Results of Proficiency Test
Naphtha
April 2019

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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Report: iis19N01

July 2019

CONTENTS

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 2018/2019, it was decided to continue the 4 PTs on Naphtha. For participation registered; in the main PT, 101 laboratories in 42 different countries; in the PT for Mercury, 49 laboratories in 23 different countries; in the PT for Arsenic and Lead, 35 laboratories in 16 different countries and in the PT for Vapour Pressure, 59 laboratories in 25 different countries. See appendix 2 for the number of participants per country per PT. In this report, the results of the 2019 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/IEC17025 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
#19045	0.5L	For regular analyses	Real Naphtha
#19046	30mL	For GC analyses	Real Naphtha
#19047	0.5L	For Mercury	Artificial Naphtha
#19048	0.5L	For Mercury	Real Naphtha
#19049	0.5L	For Arsenic and Lead	Artificial Naphtha
#19050	0.5L	For Arsenic and Lead	Real Naphtha
#19051	0.25L	For DVPE	Real Naphtha

Table 1: Seven different Naphtha samples used in iis19N01

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

2.1 ACCREDITATION

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, is accredited in agreement with ISO/IEC17043:2010 (R007), since January 2000, by the Dutch Accreditation Council (Raad voor Accreditatie). 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 June 2018 (iis-protocol, version 3.5). 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

A first batch of Naphtha, approximately 200L, was obtained from a local refinery. This batch was used to prepare four different PT samples #19045, #19048, #19050 and #19051. Approximately 70 liter of the batch was spiked with Chloroform and after homogenisation divided over 140 amber glass bottles of 0.5L and labelled #19045.
The homogeneity of subsamples #19045 was checked by determination of Density at 15°C in accordance with ASTM D4052 on 8 stratified randomly selected samples.

	Density at 15°C in kg/m^3
sample #19045-1	723.18
sample #19045-2	723.08
sample #19045-3	723.02
sample #19045-4	723.06
sample #19045-5	723.05
sample #19045-6	723.03
sample #19045-7	723.05
sample #19045-8	723.08

Table 2: homogeneity test results of subsamples #19045

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

	Density at 15°C in kg/m^3
r (observed)	0.14
reference test method	ISO12185:96
0.3 * R (reference test method)	0.15

Table 3: evaluation of the repeatability of subsamples #19045

The calculated repeatability of sample #19045 is in agreement with 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.

For the preparation of the subsamples #19046 another batch of Naphtha of approximately 25L was selected. This batch was especially prepared for GC analyses and also used in proficiency test iis17N01 as sample #17046. From this batch, after homogenisation, 140 amber glass bottles of 30mL were filled and labelled #19046.
The homogeneity of subsamples #19046 was checked by determination of MTBE in accordance with an in-house test method on 8 stratified randomly selected samples.

	MTBE in mg/kg
sample #19046-1	319.8
sample #19046-2	328.5
sample #19046-3	322.3
sample #19046-4	334.3
sample #19046-5	326.3
sample #19046-6	335.3
sample #19046-7	336.2
sample #19046-8	337.7

Table 4: homogeneity test results of subsamples #19046

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

	MTBE in mg/kg
r (observed)	19.1
reference method	Horwitz
0.3 * R (reference method)	18.5

Table 5: evaluation of the repeatability of subsamples #19046

The calculated repeatability of sample #19046 is in agreement with 0.3 times the estimated reproducibility using the Horwitz equation. Therefore, homogeneity of the subsamples was assumed.

A second part taken from the first Naphtha batch, approximately 40L, was spiked with Mercury Chloride and an Hg Conostan standard especially for the Mercury determination. After homogenisation 80 amber glass bottles of 0.5L were filled and labelled #19048.
The homogeneity of subsamples #19048 was checked by determination of Mercury in accordance with UOP938-B on 4 stratified randomly selected samples.

	Mercury in µg/kg
sample #19048-1	28.1
sample #19048-2	28.0
sample #19048-3	27.6
sample #19048-4	27.9

Table 6: homogeneity test results of subsamples #19048

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

	Mercury in µg/kg
r (observed)	0.60
reference method	Horwitz
0.3 * R (reference method)	6.4

Table 7: evaluation of the repeatability of subsamples #19048

The calculated repeatability of sample #19048 is in agreement with 0.3 times the estimated reproducibility using the Horwitz equation. Therefore, homogeneity of the subsamples was assumed.

A third part taken from the first Naphtha batch, approximately 34L, was spiked with Arsenic and Lead especially for Arsenic and Lead determination. After homogenisation 68 amber glass bottles of 0.5L were filled and labelled #19050.
The homogeneity of subsamples #19050 was checked by determination of Lead in accordance with an in-house test method on 4 stratified randomly selected samples.

	Lead in µg/kg
sample #19050-1	41
sample #19050-2	41
sample #19050-3	41
sample #19050-4	43

Table 8: homogeneity test results of subsamples #19050

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

	Lead in µg/kg
r (observed)	2.8
reference method	Horwitz
0.3 * R (reference method)	9.0

Table 9: evaluation of the repeatability of subsamples #19050

The calculated repeatability of sample #19050 is in agreement with 0.3 times the estimated reproducibility using the Horwitz equation. Therefore, homogeneity of the subsamples was assumed.

Approximately 25L was taken from the first Naphtha batch especially for DVPE determination and after homogenisation divided over 83 amber glass bottles of 0.25L and labelled #19051.
The homogeneity of subsamples #19051 was checked by determination of DVPE in accordance with ASTM D5191 on 8 stratified randomly selected samples.

	DVPE in psi
sample #19051-1	5.58
sample #19051-2	5.58
sample #19051-3	5.56
sample #19051-4	5.60
sample #19051-5	5.58
sample #19051-6	5.58
sample #19051-7	5.58
sample #19051-8	5.58

Table 10: homogeneity test results of subsamples #19051

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

	DVPE in psi
r (observed)	0.03
reference test method	D5191:19
0.3 * R (reference test method)	0.07

Table 11: evaluation of the repeatability of subsamples #19051

The calculated repeatability of sample #19051 is in agreement with 0.3 times the reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.

Furthermore, a batch of artificial Naphtha was prepared, approximately 90L. A part of the artificial Naphtha batch, approximately 40L, was spiked with Mercury Chloride and Hg Conostan especially for Mercury determination. After homogenisation 78 amber glass bottles of 0.5L were filled and labelled #19047.
The homogeneity of subsamples #19047 was checked by determination of Mercury in accordance with UOP938-B on 4 stratified randomly selected samples.

	Mercury in µg/kg
sample #19047-1	13.1
sample #19047-2	11.1
sample #19047-3	13.7
sample #19047-4	12.7

Table 12: homogeneity test results of subsamples #19047

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

	Mercury in µg/kg
r (observed)	3.1
reference method	Horwitz
0.3 * R (reference method)	3.3

Table 13: evaluation of the repeatability of subsamples #19047

The calculated repeatability of sample #19047 is in agreement with 0.3 times the estimated reproducibility using the Horwitz equation. Therefore, homogeneity of the subsamples was assumed.

Another part from the artificial Naphtha batch, approximately 35L, was spiked with Arsenic and Lead especially for Arsenic and Lead determination. After homogenisation 68 amber glass bottles of 0.5L were filled and labelled #19049.
The homogeneity of subsamples #19049 was checked by determination of Lead in accordance with an in-house test method on 4 stratified randomly selected samples.

	Lead in µg/kg
sample #19049-1	90
sample #19049-2	90
sample #19049-3	90
sample #19049-4	90

Table 14: homogeneity test results of subsamples #19049

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

	Lead in µg/kg
r (observed)	0.0
reference method	Horwitz
0.3 * R (reference method)	17.4

Table 15: evaluation of the repeatability of subsamples #19049

The calculated repeatability of sample #19049 is in agreement with 0.3 times the estimated reproducibility using the Horwitz equation. Therefore, homogeneity of the subsamples was assumed.

To each of the participating laboratories, depending on the registration, one or more of the following samples mentioned in table 16 were sent on March 20, 2019. An SDS was added to the sample package.

Sample ID.	Bottle size	Determinations
#19045	1x 0.5L	Regular tests
#19046	1x 0.03L	PIONA/PONA only
#19047 & #19048	1x 0.5L, each	Mercury only
#19049 & #19050	1x 0.5L, each	Arsenic/Lead only
#19051	1x 0.25L	Vapour Pressure only

Table 16: bottle sizes, sample identification and determinations

2.5 STABILITY OF THE SAMPLES

The stability of the Naphtha packed in the amber 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 #19045: Organic Chlorides, Color Saybolt (Manual and/or Automated), Copper Corrosion 3hrs at 50°C, Density at 15°C, Distillation (IBP, 50% recovered and FBP), Mercaptan Sulfur as S and Sulfur;
on sample #19046: 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- and 3-Methylpentane, Heptane, Toluene and Octane);
on samples #19047 and #19048: Mercury only;
on samples #19049 and #19050: Arsenic and Lead only;
on sample #19051: TVP / DVPE only.

It was explicitly requested to report the test results using the indicated units on the report form and not to round the test results but report as much significant figures as possible. It was also requested not to report ‘less than’ test results, which are above the detection limit, because such test results cannot be used for meaningful statistical evaluations.
To get comparable test results, a detailed report form and a letter of instructions are prepared. On the report form the reporting units are given as well as the appropriate 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 June 2018 (iis-protocol, version 3.5).
For the statistical evaluation, the *unrounded* (when available) figures were used instead of the rounded test results. Test results reported as ‘<…’ or ‘>…’ were not used in the statistical evaluation.

