5	30		3.21
962		-----	-----		-----	D156	-----	29		1.81
963	D6045	29	-----		1.73		-----	-----		-----
974	D6045	29	100		1.73	D156	0.5	29		1.81
982		-----	-----		-----		-----	-----		-----
994	D6045	28	50		-0.53	D156	0.5	26		-2.39
995		-----	-----		-----		-----	-----		-----
997		-----	-----		-----	D156	-----	26		-2.39
1012		-----	-----		-----		-----	-----		-----
1016	D6045	30	100		3.98		-----	-----		-----
1062		-----	-----		-----		-----	-----		-----
1065		-----	-----		-----		-----	-----		-----
1067	D6045	29	100		1.73	D156	0.5	29		1.81
1069	D156	26	-----		-5.05		-----	-----		-----
1081	D6045	29	100		1.73		-----	-----		-----
1134		-----	-----		-----	D156	-----	30		3.21
1145		-----	-----		-----	D156	-----	30		3.21
1201	D6045	28	100		-0.53	D156	0.5	28		0.41
1212		-----	-----		-----	D156	0.5	27		-0.99
1251		-----	-----		-----	D156	-----	28		0.41
1257		29	-----		1.73		-----	-----		-----
1307	D6045	29	-----		1.73		-----	-----		-----
1320		-----	-----		-----		-----	-----		-----
1381	D6045	27	-----		-2.79		-----	-----		-----
1429	D6045	26	50		-5.05		2	-----		-----
1556		-----	-----		-----	D156	0.5	30		3.21
1585		-----	-----		-----	D156	0.5	27		-0.99
1586	D6045	21	-----		-16.34	D156	-----	21	R(0.05)	-9.39
1603	In house	28	50		-0.53		-----	-----		-----

lab	automatic	auto	cuvette	mark	z(targ)	manual	filter	value	mark	z(targ)
1613	D6045	30	50		3.98		-----	-----		-----
1653		-----	-----		-----		-----	-----		-----
1656	D6045	28	50		-0.53	D156	0.5	28		0.41
1737		-----	-----		-----		-----	-----		-----
1776	D6045	27.0	-----		-2.79		-----	-----		-----
1788		-----	-----		-----		-----	-----		-----
1796		-----	-----		-----	D156	-----	27		-0.99
1810	D6045	29	-----		1.73		-----	-----		-----
1823		-----	-----		-----		-----	-----		-----
1849		-----	-----		-----	TS2091	-----	26		-2.39
1857		-----	-----		-----	D156	0.5	27		-0.99
1949		-----	-----		-----	D156	0.5	27		-0.99
1950		-----	-----		-----	D156	-----	27		-0.99
1960	D6045	29	100		1.73		-----	-----		-----
1967		-----	-----		-----	D156	-----	27		-0.99
1982		-----	-----		-----		-----	-----		-----
1995		-----	-----		-----	D156	-----	25		-3.79
6016		-----	-----		-----		-----	-----		-----
6159		-----	-----		-----		-----	-----		-----
6160		-----	-----		-----		-----	-----		-----
6161		-----	-----		-----		-----	-----		-----
6185	D6045	28	50		-0.53		-----	-----		-----
6186		-----	-----		-----	D156	-----	30		3.21
6200		-----	-----		-----		-----	-----		-----
6201		-----	-----		-----		-----	-----		-----
7006		-----	-----		-----		-----	-----		-----
9057		-----	-----		-----		-----	-----		-----
9058		-----	-----		-----		-----	-----		-----
9061		-----	-----		-----		-----	-----		-----
9090	D6045	30	100		3.98		-----	-----		-----
9142		-----	-----		-----		-----	-----		-----
9143		-----	-----		-----		-----	-----		-----

normality	OK	normality	OK
n	48	n	38
outliers	1	outliers	1
mean (n)	28.235	mean (n)	27.711
st.dev. (n)	1.1264	st.dev. (n)	1.8145
R(calc.)	3.154	R(calc.)	5.081
st.dev.(D6045:12)	0.4429	st.dev.(D156:15)	0.7143
R(D6045:12)	1.24	R(D156:15)	2.000





Determination of Copper Corrosion 3 hrs at 50°C on sample #18045

lab	method	value	mark	z(targ)	remarks
120	D130	1A	ex	-----	False negative test result?
140	D130	3B		-----	
150	D130	3b		-----	
158	D130	4A		-----	
171	D130	4a		-----	
225	D130	3b		-----	
237	D130	3B		-----	
238	D130	1A	ex	-----	False negative test result?
317	D130	4a		-----	
323	D130	3B		-----	
333		-----		-----	
334	D130	3b		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D130	3B		-----	
399	D130	3B		-----	
444		-----		-----	
445	IP154	3b		-----	
494	D130	3b		-----	
529	D130	3b		-----	
541		-----		-----	
557	D130	1a	ex	-----	False negative test result?
608		-----		-----	
657	D130	3b		-----	
663	D130	3b		-----	
750	D130	3b		-----	
753	D130	3b		-----	
754	D130	3b		-----	
759	D130	3b		-----	
779	D130	3b		-----	
781	D130	3b		-----	
785	D130	3b		-----	
786		-----		-----	
798	D130	3b		-----	
824	D130	3b		-----	
840	D130	1a	ex	-----	False negative test result?
855	D130	3b		-----	
862	D130	3b		-----	
864	D130	3b		-----	
868	D130	3b		-----	
872		-----		-----	
873	D130	3B		-----	
874	D130	3b		-----	
875	D130	3b		-----	
912	D130	1a	ex	-----	False negative test result?
922	D130	3b		-----	
962		-----		-----	
963		-----		-----	
974	D130	3b		-----	
982		-----		-----	
994	D130	3b		-----	
995	D130	3b		-----	
997		-----		-----	
1012		-----		-----	
1016	D130	3B		-----	
1062		-----		-----	
1065		-----		-----	
1067	D130	3B		-----	
1069		-----		-----	
1081		-----		-----	
1134	D130	4a		-----	
1145		-----		-----	
1201	D130	4a		-----	
1212	D130	3b		-----	
1251	D130	4a		-----	
1257	D130	3b		-----	
1307	D130	3B		-----	
1320		-----		-----	
1381	ISO2160	3b		-----	
1429	D130	3b		-----	
1556	ISO2160	3b		-----	
1585	D130	3b		-----	
1586	D130	4A		-----	
1603	In house	1A	ex	-----	False negative test result?

lab	method	value	mark	z(targ)	remarks
1613	D130	3b		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788	D130	3B		-----	
1796	D130	3b		-----	
1810		-----		-----	
1823		-----		-----	
1849	ISO2160	3b		-----	
1857	D130	3b		-----	
1949	D130	3b		-----	
1950	D130	3b		-----	
1960		-----		-----	
1967	D130	3b		-----	
1982	D130	4A		-----	
1995	D130	1A	ex	-----	False negative test result?
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D130	3B		-----	
6186		-----		-----	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
9142		-----		-----	
9143		-----		-----	
	n	66			
	outliers	0 (+7ex)			
	mean (n)	3B, 4A			

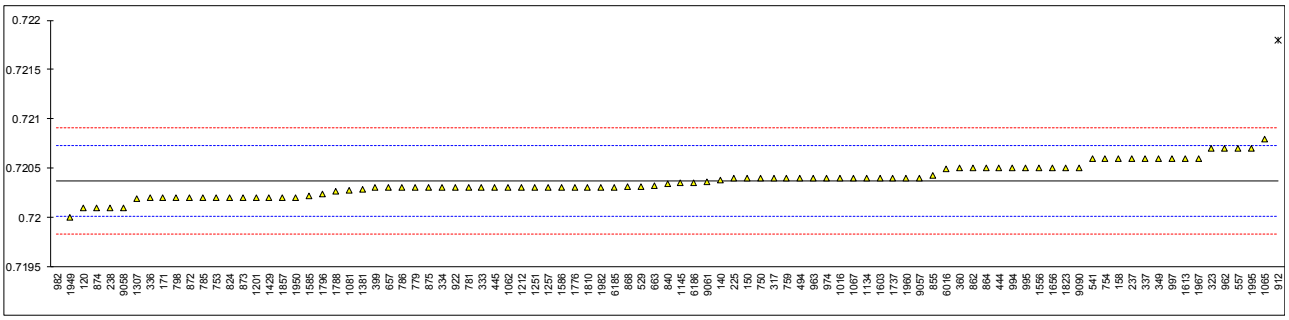
See for excluded test results § 4.1

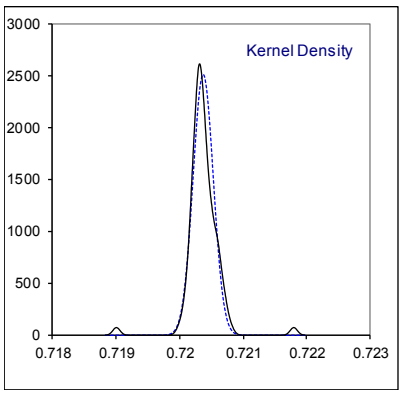
Determination of Density at 15°C on sample #18045; results in kg/L

lab	method	value	mark	z(targ)	remarks
120	D4052	0.7201		-1.51	
140	D4052	0.72038		0.06	
150	D4052	0.7204		0.17	
158	D4052	0.7206	C	1.29	First reported 0.7210
171	D4052	0.7202		-0.95	
225	D4052	0.7204		0.17	
237	D4052	0.7206		1.29	
238	D4052	0.7201		-1.51	
317	D4052	0.7204		0.17	
323	ISO12185	0.7207		1.85	
333	ISO12185	0.7203		-0.39	
334	ISO12185	0.7203		-0.39	
336	ISO12185	0.7202		-0.95	
337	ISO12185	0.7206		1.29	
349	D4052	0.7206		1.29	
360	ISO12185	0.7205		0.73	
399	D4052	0.7203		-0.39	
444	D4052	0.7205		0.73	
445	IP365	0.7203		-0.39	
494	ISO12185	0.7204		0.17	
529	D4052	0.72031		-0.34	
541	ISO12185	0.72060		1.29	
557	D4052	0.7207		1.85	
608		-----		-----	
657	ISO12185	0.7203		-0.39	
663	D4052	0.72032		-0.28	
750	ISO12185	0.7204		0.17	
753	D4052	0.7202		-0.95	
754	D4052	0.7206		1.29	
759	ISO12185	0.7204		0.17	
779	ISO12185	0.7203		-0.39	
781	ISO12185	0.7203		-0.39	
785	ISO12185	0.7202		-0.95	
786	D4052	0.7203		-0.39	
798	D4052	0.7202	C	-0.95	First reported 720.2 kg/l
824	ISO12185	0.7202		-0.95	
840	D4052	0.72034		-0.17	
855	D4052	0.72043		0.34	
862	D4052	0.7205		0.73	
864	D4052	0.7205		0.73	
868	D4052	0.72031		-0.34	
872	D4052	0.7202		-0.95	
873	ISO12185	0.7202		-0.95	
874	ISO12185	0.7201		-1.51	
875	D4052	0.7203		-0.39	
912	D4052	0.7218	R(0.01)	8.01	
922	D4052	0.7203		-0.39	
962	D4052	0.7207		1.85	
963	ISO12185	0.7204		0.17	
974	D4052	0.7204		0.17	
982	D4052	0.7190	C,R(0.01)	-7.67	First reported 0.7211
994	D4052	0.7205		0.73	
995	ISO12185	0.7205		0.73	
997	ISO12185	0.7206		1.29	
1012		-----		-----	
1016	D4052	0.7204		0.17	
1062	D4052	0.7203		-0.39	
1065	D4052	0.7208		2.41	
1067	ISO12185	0.7204		0.17	
1069		-----		-----	
1081	D4052	0.72028		-0.50	
1134	IP365	0.7204		0.17	
1145	D4052	0.72035		-0.11	
1201	D4052	0.7202		-0.95	
1212	ISO12185	0.7203		-0.39	
1251	D4052	0.7203		-0.39	
1257	ISO12185	0.7203		-0.39	
1307	D4052	0.72019		-1.01	
1320		-----		-----	
1381	ISO12185	0.72029		-0.45	
1429	D4052	0.7202		-0.95	
1556	ISO12185	0.72050		0.73	
1585	ISO12185	0.72022		-0.84	
1586	D4052	0.7203		-0.39	
1603	In house	0.7204		0.17	

lab	method	value	mark	z(targ)	remarks
1613	D4052	0.7206		1.29	
1653		-----		-----	
1656	D4052	0.7205		0.73	
1737	D4052	0.7204		0.17	
1776	ISO12185	0.7203		-0.39	
1788	D4052	0.720265		-0.59	
1796	ISO12185	0.72024		-0.73	
1810	ISO12185	0.7203		-0.39	
1823	D4052	0.7205		0.73	
1849		-----		-----	
1857	ISO12185	0.7202		-0.95	
1949	ISO12185	0.72000		-2.07	
1950	ISO12185	0.7202		-0.95	
1960	D4052	0.7204		0.17	
1967	D4052	0.7206		1.29	
1982	ISO12185	0.7203		-0.39	
1995	D4052	0.7207		1.85	
6016	D4052	0.72049		0.67	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D4052	0.7203		-0.39	
6186	D4052	0.72035		-0.11	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		0.7204		0.17	
9058	D4052	0.7201		-1.51	
9061	D5002	0.72036		-0.06	
9090	D4052	0.7205		0.73	
9142		-----		-----	
9143		-----		-----	

normality	OK
n	91
outliers	2
mean (n)	0.720370
st.dev. (n)	0.0001590
R(calc.)	0.000445
st.dev.(ISO12185:96)	0.0001786
R(ISO12185:96)	0.0005



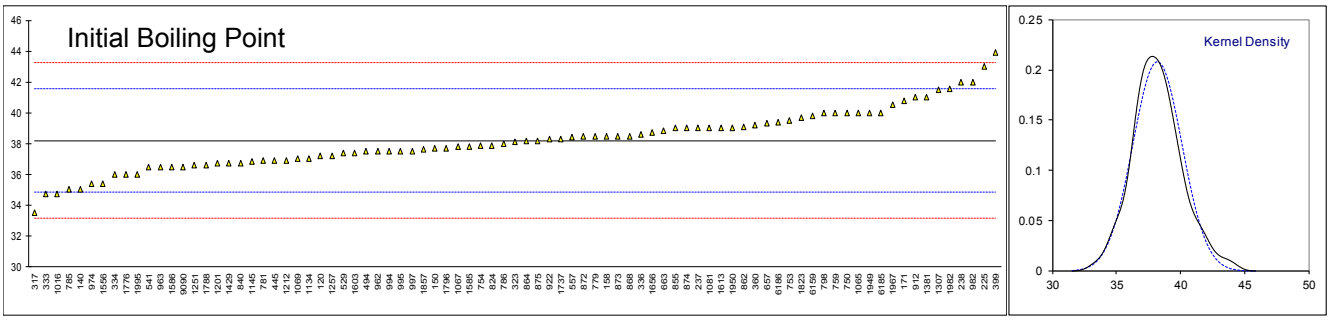


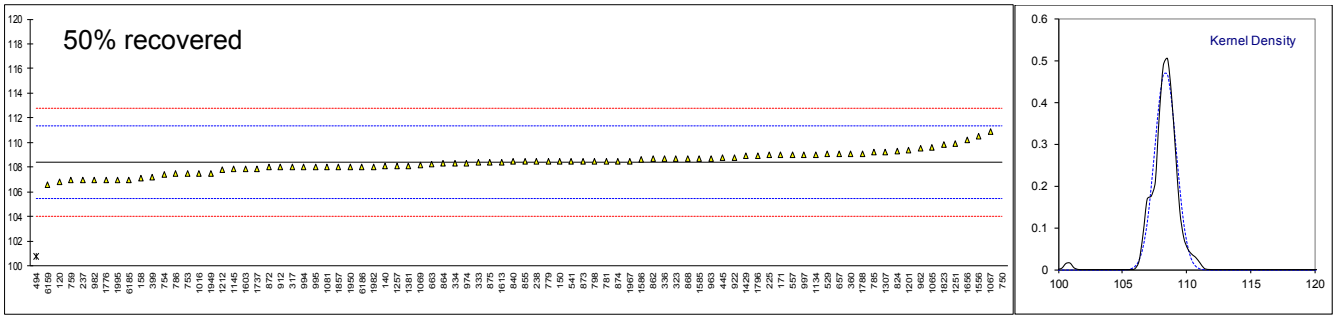
Determination of Distillation (automated and manual mode) on sample #18045; results in °C

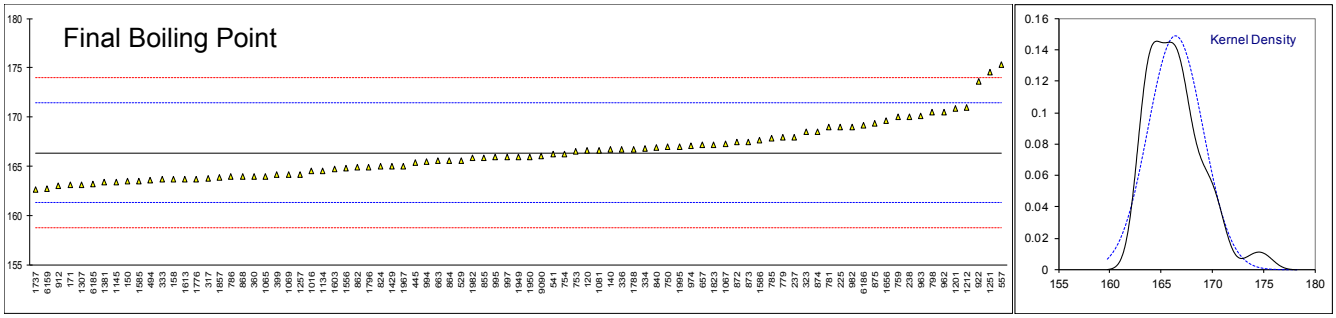
lab	method	IBP	mark	z(targ)	50%rec	mark	z(targ)	FBP	mark	z(targ)
120		37.2		-0.60	106.8		-1.08	166.6		0.08
140	D86-automated	35.0		-1.91	108.1		-0.20	166.7		0.12
150	D86-automated	37.7		-0.30	108.5		0.07	163.5		-1.14
158	D86-automated	38.5		0.18	107.1		-0.88	163.7		-1.06
171	D86-automated	40.8		1.55	109.0		0.41	163.1		-1.30
225	D86-manual	43.0		2.86	109.0		0.41	169.0		1.03
237	D86-manual	39.0		0.48	107.0		-0.95	168.0		0.63
238	D86-manual	42.0		2.26	108.5		0.07	170.0		1.42
317	D86-automated	33.5		-2.80	108.0		-0.27	163.8		-1.02
323	D86-automated	38.1		-0.06	108.7		0.21	168.5		0.83
333	D86-automated	34.7		-2.09	108.4		0.01	163.7		-1.06
334	D86-automated	36.0		-1.31	108.3		-0.06	166.8		0.16
336		38.6		0.24	108.7		0.21	166.7		0.12
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360	D86-automated	39.2		0.60	109.1		0.48	164.0		-0.95
399	D86-automated	43.9		3.40	107.2		-0.81	164.2		-0.87
444		-----		-----	-----		-----	-----		-----
445	D86-automated	36.9		-0.77	108.8		0.28	165.4		-0.39
494	D86-automated	37.5		-0.42	100.8	R(0.01)	-5.16	163.6		-1.10
529	D86-automated	37.4	C	-0.48	109.1	C	0.48	165.6	C	-0.31
541	D86-automated	36.47		-1.03	108.50		0.07	166.23		-0.07
557	D86-automated	38.4		0.12	109		0.41	175.3		3.51
608		-----		-----	-----		-----	-----		-----
657	D86-automated	39.3		0.65	109.1		0.48	167.2		0.32
663	D86-automated	38.85		0.39	108.25		-0.10	165.60		-0.31
750	D86-manual	40.0		1.07	180.0	R(0.01)	48.72	167.0		0.24
753	D86-manual	39.5		0.77	107.5		-0.61	166.5		0.04
754	D86-manual	37.9		-0.18	107.4		-0.67	166.3		-0.04
759	D86-manual	40.0		1.07	107.0		-0.95	170.0		1.42
779	D86-manual	38.5		0.18	108.5		0.07	168.0		0.63
781	D86-automated	36.9		-0.77	108.5		0.07	169.0		1.03
785	D86-automated	35.0		-1.91	109.2		0.55	167.9		0.59
786	D86-manual	38.0		-0.12	107.5		-0.61	164.0		-0.95
798	D86-manual	40.0		1.07	108.5		0.07	170.5		1.62
824	D86-automated	37.9		-0.18	109.3		0.62	165.0		-0.55
840	D86-automated	36.75		-0.86	108.46		0.05	166.89		0.19
855	D86-automated	39.0		0.48	108.5		0.07	165.9		-0.20
862		39.1		0.54	108.7		0.21	164.9		-0.59
864	D86-automated	38.2		0.00	108.3		-0.06	165.6		-0.31
868	D86-automated	38.5		0.18	108.7		0.21	164.0		-0.95
872	D86-manual	38.5		0.18	108.0		-0.27	167.5		0.43
873	D86-manual	38.5		0.18	108.5		0.07	167.5		0.43
874	D86	39.0		0.48	108.5		0.07	168.5		0.83
875	D86-automated	38.2		0.00	108.4		0.01	169.4		1.18
912	D86-manual	41		1.67	108		-0.27	163		-1.34
922	D86-automated	38.3		0.06	108.8		0.28	173.6		2.84
962	D86-automated	37.5		-0.42	109.5		0.75	170.5		1.62
963	D86-automated	36.48		-1.03	108.71		0.22	170.14		1.48
974	D86-automated	35.4		-1.67	108.3	C	-0.06	167.1		0.28
982	D86-manual	42.0		2.26	107.0		-0.95	169.0		1.03
994	D86-manual	37.5		-0.42	108.0		-0.27	165.5		-0.35
995	D86-manual	37.5		-0.42	108.0		-0.27	166.0		-0.16
997	D86-manual	37.5		-0.42	109.0		0.41	166.0		-0.16
1012		-----		-----	-----		-----	-----		-----
1016	D86-automated	34.7		-2.09	107.5		-0.61	164.6		-0.71
1062		-----		-----	-----		-----	-----		-----
1065	D86-automated	40.0		1.07	109.6		0.82	164.0		-0.95
1067	D86-automated	37.8		-0.24	110.9		1.71	167.3		0.36
1069		37.0		-0.72	108.2		-0.13	164.2		-0.87
1081		39.0		0.48	108.0		-0.27	166.6		0.08
1134	D86-automated	37.0		-0.72	109.0		0.41	164.6		-0.71
1145	D86-automated	36.85		-0.80	107.90		-0.33	163.45		-1.16
1201	D86-automated	36.7		-0.89	109.4		0.69	170.9		1.78
1212	D86-automated	36.9		-0.77	107.8		-0.40	171.0		1.82
1251	D86-automated	36.6		-0.95	109.9		1.03	174.6		3.23
1257	D86-automated	37.2		-0.60	108.1		-0.20	164.2		-0.87
1307	D86-automated	41.5		1.97	109.2		0.55	163.1		-1.30
1320		-----		-----	-----		-----	-----		-----
1381	ISO3405-automated	41.0		1.67	108.1		-0.20	163.4		-1.18
1429	D86-automated	36.7		-0.89	108.9		0.35	165.0		-0.55
1556	ISO3405-automated	35.4		-1.67	110.5		1.43	164.8		-0.63
1585	D86-automated	37.8		-0.24	108.7		0.21	163.5		-1.14
1586	D86-automated	36.5		-1.01	108.6		0.14	167.7		0.51
1603		37.4		-0.48	107.9		-0.33	164.7		-0.67