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

According to ISO5725 the original test results per determination were submitted to Dixon’s, Grubbs’ and/or Rosner’s outlier tests. Outliers are marked by D(0.01) for the Dixon’s test, by G(0.01) or DG(0.01) for the Grubbs’ test and by R(0.01) for the Rosner’s test. Stragglers are marked by D(0.05) for the Dixon’s test, by G(0.05) or DG(0.05) for the Grubbs’ test and by R(0.05) for the Rosner’s test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

3.2 GRAPHICS

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

3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. 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, problems with sample dispatch were encountered due to several reasons. Laboratories in Australia, Brunei Darussalam, Iran, Nigeria and the Russian Federation received the samples late or not at all due to several problems e.g. customs clearance. Some laboratories reported that equipment was in repair or broken and consequently had to report later e.g. one participant from Singapore and one from India for the main round. Not all laboratories were able to report all analyses requested.
Finally reported: 88 participants for sample #19045, 58 participants for sample #19046, 39 participants for sample #19047 and #19048, 26 participants for sample #19049 and #19050 and 53 participants for sample #19051, in total 1635 numerical test results. Observed were in total 73 outlying test results, which is 4.5%. 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. D5134 and an added designation for the year that the test method was adopted or revised e.g. D5134:13. If applicable, a designation in parentheses is added to designate the year of reapproval e.g. D5134:13(2017). In the test results tables of Appendix 1 only the test method number and year of adoption or revision e.g. D5134:13 will be used.

Sample #19045

Organic Chlorides: This determination was very problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not at all in agreement with the requirement of UOP779:08, nor in agreement with the requirements of ASTM D5808:18 and the reproducibility estimated from the Horwitz equation.

Color Saybolt: This determination was not problematic for both the automated and manual modes. In total three statistical outliers were observed. The calculated reproducibilities for the automated and the manual modes after rejection of the statistical outliers are both in agreement with the respective requirements of ASTM D6045:12(2017) and ASTM D156:15.

Copper Corrosion: All reporting participants agreed on classification 1 or 1A except one who reported a false positive test result.

Density at 15°C: 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 requirement of ISO12185:96.

Distillation: This determination was not problematic for 50% recovered and FBP but problematic for IBP. In total one statistical outlier was observed. The calculated reproducibilities after rejection of the statistical outlier are in agreement with the requirements of ASTM D86:18 (both automated and manual mode) for 50% recovered and FBP but not for IBP (both automated and manual mode).

Mercaptan Sulfur: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirement of ASTM D3227:16.

Sulfur: This determination was problematic dependent on the test method used. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirement of ASTM D4294:16e1 but not with ASTM D2622:16 or ASTM D5453:16e1.
When the test results are evaluated per type of analysis; ED XRF, WD XRF and UV F the calculated reproducibilities are not in agreement with the requirements of their respective test methods, except for ED XRF.

Sample #19046

Acetone: This determination was very problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the estimated reproducibility from the Horwitz equation, nor with the more strict requirements of ASTM D7423:17.

DIPE: Almost all reporting laboratories agreed on a value less than 10 mg/kg. Therefore no z-scores were calculated.

MEK: This determination was very problematic. Six laboratories found values of less than 10 mg/kg while eleven laboratories found values of a few hundred mg/kg of MEK. After consulting an expert, it appeared that MEK was not present in the sample. There could be a mix-up with Ethyl Acetate which is very close in the chromatogram. Therefore, laboratories that reported a positive test value were excluded. Furthermore it was decided not to calculate z-scores.

Methanol: All reporting laboratories agreed on a value less than 10 mg/kg. Therefore no z-scores were calculated.

MTBE: This determination may be problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility from the Horwitz equation.

TAME: This determination may be problematic dependent on the target method. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility from the Horwitz equation, but not with the more strict ASTM D7423:17.

Total Oxygenates: This determination may be problematic. No z-scores were calculated because of the large variation in the test results.

n-Paraffines: This determination was problematic for both %V/V and %M/M dependent on the test method used. In total six statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are not in agreement with the requirements of ASTM D5443:14(2018) but in full agreement with the requirements of ASTM D6839:18.

i-Paraffines: This determination was problematic for both %V/V and %M/M dependent on the test method used. In total thirteen statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are not in agreement with the requirements of ASTM D5443:14(2018) but in agreement with the requirements of ASTM D6839:18.

Naphthenes: This determination was very problematic for both %V/V and %M/M dependent on the test method used. In total eight statistical outliers were observed. Test methods ASTM D5134, ASTM D6729, ASTM D6730, GOST R 52714, ISO 22854 are meant for DHA. DHA test methods are less suitable for the (more complex) Naphthenes determination. However, in this PT test results from these methods were not excluded because for the used type/grade of Naphtha it does not significantly influence the end results, see appendix 1. For other types of Naphtha this could be different though.
The calculated reproducibilities after rejection of the statistical outliers are not at all in agreement with the requirements of ASTM D5443:14(2018) or ASTM D6839:18.

Aromatics: This determination was not problematic for %V/V but for %M/M. In total six statistical outliers were observed. However, the calculated reproducibility for %V/V after rejection of the statistical outliers is in full agreement with the requirements of ASTM D5443:14(2018) but not for %M/M. Furthermore, the calculated reproducibilities for both %V/V and %M/M are not in agreement with the requirements of ASTM D6839:18.

≤ C4: This determination was very problematic for both %V/V and %M/M. No statistical outliers were observed. However, the calculated reproducibilities are not at all in agreement with the requirements of ASTM D5134:13(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 z-scores were calculated.

Olefins: This determination was not problematic for both %V/V and %M/M. In total five statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D6839:18.

Pentane (DHA): This determination was very problematic at a concentration of 3.7 %M/M. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the requirements of ASTM D5134:13(2017).

Benzene (DHA): This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirement of ASTM D5134:13(2017).

Cyclohexane (DHA): 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 D5134:13(2017).

2-Methylpentane (DHA): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5134:13(2017).

3-Methylpentane (DHA): This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the requirements of ASTM D5134:13(2017).

Heptane (DHA): When the test results were evaluated against the very strict requirements of ASTM D5134:13(2017) this determination was very problematic. 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. 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 was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with the estimated reproducibility using the Horwitz equation.

Toluene (DHA): When the test results were evaluated against the very strict requirements of ASTM D5134:13(2017) this determination was very problematic. 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. 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.

Octane (DHA): This determination was very problematic at a concentration of 5.5 %M/M. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the requirements of ASTM D5134:13(2017) nor with the estimated reproducibility using the Horwitz equation.

Samples #19047 and #19048

Mercury: This determination was not problematic for both artificial and real Naphtha. In total one statistical outlier was observed. However, the calculated reproducibilities after rejection of the statistical outlier are in agreement with the estimated reproducibilities using the Horwitz equation.

Samples #19049 and #19050

Arsenic: Sample #19049 artificial Naphtha: 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 estimated reproducibility using the Horwitz equation.
Sample #19050 real Naphtha: this determination may be very problematic. No statistical outliers were observed. However, the calculated reproducibility is not at all in agreement with the estimated reproducibility using the Horwitz equation. No z-scores were calculated because of the large variation in the test results.

Lead: Sample #19049 artificial Naphtha: 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 estimated reproducibility using the Horwitz equation.
Sample #19050 real Naphtha: this determination may be problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the estimated reproducibility using the Horwitz equation.

Sample #19051

TVP: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of ASTM D5191:19.

DVPE: This determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D5191:19.

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 tables.

Parameter	unit	n	average	2.8 * sd	R (target)
Organic Chlorides	mg/kg	34	4.7	2.3	1.1
Color Saybolt (automated)		30	29.8	1.1	1.2
Color Saybolt (manual)		29	29.8	1.1	2
Copper Corrosion		60	1(1A)	n.a.	n.a.
Density at 15°C	kg/L	81	0.7232	0.0004	0.0005
Initial Boiling Point	°C	77	40.2	6.7	4.7
50% recovered	°C	77	110.4	2.4	4.1
Final Boiling Point	°C	76	169.1	6.2	7.1
Mercaptan Sulfur as S	mg/kg	53	94.3	12.0	7.1
Sulfur	mg/kg	68	322.9	52.3	79.5

Table 17: comparison of the observed and target reproducibilities of sample #19045

Parameter	unit	n	average	2.8 * sd	R (target)
Acetone	mg/kg	20	52.7	52.9	13.0
DIPE	mg/kg	19	<10	n.a.	n.a.
MEK	mg/kg	6	<10	n.a.	n.a.
Methanol	mg/kg	23	<10	n.a.	n.a.
MTBE	mg/kg	23	305.6	122.7	57.9
TAME	mg/kg	22	25.8	5.3	7.1
Total Oxygenates	%M/M	14	0.137	0.290	(0.046)
n-Paraffines	%V/V	37	27.7	1.7	0.9
i-Paraffines	%V/V	33	33.4	1.5	1.0
Naphthenes	%V/V	35	32.1	1.9	0.6
Aromatics	%V/V	37	6.76	0.73	0.73
C4 & lighter	%V/V	30	0.78	0.49	0.14
Compounds bp >200 °C	%V/V	11	0.23	0.24	n.a.
Olefins	%V/V	33	0.16	0.21	0.31
n-Paraffines	%M/M	38	25.9	1.6	0.9
i-Paraffines	%M/M	33	31.8	1.5	1.0
Naphthenes	%M/M	37	34.1	2.8	0.6
Aromatics	%M/M	41	8.2	1.4	0.8
C4 & lighter	%M/M	33	0.6	0.4	0.1