lab	method	IBP	mark	z(targ)	50%rec	mark	z(targ)	FBP	mark	z(targ)
1613	D86-automated	39		0.48	108.4		0.01	163.7		-1.06
1653		-----		-----	-----		-----	-----		-----
1656		38.7		0.30	110.2		1.23	169.7		1.30
1737		38.3		0.06	107.9		-0.33	162.7		-1.46
1776	ISO3405-automated	36.0		-1.31	107.0		-0.95	163.7		-1.06
1788	D86-automated	36.6		-0.95	109.1		0.48	166.7		0.12
1796		37.7		-0.30	108.9		0.35	164.9		-0.59
1810		-----		-----	-----		-----	-----		-----
1823	D86-automated	39.7		0.89	109.8		0.96	167.2		0.32
1849		-----		-----	-----		-----	-----		-----
1857	D86-automated	37.6		-0.36	108.0		-0.27	163.9		-0.98
1949	D86-manual	40.0		1.07	107.5		-0.61	166.0		-0.16
1950	D86-manual	39.0		0.48	108.0		-0.27	166.0		-0.16
1960		-----		-----	-----		-----	-----		-----
1967	D86-manual	40.5		1.37	108.5		0.07	165.0		-0.55
1982	D86-automated	41.57		2.01	108.06		-0.23	165.85		-0.22
1995	D86	36		-1.31	107		-0.95	167		0.24
6016		-----		-----	-----		-----	-----		-----
6159		39.8		0.95	106.6		-1.22	162.8		-1.42
6160		-----		-----	-----		-----	-----		-----
6161		-----		-----	-----		-----	-----		-----
6185	D86-automated	40.0		1.07	107.0		-0.95	163.2		-1.26
6186	D86-automated	39.4		0.71	108.0		-0.27	169.2		1.11
6200		-----		-----	-----		-----	-----		-----
6201		-----		-----	-----		-----	-----		-----
7006		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9090	D86-automated	36.5		-1.01	-----		-----	166.1		-0.12
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----
	normality	OK			OK			not OK		
	n	85			82			85		
	outliers	0			2			0		
	mean (n)	38.20			108.39			166.40		
	st.dev. (n)	1.914			0.839			2.684		
	R(calc.)	5.36			2.35			7.52		
	st.dev.(D86-A:17)	1.679			1.470			2.536		
	R(D86-A:17)	4.7			4.12			7.1		
Compare										
	R(D86-M:17)	5.6			4.23			7.2		

Lab 529 first reported 33.7 for IBP, 52.2 for 50% recovery and 136.1 for IBP
Lab 974 first reported 168.3 for 50% recovery


Initial Boiling Point
Kernel Density


50% recovered
Kernel Density


Final Boiling Point
Kernel Density

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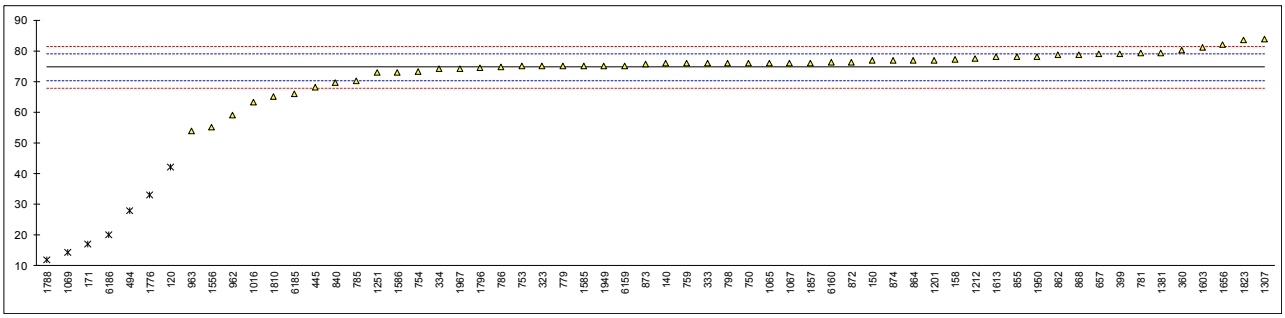
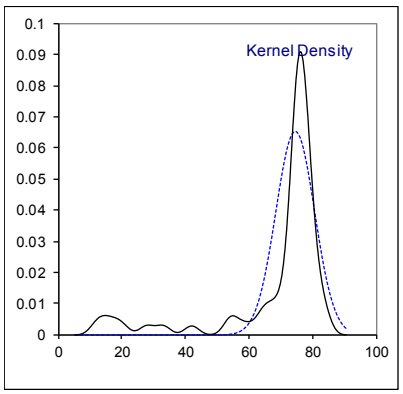
Determination of Mercaptan Sulphur as S on sample #18045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D3227	42	C,R(0.01)	-14.65	First reported 0
140	D3227	75.85		0.56	
150	D3227	77		1.07	
158	D3227	77.2		1.16	
171	D3227	17	R(0.01)	-25.88	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323	UOP163	75		0.17	
333	D3227	76		0.62	
334	D3227	74		-0.28	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	ISO3012	80.1		2.46	
399	UOP163	79.1		2.01	
444		-----		-----	
445	IP342	68		-2.97	
494	UOP163	27.8	C,R(0.01)	-21.03	First reported 29.6
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D3227	79		1.97	
663		-----		-----	
750	UOP163	76		0.62	
753	UOP163	75		0.17	
754	UOP163	73.3		-0.59	
759	UOP163	76		0.62	
779	UOP163	75		0.17	
781	D3227	79.2		2.06	
785	UOP163	70.269		-1.95	
786	UOP163	74.8	C	0.08	First reported 52
798	UOP163	76		0.62	
824		-----		-----	
840	UOP163	69.6		-2.25	
855	D3227	78		1.52	
862	D3227	78.7		1.84	
864	D3227	77		1.07	
868	D3227	78.7		1.84	
872	UOP163	76.3	C	0.76	First reported 54.4
873	D3227	75.7		0.49	
874	UOP163	77		1.07	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962	D3227	59		-7.01	
963	D3227	54		-9.26	
974		-----		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016	UOP163	63.4		-5.04	
1062		-----		-----	
1065	D3227	76		0.62	
1067	UOP163	76		0.62	
1069	In house	14.3	R(0.01)	-27.09	
1081		-----		-----	
1134		-----		-----	
1145		-----		-----	
1201	D3227	77		1.07	
1212	D3227	77.6		1.34	
1251	UOP163	73.0		-0.73	
1257		-----		-----	
1307	D3227	83.77		4.11	
1320		-----		-----	
1381	ISO3012	79.4		2.15	
1429		-----		-----	
1556	UOP163	55		-8.81	
1585	D3227	75		0.17	
1586	D3227	73		-0.73	
1603	In house	81		2.87	

lab	method	value	mark	z(targ)	remarks
1613	D3227	77.95	C	1.50	First reported 64.47
1653		-----		-----	
1656	IP342	82		3.32	
1737		-----		-----	
1776	UOP163	33.0	R(0.01)	-18.69	
1788	D3227	12	R(0.01)	-28.12	
1796	UOP163	74.4		-0.10	
1810	D3227	65		-4.32	
1823	UOP163	83.58		4.03	
1849		-----		-----	
1857	D3227	76		0.62	
1949	D3227	75.1		0.22	
1950	D3227	78		1.52	
1960		-----		-----	
1967	UOP163	74.17		-0.20	
1982		-----		-----	
1995		-----		-----	
6016		-----		-----	
6159	UOP163	75.17		0.25	
6160	D3227	76.1		0.67	
6161		-----		-----	
6185	UOP163	66.1		-3.82	
6186	D3227	20	C,R(0.01)	-24.53	First reported 0.0020
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
9142		-----		-----	
9143		-----		-----	

normality	not OK
n	53
outliers	7
mean (n)	74.614
st.dev. (n)	6.1089
R(calc.)	17.105
st.dev.(D3227:16)	2.2264
R(D3227:16)	6.234





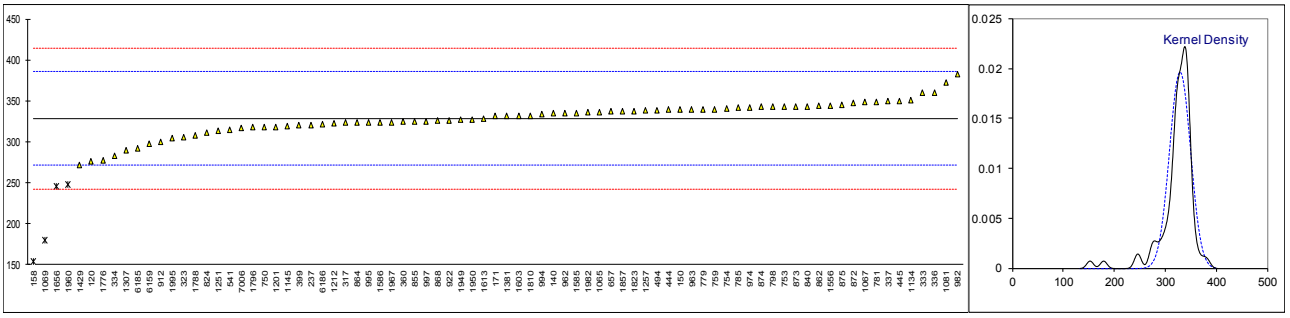
Determination of Sulphur on sample #18045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D4294	276.5		-1.82	
140	D2622	334.5		0.20	
150	D2622	339		0.36	
158	D4294	153.5	R(0.01)	-6.10	
171	D2622	331		0.08	
225		-----		-----	
237	D5453	320.0		-0.30	
238		-----		-----	
317	D2622	324		-0.16	
323	D5453	306		-0.79	
333	D5453	360		1.09	
334	ISO20846	283		-1.59	
336	ISO8754	360	C	1.09	First reported 0.036
337	D2622	350		0.74	
349		-----		-----	
360	D4294	325		-0.13	
399	D4294	320	C	-0.30	First reported 0.0320
444	D5453	339		0.36	
445	D4294	350		0.74	
494	D5453	338.3		0.33	
529		-----		-----	
541	D4294	314.1		-0.51	
557		-----		-----	
608		-----		-----	
657	D4294	337	C	0.29	First reported 0.0337
663		-----		-----	
750	D2622	318		-0.37	
753	D4294	343		0.50	
754	D4294	341		0.43	
759	D4294	340		0.39	
779	D4294	340		0.39	
781	D4294	349		0.71	
785	D4294	342		0.46	
786		-----		-----	
798	D4294	343		0.50	
824	D5453	311		-0.62	
840	D5453	343.2		0.50	
855	D5453	325		-0.13	
862	D4294	344		0.53	
864	D5453	324		-0.16	
868	D5453	325.5		-0.11	
872	D4294	347		0.64	
873	D4294	343		0.50	
874	D4294	343		0.50	
875	D4294	345		0.57	
912	D5453	300		-1.00	
922	D5453	326		-0.09	
962	D4294	335		0.22	
963	D4294	340		0.39	
974	D4294	342		0.46	
982	D4294	382		1.86	
994	D4294	333.7		0.17	
995	D4294	324		-0.16	
997	D4294	325		-0.13	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D4294	336		0.25	
1067	D2622	348		0.67	
1069	In house	180.0	R(0.01)	-5.18	
1081	D4294	372.34		1.52	
1134	IP336	351		0.78	
1145	D5453	319.12		-0.33	
1201	D4294	318		-0.37	
1212	D4294	322		-0.23	
1251	D5453	313		-0.55	
1257	D5453	338		0.32	
1307	D2622	289.96		-1.35	
1320		-----		-----	
1381	ISO8754	331.9		0.11	
1429	D5453	272		-1.98	
1556	ISO20884	344.2		0.54	
1585	D4294	335.3		0.23	
1586	D5453	324		-0.16	
1603	In house	332		0.11	

lab	method	value	mark	z(targ)	remarks
1613	D4294	328		-0.03	
1653		-----		-----	
1656	D5453	245	R(0.05)	-2.92	
1737		-----		-----	
1776	ISO20846	277		-1.80	
1788	D5453	308.07		-0.72	
1796	D4294	317.8		-0.38	
1810	D4294	332		0.11	
1823	D4294	337.1		0.29	
1849		-----		-----	
1857	D4294	337		0.29	
1949	D4294	327		-0.06	
1950	D4294	327		-0.06	
1960	D5453	248	R(0.05)	-2.81	
1967	D4294	324		-0.16	
1982	D5453	335.7		0.24	
1995	D4294	304		-0.86	
6016		-----		-----	
6159	D4294	298.1		-1.07	
6160		-----		-----	
6161		-----		-----	
6185	D5453	292		-1.28	
6186	D4294	321.8		-0.24	
6200		-----		-----	
6201		-----		-----	
7006	D5453	316.3		-0.43	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
9142		-----		-----	
9143		-----		-----	

			ED XRF only (D4294&IP336)	WD XRF only (D2622&ISO20884)	UV F only (D5453&ISO20846)
	normality	suspect	not OK	suspect	OK
	n	77	41	10	21
	outliers	4	1	0	2
	mean (n)	328.721	333.64	333.87	317.226
	st.dev. (n)	20.3299	17.7861	19.8931	21.8878
	R(calc.)	56.924	49.801	55.701	61.2857
	st.dev.(D4294:16e1)	28.7133	28.7133	28.7133	28.7133
	R(D4294:16e1)	80.397	81.170	-	-
Compare	R(D2622:16)	44.460	-	81.207	-
Compare	R(D5453:16e1)	44.753	-	-	78.573

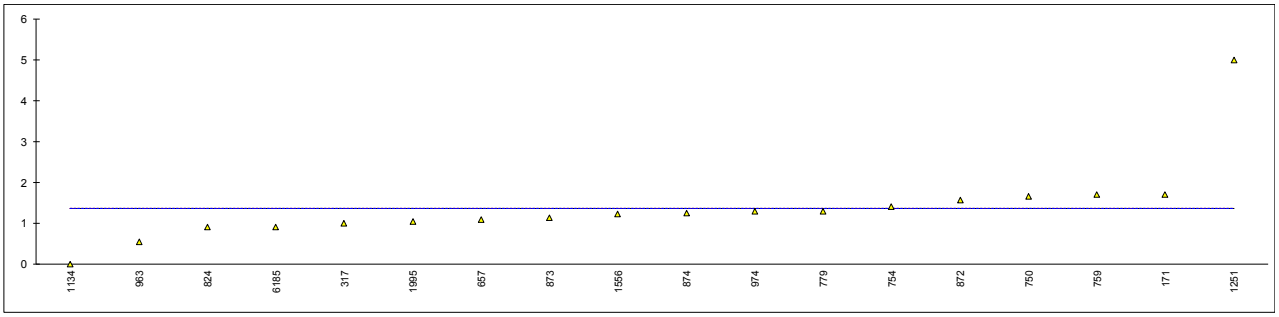
WD XRF = wavelength dispersion X-ray Fluorescence Spectroscopy
ED XRF = Energy dispersion X-ray Fluorescence Spectroscopy
UV F = ultra violet Fluorescence

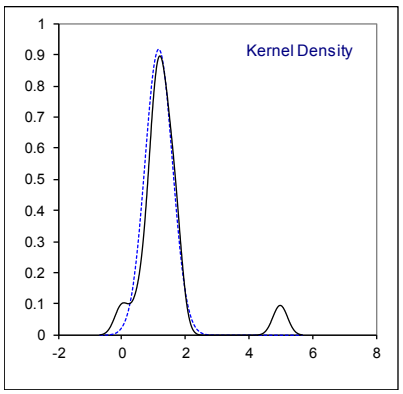


Determination of Acetone on sample #18046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	1.7		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	1		-----	
323	INH-304	<2		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	1.1		-----	
663		-----		-----	
750	D7423	1.65		-----	
753		-----		-----	
754	D7423	1.40		-----	
759	D7423	1.7		-----	
779	D7423	1.3		-----	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798		-----		-----	
824	D7423	0.9		-----	
840		-----		-----	
855	INH-024	<10		-----	
862	D7423	<10		-----	
864	D7423	<10		-----	
868	D7423	<10		-----	
872	D7423	1.57		-----	
873	D7423	1.14		-----	
874	D7423	1.26		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	0.54		-----	
974	D7423	1.29		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	D7423	< 5		-----	
1069		-----		-----	
1081		-----		-----	
1134	In house	0		-----	
1145		-----		-----	
1201	D7423	<1		-----	
1212		-----		-----	
1251	In house	5		-----	
1257		-----		-----	
1307	In house	<1		-----	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	1.23		-----	
1585		-----		-----	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857		-----		-----	
1949		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1982		-----		-----	
1995	D7423	1.046		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	0.9		-----	
6186		-----		-----	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
	n	26			
	mean (n)	<10			





Determination of DIPE on sample #18046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		0		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	<0.5		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	<1		-----	
323	INH-304	<2		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	<0.1		-----	
663		-----		-----	
750	D7423	<0.5		-----	
753		-----		-----	
754	D7423	<0.5		-----	
759	D7423	<0.5		-----	
779	D7423	<0.5		-----	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798	D7423	0		-----	
824	D7423	<0.5		-----	
840		-----		-----	
855	INH-024	<10		-----	
862	D7423	<10		-----	
864	D7423	<10		-----	
868	D7423	<10		-----	
872	D7423	0		-----	
873	D7423	<0.5		-----	
874	D7423	0.15		-----	
875	D7423	-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	<0.5		-----	
974	D7423	<0.5		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	D7423	< 5		-----	
1069		-----		-----	
1081		-----		-----	
1134	In house	0		-----	
1145		-----		-----	
1201	D7423	<1		-----	
1212		-----		-----	
1251	In house	0		-----	
1257		-----		-----	
1307	In house	<1		-----	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	<0,5		-----	
1585		-----		-----	
1586	D6839	0		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	<10		-----	
1949		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1982	D7754	7.5		-----	
1995	D7423	0		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	0.0		-----	
6186		-----		-----	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
	n	26			
	mean (n)	<10			

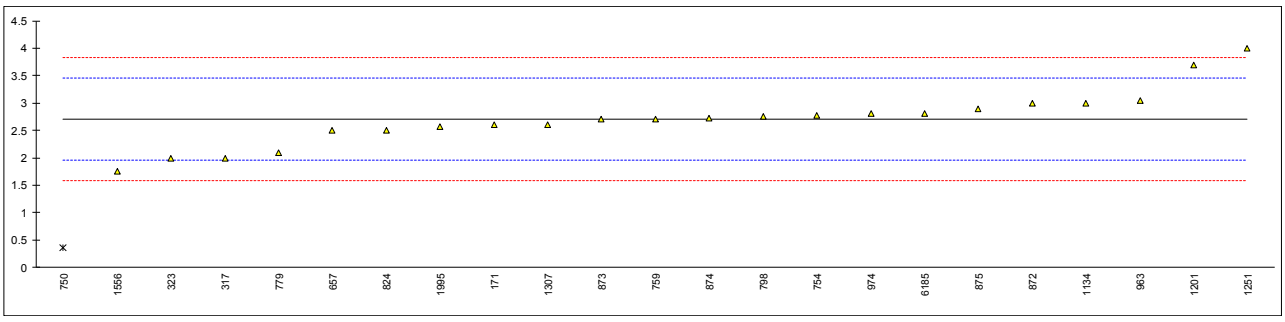
Determination of MEK on sample #18046; results in mg/kg