Parameter	unit	n	average	2.8 * sd	R (target)
Compounds bp >200 °C	%M/M	11	0.28	0.18	n.a.
Olefins	%M/M	35	0.18	0.27	0.32
Pentane (DHA)	%M/M	32	3.68	0.80	0.34
Benzene (DHA)	%M/M	34	0.30	0.06	0.04
Cyclohexane (DHA)	%M/M	28	2.18	0.16	0.24
2-Methylpentane (DHA)	%M/M	30	2.83	0.33	0.96
3-Methylpentane (DHA)	%M/M	29	1.99	0.22	0.68
Heptane (DHA)	%M/M	32	5.42	0.27	0.47
Toluene (DHA)	%M/M	31	1.36	0.12	0.15
Octane (DHA)	%M/M	28	5.54	0.87	0.39

Table 18: comparison of the observed and target reproducibilities of sample #19046

Parameter	unit	n	average	2.8 * sd	R (target)
Mercury as Hg #19047	µg/kg	38	15.4	7.3	12.9
Mercury as Hg #19048	µg/kg	38	35.8	18.1	26.5

Table 19: comparison of the observed and target reproducibility of sample #19047 and #19048

Parameter	unit	n	average	2.8 * sd	R (target)
Arsenic as As #19049	µg/kg	12	4.4	2.4	4.5
Arsenic as As #19050	µg/kg	13	5.7	16.4	(5.6)
Lead as Pb #19049	µg/kg	22	73.1	32.6	48.6
Lead as Pb #19050	µg/kg	22	37.6	38.9	27.6

Table 20: comparison of the observed and target reproducibilities of samples #19049 and #19050

Parameter	unit	n	average	2.8 * sd	R (target)
TVP	psi	45	6.32	0.28	0.23
DVPE	psi	50	5.55	0.28	0.23

Table 21: comparison of the observed and target reproducibilities of sample #19051

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 2019 WITH PREVIOUS PTS

	April 2019	April 2018	April 2017	April 2016	April 2015
Number of reporting labs	93	104	100	93	84
Number of test results	1635	1831	1723	1664	1560
Number of statistical outliers	73	88	84	88	52
Percentage outliers	4.5%	4.8%	4.9%	5.3%	3.3%

Table 22: 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 in the following table.

Determination	April 2019	April 2018	April 2017	April 2016	April 2015
Organic Chlorides	--	n.e.	+/-	--	+
Color Saybolt	+	--	++	--	++
Density at 15°C	+	+	+/-	+/-	++
Distillation	+/-	+/-	+/-	-	++
Mercaptan Sulfur as S	-	--	-	-	n.a.
Sulfur	+	+	+/-	+/-	n.a.
Acetone	--	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.	-	--	n.e.	--
MTBE	--	+/-	-	+	+/-
TAME	+	n.e.	+	+/-	n.e.
Total Oxygenates	n.e.	+/-	+/-	+/-	+
n-Paraffines	-	--	--	--	-
i-Paraffines	-	-	--	--	+
Naphthenes	--	--	--	--	--
Aromatics	-	-	+/-	+/-	++
C4 & lighter	--	--	--	--	--
Olefins	+	n.e.	+	+	n.e.
DHA analyses	+	+/-	+	+/-	+/-
Mercury	+	+	++	+	+
Arsenic	+/-	+/-	+/-	+	+/-
Lead	+/-	+/-	-	+/-	--
Total Vapour Pressure	-	+	++	+	++
DVPE acc. to D5191	-	+	+	+	++

Table 23: 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

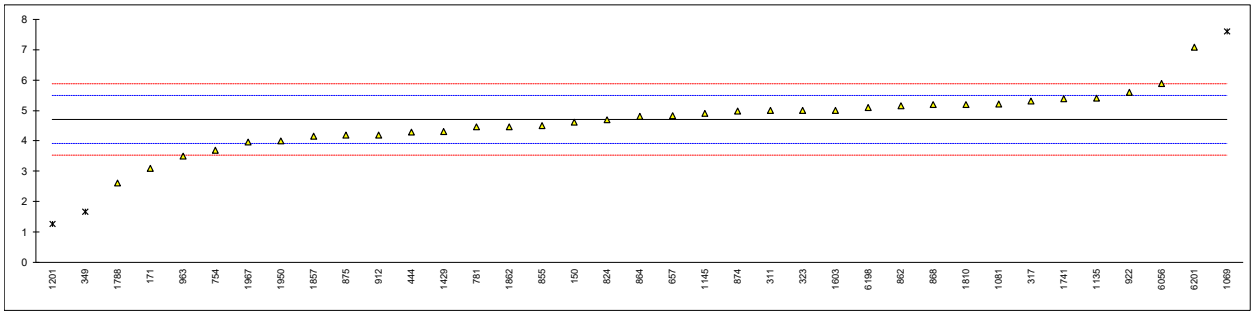
APPENDIX 1

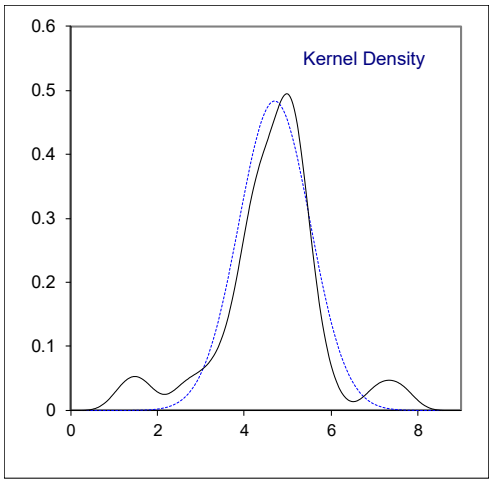
Determination of Chlorides, Organic on sample #19045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150	D7359	4.61		-0.23	
158		-----		-----	
171	D5808	3.1		-4.07	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5808	5	C	0.77	first reported <1
317	UOP779	5.3		1.53	
323	UOP779	5		0.77	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349	D588	1.68	R(0.05)	-7.69	
360		-----		-----	
399		-----		-----	
444	IP510	4.29		-1.04	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	UOP779	4.836		0.35	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D779	3.69		-2.57	
759		-----		-----	
779		-----		-----	
781	UOP779	4.46		-0.61	
785		-----		-----	
798		-----		-----	
824	UOP779	4.7		0.00	
855	D5808	4.5		-0.51	
862	D5808	5.15		1.15	
864	D5808	4.8		0.26	
868	D5808	5.2		1.27	
873		-----		-----	
874	UOP779	4.98		0.71	
875	UOP779	4.2		-1.27	
912	D5808	4.2		-1.27	
922	D4929-A	5.6		2.29	
962		-----		-----	
963	UOP779	3.5		-3.06	
971		-----		-----	
974		-----		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069	D7359	7.6	R(0.05)	7.39	
1081	D5808	5.219		1.32	
1134		-----		-----	
1135	UOP779	5.4		1.78	
1145	D5808	4.90		0.51	
1201	UOP779	1.27	R(0.05)	-8.73	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429	D7359	4.3		-1.02	
1544		-----		-----	
1556		-----		-----	
1585		-----		-----	
1603	In house	5		0.77	
1656		-----		-----	
1737		-----		-----	
1741	D4629/UOP779/D5808	5.39		1.76	

lab	method	value	mark	z(targ)	remarks
1788	D5808	2.62		-5.30	
1796		-----		-----	
1810	D7039	5.2		1.27	
1823		-----		-----	
1849		-----	W	-----	first reported 2.74
1857	UOP779	4.15		-1.40	
1862	UOP779	4.47		-0.58	
1950	UOP779	4.0		-1.78	
1960		-----		-----	
1967	UOP779	3.96		-1.88	
1995		-----		-----	
6016		-----		-----	
6056	In house	5.88		3.01	
6185		-----		-----	
6198	D5808	5.1		1.02	
6200		-----		-----	
6201	UOP779	7.081	R(0.05)	6.07	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	suspect	
	n	34	
	outliers	3	
	mean (n)	4.700	
	st.dev. (n)	0.8242	
	R(calc.)	2.308	
	st.dev.(UOP779:08)	0.3926	
	R(UOP779:08)	1.099	application range 0.3 - 1000 mg/kg
Compare			
	R(D5808:18)	1.3	application range 1 - 25 mg/kg
	R(Horwitz)	1.668	



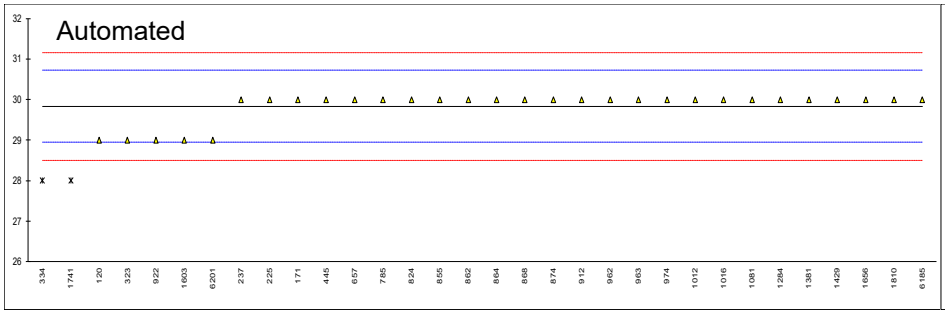


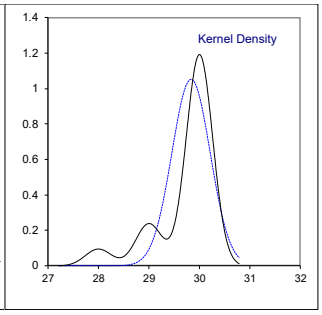
Determination of Color Saybolt Automated (D6045) and manual (D156) on sample #19045