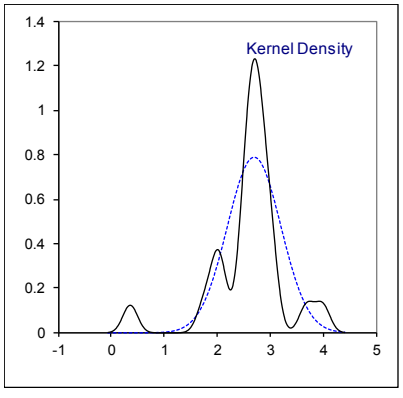
lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	2.6		-0.25	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	2		-1.66	
323	INH-304	2		-1.66	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	2.5		-0.48	
663		-----		-----	
750	D7423	0.36	R(0.01)	-5.52	
753		-----		-----	
754	D7423	2.78		0.17	
759	D7423	2.7		-0.01	
779	D7423	2.1		-1.42	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798	D7423	2.749		0.10	
824	D7423	2.5		-0.48	
840		-----		-----	
855	INH-024	<10		-----	
862	D7423	<10		-----	
864	D7423	<10		-----	
868	D7423	<10		-----	
872	D7423	3.00		0.69	
873	D7423	2.70		-0.01	
874	D7423	2.73		0.06	
875	D7423	2.891		0.44	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	3.04		0.79	
974	D7423	2.80		0.22	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	D7423	< 5		-----	
1069		-----		-----	
1081		-----		-----	
1134	In house	3		0.69	
1145		-----		-----	
1201	D7423	3.7		2.34	
1212		-----		-----	
1251	In house	4		3.04	
1257		-----		-----	
1307	In house	2.6		-0.25	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	1.76		-2.22	
1585		-----		-----	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857		-----		-----	
1949		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1982		-----		-----	
1995	D7423	2.573		-0.31	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	2.8		0.22	
6186		-----		-----	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	suspect
	n	22
	outliers	1
	mean (n)	2.706
	st.dev. (n)	0.5067
	R(calc.)	1.419
	st.dev.(D7423:17)	0.4252
	R(D7423:17)	1.191

Application range D7423:17 0.50 – 100mg/kg



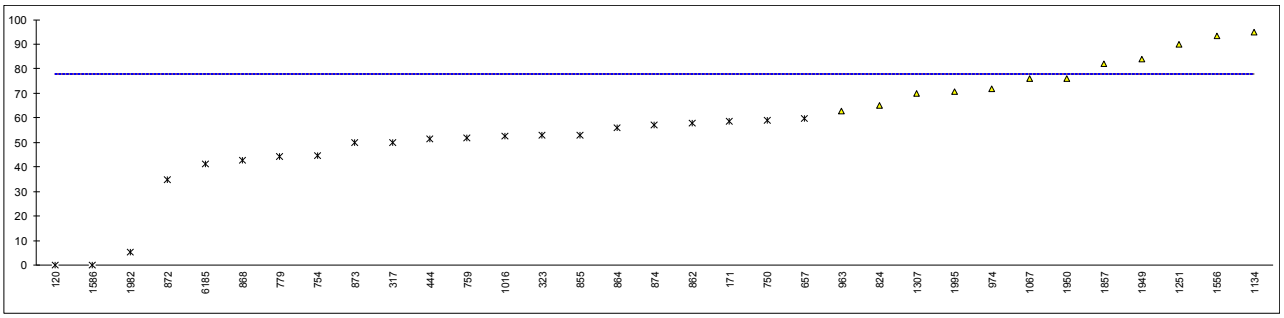


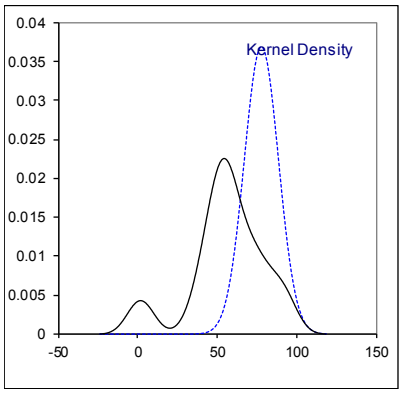
Determination of Methanol on sample #18046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		0	ex	-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	58.5	ex	-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	50	ex	-----	
323	INH-304	53	ex	-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	INH-008	51.3	ex	-----	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	59.9	ex	-----	
663		-----		-----	
750	D7423	58.95	ex	-----	
753		-----		-----	
754	D7423	44.81	ex	-----	
759	D7423	52.0	ex	-----	
779	D7423	44.2	ex	-----	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798	D7423	-----		-----	
824	D7423	64.9	C	-----	First reported 2.8
840		-----		-----	
855	INH-024	53	ex	-----	
862	D7423	58.0	ex	-----	
864	D7423	56	ex	-----	
868	D7423	42.8	ex	-----	
872	D7423	34.98	ex	-----	
873	D7423	49.92	ex	-----	
874	D7423	57.30	ex	-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	62.8		-----	
974	D7423	72		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016	In house	52.5	ex	-----	
1062		-----		-----	
1065		-----		-----	
1067	D7423	76		-----	
1069		-----		-----	
1081		-----		-----	
1134	In house	95		-----	
1145		-----		-----	
1201	D7423	<1	ex	-----	
1212		-----		-----	
1251	In house	90		-----	
1257		-----		-----	
1307	In house	69.9		-----	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	93.20		-----	
1585		-----		-----	
1586	D6839	0	ex	-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	82		-----	
1949	D7423	84.1		-----	
1950	D7754	76		-----	
1960		-----		-----	
1967		-----		-----	
1982	D7754	5.5	ex	-----	
1995	D7423	70.535		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	41.2	ex	-----	
6186		-----		-----	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	OK		
	n	12		
	outliers	0 (+21ex)	Spike	
	mean (n)	78.036	75	Recovery < 75%, see § 4.1
	st.dev. (n)	10.8092		
	R(calc.)	30.266		
	st.dev.(Horwitz)	(6.4803)		
	R(Horwitz)	(18.145)		
Compare				
	R(D7423:17)	14.129		
	R(iis17N01)	18.850		

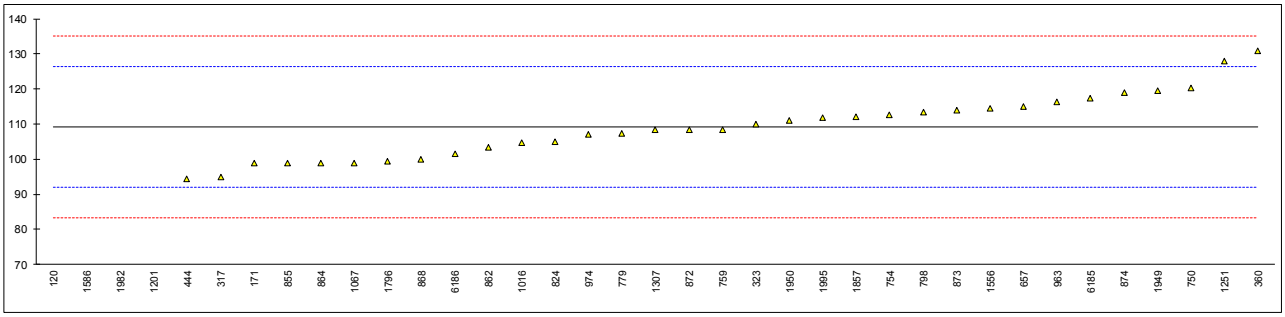


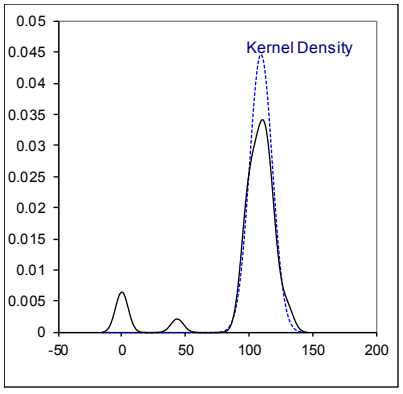


Determination of MTBE on sample #18046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		0	ex	-12.67	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	99.0		-1.19	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	95		-1.65	
323	INH-304	110		0.09	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D7423	130.80		2.50	
399		-----		-----	
444	INH-008	94.3		-1.73	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	115.1		0.68	
663		-----		-----	
750	D7423	120.26		1.28	
753		-----		-----	
754	D7423	112.59		0.39	
759	D7423	108.5		-0.09	
779	D7423	107.4		-0.21	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798	D7423	113.313		0.47	
824	D7423	104.9		-0.50	
840		-----		-----	
855	INH-024	99		-1.19	
862	D7423	103.5		-0.66	
864	D7423	99		-1.19	
868	D7423	99.9		-1.08	
872	D7423	108.38		-0.10	
873	D7423	114.08		0.56	
874	D7423	119.00		1.13	
875	D7423	>100		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	116.2		0.81	
974	D7423	107		-0.26	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016	In house	104.8		-0.51	
1062		-----		-----	
1065		-----		-----	
1067	D7423	99		-1.19	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1145		-----		-----	
1201	D7423	43.5	ex	-7.62	
1212		-----		-----	
1251	In house	128		2.18	
1257		-----		-----	
1307	In house	108.3		-0.11	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	114.5		0.61	
1585		-----		-----	
1586	D6839	0.01	ex	-12.67	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796	IP PM BG/91	99.4		-1.14	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	112		0.32	
1949	D7423	119.5		1.19	
1950	D7754	111		0.20	
1960		-----		-----	
1967		-----		-----	
1982	D7754	0.2	ex	-12.64	
1995	D7423	111.95		0.32	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	117.4		0.95	
6186	D7423	101.62		-0.88	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
	normality	OK			
	n	33			
	outliers	0 (+4ex)		Spike	
	mean (n)	109.233		75	Recovery < 145%
	st.dev. (n)	8.9360			
	R(calc.)	25.021			
	st.dev.(Horwitz)	8.6233			
	R(Horwitz)	24.145			
Compare					
	R(D7423:17)	24.051			

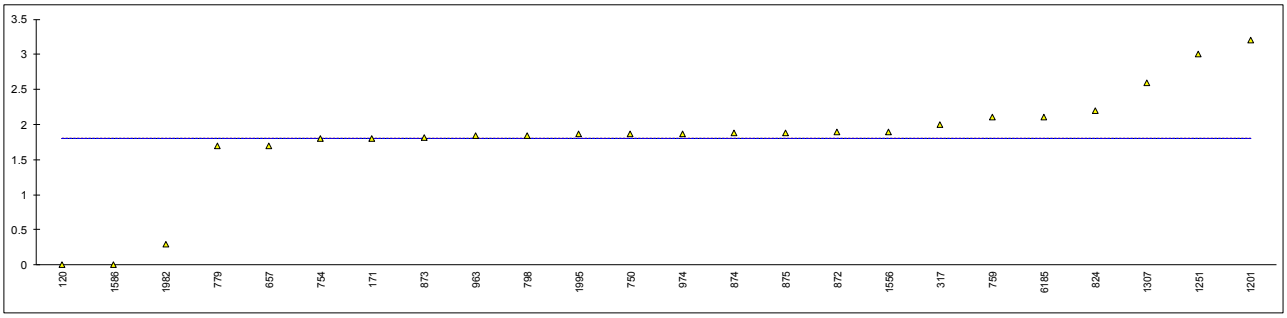


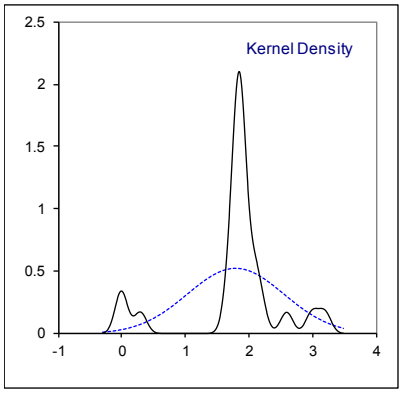


Determination of TAME on sample #18046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		0		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	1.8		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	2		-----	
323	INH-304	<2		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	1.7		-----	
663		-----		-----	
750	D7423	1.87		-----	
753		-----		-----	
754	D7423	1.8		-----	
759	D7423	2.1		-----	
779	D7423	1.7		-----	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798	D7423	1.843		-----	
824	D7423	2.2		-----	
840		-----		-----	
855	INH-024	<10		-----	
862	D7423	<10		-----	
864	D7423	<10		-----	
868	D7423	<10		-----	
872	D7423	1.89		-----	
873	D7423	1.82		-----	
874	D7423	1.88		-----	
875	D7423	1.881		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	1.84		-----	
974	D7423	1.87		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	D7423	< 5		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1145		-----		-----	
1201	D7423	3.2		-----	
1212		-----		-----	
1251	In house	3		-----	
1257		-----		-----	
1307	In house	2.6		-----	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	1.89		-----	
1585		-----		-----	
1586	D6839	0		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	<10		-----	
1949	D7423	-----		-----	
1950	D7754	-----		-----	
1960		-----		-----	
1967		-----		-----	
1982	D7754	0.3		-----	
1995	D7423	1.862		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	2.1		-----	
6186	D7423	-----		-----	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	
	n	31			
	mean (n)	<10			



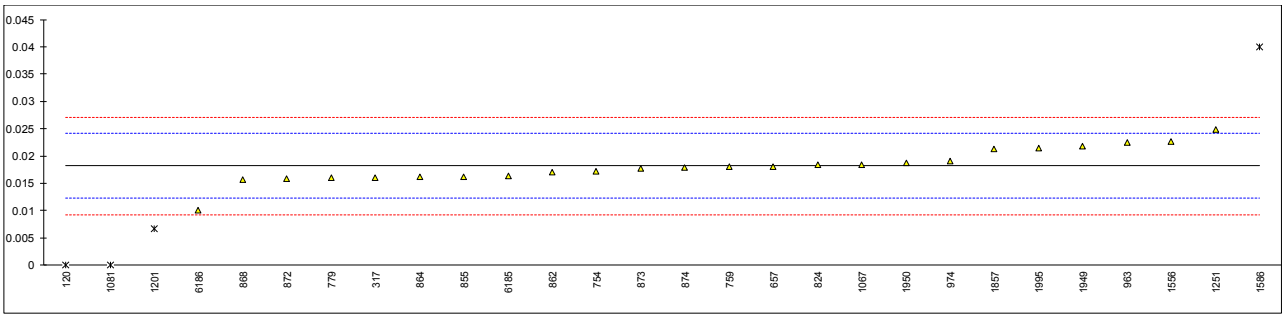


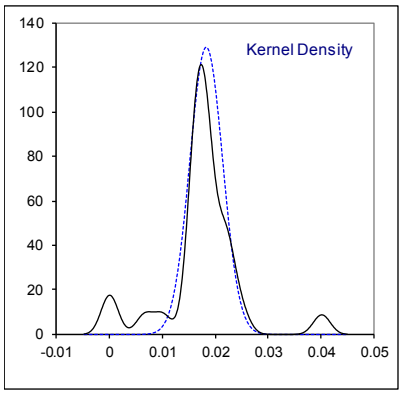
Determination of Total Oxygenates on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5599	0	R(0.01)	-6.12	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D7423	<0.5		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	INH-200	0.016		-0.74	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	INH-130	0.01803		-0.06	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D7423	0.01719		-0.34	
759	D7423	0.0180		-0.07	
779	D7423	0.016		-0.74	
781		-----		-----	
785		-----		-----	
786		-----		-----	
798		-----		-----	
824	D7423	0.0184		0.06	
840		-----		-----	
855	INH-024	0.0162		-0.68	
862	D7423	0.0171		-0.37	
864	D7423	0.0162		-0.68	
868	D7423	0.0157		-0.84	
872	D7423	0.0158		-0.81	
873	D7423	0.017647	C	-0.19	First reported 176.47
874	D7423	0.01791		-0.10	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	0.0224		1.41	
974	D7423	0.0191		0.30	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1067	D7423	0.0184		0.06	
1069		-----		-----	
1081	ISO22854	0.00	R(0.01)	-6.12	
1134		-----		-----	
1145		-----		-----	
1201	D7423	0.0066	R(0.05)	-3.90	
1212		-----		-----	
1251	In house	0.0249		2.25	
1257		-----		-----	
1307		-----		-----	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	D7423	0.0227		1.51	
1585		-----		-----	
1586	D4815	0.04	R(0.01)	7.32	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613		-----		-----	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	0.0212		1.00	
1949	D7423	0.02186		1.22	
1950	D7754	0.0187		0.16	
1960		-----		-----	
1967		-----		-----	
1982		-----		-----	
1995		0.0214	C	1.07	First reported 0.0214
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D7754Mod.	0.0163		-0.64	
6186	D7423	0.01		-2.76	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

normality	suspect
n	24
outliers	4
mean (n)	0.01821
st.dev. (n)	0.003091
R(calc.)	0.00866
st.dev.(Horwitz 5 comp.)	0.002977
R(Horwitz 5 comp.)	0.00834



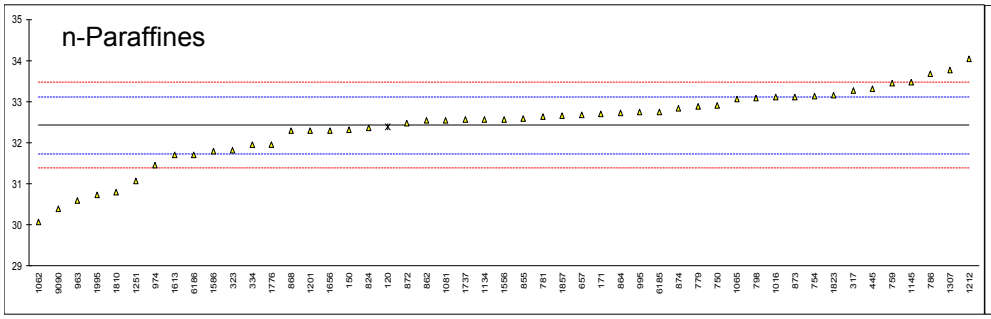


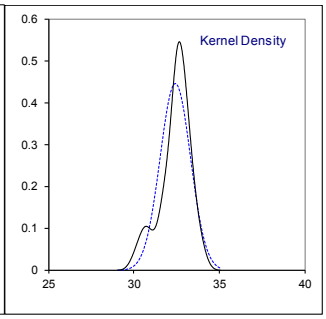
PONA/PIONA/PNA (n-Paraffines, i-Paraffines, Naphthenes) determination on sample #18046; results in %V/V

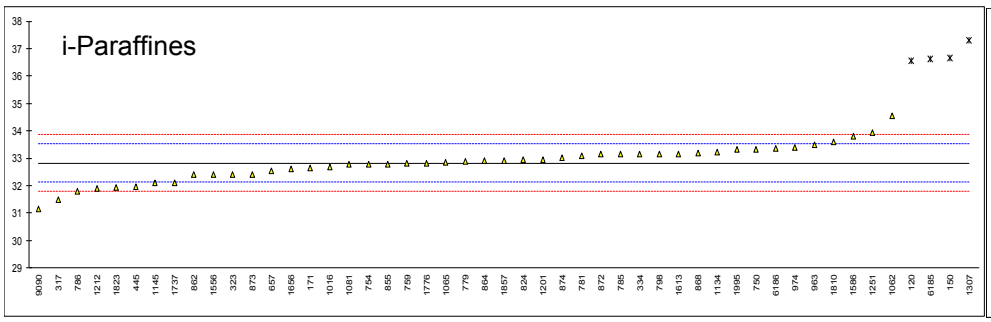
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
120	D6730	32.3744	ex	-0.15	36.5695	R(0.01)	10.78	23.1575	ex	-29.68
140		-----		-----	-----		-----	-----		-----
150	D6729	32.309		-0.34	36.657	R(0.01)	11.03	20.718	ex	-41.11
158		-----		-----	-----		-----	-----		-----
171	D5443	32.69		0.76	32.64		-0.52	29.39		-0.46
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
317	D5443	33.27		2.44	31.48		-3.86	29.82		1.55
323	D5443	31.82		-1.76	32.42		-1.15	30.42		4.37
333		-----		-----	-----		-----	-----		-----
334	D6839	31.94		-1.41	33.14		0.92	29.34	ex	-0.70
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D6839	33.30		2.53	31.96		-2.48	29.12		-1.73
494		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
657	D5443	32.68		0.73	32.54		-0.81	29.55		0.29
663		-----		-----	-----		-----	-----		-----
750	GOST R52714	32.91		1.40	33.34		1.49	28.23	ex	-5.90
753		-----		-----	-----		-----	-----		-----
754	D6729	33.133		2.04	32.788		-0.10	28.716	ex	-3.62
759	D6729	33.45		2.96	32.81		-0.03	28.51	ex	-4.59
779	D6729	32.886		1.33	32.873		0.15	28.644	ex	-3.96
781	D6839	32.62		0.56	33.07		0.71	28.90		-2.76
785		-----		-----	33.140		0.92	-----		-----
786	GOST R52714	33.68		3.62	31.81		-2.91	29.42	ex	-0.32
798	D6729	33.077		1.88	33.142		0.92	28.157	ex	-6.24
824	D5443	32.35		-0.22	32.94		0.34	28.72		-3.60
840		-----		-----	-----		-----	-----		-----
855	D6839	32.58		0.44	32.79		-0.09	29.08		-1.92
862	D6839	32.55		0.36	32.39		-1.24	29.27		-1.03
864	D6839	32.73		0.88	32.90		0.23	29.32		-0.79
868	D6839	32.29		-0.40	33.19		1.06	30.08		2.77
872	D6839	32.48		0.15	33.14		0.92	29.23		-1.21
873		33.11		1.98	32.42		-1.15	29.02		-2.20
874	D6729	32.840		1.19	33.033		0.61	28.945	ex	-2.55
875		-----		-----	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	30.59		-5.31	33.49		1.92	30.52		4.83
974	D6730	31.451		-2.82	33.402		1.67	29.813	ex	1.52
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995	D5134	32.74		0.91	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
1012		-----		-----	-----		-----	-----		-----
1016	ISO22854	33.10		1.95	32.67		-0.44	28.68	ex	-3.79
1062	D5443	30.06		-6.85	34.55		4.97	29.97		2.26
1065	In house	33.066		1.85	32.858		0.10	28.133		-6.35
1067		-----		-----	-----		-----	-----		-----
1069		-----		-----	-----		-----	-----		-----
1081	ISO22854	32.55		0.36	32.78		-0.12	29.19	ex	-1.40
1134	D6839	32.57		0.41	33.22		1.15	29.07		-1.96
1145	D6293	33.47		3.02	32.09		-2.10	29.12		-1.73
1201	D5134	32.30		-0.37	32.96		0.40	29.55	ex	0.29
1212	D5134	34.037		4.66	31.883		-2.70	23.883	ex	-26.28
1251	D6839	31.06		-3.95	33.95		3.24	29.94		2.12
1257		-----		-----	-----		-----	-----		-----
1307	In house	33.763		3.86	37.305	R(0.01)	12.89	22.297	R(0.01)	-33.71
1320		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1556	ISO22854	32.57		0.41	32.40		-1.21	29.27	ex	-1.03
1585		-----		-----	-----		-----	-----		-----
1586	D6839	31.79		-1.84	33.79	C	2.78	29.40	C	-0.42
1603		-----		-----	-----		-----	-----		-----