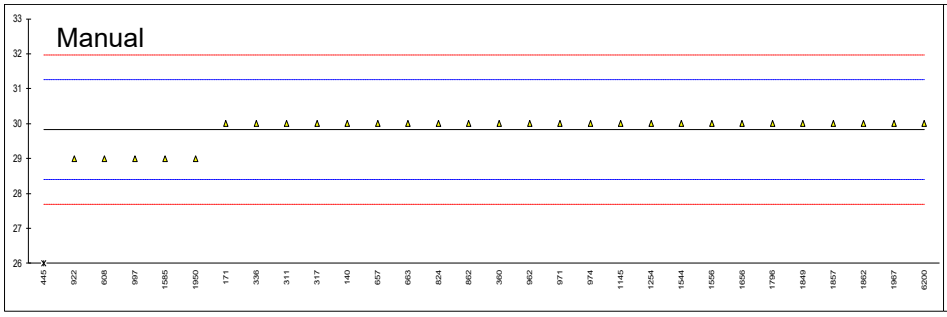
lab	automatic	cuvette	value	mark	z(targ)	manual	filter	value	mark	z(targ)
120	D6045	-----	29		-1.88		-----	-----		-----
140		-----	-----		-----	D156	-----	30		0.24
150	D6045	100	>30		-----		-----	-----		-----
158	D6045	-----	>30		-----		-----	-----		-----
171	D6045	50	30		0.38	D156	0.5	30		0.24
225	D6045	50	30		0.38		-----	-----		-----
237	D6045	50	30		0.38		-----	-----		-----
238		-----	-----		-----		-----	-----		-----
311		-----	-----		-----	D156	-----	30		0.24
317		-----	-----		-----	D156	0.5	30		0.24
323	D6045	50	29		-1.88		-----	-----		-----
333		-----	-----		-----		-----	-----		-----
334	D6045	50	28	R(0.01)	-4.14		-----	-----		-----
336		-----	-----		-----	D156	-----	30		0.24
337		-----	-----		-----		-----	-----		-----
349	D6045	50	>30		-----		-----	-----		-----
360		-----	-----		-----	D156	0.5	30		0.24
399		-----	-----		-----		-----	-----		-----
444		-----	-----		-----		-----	-----		-----
445	D6045	50	30		0.38	D156	-----	26	R(0.01)	-5.36
541	D6045	100	>30		-----		-----	-----		-----
608		-----	-----		-----	D156	-----	29		-1.16
657	D6045	100	30		0.38	D156	0.5	30		0.24
663		-----	-----		-----	D156	-----	30		0.24
750		-----	-----		-----		-----	-----		-----
753	D6045	100	>30		-----		-----	-----		-----
754	D6045	-----	>30		-----		-----	-----		-----
759	D6045	50	>30		-----		-----	-----		-----
779	D6045	50	>30		-----		-----	-----		-----
781	D6045	100	>30		-----		-----	-----		-----
785	D6045	50	30		0.38		-----	-----		-----
798		-----	-----		-----		-----	-----		-----
824	D6045	50	30		0.38	D156	-----	30		0.24
855	D6045	50	30		0.38		-----	-----		-----
862	D6045	50	30		0.38	D156	0.5	30		0.24
864	D6045	-----	30		0.38		-----	-----		-----
868	D6045	50	30		0.38		-----	-----		-----
873		-----	-----		-----		-----	-----		-----
874	D6045	100	30		0.38		-----	-----		-----
875	D6045	50	>30		-----		-----	-----		-----
912	D6045	50	30		0.38		-----	-----		-----
922	D6045	100	29		-1.88	D156	0.5	29		-1.16
962	D6045	50	30		0.38	D156	0.5	30		0.24
963	D6045	-----	30		0.38		-----	-----		-----
971		-----	-----		-----	D156	-----	30		0.24
974	D6045	100	30		0.38	D156	0.5	30		0.24
982		-----	-----		-----		-----	-----		-----
994		-----	-----		-----		-----	-----		-----
995		-----	-----		-----		-----	-----		-----
997		-----	-----		-----	D156	-----	29		-1.16
998		-----	-----		-----	D156	-----	>30		-----
1011		-----	-----		-----		-----	-----		-----
1012	D6045	50	30		0.38		-----	-----		-----
1016	D6045	100	30		0.38		-----	-----		-----
1062		-----	-----		-----		-----	-----		-----
1065		-----	-----		-----		-----	-----		-----
1069		-----	-----		-----	D156	-----	>30		-----
1081	D6045	100	30		0.38		-----	-----		-----
1134		-----	-----		-----		-----	-----		-----
1135	D6045	100	>30		-----		-----	-----		-----
1145		-----	-----		-----	D156	-----	30		0.24
1201	D6045	100	>30		-----		-----	-----		-----
1254	D6045	100	>30		-----	D156	0.5	30		0.24
1284	D6045	50	30		0.38		-----	-----		-----
1320		-----	-----		-----		-----	-----		-----
1379		-----	-----		-----		-----	-----		-----
1381	D6045	-----	30		0.38		-----	-----		-----
1429	D6045	50	30		0.38		-----	-----		-----
1544		-----	-----		-----	D156	-----	30		0.24
1556		-----	-----		-----	D156	0.5	30		0.24
1585		-----	-----		-----	D156	-----	29		-1.16
1603	In house	50	29		-1.88		-----	-----		-----
1656	D5386	50	30		0.38	D156	-----	30		0.24
1737		-----	-----		-----		-----	-----		-----
1741	D6045	100	28	R(0.01)	-4.14		-----	-----		-----
1788		-----	-----		-----		-----	-----		-----

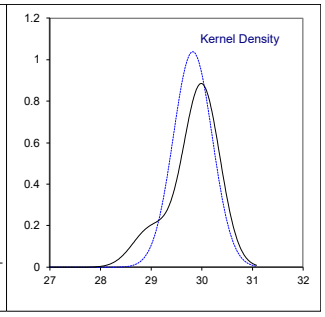
lab	automatic	cuvette	value	mark	z(targ)	manual	filter	value	mark	z(targ)
1796		-----	-----		-----	D156	-----	30		0.24
1810	D6045	-----	30		0.38		-----	-----		-----
1823		-----	-----		-----		-----	-----		-----
1849		-----	-----		-----	TS2991	0.5	30		0.24
1857		-----	-----		-----	D156	0.5	30		0.24
1862		-----	-----		-----	D156	-----	30		0.24
1950		-----	-----		-----	D156	-----	29		-1.16
1960	D6045	100	>30		-----		-----	-----		-----
1967		-----	-----		-----	D156	-----	30		0.24
1995		-----	-----		-----		-----	-----		-----
6016		-----	-----		-----		-----	-----		-----
6056		-----	-----		-----		-----	-----		-----
6185	D6045	50	30		0.38		-----	-----		-----
6198		-----	-----		-----		-----	-----		-----
6200		-----	-----		-----	D156	-----	30		0.24
6201	D6045	50	29		-1.88		-----	-----		-----
9054		-----	-----		-----		-----	-----		-----
9055		-----	-----		-----		-----	-----		-----
9057		-----	-----		-----		-----	-----		-----
9058		-----	-----		-----		-----	-----		-----
9061		-----	-----		-----		-----	-----		-----
9101		-----	-----		-----		-----	-----		-----
9128		-----	-----		-----		-----	-----		-----
9142		-----	-----		-----		-----	-----		-----
9143		-----	-----		-----		-----	-----		-----

normality	suspect	normality	suspect
n	30	n	29
outliers	2	outliers	1
mean (n)	29.833	mean (n)	29.828
st.dev. (n)	0.3790	st.dev. (n)	0.3844
R(calc.)	1.061	R(calc.)	1.076
st.dev.(D6045:12)	0.4429	st.dev.(D156:15)	0.7143
R(D6045:12)	1.24	R(D156:15)	2









Determination of Copper Corrosion 3 hrs at 50°C on sample #19045

lab	method	value	mark	z(targ)	remarks
120	D130	1A		-----	
140	D130	1a		-----	
150	D130	1a		-----	
158	D130	1A		-----	
171	D130	1a		-----	
225	D130	1a		-----	
237	D130	1A		-----	
238	D130	3a		-----	possibly a false positive test result?
311	D130	1A		-----	
317	D130	1a		-----	
323	D130	1A		-----	
333		-----		-----	
334	D130	1A		-----	
336	D130	1		-----	
337		-----		-----	
349		-----		-----	
360	D130	1A		-----	
399		-----		-----	
444		-----		-----	
445	D130	1a		-----	
541	D130	1a		-----	
608	D130	1a		-----	
657	D130	1a		-----	
663	D130	1a		-----	
750		-----		-----	
753	D130	1A		-----	
754	D130	1a		-----	
759		-----		-----	
779	D130	1a		-----	
781	D130	1A		-----	
785		1a		-----	
798		-----		-----	
824	D130	1a		-----	
855	D130	1a		-----	
862	D130	1a		-----	
864	D130	1a		-----	
868	D130	1A		-----	
873		-----		-----	
874		1a		-----	
875	D130	1a		-----	
912	D130	1A		-----	
922	D130	1A		-----	
962	D130	1A		-----	
963	D130	1a		-----	
971	D130	1a		-----	
974	D130	1a		-----	
982		-----		-----	
994		-----		-----	
995	D130	1a		-----	
997		-----		-----	
998		-----		-----	
1011		1a		-----	
1012	D130	1A		-----	
1016	D130	1A		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	ISO2160	1A		-----	
1145		-----		-----	
1201	D130	1a		-----	
1254	D130	1a		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381	ISO2160	1a		-----	
1429	D130	1a		-----	
1544	D130	1a		-----	
1556	ISO2160	Class 1a		-----	
1585	D130	1a		-----	
1603	In house	1A		-----	
1656	IP154	1		-----	
1737		-----		-----	
1741	D130	1a		-----	