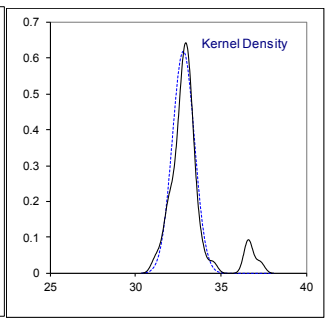
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
1613	D6839	31.70		-2.10	33.15		0.94	29.9		1.93
1653		-----		-----	-----		-----	-----		-----
1656	D5443	32.3		-0.37	32.6		-0.64	29.6		0.52
1737	In house	32.56		0.38	32.11		-2.05	26.16	R(0.01)	-15.60
1776	ISO22854	31.95		-1.38	32.82		0.00	29.97	ex	2.26
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1810	D6839	30.8		-4.71	33.6		2.24	30.2		3.33
1823	D6839	33.16		2.12	31.94		-2.53	29.56		0.33
1849		-----		-----	-----		-----	-----		-----
1857	D5443	32.65		0.65	32.91		0.25	29.26		-1.07
1949		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1982		-----		-----	-----		-----	29.58		0.43
1995	D5443	30.72		-4.94	33.31		1.40	29.79		1.41
6016		-----		-----	-----		-----	-----		-----
6159		-----		-----	-----		-----	-----		-----
6160		-----		-----	-----		-----	-----		-----
6161		-----		-----	-----		-----	-----		-----
6185	D6729	32.74		0.91	36.63	R(0.01)	10.95	23.05	ex	-30.18
6186	D6839	31.71		-2.07	33.37		1.58	29.72		1.08
6200		-----		-----	-----		-----	-----		-----
6201		-----		-----	-----		-----	-----		-----
7006		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9090	D5443	30.39		-5.89	31.16		-4.78	32.07	R(0.01)	12.10
	normality	OK			OK			OK		
	n	48			45			28		
	outliers	0(+1ex)			4			3(+18ex)		
	mean (n)	32.4269			32.8215			29.4887		
	st.dev. (n)	0.89251			0.64427			0.52694		
	R(calc.)	2.4990			1.8040			1.4754		
	st.dev.(D5443:14)	0.34574			0.34783			0.21334		
	R(D5443:14)	0.9681			0.9739			0.5973		
Compare										
	R(D6839:17)	1.6			1.6			1.6		

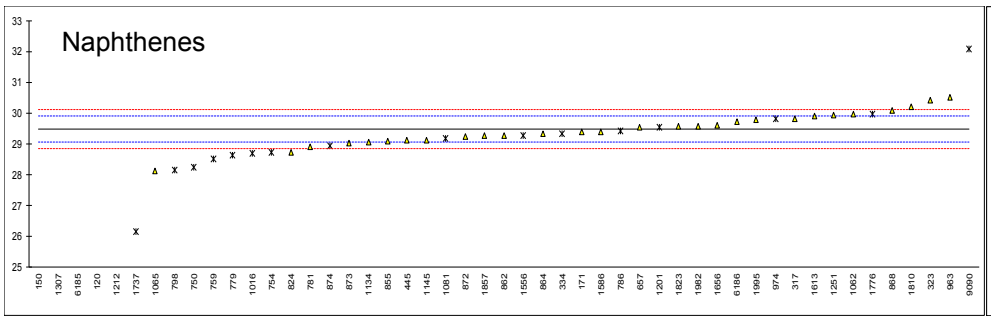
See for excluded test results § 4.1
Lab 1586 first reported 30.56 and 32.01 respectively

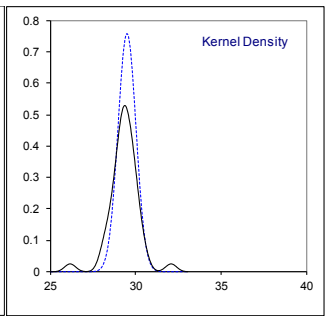

n-Paraffines


Kernel Density


i-Paraffines


Kernel Density


Naphthenes


Kernel Density

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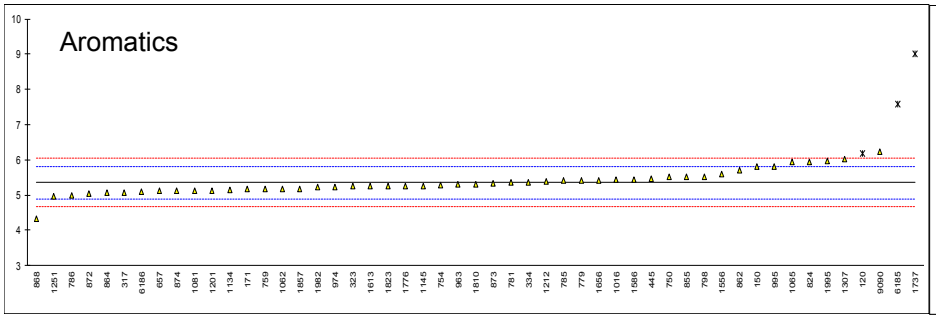
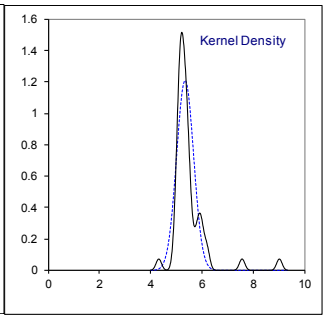
PONA/PIONA/PNA (Aromatics, C4 and lighter, Comp. with BP>200°C) determination on sample #18046; results in %V/V (continued)

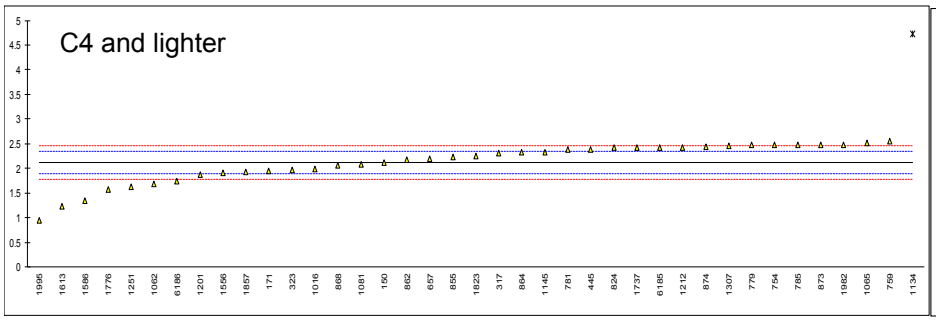
lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
120	D6730	6.17385	ex	3.54	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D6729	5.817		2.00	2.123		0.00	-----		-----
158		-----		-----	-----		-----	-----		-----
171	D5443	5.17		-0.80	1.95		-1.50	0.03		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
317	D5443	5.08		-1.19	2.31		1.62	<0.05		-----
323	D5443	5.24		-0.50	1.97		-1.33	-----		-----
333		-----		-----	-----		-----	-----		-----
334	D6839	5.37		0.07	-----		-----	-----		-----
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D6839	5.47		0.50	2.39		2.32	0.06		-----
494		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
657	D5443	5.12		-1.01	2.20		0.67	-----		-----
663		-----		-----	-----		-----	-----		-----
750	GOST R52714	5.51		0.67	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754	D6729	5.291		-0.28	2.479		3.09	-----		-----
759	D6730	5.17		-0.80	2.55		3.71	-----		-----
779	D6729	5.400		0.20	2.474		3.05	-----		-----
781	D6839	5.36		0.02	2.383		2.26	<0.1		-----
785	D6729	5.399		0.19	2.479		3.09	-----		-----
786	GOST R52714	4.98		-1.62	-----		-----	-----		-----
798	D6729	5.523		0.73	-----		-----	-----		-----
824	D5443	5.94		2.53	2.42		2.58	-----		-----
840		-----		-----	-----		-----	-----		-----
855	D6839	5.52		0.71	2.23		0.93	-----		-----
862	D6839	5.70		1.49	2.17		0.41	-----		-----
864	D6839	5.06		-1.27	2.33		1.80	-----		-----
868	D6839	4.33		-4.43	2.06		-0.55	-----		-----
872	D6839	5.05		-1.32	-----		-----	-----		-----
873		5.33		-0.11	2.48		3.10	-----		-----
874	D6729	5.128		-0.98	2.449		2.83	-----		-----
875		-----		-----	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	5.30		-0.24	-----		-----	-----		-----
974	D6730	5.226		-0.56	-----		-----	-----		-----
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995	D5134	5.82		2.01	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
1012		-----		-----	-----		-----	-----		-----
1016	ISO22854	5.44		0.37	1.99		-1.16	0.00		-----
1062	D5443	5.17		-0.80	1.68		-3.85	-----		-----
1065	In house	5.936		2.51	2.51		3.36	-----		-----
1067		-----		-----	-----		-----	-----		-----
1069		-----		-----	-----		-----	-----		-----
1081	ISO22854	5.13		-0.97	2.08		-0.38	-----		-----
1134	D6839	5.14		-0.93	4.73	R(1)	22.64	<0.01		-----
1145	D6293	5.265		-0.39	2.335		1.84	0.495	DG(1)	-----
1201	D5134	5.13		-0.97	1.87		-2.20	-----		-----
1212	D5134	5.378		0.10	2.429		2.66	0		-----
1251	D6839	4.96		-1.71	1.62		-4.37	-----		-----
1257		-----		-----	-----		-----	-----		-----
1307	In house	6.019		2.87	2.460		2.93	-----		-----
1320		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1556	ISO22854	5.59		1.02	1.91		-1.85	0.22		-----
1585		-----		-----	-----		-----	-----		-----
1586	D6839	5.44		0.37	1.35		-6.72	-----		-----
1603		-----		-----	-----		-----	-----		-----

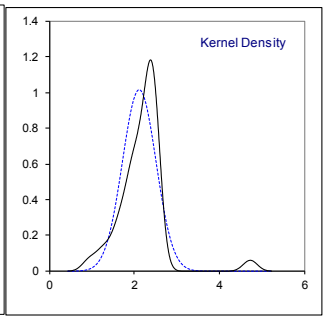
lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
1613	D6839	5.24		-0.50	1.23		-7.76	-----		-----
1653		-----		-----	-----		-----	-----		-----
1656	D5443	5.4		0.20	-----		-----	0.1		-----
1737	In house	9.02	R(1)	15.84	2.42		2.58	-----		-----
1776	ISO22854	5.26		-0.41	1.58		-4.72	-----		-----
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1810	D6839	5.3		-0.24	-----		-----	-----		-----
1823	D6839	5.24		-0.50	2.25		1.10	0.03		-----
1849		-----		-----	-----		-----	-----		-----
1857	D5443	5.18		-0.76	1.93		-1.68	not detected		-----
1949		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1982	D6839	5.22		-0.58	2.48		3.10	-----		-----
1995	D5443	5.97		2.66	0.95		-10.19	0.52	DG(1)	-----
6016		-----		-----	-----		-----	-----		-----
6159		-----		-----	-----		-----	-----		-----
6160		-----		-----	-----		-----	-----		-----
6161		-----		-----	-----		-----	-----		-----
6185	D6729	7.57	R(1)	9.57	2.42		2.58	0		-----
6186	D6839	5.10		-1.10	1.74		-3.33	-----		-----
6200		-----		-----	-----		-----	-----		-----
6201		-----		-----	-----		-----	-----		-----
7006		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9090	D5443	6.22		3.74	-----		-----	-----		-----
	normality	suspect			suspect			not OK		
	n	48			38			8		
	outliers	2(+1ex)			1			2		
	mean (n)	5.3548			2.1232			0.0550		
	st.dev. (n)	0.33015			0.39333			0.07521		
	R(calc.)	0.9244			1.1013			0.2106		
	st.dev.(D5443:14)	0.23141			0.11514			n.a.		
	R(D5443:14)	0.6479		R(D5134:13	0.3224			n.a.		
Compare										
	R(D6839:17)	0.5527						n.a.		

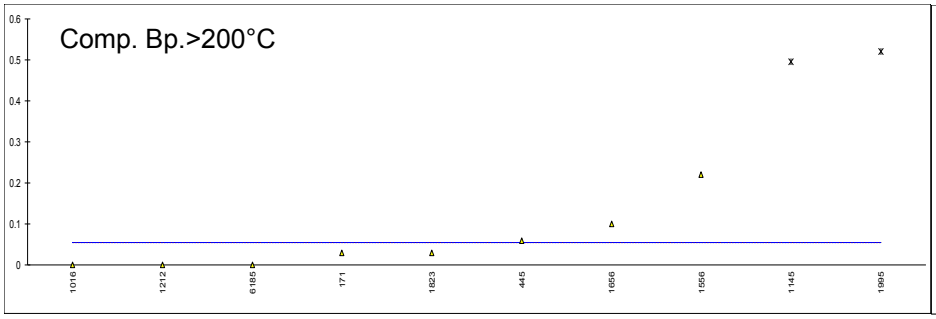
See for excluded test results § 4.1

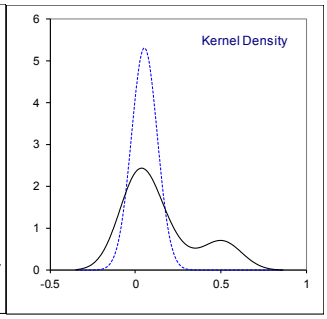

Aromatics


Kernel Density


C4 and lighter


Kernel Density


Comp. Bp.>200°C


Kernel Density

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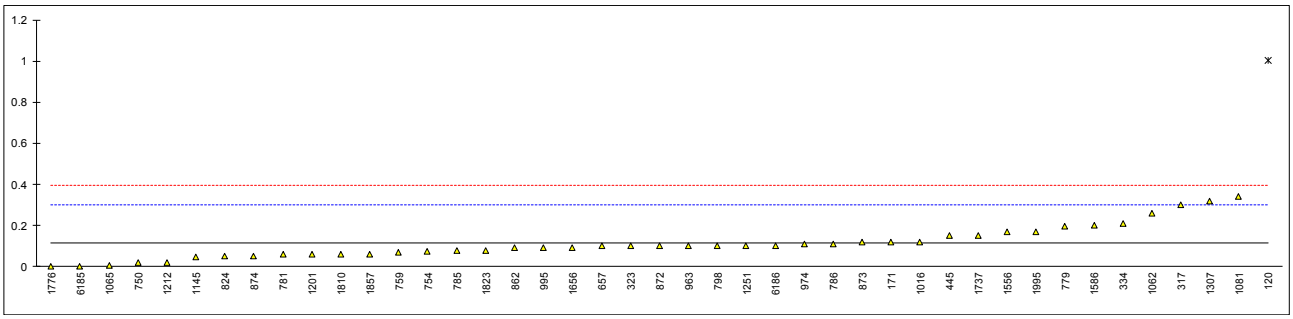
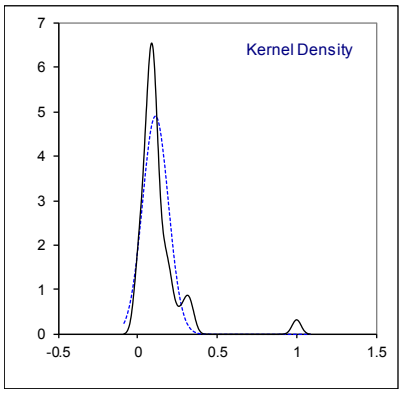
PONA/PIONA/PNA (Olefines) determination on sample #18046; results in %V/V (continued)

lab	method	value	mark	z(targ)	remarks
120	D6730	1.00185	R(0.01)	9.42	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171		0.12		0.07	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	D6839	0.3		1.98	
323	D6839	0.10		-0.14	
333		-----		-----	
334	D6839	0.21		1.03	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445	D6839	0.15		0.39	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D6839	0.1		-0.14	
663		-----		-----	
750	GOST R52714	0.019		-1.00	
753		-----		-----	
754	D6729	0.072		-0.44	
759		0.07		-0.46	
779		0.197		0.89	
781	D6839	0.06		-0.56	
785	D6729	0.079		-0.36	
786	GOST R52714	0.11		-0.03	
798	GOST 52714	0.100		-0.14	
824	D6839	0.05		-0.67	
840		-----		-----	
855	D6839	<0.1		-----	
862	D6839	0.09		-0.24	
864	D6839	<0.1		-----	
868	D6839	<0.1		-----	
872	D6839	0.10		-0.14	
873		0.12		0.07	
874	D6729	0.053		-0.64	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D6839	0.1		-0.14	
974	D6370	0.108		-0.05	
982		-----		-----	
994		-----		-----	
995		0.09		-0.24	
997		-----		-----	
1012		-----		-----	
1016	ISO22854	0.12		0.07	
1062	D6839	0.26		1.56	
1065	In house	0.007		-1.12	
1067		-----		-----	
1069		-----		-----	
1081	ISO22854	0.34		2.41	
1134	D6839	<0.01		-----	
1145	D6839	0.045	C	-0.72	First reported 0.495
1201	D5134	0.06		-0.56	
1212	D5134	0.019		-1.00	
1251	D6839	0.1		-0.14	
1257		-----		-----	
1307	In house	0.319		2.18	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	ISO22854	0.17		0.60	
1585		-----		-----	
1586	D6839	0.20		0.92	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D6839	< 0.1		-----	
1653		-----		-----	
1656	D5443	0.09		-0.24	
1737	In house	0.15		0.39	
1776	ISO22854	0		-1.20	
1788		-----		-----	
1796		-----		-----	
1810	D6839	0.06		-0.56	
1823	D6839	0.08		-0.35	
1849		-----		-----	
1857	D6839	0.06		-0.56	
1949		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1982		-----		-----	
1995	D5443	0.17		0.60	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D6729	0		-1.20	
6186	D6839	0.1		-0.14	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

normality	not OK
n	42
outliers	1
mean (n)	0.1130
st.dev. (n)	0.08121
R(calc.)	0.2274
st.dev.(D6839:17)	0.09434
R(D6839:17)	0.2641



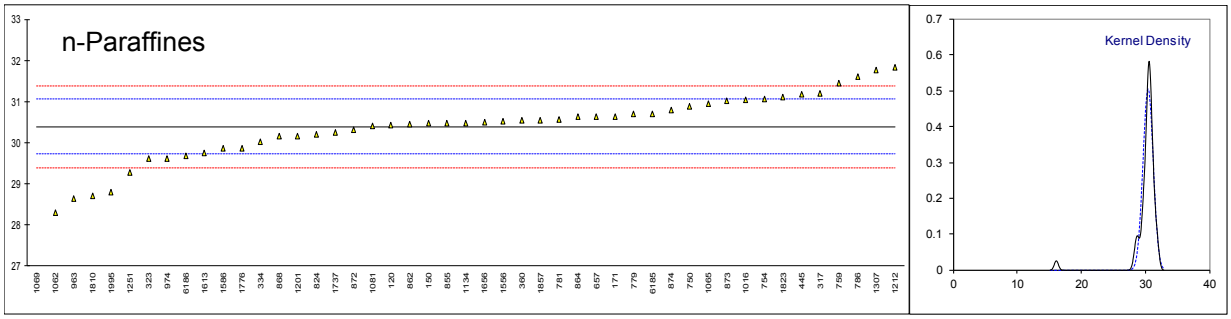


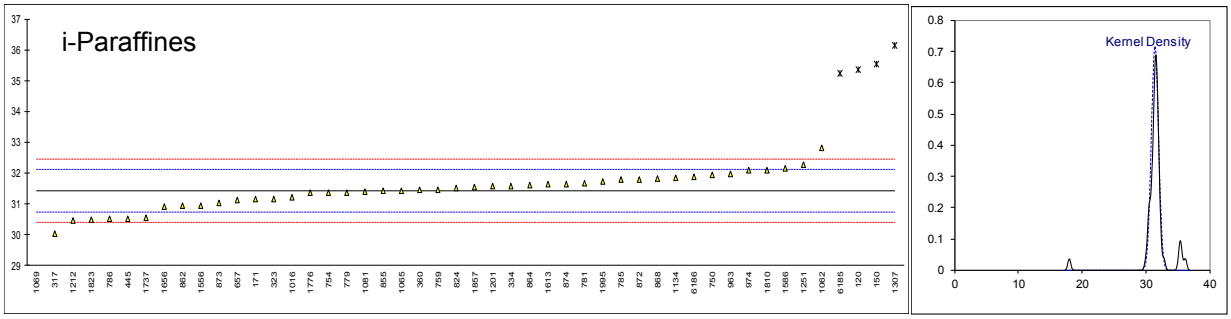
PONA/PIONA/PNA (n-Paraffines, i-Paraffines, Naphthenes) determination on sample #18046; results in %M/M

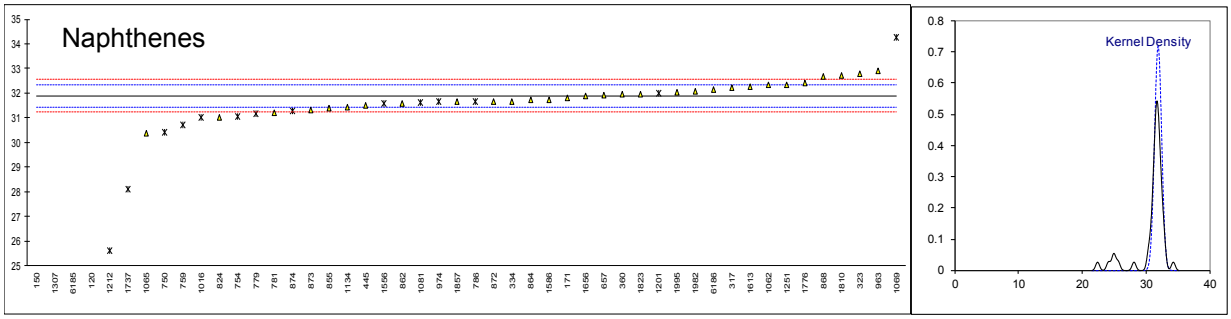
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
120	D6730	30.4194		0.11	35.3577	R(0.01)	11.56	24.9763	ex	-31.15
140		-----		-----	-----		-----	-----		-----
150	D6729	30.468		0.25	35.524	R(0.01)	12.05	22.353	ex	-42.98
158		-----		-----	-----		-----	-----		-----
171	D5443	30.63		0.73	31.14		-0.83	31.82		-0.31
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
317	D5443	31.19		2.41	30.04		-4.06	32.24		1.59
323	D5443	29.60		-2.34	31.15		-0.80	32.78		4.02
333		-----		-----	-----		-----	-----		-----
334	D6839	30.02		-1.09	31.59		0.49	31.67		-0.98
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360	D5443	30.53		0.44	31.45		0.08	31.94		0.24
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D6839	31.18		2.38	30.52		-2.65	31.49		-1.79
494		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
657	D5443	30.62		0.71	31.13		-0.86	31.91		0.10
663		-----		-----	-----		-----	-----		-----
750	GOST R52714	30.89		1.51	31.95		1.55	30.42	ex	-6.62
753		-----		-----	-----		-----	-----		-----
754	D6729	31.066		2.04	31.362		-0.18	31.049	ex	-3.78
759	D6729	31.44		3.16	31.46		0.11	30.73	ex	-5.22
779	D6729	30.699		0.94	31.367		-0.17	31.176	ex	-3.21
781	D6839	30.56		0.53	31.68		0.75	31.19		-3.15
785		-----		-----	31.778		1.04	-----		-----
786	GOST R52714	31.61		3.66	30.51		-2.68	31.65	ex	-1.07
798		-----		-----	-----		-----	-----		-----
824	D5443	30.21		-0.52	31.50		0.23	31.01		-3.96
840		-----		-----	-----		-----	-----		-----
855	D6839	30.48		0.29	31.41		-0.04	31.39		-2.24
862	D6839	30.46		0.23	30.94		-1.42	31.59		-1.34
864	D6839	30.62		0.71	31.62		0.58	31.72		-0.76
868	D6839	30.15		-0.70	31.83		1.19	32.66		3.48
872	D6839	30.32		-0.19	31.79		1.08	31.65		-1.07
873		31.01		1.87	31.03		-1.16	31.33		-2.51
874	D6729	30.787		1.20	31.641		0.64	31.277	ex	-2.75
875		-----		-----	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	28.63		-5.24	31.96		1.58	32.90		4.56
974	D6730	29.602		-2.34	32.078		1.92	31.638	ex	-1.13
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
1012		-----		-----	-----		-----	-----		-----
1016	ISO22854	31.04		1.96	31.22		-0.60	31.00	ex	-4.00
1062	D5443	28.30		-6.23	32.81		4.07	32.35		2.08
1065	In house	30.954		1.70	31.437		0.04	30.374		-6.82
1067		-----		-----	-----		-----	-----		-----
1069	In house	16.15	R(0.01)	-42.53	18.08	R(0.01)	-39.21	34.28	ex	10.78
1081	ISO22854	30.41		0.08	31.39		-0.10	31.60	ex	-1.30
1134	D6839	30.48		0.29	31.85		1.25	31.42		-2.11
1145		-----		-----	-----		-----	-----		-----
1201	D5134	30.16		-0.67	31.58		0.46	31.98	ex	0.42
1212	D5134	31.836		4.34	30.450		-2.86	25.612	ex	-28.29
1251	D6839	29.27		-3.33	32.26		2.46	32.35		2.08
1257		-----		-----	-----		-----	-----		-----
1307	In house	31.775		4.16	36.146	R(0.01)	13.88	24.072	R(0.01)	-35.23
1320		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1556	ISO22854	30.51		0.38	30.95		-1.39	31.58	ex	-1.39
1585		-----		-----	-----		-----	-----		-----
1586	D6839	29.85		-1.60	32.14	C	2.11	31.73	C	-0.71
1603		-----		-----	-----		-----	-----		-----

lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
1613	D6839	29.74		-1.92	31.63		0.61	32.25		1.63
1653		-----		-----	-----		-----	-----		-----
1656	D5443	30.5		0.35	30.9		-1.54	31.9		0.05
1737	In house	30.25		-0.40	30.56		-2.54	28.09	R(0.01)	-17.12
1776	ISO22854	29.85		-1.60	31.36		-0.19	32.40		2.31
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1810	D6839	28.7		-5.03	32.1		1.99	32.7		3.66
1823	D6839	31.10		2.14	30.50		-2.71	31.94		0.24
1849		-----		-----	-----		-----	-----		-----
1857	D5443	30.55		0.50	31.54		0.34	31.64		-1.12
1949		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1982		-----		-----	-----		-----	32.09		0.91
1995	D5443	28.80		-4.73	31.72		0.87	32.05		0.73
6016		-----		-----	-----		-----	-----		-----
6159		-----		-----	-----		-----	-----		-----
6160		-----		-----	-----		-----	-----		-----
6161		-----		-----	-----		-----	-----		-----
6185	D6729	30.71		0.97	35.22	R(0.01)	11.16	24.83	ex	-31.81
6186	D6839	29.69		-2.07	31.88		1.34	32.15		1.18
6200		-----		-----	-----		-----	-----		-----
6201		-----		-----	-----		-----	-----		-----
7006		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9090		-----		-----	-----		-----	-----		-----
	normality	OK			OK			OK		
	n	46			43			30		
	outliers	1			5			2(+16ex)		
	mean (n)	30.3841			31.4233			31.8878		
	st.dev. (n)	0.78875			0.55744			0.55585		
	R(calc.)	2.2085			1.5608			1.5564		
	st.dev.(D5443:14)	0.33467			0.34034			0.22184		
	R(D5443:14)	0.9371			0.9530			0.6212		
Compare										
	R(D6839:17)	1.6			1.6			1.6		

See for excluded test results § 4.1
Lab 1586 first reported 28.78 and 34.59


n-Paraffines
Kernel Density


i-Paraffines
Kernel Density


Naphthenes
Kernel Density

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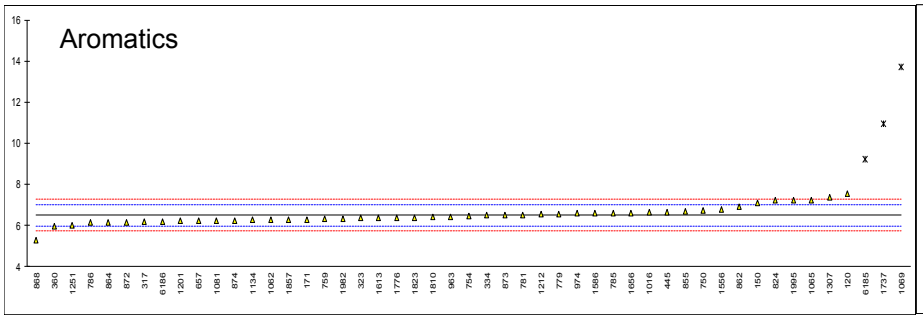
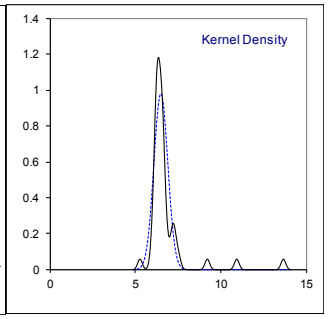
PONA/PIONA/PNA (Aromatics, C4 and lighter, Comp. with BP>200°C) determination on sample #18046; results in %M/M (continued)

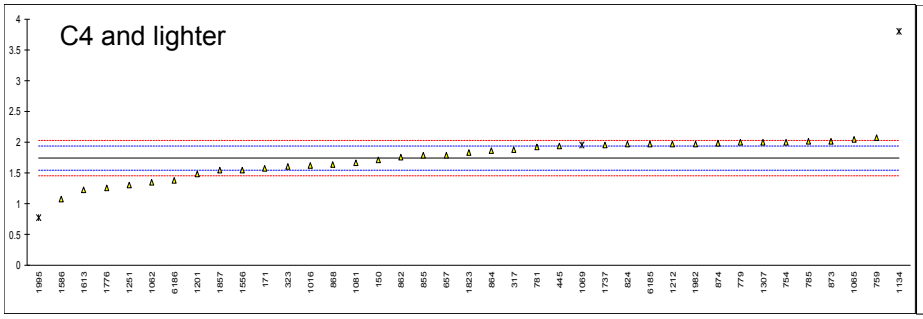
lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
120	D6730	7.53995		4.13	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D6729	7.107		2.43	1.718		-0.23	-----		-----
158		-----		-----	-----		-----	-----		-----
171	D5443	6.29		-0.78	1.58		-1.65	0.04		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
317	D5443	6.18		-1.21	1.87		1.33	<0.05		-----
323	D5443	6.37		-0.47	1.60		-1.45	-----		-----
333		-----		-----	-----		-----	-----		-----
334	D6839	6.5		0.04	-----		-----	-----		-----
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360	D5443	5.96		-2.08	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D6839	6.66		0.67	1.94		2.05	0.07		-----
494		-----		-----	-----		-----	-----		-----
529		-----		-----	-----		-----	-----		-----
541		-----		-----	-----		-----	-----		-----
557		-----		-----	-----		-----	-----		-----
608		-----		-----	-----		-----	-----		-----
657	D5443	6.23		-1.02	1.79		0.51	-----		-----
663		-----		-----	-----		-----	-----		-----
750	GOST R52714	6.73		0.95	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754	D6729	6.453		-0.14	2.005		2.72	-----		-----
759	D6729	6.31		-0.70	2.08		3.49	-----		-----
779	D6729	6.559		0.27	1.993		2.59	-----		-----
781	D6839	6.52		0.12	1.928		1.93	<0.1		-----
785	D6729	6.586		0.38	2.007		2.74	-----		-----
786	GOST R52714	6.12		-1.45	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
824	D5443	7.22		2.87	1.96		2.25	-----		-----
840		-----		-----	-----		-----	-----		-----
855	D6839	6.68		0.75	1.78		0.40	-----		-----
862	D6839	6.92		1.69	1.76		0.20	-----		-----
864	D6839	6.14		-1.37	1.86		1.23	-----		-----
868	D6839	5.26		-4.82	1.64		-1.04	-----		-----
872	D6839	6.14		-1.37	-----		-----	-----		-----
873		6.51		0.08	2.01		2.77	-----		-----
874	D6729	6.245		-0.96	1.984		2.50	-----		-----
875		-----		-----	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	6.41		-0.31	-----		-----	-----		-----
974	D6730	6.574		0.33	-----		-----	-----		-----
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
1012		-----		-----	-----		-----	-----		-----
1016	ISO22854	6.62		0.51	1.62		-1.24	0.00		-----
1062	D5443	6.27		-0.86	1.35		-4.02	-----		-----
1065	In house	7.229		2.90	2.04		3.08	-----		-----
1067		-----		-----	-----		-----	-----		-----
1069	In house	13.69	R(1)	28.27	1.95	ex	2.15	-----		-----
1081	ISO22854	6.23		-1.02	1.66		-0.83	-----		-----
1134	D6839	6.26		-0.90	3.80	R(1)	21.17	<0.01		-----
1145		-----		-----	-----		-----	-----		-----
1201	D5134	6.22		-1.06	1.49		-2.58	-----		-----
1212	D5134	6.533		0.17	1.965		2.31	0		-----
1251	D6839	6.02		-1.84	1.30		-4.53	-----		-----
1257		-----		-----	-----		-----	-----		-----
1307	In house	7.379		3.49	1.997		2.63	-----		-----
1320		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1556	ISO22854	6.78		1.14	1.55		-1.96	0.27		-----
1585		-----		-----	-----		-----	-----		-----
1586	D6839	6.58		0.36	1.07	C	-6.90	-----		-----
1603		-----		-----	-----		-----	-----		-----

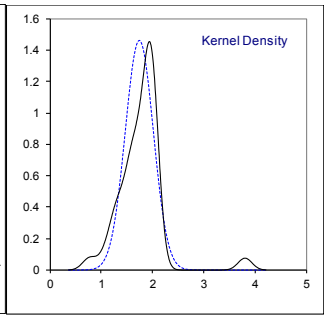
lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
1613	D6839	6.38		-0.43	1.23	C	-5.25	-----		-----
1653		-----		-----	-----		-----	-----		-----
1656	D5443	6.6		0.44	-----		-----	0.1		-----
1737	In house	10.95	R(1)	17.51	1.95		2.15	-----		-----
1776	ISO22854	6.38		-0.43	1.26		-4.94	-----		-----
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----
1810	D6839	6.4		-0.35	-----		-----	-----		-----
1823	D6839	6.38		-0.43	1.83		0.92	0.03		-----
1849		-----		-----	-----		-----	-----		-----
1857	D5443	6.27		-0.86	1.54		-2.06	ND		-----
1949		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1982	D6839	6.34		-0.59	1.97		2.36	-----		-----
1995	D5443	7.22		2.87	0.77	R(5)	-9.98	0.64	D(5)	-----
6016		-----		-----	-----		-----	-----		-----
6159		-----		-----	-----		-----	-----		-----
6160		-----		-----	-----		-----	-----		-----
6161		-----		-----	-----		-----	-----		-----
6185	D6729	9.22	R(1)	10.72	1.96		2.25	0		-----
6186	D6839	6.19		-1.17	1.38		-3.71	-----		-----
6200		-----		-----	-----		-----	-----		-----
6201		-----		-----	-----		-----	-----		-----
7006		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9090		-----		-----	-----		-----	-----		-----
	normality	suspect			OK			not OK		
	n	46			36			8		
	outliers	3			2(+1ex)			1		
	mean (n)	6.4890			1.7408			0.0637		
	st.dev. (n)	0.40826			0.27271			0.09086		
	R(calc.)	1.1431			0.7636			0.2544		
	st.dev.(D5443:14)	0.25474			0.09726			n.a.		
	R(D5443:14)	0.7133		R(D5134:13	0.2723			n.a.		
Compare										
	R(D6839:17)	0.5936						n.a.		

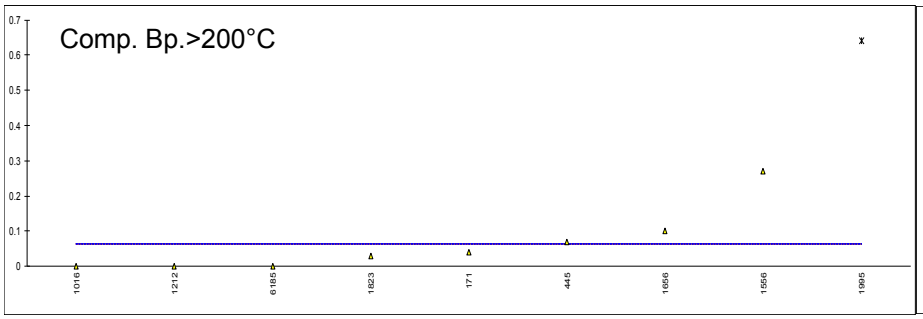
See for excluded test results § 4.1
Lab 1586 first reported 3.47

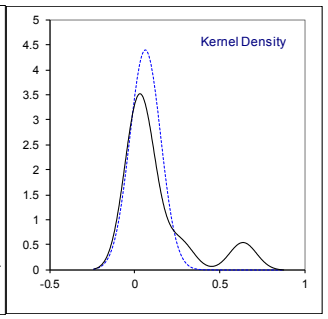

Aromatics


Kernel Density


C4 and lighter


Kernel Density


Comp. Bp.>200°C


Kernel Density

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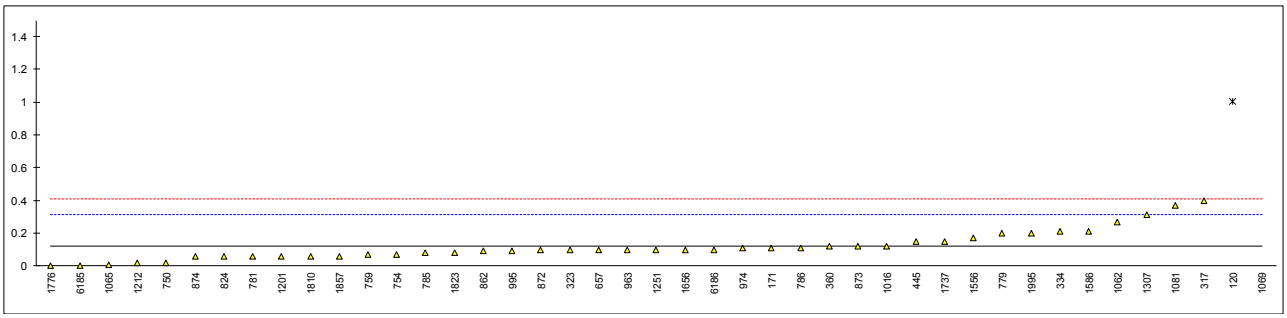
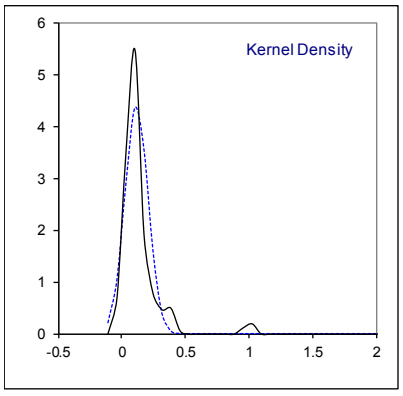
PONA/PIONA/PNA (Olefines) determination on sample #18046; results in %M/M (continued)

lab	method	value	mark	z(targ)	remarks
120	D6730	1.0018	R(0.01)	9.11	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D5443	0.11		-0.10	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317	D6839	0.4		2.90	
323	D6839	0.10		-0.20	
333		-----		-----	
334	D6839	0.21		0.93	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D6839	0.12		0.00	
399		-----		-----	
444		-----		-----	
445	D6839	0.15		0.31	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D6839	0.1		-0.20	
663		-----		-----	
750	GOST R52714	0.019		-1.04	
753		-----		-----	
754	D6729	0.070		-0.51	
759		0.07		-0.51	
779		0.199		0.82	
781	D6839	0.06		-0.62	
785	D6729	0.078		-0.43	
786	GOST R52714	0.11		-0.10	
798		-----		-----	
824	D6839	0.06		-0.62	
840		-----		-----	
855	D6839	<0.1		-----	
862	D6839	0.09		-0.31	
864	D6839	<0.1		-----	
868	D6839	<0.1		-----	
872	D6839	0.10		-0.20	
873		0.12		0.00	
874	D6729	0.058		-0.64	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D6839	0.1		-0.20	
974	D6370	0.108		-0.12	
982		-----		-----	
994		-----		-----	
995		0.09		-0.31	
997		-----		-----	
1012		-----		-----	
1016	ISO22854	0.12		0.00	
1062	D6839	0.27		1.55	
1065	In house	0.006		-1.17	
1067		-----		-----	
1069	In house	17.85	R(0.01)	183.12	
1081	ISO22854	0.37		2.59	
1134	D6839	<0.01		-----	
1145		-----		-----	
1201	D6839	0.06		-0.62	
1212	D5134	0.017		-1.06	
1251	D6839	0.1		-0.20	
1257		-----		-----	
1307	In house	0.310		1.97	
1320		-----		-----	
1381		-----		-----	
1429		-----		-----	
1556	ISO22854	0.17		0.52	
1585		-----		-----	
1586	D6839	0.21		0.93	
1603		-----		-----	

1613	D6839	< 0.1	-----
1653		-----	-----
1656	D5443	0.1	-0.20
1737	In house	0.15	0.31
1776	ISO22854	0	-1.24
1788		-----	-----
1796		-----	-----
1810	D6839	0.06	-0.62
1823	D6839	0.08	-0.41
1849		-----	-----
1857	D6839	0.06	-0.62
1949		-----	-----
1950		-----	-----
1960		-----	-----
1967		-----	-----
1982		-----	-----
1995	D5443	0.2	0.83
6016		-----	-----
6159		-----	-----
6160		-----	-----
6161		-----	-----
6185	D6729	0	-1.24
6186	D6839	0.1	-0.20
6200		-----	-----
6201		-----	-----
7006		-----	-----
9057		-----	-----
9058		-----	-----
9061		-----	-----
9090		-----	-----

normality	not OK
n	41
outliers	2
mean (n)	0.1196
st.dev. (n)	0.09088
R(calc.)	0.2545
st.dev.(D6839:16)	0.09683
R(D6839:16)	0.2711