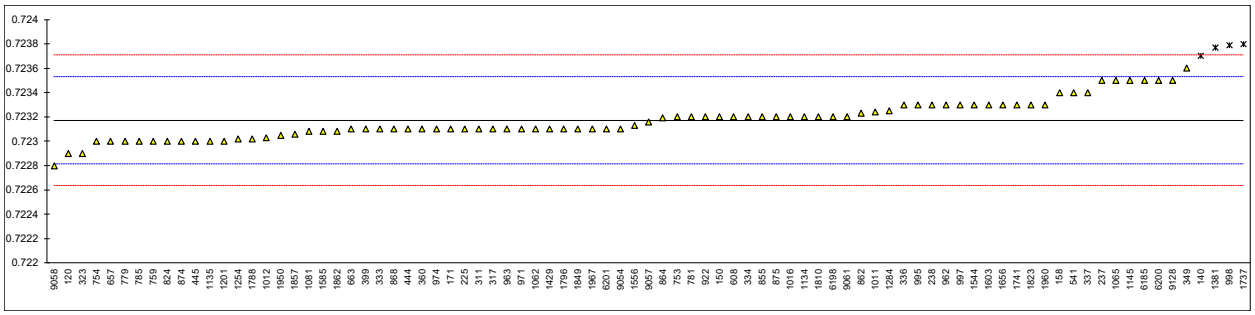
lab	method	value	mark	z(targ)	remarks
1788	D130	1A		-----	
1796	D130	1a		-----	
1810		-----		-----	
1823		-----		-----	
1849	ISO2160	1A		-----	
1857	D130	1a		-----	
1862	D130	1A		-----	
1950	D130	1a		-----	
1960		-----		-----	
1967	D130	1 A		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D130	1A		-----	
6198		-----		-----	
6200		-----		-----	
6201	ISO2160	1A		-----	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	
	n	60			
	outliers	1			
	mean (n)	1 or 1A			

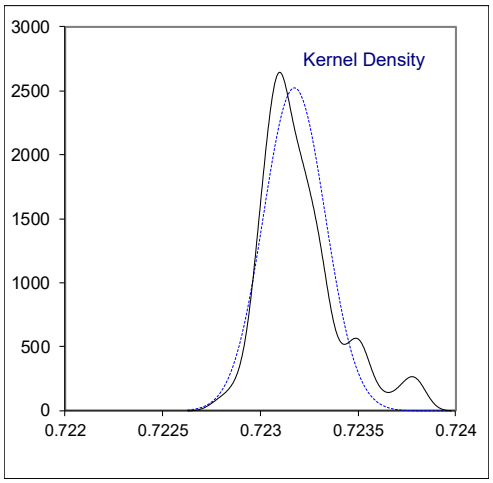
Determination of Density at 15°C on sample #19045; results in kg/L

lab	method	value	mark	z(targ)	remarks
120	D4052	0.7229		-1.52	
140	D4052	0.7237	DG(0.05)	2.96	
150	D4052	0.7232		0.16	
158	D4052	0.7234		1.28	
171	D4052	0.7231		-0.40	
225	D4052	0.7231		-0.40	
237	D4052	0.7235		1.84	
238	D4052	0.7233		0.72	
311	ISO12185	0.7231		-0.40	
317	ISO12185	0.7231		-0.40	
323	D4052	0.7229		-1.52	
333	ISO12185	0.7231		-0.40	
334	ISO12185	0.7232		0.16	
336	ISO12185	0.7233		0.72	
337	ISO12185	0.7234		1.28	
349	D4052	0.7236		2.40	
360	D4052	0.7231		-0.40	
399	ISO12185	0.7231		-0.40	
444	D4052	0.7231		-0.40	
445	IP365	0.7230		-0.96	
541	ISO12185	0.72340		1.28	
608	D4052	0.7232		0.16	
657	ISO12185	0.7230		-0.96	
663	D4052	0.72310		-0.40	
750		-----		-----	
753	ISO12185	0.7232		0.16	
754	D4052	0.7230		-0.96	
759	ISO12185	0.7230		-0.96	
779	D4052	0.7230		-0.96	
781	ISO12185	0.7232		0.16	
785	ISO12185	0.7230		-0.96	
798		-----		-----	
824	ISO12185	0.7230		-0.96	
855	D4052	0.7232		0.16	
862	D4052	0.72323		0.32	
864	D4052	0.72319		0.10	
868	D4052	0.72310		-0.40	
873		-----		-----	
874	ISO12185	0.7230		-0.96	
875	ISO12185	0.7232		0.16	
912		-----		-----	
922	D4052	0.7232		0.16	
962	D4052	0.7233		0.72	
963	D4052	0.7231		-0.40	
971	D4052	0.7231		-0.40	
974	D4052	0.7231		-0.40	
982		-----		-----	
994		-----		-----	
995	ISO12185	0.7233		0.72	
997	ISO12185	0.7233		0.72	
998	D4052	0.72379	DG(0.05)	3.46	
1011	D4052	0.72324		0.38	
1012	D4052	0.72303		-0.80	
1016	D4052	0.7232		0.16	
1062	D4052	0.7231		-0.40	
1065	D4052	0.7235		1.84	
1069		-----		-----	
1081	D4052	0.72308		-0.52	
1134	IP365	0.7232		0.16	
1135	ISO12185	0.7230		-0.96	
1145	D4052	0.7235		1.84	
1201	ISO12185	0.7230		-0.96	
1254	D4052	0.72302		-0.85	
1284	D4052	0.72325		0.44	
1320		-----		-----	
1379		-----		-----	
1381	ISO12185	0.72377	C,DG(0.05)	3.35	reported 0.72377 kg/m^3
1429	IP365	0.7231		-0.40	
1544	ISO12185	0.7233		0.72	
1556	ISO12185	0.72313		-0.24	
1585	ISO12185	0.72308		-0.52	
1603	In house	0.7233		0.72	
1656	D4052	0.7233		0.72	
1737	D4052	0.7238	DG(0.05)	3.52	
1741	D4052	0.72330		0.72	

lab	method	value	mark	z(targ)	remarks
1788	D4052	0.72302		-0.85	
1796	D4052	0.7231		-0.40	
1810	ISO12185	0.7232		0.16	
1823	D4052	0.7233		0.72	
1849	ISO12185	0.7231		-0.40	
1857	ISO12185	0.72306		-0.63	
1862	ISO12185	0.72308		-0.52	
1950	ISO12185	0.72305		-0.68	
1960	D4052	0.7233		0.72	
1967	D4052	0.7231		-0.40	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D4052	0.7235		1.84	
6198	D4052	0.7232		0.16	
6200	D4052	0.7235		1.84	
6201	ISO12185	0.7231		-0.40	
9054	D4052	0.7231		-0.40	
9055		-----		-----	
9057	D5002	0.72316		-0.07	
9058	D5002	0.7228		-2.08	
9061	D5002	0.7232		0.16	
9101		-----		-----	
9128	D4052	0.7235		1.84	
9142		-----		-----	
9143		-----		-----	

normality	OK
n	81
outliers	4
mean (n)	0.723172
st.dev. (n)	0.0001580
R(calc.)	0.000442
st.dev.(ISO12185:96)	0.0001786
R(ISO12185:96)	0.0005



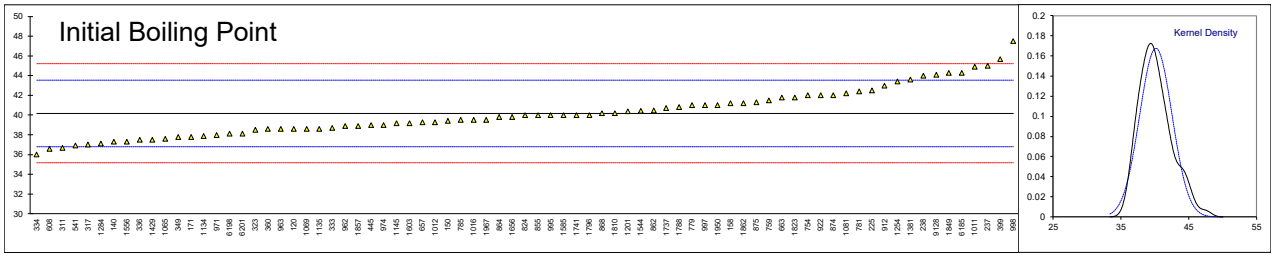


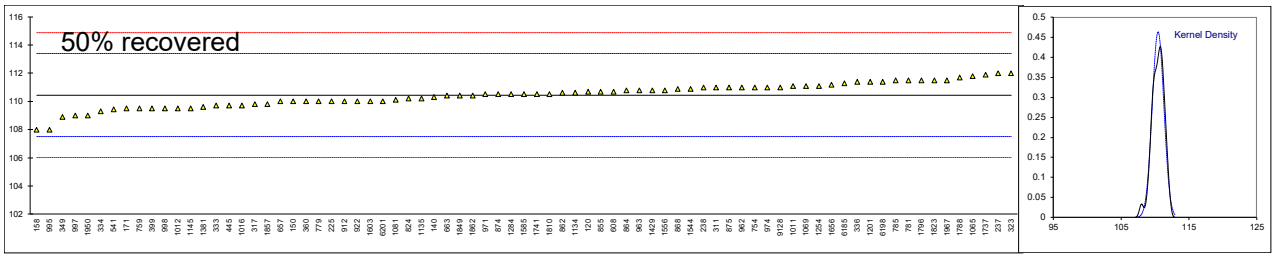
Determination of Distillation (automated and manual mode) on sample #19045; results in °C

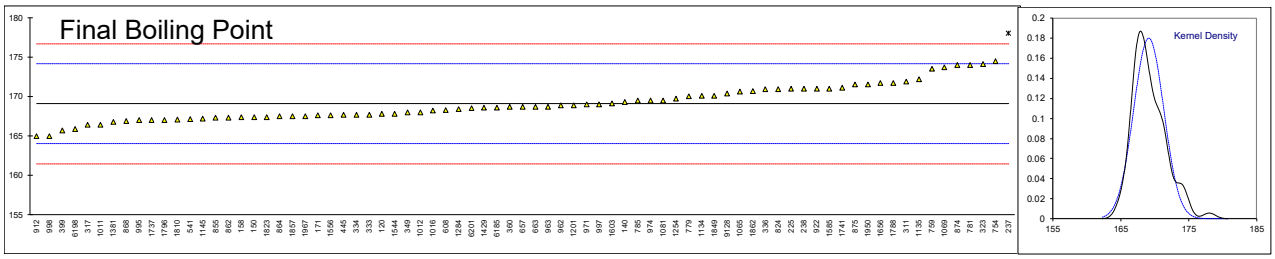
lab	method	IBP	mark	z(targ)	50%rec	mark	z(targ)	FBP	mark	z(targ)
120	D86-automated	38.6		-0.94	110.7		0.17	167.8		-0.51
140	D86-automated	37.3		-1.71	110.3		-0.10	169.3		0.08
150	D86-automated	39.4		-0.46	110.0		-0.30	167.4		-0.67
158	D86-automated	41.2		0.61	108.0		-1.66	167.4		-0.67
171	D86-automated	37.8		-1.42	109.5	C	-0.64	167.6		-0.59
225	D86-manual	42.5		1.38	110.0		-0.30	171.0		0.75
237	D86-manual	45.0		2.87	112.0		1.06	178.0	R(0.05)	3.51
238	D86-manual	44.0		2.28	111.0		0.38	171.0		0.75
311	D86-automated	36.7		-2.07	111.0		0.38	171.9		1.11
317		37.0		-1.89	109.8		-0.44	166.4		-1.06
323	D86-automated	38.5		-1.00	112.0		1.06	174.1		1.98
333	D86-automated	38.7		-0.88	109.7		-0.50	167.7		-0.55
334	D86-automated	36.0		-2.49	109.3		-0.78	167.7		-0.55
336	D86-automated	37.5		-1.59	111.4		0.65	170.9		0.71
337		-----		-----	-----		-----	-----		-----
349		37.8		-1.42	108.9		-1.05	167.99		-0.43
360	D86-automated	38.6		-0.94	110.0		-0.30	168.7		-0.15
399	D86-automated	45.7		3.29	109.5		-0.64	165.7		-1.34
444		-----		-----	-----		-----	-----		-----
445	D86-automated	39.0		-0.70	109.7		-0.50	167.7		-0.55
541	D86-automated	36.90		-1.95	109.45		-0.67	167.15		-0.76
608	D86-automated	36.6		-2.13	110.7		0.17	168.3		-0.31
657	D86-automated	39.3		-0.52	110.0		-0.30	168.7		-0.15
663	D86-automated	41.80		0.97	110.40		-0.03	168.70		-0.15
750		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754	D86-manual	42.0		1.09	111.0		0.38	174.5		2.13
759	D86-manual	41.5		0.79	109.5		-0.64	173.5		1.74
779	D86-manual	41.0		0.49	110.0		-0.30	170.0		0.36
781	D86-automated	42.4		1.32	111.5		0.72	174.0		1.94
785	D86-manual	39.5		-0.40	111.5		0.72	169.5		0.16
798		-----		-----	-----		-----	-----		-----
824	D86-automated	40.0		-0.11	110.2		-0.17	170.9		0.71
855	D86-automated	40.0		-0.11	110.7		0.17	167.3		-0.70
862	D86-automated	40.5		0.19	110.6		0.11	167.3		-0.70
864	D86-automated	39.8		-0.22	110.8		0.24	167.5		-0.63
868	D86-automated	40.2		0.01	110.9		0.31	166.9		-0.86
873		-----		-----	-----		-----	-----		-----
874	D86-manual	42.0		1.09	110.5		0.04	174.0		1.94
875	D86-automated	41.3		0.67	111.0		0.38	171.5		0.95
912	D86-manual	43		1.68	110		-0.30	165		-1.61
922	D86-manual	42.0		1.09	110.0		-0.30	171.0		0.75
962	D86-automated	38.9		-0.76	111.0		0.38	168.9		-0.07
963	D86-automated	38.6		-0.94	110.8		0.24	168.7		-0.15
971	D86-automated	38.0		-1.30	110.5		0.04	169.0		-0.03
974	D86-automated	39.0		-0.70	111.0		0.38	169.5		0.16
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995	D86-manual	40.0		-0.11	108.0		-1.66	167.0		-0.82
997	D86-manual	41.0		0.49	109.0		-0.98	169.0		-0.03
998	D86	47.5		4.36	109.5		-0.64	165		-1.61
1011	D86-automated	44.9		2.81	111.1		0.45	166.4		-1.06
1012	D86-automated	39.3		-0.52	109.5		-0.64	168.0		-0.43
1016		39.5		-0.40	109.7		-0.50	168.2		-0.35
1062		-----		-----	-----		-----	-----		-----
1065	D86-automated	37.6		-1.54	111.8		0.92	170.6		0.60
1069	D86-automated	38.6		-0.94	111.1		0.45	173.7		1.82
1081	D86-automated	42.2		1.21	110.1		-0.23	169.5		0.16
1134	IP123-automated	37.9		-1.36	110.6		0.11	170.1		0.40
1135	D86-automated	38.6		-0.94	110.2		-0.17	172.2		1.23
1145	D86-automated	39.2		-0.58	109.5		-0.64	167.2		-0.74
1201	D86-automated	40.4		0.13	111.4		0.65	168.9		-0.07
1254	D86-automated	43.4		1.92	111.1		0.45	169.7		0.24
1284	D86-automated	37.1		-1.83	110.5		0.04	168.4		-0.27
1320		-----		-----	-----		-----	-----		-----
1379		-----		-----	-----		-----	-----		-----
1381	ISO3405-automated	43.6		2.04	109.6		-0.57	166.8		-0.90
1429	D86-automated	37.5		-1.59	110.8		0.24	168.6		-0.19
1544	D86-automated	40.45		0.16	110.90		0.31	167.80		-0.51
1556	ISO3405-automated	37.3		-1.71	110.8		0.24	167.6		-0.59
1585	IP123-automated	40.0		-0.11	110.5		0.04	171.0		0.75
1603	D86-automated	39.2		-0.58	110.0		-0.30	169.1		0.00
1656	IP123-automated	39.8		-0.22	111.2		0.51	171.7		1.03
1737		40.7		0.31	111.9		0.99	167.0		-0.82
1741		40.0		-0.11	110.5		0.04	171.1		0.79
1788		40.8		0.37	111.7		0.85	171.7		1.03

lab	method	IBP	mark	z(targ)	50%rec	mark	z(targ)	FBP	mark	z(targ)
1796	D86-manual	40.0		-0.11	111.5		0.72	167.0		-0.82
1810	D86-automated	40.2		0.01	110.5		0.04	167.1		-0.78
1823		41.8		0.97	111.5		0.72	167.4		-0.67
1849	ISO3405-automated	44.3		2.46	110.4		-0.03	170.1		0.40
1857	D86-automated	38.9		-0.76	109.8		-0.44	167.5		-0.63
1862	D86-automated	41.2		0.61	110.4		-0.03	170.7		0.64
1950	D86-manual	41.0		0.49	109.0		-0.98	171.5		0.95
1960		-----		-----	-----		-----	-----		-----
1967	D86-automated	39.5		-0.40	111.5		0.72	167.5		-0.63
1995		-----		-----	-----		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6056		-----		-----	-----		-----	-----		-----
6185	D86-automated	44.3		2.46	111.3		0.58	168.6		-0.19
6198	D86-automated	38.1		-1.24	111.4		0.65	165.9		-1.26
6200		-----		-----	-----		-----	-----		-----
6201	D86-automated	38.1		-1.24	110.0		-0.30	168.5		-0.23
9054		-----		-----	-----		-----	-----		-----
9055		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9128	D86-automated	44.1	C	2.34	111.0		0.38	170.4		0.52
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----
	normality	OK			OK			OK		
	n	77			77			76		
	outliers	0			0			1		
	mean (n)	40.18			110.44			169.09		
	st.dev. (n)	2.381			0.859			2.214		
	R(calc.)	6.67			2.40			6.20		
	st.dev.(D86-A:18)	1.679			1.473			2.536		
	R(D86-A:18)	4.7			4.12			7.1		
Compare										
	R(D86-M:18)	5.6			4.24			7.2		

Lab 171 first reported 118.5 for 50% recovery
Lab 9128 first reported 46.7 for IBP