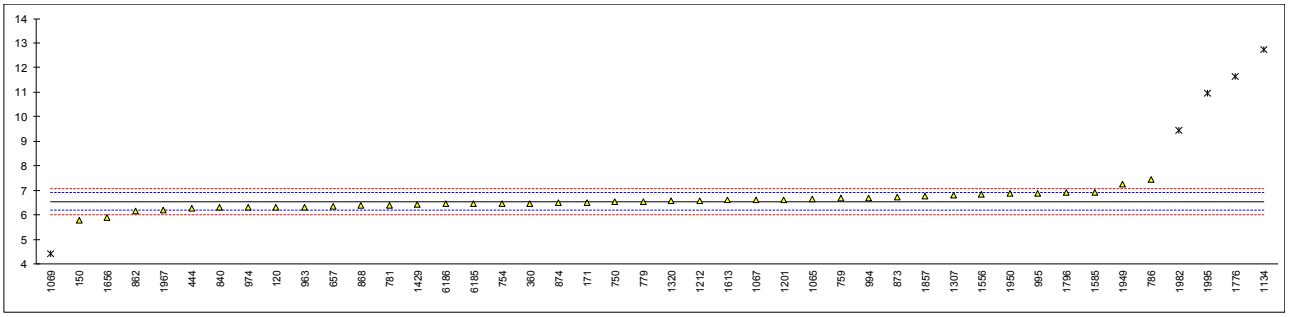


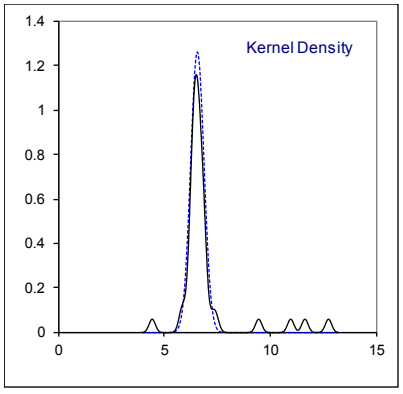
Determination of Pentane (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	6.3012		-1.42	
140		-----		-----	
150	D5134	5.801		-4.26	
158		-----		-----	
171	D5134	6.518		-0.19	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	6.47		-0.46	
399		-----		-----	
444	D5134	6.2722		-1.58	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	6.339		-1.20	
663		-----		-----	
750	D5134	6.52		-0.18	
753		-----		-----	
754	D5134	6.469		-0.47	
759	D5134	6.681		0.74	
779	D5134	6.555		0.02	
781	D5134	6.383		-0.95	
785		-----		-----	
786	D5134	7.44		5.05	
798		-----		-----	
824		-----		-----	
840	D5134	6.294		-1.46	
855		-----		-----	
862	D5134	6.171		-2.16	
864		-----		-----	
868	D5134	6.377		-0.99	
872		-----		-----	
873	D5134	6.74		1.07	
874	D5134	6.486		-0.37	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	6.33		-1.25	
974	D5134	6.301		-1.42	
982		-----		-----	
994	D5134	6.6965		0.83	
995	D5134	6.89		1.92	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	6.65	C	0.56	First reported 1.815
1067	D5134	6.62		0.39	
1069	D5134	4.42	ex	-12.10	excluded see § 4.1
1081		-----		-----	
1134	D5134	12.743	R(0.01)	35.15	
1145		-----		-----	
1201	D5134	6.63		0.45	
1212	D5134	6.585	C	0.19	First reported 11.018
1251		-----		-----	
1257		-----		-----	
1307	D5134	6.796		1.39	
1320	D5134	6.568		0.10	
1381		-----		-----	
1429	D5134	6.431		-0.68	
1556	D5134	6.84		1.64	
1585	D5134	6.914		2.06	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	6.60		0.28	
1653		-----		-----	
1656	D5134	5.9		-3.70	
1737		-----		-----	
1776	D5134	11.63	R(0.01)	28.83	
1788		-----		-----	
1796	D5134	6.898		1.97	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	6.78		1.30	
1949	D5134	7.264	C	4.05	First reported 7.754
1950	D5134	6.87		1.81	
1960		-----		-----	
1967	D5134	6.1974		-2.01	
1982	D5134	9.447	R(0.01)	16.44	
1995	D5134	10.96	R(0.01)	25.03	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	6.46		-0.52	
6186	D5134	6.45		-0.57	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	suspect
	n	39
	outliers	4 (+1ex)
	mean (n)	6.5510
	st.dev. (n)	0.31586
	R(calc.)	0.8844
	st.dev.(D5134:13)	0.17616
	R(D5134:13)	0.4932
Compare		
	R(Horwitz)	0.5529



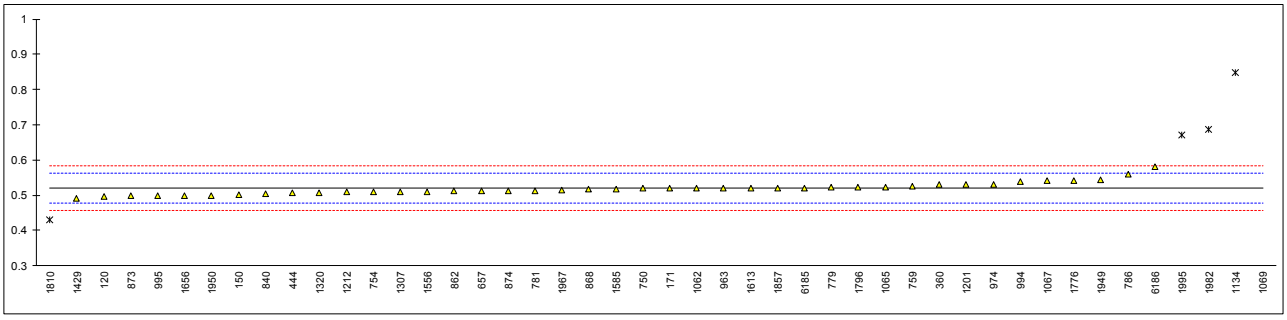


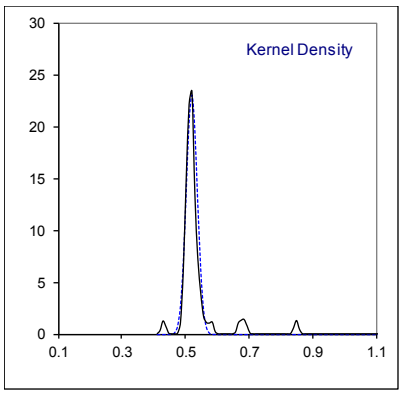
Determination of Benzene (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	0.49625		-1.07	
140		-----		-----	
150	D5134	0.501		-0.84	
158		-----		-----	
171	D5134	0.520		0.05	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	0.53		0.53	
399		-----		-----	
444	D5134	0.5061		-0.60	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	0.512		-0.32	
663		-----		-----	
750	D5134	0.52		0.05	
753		-----		-----	
754	D5134	0.510		-0.42	
759	D5134	0.526		0.34	
779	D5134	0.522		0.15	
781	D5134	0.513		-0.28	
785		-----		-----	
786	D5134	0.56		1.94	
798		-----		-----	
824		-----		-----	
840	D5134	0.504		-0.70	
855		-----		-----	
862	D5134	0.511		-0.37	
864		-----		-----	
868	D5134	0.517		-0.09	
872		-----		-----	
873	D5134	0.50		-0.89	
874	D5134	0.513		-0.28	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	0.52		0.05	
974	D5134	0.531		0.57	
982		-----		-----	
994	D5134	0.5398		0.99	
995	D5134	0.50		-0.89	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062	D5134	0.52		0.05	
1065	D5134	0.523		0.20	
1067	D5134	0.54		1.00	
1069	D5134	2.72	R(0.01)	103.98	
1081		-----		-----	
1134	D5134	0.848	R(0.01)	15.55	
1145		-----		-----	
1201	D5134	0.53		0.53	
1212	D5134	0.509		-0.46	
1251		-----		-----	
1257		-----		-----	
1307	D5134	0.510		-0.42	
1320	D5134	0.508		-0.51	
1381		-----		-----	
1429	D5134	0.491		-1.32	
1556	D5134	0.51		-0.42	
1585	D5134	0.517		-0.09	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	0.52		0.05	
1653		-----		-----	
1656	D5134	0.5		-0.89	
1737		-----		-----	
1776	D5134	0.54		1.00	
1788		-----		-----	
1796	D5134	0.522		0.15	
1810	D5134	0.43	R(0.01)	-4.20	
1823		-----		-----	
1849		-----		-----	
1857	D5134	0.52		0.05	
1949	D5134	0.545	C	1.24	First reported 0.582
1950	D5134	0.50		-0.89	
1960		-----		-----	
1967	D5134	0.5154		-0.16	
1982	D5134	0.686	R(0.01)	7.90	
1995	D5134	0.67	R(0.01)	7.14	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	0.52		0.05	
6186	D5134	0.58		2.89	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	not OK
	n	41
	outliers	5
	mean (n)	0.5188
	st.dev. (n)	0.01732
	R(calc.)	0.0485
	st.dev.(D5134:13)	0.02117
	R(D5134:13)	0.0593
Compare		
	R(Horwitz)	0.0641



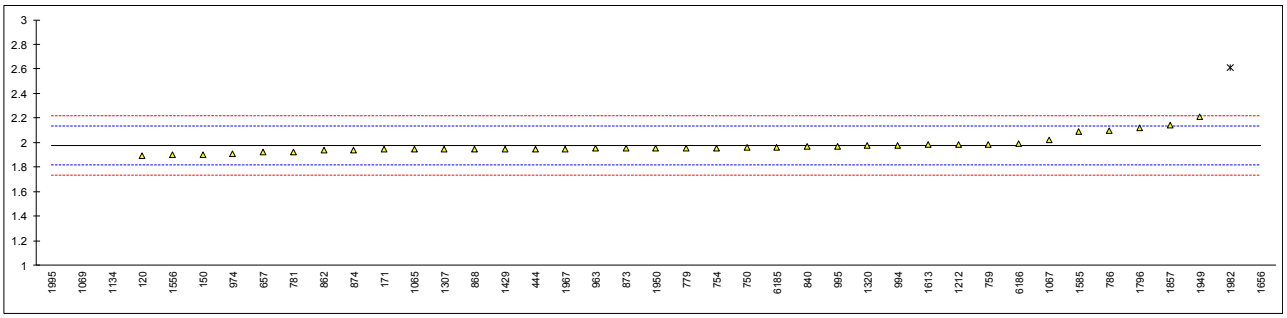


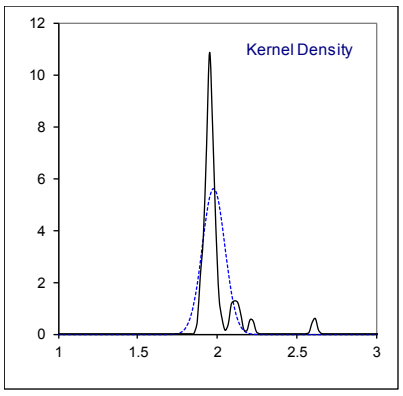
Determination of Cyclohexane (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	1.89495		-1.01	
140		-----		-----	
150	D5134	1.904		-0.90	
158		-----		-----	
171	D5134	1.943		-0.41	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	D5134	1.9481		-0.35	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	1.921		-0.69	
663		-----		-----	
750	D5134	1.96		-0.20	
753		-----		-----	
754	D5134	1.953		-0.29	
759	D5134	1.987		0.14	
779	D5134	1.952		-0.30	
781	D5134	1.925		-0.64	
785		-----		-----	
786	D5134	2.10		1.54	
798		-----		-----	
824		-----		-----	
840	D5134	1.966		-0.13	
855		-----		-----	
862	D5134	1.936		-0.50	
864		-----		-----	
868	D5134	1.946		-0.37	
872		-----		-----	
873	D5134	1.95		-0.33	
874	D5134	1.941		-0.44	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	1.95		-0.33	
974	D5134	1.908		-0.85	
982		-----		-----	
994	D5134	1.9782		0.03	
995	D5134	1.97		-0.08	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	1.944		-0.40	
1067	D5134	2.02		0.55	
1069	D5134	0.01	R(0.01)	-24.48	
1081		-----		-----	
1134	D5134	0.099	R(0.01)	-23.37	
1145		-----		-----	
1201		-----		-----	
1212	D5134	1.985		0.11	
1251		-----		-----	
1257		-----		-----	
1307	D5134	1.944		-0.40	
1320	D5134	1.974		-0.03	
1381		-----		-----	
1429	D5134	1.947		-0.36	
1556	D5134	1.90		-0.95	
1585	D5134	2.087		1.38	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	1.98		0.05	
1653		-----		-----	
1656	D5134	4.9	R(0.01)	36.40	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796	D5134	2.123		1.83	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	2.14		2.04	
1949	D5134	2.214	C	2.96	First reported 2.363
1950	D5134	1.95		-0.33	
1960		-----		-----	
1967	D5134	1.9486		-0.34	
1982	D5134	2.610	R(0.01)	7.89	
1995	D5134	0	R(0.01)	-24.60	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	1.96		-0.20	
6186	D5134	1.99		0.17	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	not OK
	n	36
	outliers	5
	mean (n)	1.9761
	st.dev. (n)	0.07091
	R(calc.)	0.1986
	st.dev.(D5134:13)	0.08033
	R(D5134:13)	0.2249
Compare		
	R(Horwitz)	0.1998



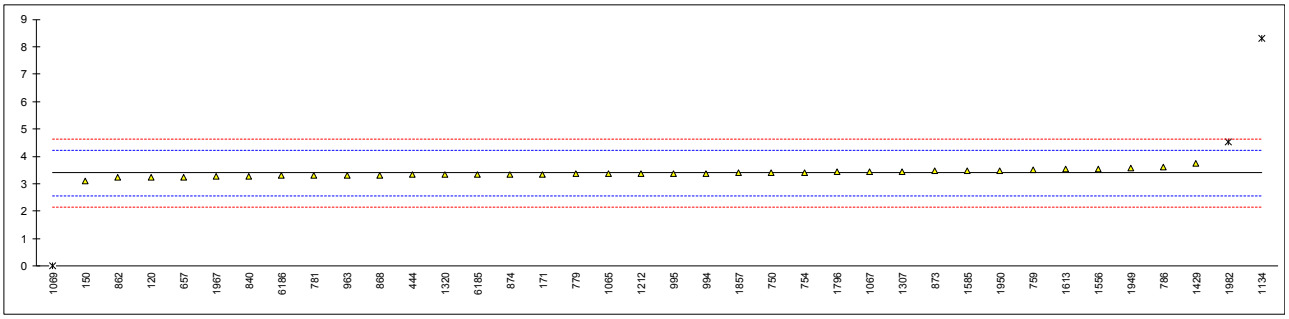


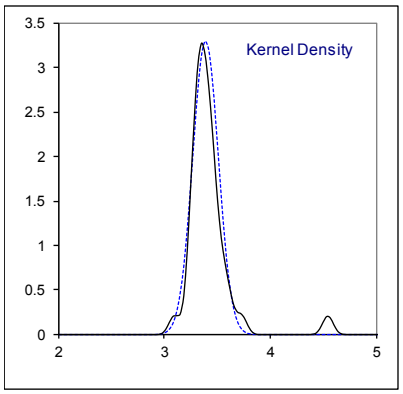
Determination of 2-Methylpentane (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	3.2514		-0.34	
140		-----		-----	
150	D5134	3.096		-0.72	
158		-----		-----	
171	D5134	3.352		-0.10	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	D5134	3.3341		-0.14	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	3.252		-0.34	
663		-----		-----	
750	D5134	3.41		0.05	
753		-----		-----	
754	D5134	3.420		0.07	
759	D5134	3.492		0.24	
779	D5134	3.366		-0.06	
781	D5134	3.308		-0.20	
785		-----		-----	
786	D5134	3.62		0.56	
798		-----		-----	
824		-----		-----	
840	D5134	3.281		-0.27	
855		-----		-----	
862	D5134	3.249		-0.35	
864		-----		-----	
868	D5134	3.320		-0.17	
872		-----		-----	
873	D5134	3.46		0.17	
874	D5134	3.347		-0.11	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	3.31		-0.20	
974		-----		-----	
982		-----		-----	
994	D5134	3.3856		-0.01	
995	D5134	3.38		-0.03	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	3.372		-0.05	
1067	D5134	3.44		0.12	
1069	D5134	0	R(0.01)	-8.24	
1081		-----		-----	
1134	D5134	8.292	R(0.01)	11.90	
1145		-----		-----	
1201		-----		-----	
1212	D5134	3.372		-0.05	
1251		-----		-----	
1257		-----		-----	
1307	D5134	3.454		0.15	
1320	D5134	3.339		-0.13	
1381		-----		-----	
1429	D5134	3.731		0.83	
1556	D5134	3.55		0.39	
1585	D5134	3.464		0.18	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	3.53		0.34	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796	D5134	3.432		0.10	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	3.40		0.02	
1949	D5134	3.582	C	0.46	First reported 3.823
1950	D5134	3.47		0.19	
1960		-----		-----	
1967	D5134	3.2803		-0.27	
1982	D5134	4.545	R(0.01)	2.80	
1995		-----		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	3.34		-0.12	
6186	D5134	3.30		-0.22	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	suspect
	n	35
	outliers	3
	mean (n)	3.3912
	st.dev. (n)	0.12073
	R(calc.)	0.3381
	st.dev.(D5134:13)	0.41178
	R(D5134:13)	1.1530
Compare		
	R(Horwitz)	0.3160



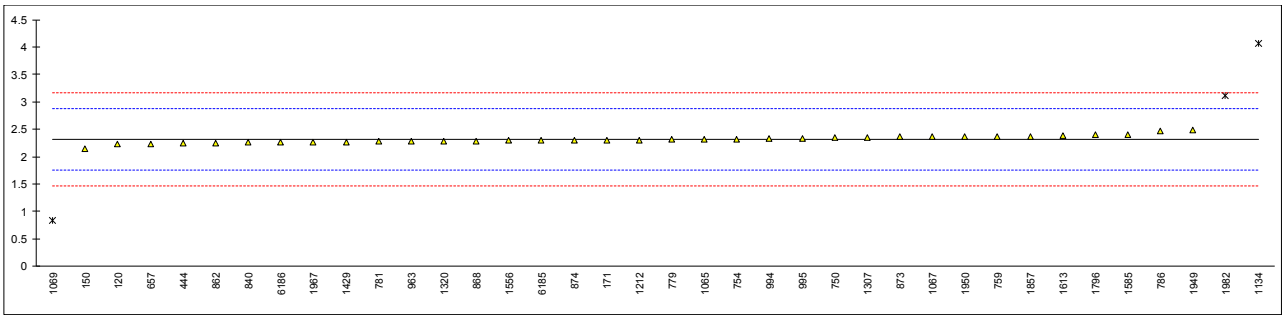


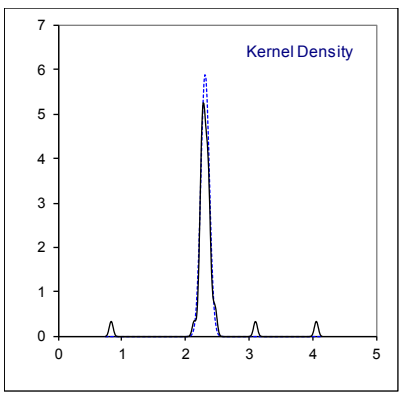
Determination of 3-Methylpentane (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	2.22875		-0.30	
140		-----		-----	
150	D5134	2.141		-0.62	
158		-----		-----	
171	D5134	2.298		-0.06	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	D5134	2.2394		-0.27	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	2.234		-0.29	
663		-----		-----	
750	D5134	2.35		0.13	
753		-----		-----	
754	D5134	2.320		0.02	
759	D5134	2.368		0.19	
779	D5134	2.315		0.00	
781	D5134	2.273		-0.15	
785		-----		-----	
786	D5134	2.46		0.52	
798		-----		-----	
824		-----		-----	
840	D5134	2.256		-0.21	
855		-----		-----	
862	D5134	2.246		-0.24	
864		-----		-----	
868	D5134	2.284		-0.11	
872		-----		-----	
873	D5134	2.36		0.16	
874	D5134	2.292		-0.08	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	2.28		-0.12	
974		-----		-----	
982		-----		-----	
994	D5134	2.3343		0.07	
995	D5134	2.34		0.09	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	2.318		0.01	
1067	D5134	2.36		0.16	
1069	D5134	0.83	R(0.01)	-5.28	
1081		-----		-----	
1134	D5134	4.070	R(0.01)	6.25	
1145		-----		-----	
1201		-----		-----	
1212	D5134	2.303		-0.04	
1251		-----		-----	
1257		-----		-----	
1307	D5134	2.350		0.13	
1320	D5134	2.283		-0.11	
1381		-----		-----	
1429	D5134	2.268		-0.16	
1556	D5134	2.29		-0.09	
1585	D5134	2.401		0.31	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	2.38		0.23	
1653		-----		-----	
1656		-----		-----	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796	D5134	2.398		0.30	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	2.37		0.20	
1949	D5134	2.479	C	0.59	First reported 2.645
1950	D5134	2.36		0.16	
1960		-----		-----	
1967	D5134	2.2644		-0.18	
1982	D5134	3.109	R(0.01)	2.83	
1995		-----		-----	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	2.29		-0.09	
6186	D5134	2.26		-0.19	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	OK
	n	35
	outliers	3
	mean (n)	2.3141
	st.dev. (n)	0.06752
	R(calc.)	0.1891
	st.dev.(D5134:13)	0.28100
	R(D5134:13)	0.7868
Compare		
	R(Horwitz)	0.2284