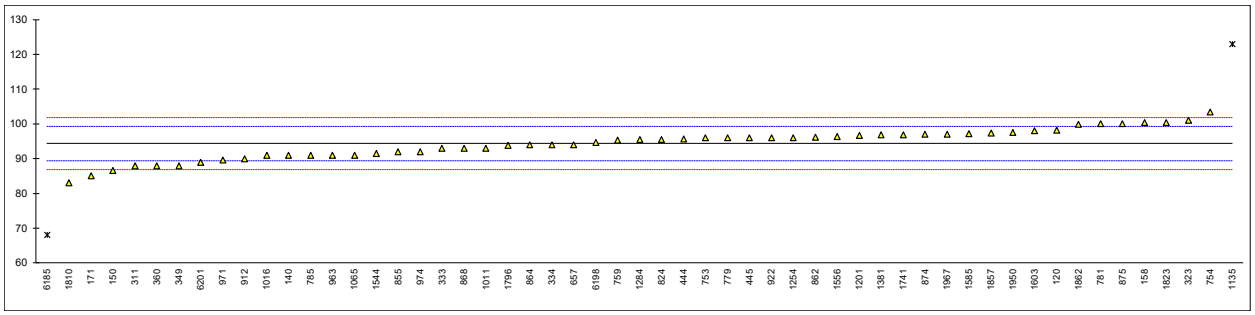


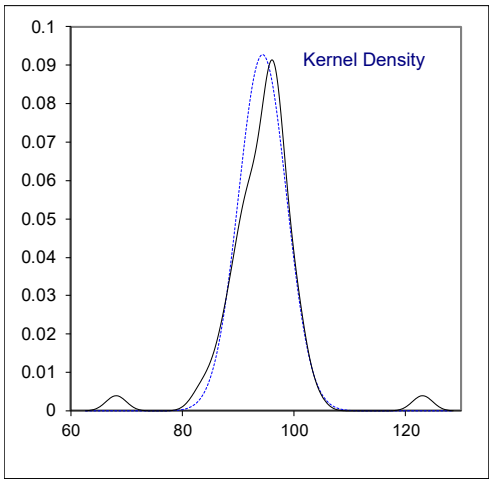
Determination of Mercaptan Sulfur as S on sample #19045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D3227	98.2		1.54	
140	D3227	91		-1.32	
150	D3227	86.5	C	-3.10	first reported 78
158	D3227	100.4		2.41	
171	D3227	85		-3.70	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	UOP163	87.9		-2.55	
317		-----		-----	
323	UOP163	101		2.65	
333	D3227	93		-0.53	
334	UOP163	94		-0.13	
336		-----		-----	
337		-----		-----	
349	UOP163	88		-2.51	
360	D3227	88.0		-2.51	
399		-----		-----	
444	UOP163	95.7		0.54	
445	D3227	96		0.66	
541		-----		-----	
608		-----		-----	
657	D3227	94		-0.13	
663		-----		-----	
750		-----		-----	
753	UOP163	96		0.66	
754	UOP163	103.5		3.64	
759	UOP163	95.4		0.43	
779	UOP163	96.0		0.66	
781	D3227	100		2.25	
785	UOP163	91		-1.32	
798		-----		-----	
824	D3227	95.5		0.47	
855	D3227	92		-0.92	
862	D3227	96.2		0.74	
864	D3227	94		-0.13	
868	D3227	93		-0.53	
873		-----		-----	
874	D3227	97		1.06	
875	UOP163	100		2.25	
912	D3227	90		-1.72	
922	D3227	96		0.66	
962		-----		-----	
963	D3227	91		-1.32	
971	D3227	89.6		-1.87	
974	D3227	92		-0.92	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011	D3227	93		-0.53	
1012		-----		-----	
1016	D3227	90.94		-1.34	
1062		-----		-----	
1065	D3227	91.0		-1.32	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D3227	123	R(0.01)	11.37	
1145		-----		-----	
1201	D3227	96.64		0.92	
1254	D3227	96.08		0.70	
1284	D3227	95.47	C	0.45	first reported 75.47
1320		-----		-----	
1379		-----		-----	
1381	UOP163	96.8		0.98	
1429		-----		-----	
1544	D3227	91.5	C	-1.12	first reported 82.5
1556	UOP163	96.3		0.78	
1585	D3227	97.2		1.14	
1603	In house	98		1.46	
1656		-----		-----	
1737		-----		-----	
1741	UOP163	96.8		0.98	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	UOP163	93.8		-0.21	
1810	D3227	83.0		-4.49	
1823	UOP163	100.47		2.44	
1849		-----		-----	
1857	UOP163	97.31		1.18	
1862	UOP163	99.8		2.17	
1950	D3227	97.5		1.26	
1960		-----		-----	
1967	UOP163	97.089		1.10	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	UOP163	68.1	R(0.01)	-10.40	
6198	UOP163	94.71		0.15	
6200		-----		-----	
6201	UOP163	89.0		-2.11	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

normality	OK
n	53
outliers	2
mean (n)	94.327
st.dev. (n)	4.2990
R(calc.)	12.037
st.dev.(D3227:16)	2.5220
R(D3227:16)	7.062





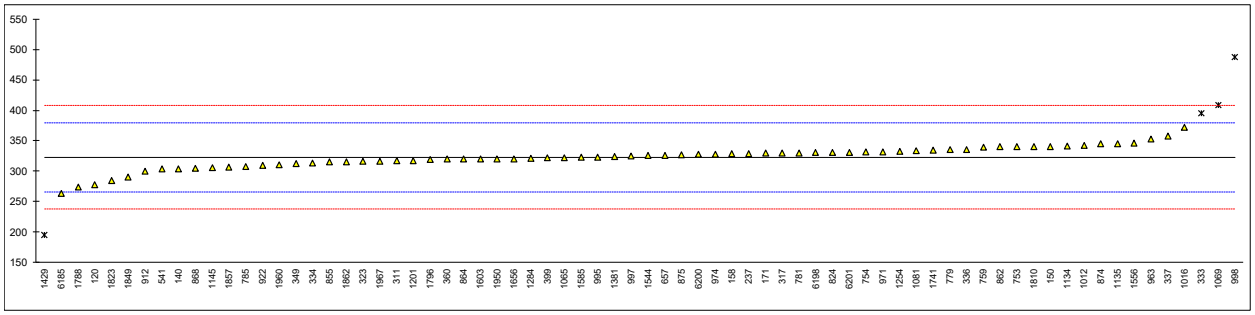
Determination of Sulfur on sample #19045; results in mg/kg

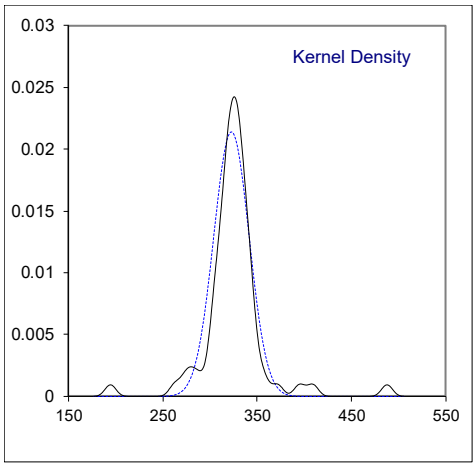
lab	method	value	mark	z(targ)	remarks
120	D4294	278.2		-1.58	
140	D2622	304		-0.67	
150	D2622	340.45		0.62	
158	D2622	328.80		0.21	
171	D2622	330		0.25	
225		-----		-----	
237	D4294	329		0.21	
238		-----		-----	
311	D2622	317		-0.21	
317	D2622	330		0.25	
323	D5453	316		-0.24	
333	D5453	395	R(0.05)	2.54	
334	D2622	313		-0.35	
336	ISO8754	336		0.46	
337	D2622	358		1.24	
349	D2622	312		-0.38	
360	D4294	320		-0.10	
399	D4294	322		-0.03	
444		-----		-----	
445		-----		-----	
541	D4294	303.5		-0.68	
608		-----		-----	
657	D4294	326		0.11	
663		-----		-----	
750		-----		-----	
753	D4294	340		0.60	
754	ISO20847	332		0.32	
759	D4294	339		0.57	
779	ISO20884	335.8		0.45	
781	D4294	330		0.25	
785	D4294	308		-0.53	
798		-----		-----	
824	D5453	331		0.28	
855	D5453	315		-0.28	
862	D2622	340		0.60	
864	D4294	320		-0.10	
868	D5453	305		-0.63	
873		-----		-----	
874	D4294	345		0.78	
875	D4294	327		0.14	
912	D5453	300		-0.81	
922	D4294	310		-0.46	
962		-----		-----	
963	D4294	353		1.06	
971	D4294	332		0.32	
974	D4294	328		0.18	
982		-----		-----	
994		-----		-----	
995	D4294	323		0.00	
997	D4294	325		0.07	
998	D4294	487.5	R(0.01)	5.80	
1011		-----		-----	
1012	D5453	342.555		0.69	
1016	D2622	371.75		1.72	
1062		-----		-----	
1065	D4294	322.0		-0.03	
1069	D7359	409	R(0.01)	3.03	
1081	D4294	333.24		0.36	
1134	IP336	341		0.64	
1135	D4294	345		0.78	
1145	D5453	306.18		-0.59	
1201	D4294	317		-0.21	
1254	D5453	333.1		0.36	
1284	D2622	321.3		-0.06	
1320		-----		-----	
1379		-----		-----	
1381	ISO8754	324.3		0.05	
1429	D4294	195	R(0.01)	-4.51	
1544	D5453	325.7		0.10	
1556	ISO20884	346.2		0.82	
1585	D4294	322.8		0.00	
1603	In house	320	C	-0.10	first reported 492
1656	IP336	320.6		-0.08	
1737		-----		-----	
1741	D5453	335		0.43	

lab	method	value	mark	z(targ)	remarks
1788	D5453	273.62		-1.74	
1796	D4294	319.4		-0.12	
1810	D5453	340.0		0.60	
1823	D4294	284.1		-1.37	
1849	ISO8754	290		-1.16	
1857	D4294	307		-0.56	
1862	D4294	315		-0.28	
1950	D4294	320		-0.10	
1960	D5453	311		-0.42	
1967	D4294	316.3		-0.23	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D5453	263.04		-2.11	
6198	D5453	330.30		0.26	
6200	D5453	327.810		0.17	
6201	D2622	331		0.28	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

			ED XRF only	WD XRF only	UV F only
			D4294&IP336	D2622&ISO20884	D5453&ISO20846
	normality	suspect	suspect	OK	OK
	n	68	32	15	16
	outliers	4	2	0	1
	mean (n)	322.927	322.567	331.953	315.957
	st.dev. (n)	18.6722	15.8613	17.9508	22.6537
	R(calc.)	52.282	44.412	50.262	63.430
	st.dev.(D4294:16e1)	28.3860	--	--	--
	R(D4294:16e1)	79.481	79.424	--	--
Compare					
	R(D2622:16)	43.831	--	44.810	--
	R(D5453:16e1)	44.160	--	--	43.443