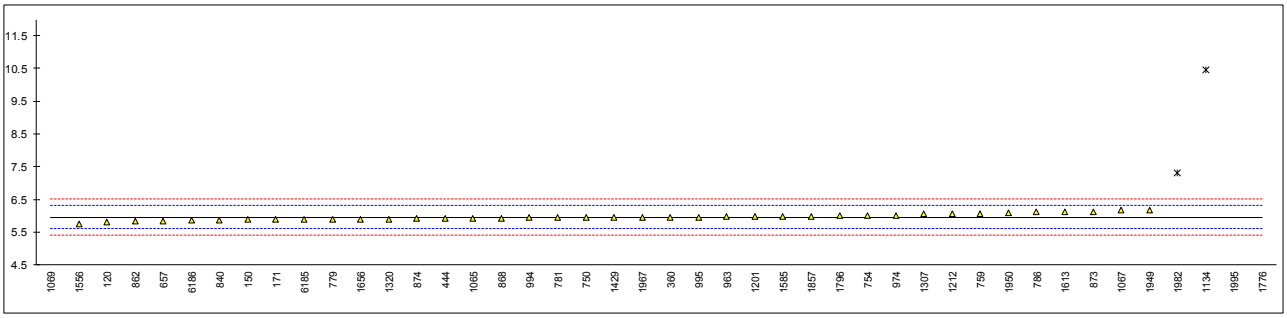


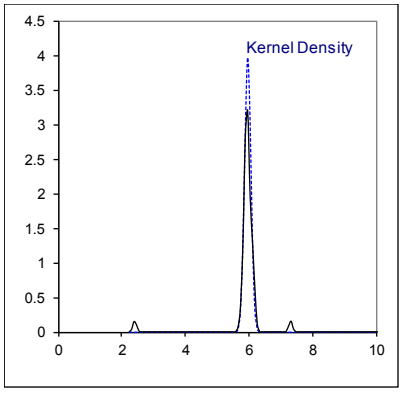
Determination of Heptane (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	5.8004		-0.90	
140		-----		-----	
150	D5134	5.884		-0.44	
158		-----		-----	
171	D5134	5.888		-0.42	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	5.96		-0.02	
399		-----		-----	
444	D5134	5.9220		-0.23	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	5.846		-0.65	
663		-----		-----	
750	D5134	5.95		-0.08	
753		-----		-----	
754	D5134	6.005		0.22	
759	D5134	6.078		0.62	
779	D5134	5.894		-0.39	
781	D5134	5.949		-0.08	
785		-----		-----	
786	D5134	6.11		0.80	
798		-----		-----	
824		-----		-----	
840	D5134	5.861		-0.57	
855		-----		-----	
862	D5134	5.843		-0.67	
864		-----		-----	
868	D5134	5.923		-0.23	
872		-----		-----	
873	D5134	6.13		0.91	
874	D5134	5.909		-0.30	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	5.98		0.09	
974	D5134	6.007		0.23	
982		-----		-----	
994	D5134	5.9459		-0.10	
995	D5134	5.96		-0.02	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	5.923		-0.23	
1067	D5134	6.17		1.13	
1069	D5134	2.41	R(0.01)	-19.49	
1081		-----		-----	
1134	D5134	10.460	R(0.01)	24.66	
1145		-----		-----	
1201	D5134	5.98		0.09	
1212	D5134	6.076		0.61	
1251		-----		-----	
1257		-----		-----	
1307	D5134	6.062		0.54	
1320	D5134	5.903		-0.34	
1381		-----		-----	
1429	D5134	5.950		-0.08	
1556	D5134	5.74		-1.23	
1585	D5134	5.984		0.11	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	6.12		0.85	
1653		-----		-----	
1656	D5134	5.9		-0.35	
1737		-----		-----	
1776	D5134	21.44	R(0.01)	84.87	
1788		-----		-----	
1796	D5134	5.996		0.17	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	5.99		0.14	
1949	D5134	6.176	C	1.16	First reported 6.592
1950	D5134	6.09		0.69	
1960		-----		-----	
1967	D5134	5.9520		-0.07	
1982	D5134	7.314	R(0.01)	7.40	
1995	D5134	21.39	R(0.01)	84.60	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	5.89		-0.41	
6186	D5134	5.86		-0.57	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	OK
	n	39
	outliers	5
	mean (n)	5.96429
	st.dev. (n)	0.100567
	R(calc.)	0.2816
	st.dev.(Horwitz)	0.182341
	R(Horwitz)	0.5106
Compare		
	R(D5134:13)	0.0735



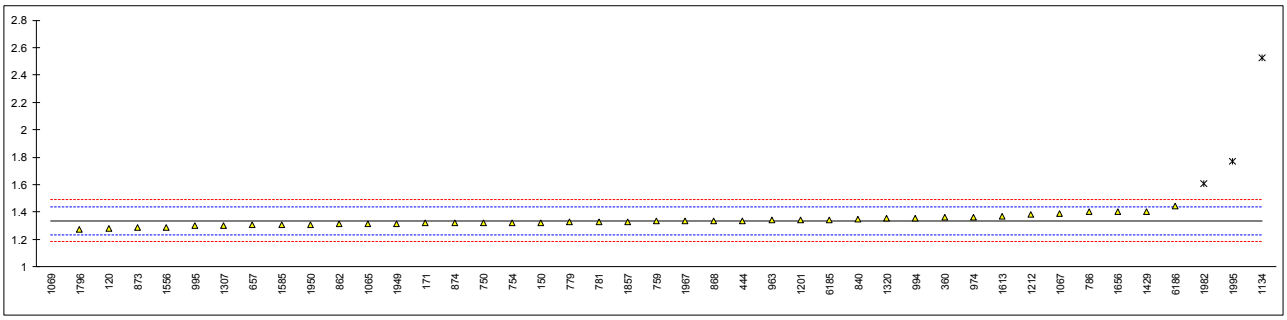


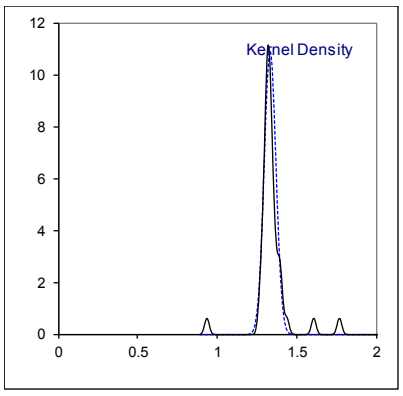
Determination of Toluene (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	1.27765		-1.13	
140		-----		-----	
150	D5134	1.324		-0.23	
158		-----		-----	
171	D5134	1.318		-0.35	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	1.36		0.48	
399		-----		-----	
444	D5134	1.3344		-0.02	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	1.304		-0.62	
663		-----		-----	
750	D5134	1.32		-0.31	
753		-----		-----	
754	D5134	1.321		-0.29	
759	D5134	1.332		-0.07	
779	D5134	1.328		-0.15	
781	D5134	1.329		-0.13	
785		-----		-----	
786	D5134	1.40		1.26	
798		-----		-----	
824		-----		-----	
840	D5134	1.351		0.30	
855		-----		-----	
862	D5134	1.313		-0.44	
864		-----		-----	
868	D5134	1.333		-0.05	
872		-----		-----	
873	D5134	1.29		-0.89	
874	D5134	1.318		-0.35	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	1.34		0.08	
974	D5134	1.360		0.48	
982		-----		-----	
994	D5134	1.3531		0.34	
995	D5134	1.30		-0.70	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	1.316		-0.38	
1067	D5134	1.39		1.06	
1069	D5134	0.94	R(0.01)	-7.74	
1081		-----		-----	
1134	D5134	2.525	R(0.01)	23.25	
1145		-----		-----	
1201	D5134	1.34		0.08	
1212	D5134	1.379		0.85	
1251		-----		-----	
1257		-----		-----	
1307	D5134	1.300		-0.70	
1320	D5134	1.352		0.32	
1381		-----		-----	
1429	D5134	1.402		1.30	
1556	D5134	1.29		-0.89	
1585	D5134	1.305		-0.60	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	1.37		0.67	
1653		-----		-----	
1656	D5134	1.4		1.26	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796	D5134	1.273		-1.23	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	1.33		-0.11	
1949	D5134	1.316	C	-0.38	First reported 1.405
1950	D5134	1.31		-0.50	
1960		-----		-----	
1967	D5134	1.3321		-0.07	
1982	D5134	1.609	R(0.01)	5.34	
1995	D5134	1.77	R(0.01)	8.49	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	1.34		0.08	
6186	D5134	1.44		2.04	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	OK
	n	39
	outliers	4
	mean (n)	1.3357
	st.dev. (n)	0.03660
	R(calc.)	0.1025
	st.dev.(Horwitz)	0.05115
	R(Horwitz)	0.1432
Compare		
	R(D5134:13)	0.0414



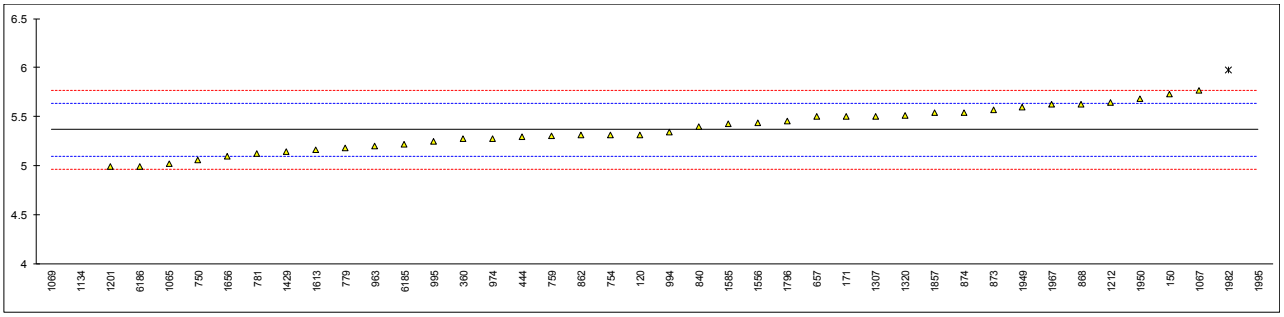


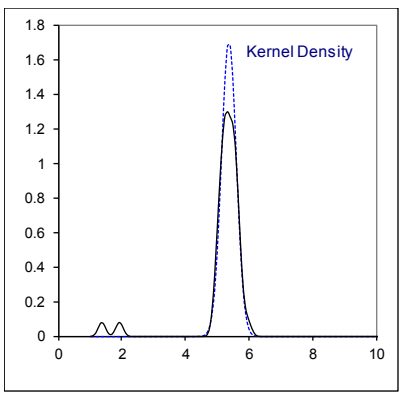
Determination of Octane (DHA) on sample #18046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5134	5.31405		-0.40	
140		-----		-----	
150	D5134	5.727		2.68	
158		-----		-----	
171	D5134	5.502		1.00	
225		-----		-----	
237		-----		-----	
238		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	5.28		-0.65	
399		-----		-----	
444	D5134	5.2946		-0.54	
445		-----		-----	
494		-----		-----	
529		-----		-----	
541		-----		-----	
557		-----		-----	
608		-----		-----	
657	D5134	5.499		0.98	
663		-----		-----	
750	D5134	5.06		-2.29	
753		-----		-----	
754	D5134	5.313		-0.41	
759	D5134	5.301		-0.50	
779	D5134	5.186		-1.35	
781	D5134	5.130		-1.77	
785		-----		-----	
786		-----		-----	
798		-----		-----	
824		-----		-----	
840	D5134	5.401		0.25	
855		-----		-----	
862	D5134	5.310		-0.43	
864		-----		-----	
868	D5134	5.628		1.94	
872		-----		-----	
873	D5134	5.57		1.51	
874	D5134	5.542		1.30	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	5.20		-1.25	
974	D5134	5.281		-0.65	
982		-----		-----	
994	D5134	5.3458		-0.16	
995	D5134	5.25		-0.88	
997		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	D5134	5.022		-2.58	
1067	D5134	5.77		3.00	
1069	D5134	1.39	R(0.01)	-29.64	
1081		-----		-----	
1134	D5134	1.941	R(0.01)	-25.54	
1145		-----		-----	
1201	D5134	4.99		-2.81	
1212	D5134	5.649		2.10	
1251		-----		-----	
1257		-----		-----	
1307	D5134	5.505		1.02	
1320	D5134	5.510		1.06	
1381		-----		-----	
1429	D5134	5.145		-1.66	
1556	D5134	5.44		0.54	
1585	D5134	5.431		0.47	
1586		-----		-----	
1603		-----		-----	

lab	method	value	mark	z(targ)	remarks
1613	D5134	5.16		-1.55	
1653		-----		-----	
1656	D5134	5.1		-1.99	
1737		-----		-----	
1776		-----		-----	
1788		-----		-----	
1796	D5134	5.460		0.69	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	5.54		1.28	
1949	D5134	5.601	C	1.74	First reported 5.978
1950	D5134	5.68		2.33	
1960		-----		-----	
1967	D5134	5.6232		1.90	
1982	D5134	5.980	ex	4.56	excluded see § 4.1
1995	D5134	21.39	R(0.01)	119.40	
6016		-----		-----	
6159		-----		-----	
6160		-----		-----	
6161		-----		-----	
6185	D5134	5.22		-1.10	
6186	D5134	4.99		-2.81	
6200		-----		-----	
6201		-----		-----	
7006		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9090		-----		-----	

	normality	OK
	n	38
	outliers	3 (+1ex)
	mean (n)	5.3676
	st.dev. (n)	0.21442
	R(calc.)	0.6004
	st.dev.(D5134:13)	0.13419
	R(D5134:13)	0.3757
Compare		
	R(Horwitz)	0.4668

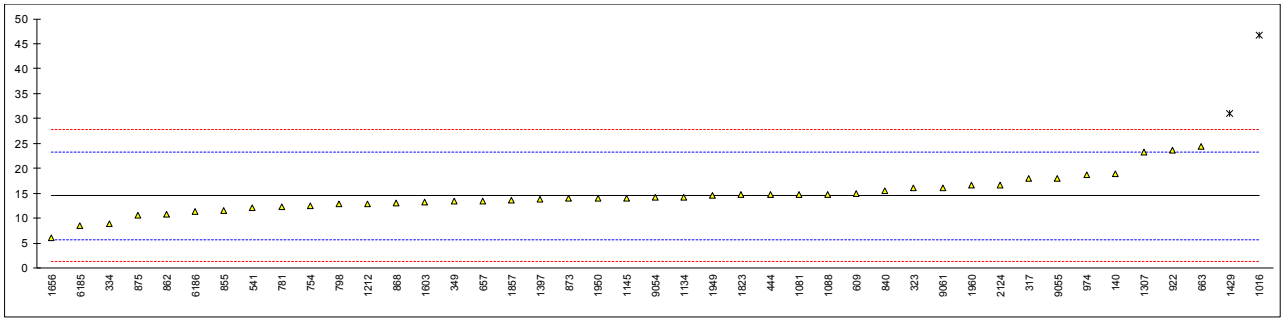


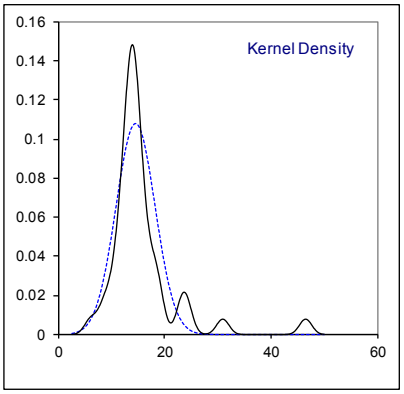


Determination of Mercury content as Hg on sample #18047 and #18048; results in µg/kg

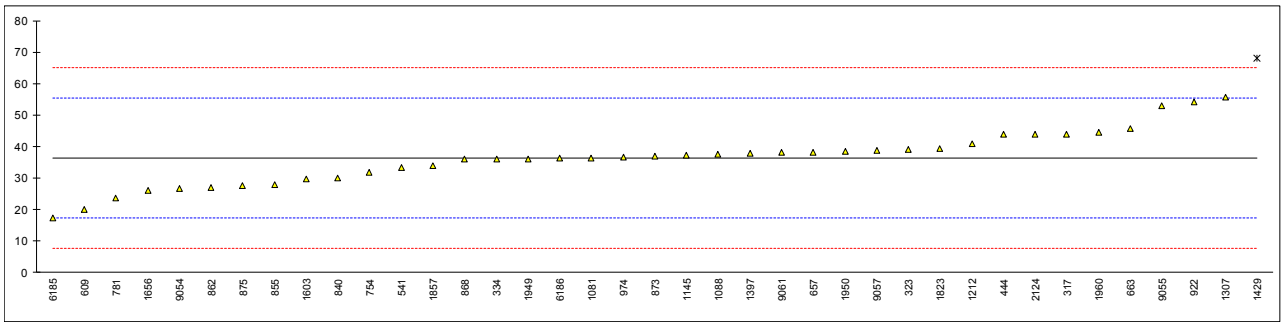
lab	method	#18047	mark	z(targ)	#18048	mark	z(targ)	remarks
140	UOP938	19.0	C	1.01	-----		-----	f.r 390.6
171		-----		-----	-----		-----	
317	INH-003	18		0.79	44		0.81	
323	UOP938	16		0.33	39		0.28	
333		-----		-----	-----		-----	
334	INH-9003	9		-1.26	36		-0.03	
349	UOP938	13.5		-0.24	-----		-----	
444	UOP938	14.8		0.06	43.8		0.79	
541	INH-244	12.2		-0.53	33.2		-0.32	
604		-----		-----	-----		-----	
609	D3223	15		0.10	20		-1.70	
657	UOP938	13.52		-0.23	38.05		0.19	
663	UOP938	24.37		2.23	45.69		0.98	
754	UOP938	12.490		-0.47	31.828		-0.47	
781	D7622	12.3		-0.51	23.6		-1.33	
798	UOP938	12.86		-0.38	-----		-----	
824		-----		-----	-----		-----	
840	EPA7470A	15.5		0.22	29.9		-0.67	
855	UOP938	11.6		-0.67	28.0		-0.87	
862	UOP938	10.75		-0.86	26.86		-0.99	
868	UOP938	13.1		-0.33	36.0		-0.03	
873	UOP938	13.93		-0.14	36.91		0.07	
875		10.6		-0.90	27.7		-0.90	
912		-----		-----	-----		-----	
922	In house	23.6		2.06	54.2		1.87	
963		-----		-----	-----		-----	
974	UOP938	18.81		0.97	36.52		0.03	
1016	UOP938	46.637	C,R(0.01)	7.29	-----		-----	f.r. 32.09
1081	In house	14.8		0.06	36.3		0.00	
1088	D6350	14.82		0.06	37.46		0.12	
1134	In house	14.2935		-0.06	-----		-----	
1145	UOP938	14.02		-0.12	37.30		0.11	
1201		-----	W	-----	-----	W	-----	f.r. 35 and 68
1212	In house	12.9		-0.37	40.8		0.47	
1307	UOP938	23.2		1.97	55.8		2.04	
1397	In house	13.8		-0.17	37.8		0.16	
1429	In house	31	R(0.01)	3.74	68	R(0.05)	3.32	
1603	In house	13.3		-0.28	29.8		-0.68	
1656	UOP938	6.1		-1.92	26		-1.08	
1823	D7623	14.69		0.03	39.32		0.32	
1857	UOP938	13.64		-0.21	33.92		-0.25	
1949	In house	14.5		-0.01	36.1		-0.02	
1950	UOP938	13.95		-0.14	38.5		0.23	
1960	UOP938	16.6		0.47	44.4		0.85	
1995		-----		-----	-----		-----	
2124	In house	16.680		0.49	43.851		0.79	
6016		-----		-----	-----		-----	
6185	In house	8.5		-1.37	17.4		-1.97	
6186	UOP938	11.4		-0.72	36.22		-0.01	
6200		-----		-----	-----		-----	
6201		-----		-----	-----		-----	
9054	UOP938	14.2445		-0.07	26.5556		-1.02	
9055	In house	18		0.79	53		1.75	
9057		<21		-----	38.87		0.27	
9061		16		0.33	38		0.18	
	normality	suspect			OK			
	n	41			38			
	outliers	2	spike	recovery	1	spike	recovery	
	mean (n)	14.546	25	<58%	36.280	33	<110%	
	st.dev. (n)	3.6928			8.5438			
	R(calc.)	10.340			23.923			
	st.dev.(Horwitz)	4.3993			9.5628			
	R(Horwitz)	12.318			26.776			

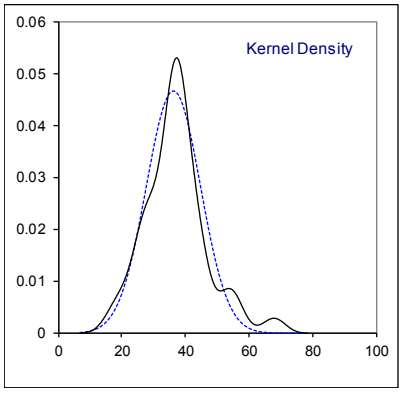
Sample #18047





Sample #18048

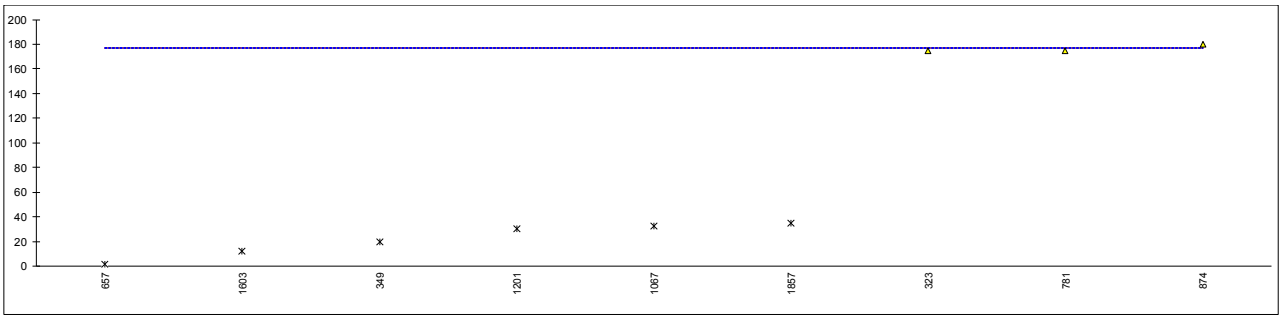




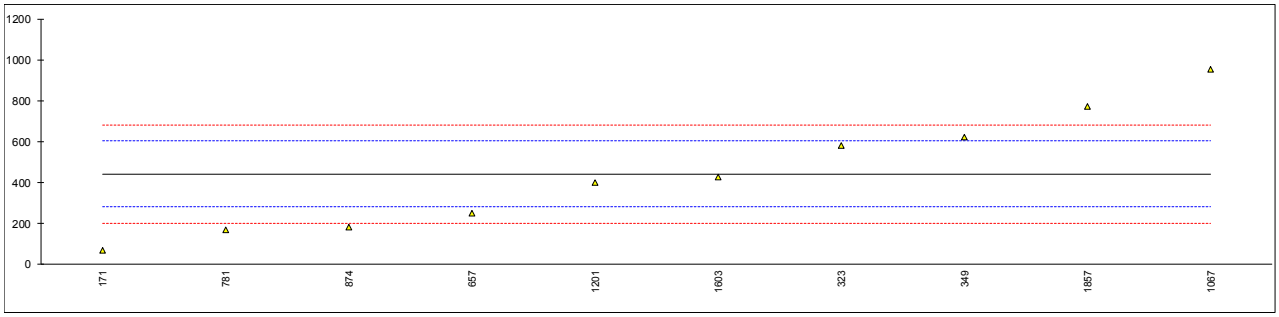
Determination of Arsenic content as As on sample #18049 and #18050; results in µg/kg

lab	method	#18049	mark	z(targ)	#18050	mark	z(targ)	remarks
140		-----		-----	-----		-----	
150		-----		-----	-----		-----	
171	INH-014	<5	Possibly F-?	-----	70		-4.65	
237		-----		-----	-----		-----	
317		-----		-----	-----		-----	
323	INH-018	175		-----	580		1.72	
349	INH-9312	20	ex	-----	622		2.25	excluded see § 4.1
360		-----		-----	-----		-----	
444		-----		-----	-----		-----	
445		-----		-----	-----		-----	
657	INH-177	2	ex	-----	248		-2.43	excluded see § 4.1
754		-----		-----	-----		-----	
781	UOP946	175		-----	169		-3.42	
824		-----		-----	-----		-----	
840		-----		-----	-----		-----	
855		-----		-----	-----		-----	
862		-----		-----	-----		-----	
864		-----		-----	-----		-----	
868		-----		-----	-----		-----	
874	UOP946	180		-----	180		-3.28	
875		-----		-----	-----		-----	
912		-----		-----	-----		-----	
922		-----		-----	-----		-----	
963		-----		-----	-----		-----	
1067	In house	33	ex	-----	955	C	6.41	excluded see § 4.1, f.r. 44
1081		-----		-----	-----		-----	
1134		-----		-----	-----		-----	
1145		-----		-----	-----		-----	
1201	In house	30	ex	-----	400		-0.53	excluded see § 4.1
1603	In house	12	ex	-----	429		-0.17	excluded see § 4.1
1857	In house	35	ex	-----	770		4.10	excluded see § 4.1
1949		-----		-----	-----		-----	
1950		-----		-----	-----		-----	
1995		-----		-----	-----		-----	
6185		-----		-----	-----		-----	
6186		-----		-----	-----		-----	
	normality	not OK			OK			
	n	3			10			
	outliers	0 (+6ex)	spike	recovery	0	spike	recovery	
	mean (n)	176.67	202	<87%	442.30	503	<88%	
	st.dev. (n)	2.887			287.387			
	R(calc.)	8.08			804.68			
	st.dev.(Horwitz)	(36.693)			80.0132			
	R(Horwitz)	(102.74)			224.04			

Sample #18049



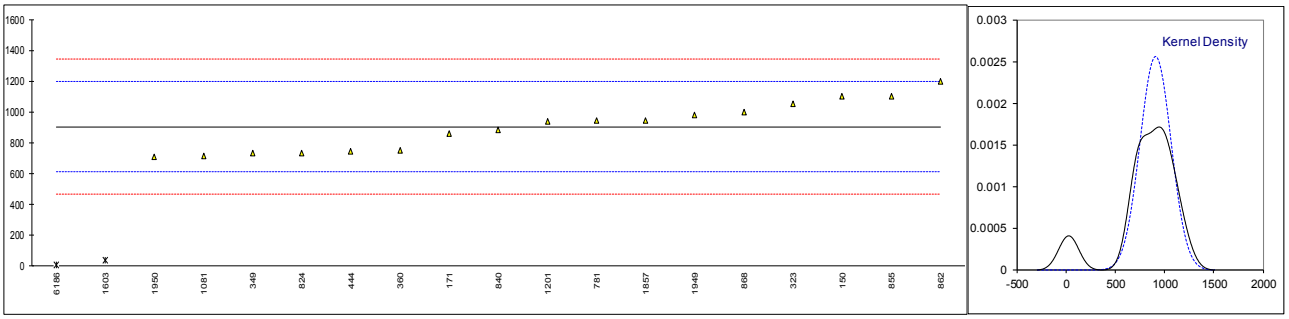
Sample #18050



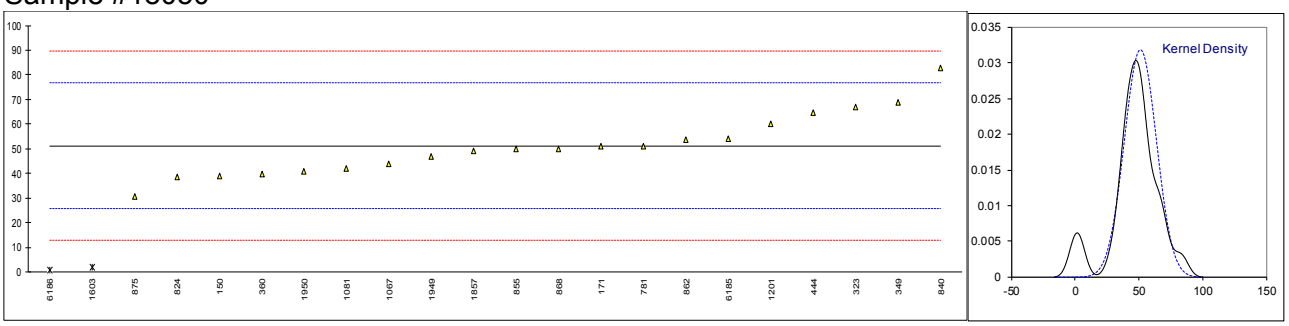
Determination of Lead content as Pb on sample #18049 and #18050; results in µg/kg

lab	method	#18049	mark	z(targ)	#18050	mark	z(targ)	remarks
140		-----		-----	-----		-----	
150	UOP952	1099		1.32	39		-0.95	
171	INH-014	860		-0.30	51		-0.02	
237		-----		-----	-----		-----	
317		-----		-----	-----		-----	
323	INH-002	1050		0.99	67		1.23	
349	UOP952	730	C	-1.19	69		1.39	f.r. 65
360	In house	750.19	C	-1.05	39.86	C	-0.89	f.r. 39.86 and 750.19
444	UOP952	745.5		-1.08	64.7		1.05	
445		-----		-----	-----		-----	
657		-----		-----	-----		-----	
754		-----		-----	-----		-----	
781	UOP952	942		0.25	51		-0.02	
824	UOP952	731		-1.18	38.6		-0.99	
840	UOP952	886.3		-0.12	82.9		2.47	
855	SH/T0242	1100		1.33	50		-0.10	
862	UOP952	1200		2.01	53.9		0.21	
864		-----		-----	-----		-----	
868	UOP952	1000		0.65	50		-0.10	
874		-----		-----	-----		-----	
875		-----		-----	30.5		-1.62	
912		-----		-----	-----		-----	
922		-----		-----	-----		-----	
963		-----		-----	-----		-----	
1067		-----		-----	44	C	-0.56	f.r. 955
1081	In house	713.2		-1.30	42.1		-0.71	
1134		-----		-----	-----		-----	
1145		-----		-----	-----		-----	
1201	In house	940		0.24	60		0.68	
1603	In house	40	C,ex	-5.88	2	ex	-3.84	excluded see § 4.1, f.r. 11
1857	UOP952	942		0.25	49		-0.17	
1949	UOP952	978.0		0.50	46.8		-0.35	
1950	UOP952	710		-1.32	41		-0.80	
1995		-----		-----	-----		-----	
6185		-----		-----	54.2		0.23	
6186	UOP350	8	ex	-6.10	1	ex	-3.92	excluded see § 4.1
	normality	OK			OK			
	n	17			20			
	outliers	0 (+2ex)	spike	recovery	2	spike	recovery	
	mean (n)	904.54	748	<121%	51.23	66	<77%	
	st.dev. (n)	156.029			12.519			
	R(calc.)	436.88			35.05			
	st.dev.(Horwitz)	146.929			12.819			
	R(Horwitz)	411.40			35.89			

Sample #18049



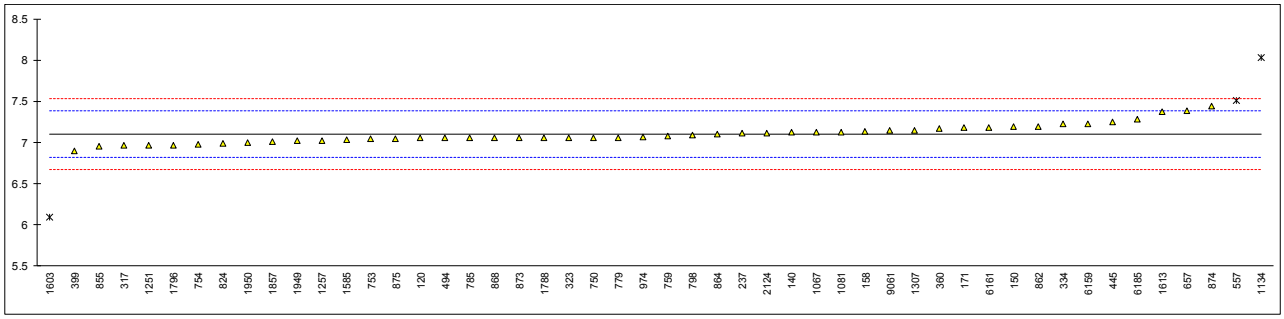
Sample #18050

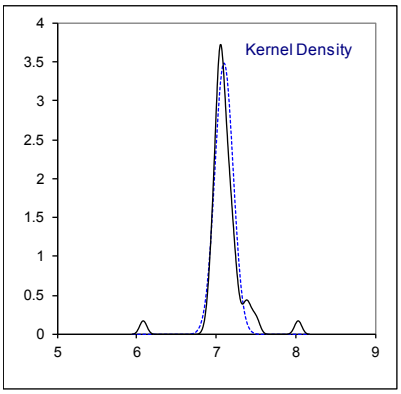


Determination of Total Vapour Pressure on sample #18051; results in psi

lab	method	value	mark	z(targ)	remarks
120	D5191	7.05		-0.36	
140	D5191	7.12		0.13	
150	D5191	7.19		0.62	
158	D5191	7.13		0.20	
171	D5191	7.18		0.55	
237	D5191	7.11		0.06	
238		-----		-----	
317	D5191	7.0		-0.99	
323	D5191	7.1		-0.29	
334	D5191	7.2		0.83	
336		-----		-----	
360	D5191	7.17		0.48	
399	D5191	6.90		-1.41	
445	D5191	7.3		1.04	
494	D5191	7.05		-0.36	
541		-----		-----	
557	D5191	7.51	R(0.05)	2.86	
608		-----		-----	
657	D5191	7.4		1.95	
750	D5191	7.06		-0.29	
753	D5191	7.04		-0.43	
754	D5191	6.98		-0.85	
759	D5191	7.077		-0.17	
779	D5191	7.06		-0.29	
785	D5191	7.1		-0.36	
798	D5191	7.1		-0.08	
824	D5191	7.0		-0.78	
855	D5191	6.95		-1.06	
862	D5191	7.2		0.62	
864	D5191	7.10		-0.01	
868	D5191	7.05		-0.36	
873	D5191	7.05		-0.36	
874	D5191	7.44		2.37	
875	D5191	7.049		-0.37	
963		-----		-----	
974	D5191	7.07		-0.22	
1067	D5191	7.12		0.13	
1081	D5191	7.12		0.13	
1134	D5191	8.03	R(0.01)	6.50	
1145		-----		-----	
1251	D5191	6.96		-0.99	
1257	D5191	7.02		-0.57	
1307	D5191	7.15		0.34	
1585	D5191	7.034		-0.47	
1603	In house	6.09	R(0.01)	-7.08	
1613	D5191	7.37		1.88	
1653		-----		-----	
1788	D5191	7.055		-0.33	
1796	D5191	6.96		-0.99	
1857	D5191	7.01		-0.64	
1949	D5191	7.0198		-0.57	
1950	D5191	7.00		-0.71	
1960		-----		-----	
1995		-----		-----	
2124	D5191	7.11		0.06	
6016		-----		-----	
6159	D5191	7.23		0.90	
6161	D5191	7.18		0.55	
6185	D6378	7.28		1.25	
6200		-----		-----	
6201		-----		-----	
9054		-----		-----	
9061	D5191	7.14		0.27	

normality	not OK
n	47
outliers	3
mean (n)	7.102
st.dev. (n)	0.1145
R(calc.)	0.321
st.dev.(D5191:15)	0.1429
R(D5191:15)	0.40

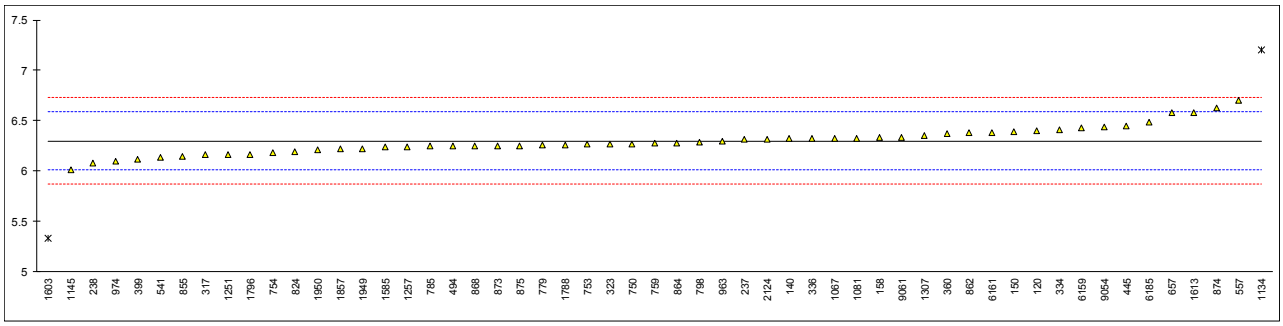

8.5
8
7.5
7
6.5
6
5.5
1603 399 855 317 1251 1796 754 824 1950 1857 1949 1257 1585 753 875 120 494 785 868 873 1788 323 750 779 974 759 798 864 237 2124 140 1067 1081 158 9061 1307 380 171 6161 150 862 334 6159 445 6185 1613 657 874 557 1134


Kernel Density
4
3.5
3
2.5
2
1.5
1
0.5
0
5
6
7
8
9

Determination of DVPE acc. D5191 on sample #18051; results in psi

lab	method	value	mark	z(targ)	remarks
120	D5191	6.40		0.71	
140	D5191	6.32		0.15	
150	D5191	6.39		0.64	
158	D5191	6.33		0.22	
171		-----		-----	
237	D5191	6.3		0.08	
238	D5191	6.077		-1.55	
317	D5191	6.2		-0.97	
323	D5191	6.3		-0.20	
334	D5191	6.4		0.78	
336	D5191	6.3		0.15	
360	D5191	6.37		0.50	
399	D5191	6.12		-1.25	
445	D5191	6.5		1.06	
494	D5191	6.25		-0.34	
541	D6378	6.135		-1.15	
557	D5194	6.7		2.81	
608		-----		-----	
657	D5191	6.6		1.97	
750	D5191	6.27		-0.20	
753	D5191	6.27		-0.20	
754	D5191	6.18		-0.83	
759	D5191	6.279		-0.14	
779	D5191	6.26		-0.27	
785	D5191	6.3		-0.34	
798	D5191	6.3		-0.06	
824	D5191	6.2		-0.76	
855	D5191	6.14		-1.11	
862	D5191	6.4		0.57	
864	D5191	6.28		-0.13	
868	D5191	6.25		-0.34	
873	D5191	6.25		-0.34	
874	D5191	6.63		2.32	
875	D5191	6.251		-0.33	
963	D5191	6.3		0.01	
974	D5191	6.10		-1.39	
1067	D5191	6.3		0.15	
1081	D5191	6.3		0.15	
1134	D5191	7.20	R(0.01)	6.31	
1145	D5191	6.01		-2.02	
1251	D5191	6.16		-0.97	
1257	D5191	6.24		-0.41	
1307	D5191	6.35		0.36	
1585	D5191	6.237		-0.43	
1603	D5191	5.329	R(0.01)	-6.79	
1613	D5191	6.58		1.97	
1653		-----		-----	
1788	D5191	6.26		-0.27	
1796	D5191	6.16		-0.97	
1857	D5191	6.22		-0.55	
1949	D5191	6.2221		-0.54	
1950	D5191	6.21		-0.62	
1960		-----		-----	
1995		-----		-----	
2124	D5191	6.31		0.08	
6016		-----		-----	
6159	D5191	6.43		0.92	
6161	D5191	6.38		0.57	
6185	D6378	6.48		1.27	
6200		-----		-----	
6201		-----		-----	
9054	D323	6.44		0.99	
9061	D5191	6.335		0.25	

normality	suspect
n	53
outliers	2
mean (n)	6.299
st.dev. (n)	0.1361
R(calc.)	0.381
st.dev.(D5191:15)	0.1429
R(D5191:15)	0.40


7.5
7
6.5
6
5.5
5
1603
1445
238
974
399
541
855
317
1251
1796
754
824
1950
1857
1949
1585
1257
785
494
868
873
875
779
1788
753
323
750
789
864
798
963
237
2124
140
336
1067
1081
158
9061
1307
360
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6159
9054
445
6185
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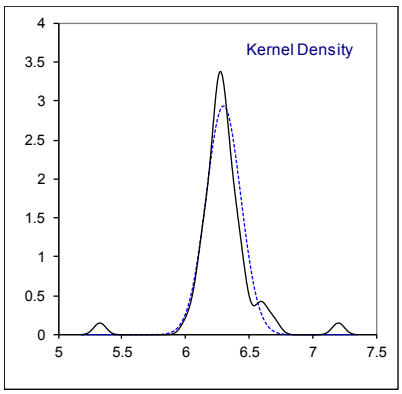
1613
874
557
1134


Kernel Density
4
3.5
3
2.5
2
1.5
1
0.5
0
5
5.5
6
6.5
7
7.5

APPENDIX 2 Number of participants per country

iis17N01 &PIONA

5 labs in UNITED STATES OF AMERICA
1 lab in COTE D'IVOIRE
5 labs in NIGERIA
9 labs in NETHERLANDS
3 labs in BELGIUM
5 labs in FRANCE
1 lab in SPAIN
1 lab in BULGARIA
1 lab in ITALY
6 labs in UNITED KINGDOM
3 labs in GERMANY
1 lab in MEXICO
1 lab in ARGENTINA
2 labs in BRAZIL
1 lab in MALAYSIA
1 lab in SINGAPORE
2 labs in THAILAND
29 labs in RUSSIAN FEDERATION
1 lab in SOUTH KOREA
1 lab in VIETNAM
5 labs in CHINA, People's Republic
1 lab in INDIA
1 lab in PAKISTAN
2 labs in SAUDI ARABIA
2 labs in UNITED ARAB EMIRATES
5 labs in IRAN, Islamic Republic of
1 lab in AZERBAIJAN
2 labs in GEORGIA
1 lab in ISRAEL
1 lab in FINLAND
3 labs in SWEDEN
1 lab in SLOVAKIA
1 lab in ESTONIA
1 lab in MALTA
1 lab in JORDAN
1 lab in PORTUGAL
1 lab in CZECH REPUBLIC
2 labs in TURKEY
2 labs in AUSTRALIA
1 lab in EGYPT
1 lab in KAZAKHSTAN
1 lab in NORWAY
1 lab in QATAR

iis17N01AsPb

3 labs in UNITED STATES OF AMERICA
1 lab in NIGERIA
4 labs in NETHERLANDS
1 lab in BELGIUM
1 lab in SPAIN
1 lab in BULGARIA
4 labs in UNITED KINGDOM
1 lab in SINGAPORE
7 labs in RUSSIAN FEDERATION
1 lab in SOUTH KOREA
1 lab in VIETNAM
4 labs in CHINA, People's Republic
1 lab in INDIA
1 lab in PAKISTAN
1 lab in SAUDI ARABIA
1 lab in THAILAND
1 lab in GERMANY
1 lab in EGYPT
1 lab in TURKEY

iis17N01Hg

2 labs in UNITED STATES OF AMERICA
6 labs in NETHERLANDS
2 labs in BELGIUM
2 labs in FRANCE
1 lab in SPAIN
7 labs in UNITED KINGDOM
1 lab in ARGENTINA
2 labs in MALAYSIA
1 lab in SINGAPORE
2 labs in THAILAND
8 labs in RUSSIAN FEDERATION
1 lab in SOUTH KOREA
1 lab in VIETNAM
4 labs in CHINA, People's Republic
1 lab in INDIA
1 lab in PAKISTAN
1 lab in SAUDI ARABIA
1 lab in UNITED ARAB EMIRATES
2 labs in NORWAY
1 lab in SWEDEN
1 lab in CROATIA
1 lab in GERMANY
3 labs in AUSTRALIA
1 lab in EGYPT
1 lab in KAZAKHSTAN
1 lab in TURKEY

iis17N01DVPE

5 labs in UNITED STATES OF AMERICA
2 labs in NIGERIA
5 labs in NETHERLANDS
2 labs in BELGIUM
2 labs in FRANCE
1 lab in BULGARIA
1 lab in ITALY
4 labs in UNITED KINGDOM
2 labs in GERMANY
1 lab in ARGENTINA
2 labs in BRAZIL
1 lab in MALAYSIA
1 lab in SINGAPORE
17 labs in RUSSIAN FEDERATION
1 lab in SOUTH KOREA
4 labs in CHINA, People's Republic
1 lab in SAUDI ARABIA
2 labs in UNITED ARAB EMIRATES
1 lab in THAILAND
1 lab in JORDAN
1 lab in PORTUGAL
3 labs in AUSTRALIA
1 lab in EGYPT
1 lab in KAZAKHSTAN
2 labs in IRAN, Islamic Republic of
1 lab in NORWAY

APPENDIX 3

Abbreviations:

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

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