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

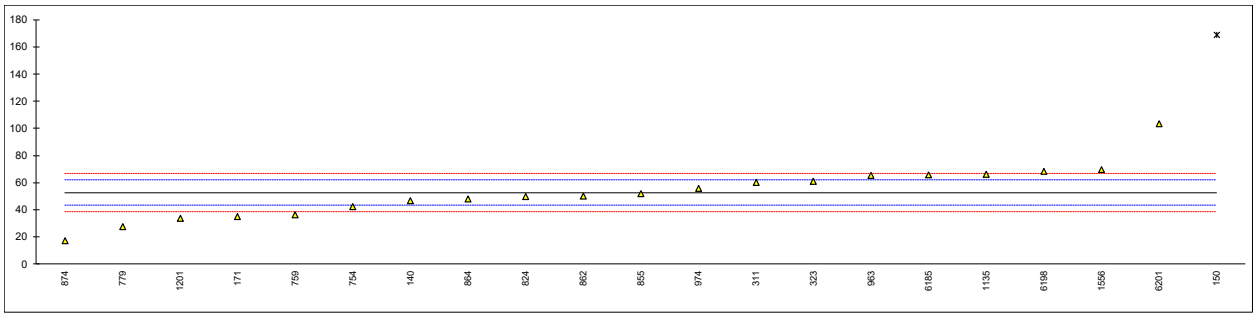


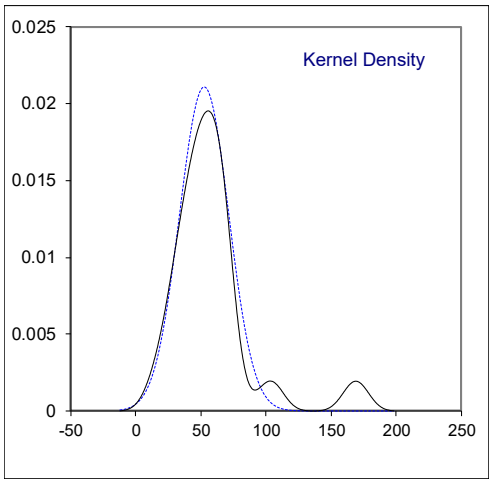


Determination of Acetone on sample #19046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140	D7423	46.7		-1.30	
150	D7423	169	C,R(0.01)	25.04	first reported 100
158		-----		-----	
171	D7423	34.9		-3.84	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	60		1.57	
317		-----		-----	
323	INH-304	61		1.78	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D7423	42.17		-2.27	
759	D7423	36.4		-3.51	
779	D7423	27.783		-5.37	
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	49.8		-0.63	
855	INH-024	52		-0.15	
862	D7423	50		-0.58	
864	D7423	48		-1.02	
868		-----		-----	
873		-----		-----	
874	D7423	17.27		-7.63	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	65.4		2.73	
971		-----		-----	
974	D7423	56		0.71	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D7423	66	C	2.86	first reported <0.5
1145		-----		-----	
1201	In house	33.5		-4.14	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	69.8		3.68	
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857		-----		-----	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	65.8		2.82	
6198	D7423	68.2		3.33	
6200		-----		-----	
6201	D7423	103.6		10.96	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	
					D7423 only
	normality	suspect			suspect
	n	20			15
	outliers	1			1
	mean (n)	52.716			52.135
	st.dev. (n)	18.8886			20.8927
	R(calc.)	52.888			58.500
	st.dev.(Horwitz)	4.6439		st.dev. (D7423:17)	1.6841
	R(Horwitz)	13.003		R(D7423:17)	4.715
Compare					
	R(D7423:17)	4.747			





Determination of DIPE on sample #19046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D5599	1425.32		-----	possibly a false positive test result?
140	D7423	<0.5		-----	
150	D7423	275	C	-----	fr. 258 / possibly a false positive test result?
158		-----		-----	
171	D7423	<0.5		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	<1		-----	
317		-----		-----	
323	INH-304	<2		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D7423	<5.0		-----	
759	D7423	<0.5		-----	
779	D7423	<5		-----	
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	0.3		-----	
855	INH-024	<10		-----	
862	D7423	<10		-----	
864	D7423	<10		-----	
868		-----		-----	
873		-----		-----	
874	D7423	0.00		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	<0.5		-----	
971		-----		-----	
974	D7423	<0.5		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D7423	0		-----	
1145		-----		-----	
1201	In house	0.0		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	<1		-----	
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	< 10		-----	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	570.0		-----	possibly a false positive test result?
6198		-----		-----	
6200		-----		-----	
6201	D7423	<1		-----	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	
	n	19			
	mean (n)	<10			

Determination of MEK on sample #19046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140	D7423	<0.5		-----	
150	D7423	458	ex	-----	excluded see §4.1 / possibly a false positive test result?
158		-----		-----	
171	D7423	430.7	ex	-----	excluded see §4.1 / possibly a false positive test result?
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	<10		-----	
317		-----		-----	
323	INH-304	<2		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754		-----		-----	
759	D7423	380.4	ex	-----	excluded see §4.1 / possibly a false positive test result?
779	D7423	376.022	ex	-----	excluded see §4.1 / possibly a false positive test result?
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	469.3	ex	-----	excluded see §4.1 / possibly a false positive test result?
855	INH-024	<10		-----	
862	D7423	<10		-----	
864		-----		-----	
868		-----		-----	
873		-----		-----	
874	D7423	365.09	ex	-----	excluded see §4.1 / possibly a false positive test result?
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	>100	ex	-----	excluded see §4.1 / possibly a false positive test result?
971		-----		-----	
974		-----		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D7423	0		-----	
1145		-----		-----	
1201	In house	714.71	ex	-----	excluded see §4.1 / possibly a false positive test result?
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	508.8	ex	-----	excluded see §4.1 / possibly a false positive test result?
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857		-----		-----	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	523.3	ex	-----	excluded see §4.1 / possibly a false positive test result?
6198		-----		-----	
6200		-----		-----	
6201	D7423	790.5	ex	-----	excluded see §4.1 / possibly a false positive test result?
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	
	n	6			
	mean (n)	<10			

Determination of Methanol on sample #19046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D5599	0.00		-----	
140	D7423	<0.5		-----	
150	D7423	2.9		-----	
158		-----		-----	
171	D7423	<0.5		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	<10		-----	
317		-----		-----	
323	INH-304	<2		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D7423	<5.0		-----	
759	D7423	<0.5		-----	
779	D7423	<5		-----	
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	0.6		-----	
855	INH-024	<10		-----	
862	D7423	<10		-----	
864	D7423	<10		-----	
868		-----		-----	
873		-----		-----	
874	D7423	0.22		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	<0.5		-----	
971		-----		-----	
974	D7423	<0.5		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D7423	0		-----	
1145		-----		-----	
1201	In house	0.0		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	1.2		-----	
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

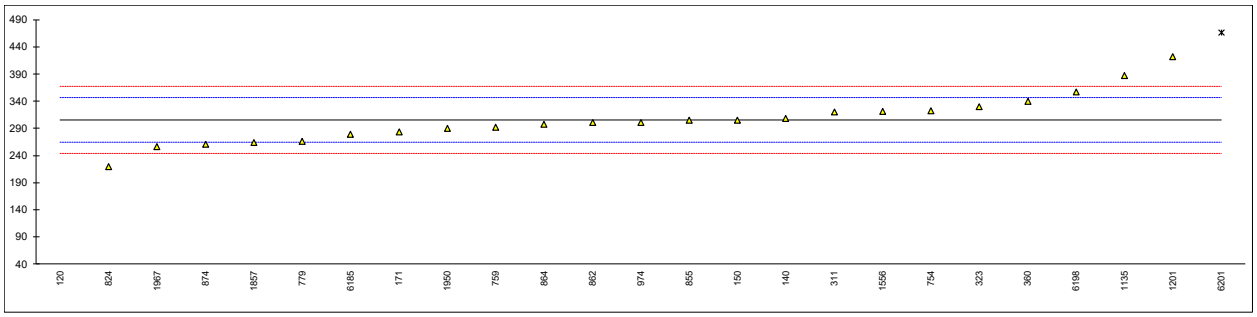
lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	< 10		-----	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	0		-----	
6198	D7423	0.49		-----	
6200		-----		-----	
6201	D7423	3.8		-----	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	
	n	23			
	mean (n)	<10			

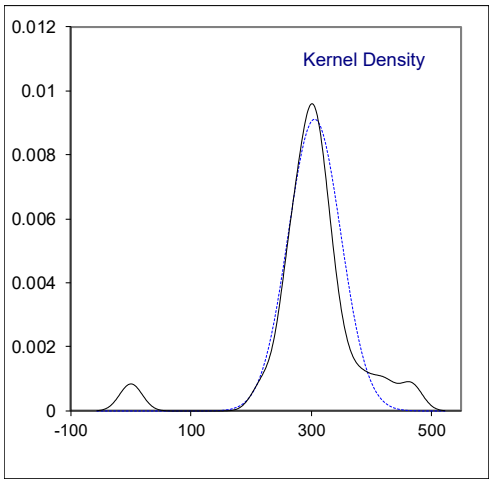
Determination of MTBE on sample #19046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D5599	0.00	R(0.01)	-14.79	
140	D7423	308.3		0.13	
150	D7423	305		-0.03	
158		-----		-----	
171	D7423	283.1		-1.09	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	320		0.70	
317		-----		-----	
323	INH-304	330		1.18	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D7423	340.0		1.66	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D7423	322.11		0.80	
759	D7423	292.0		-0.66	
779	D7423	265.986		-1.92	
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	219.6		-4.16	
855	INH-024	305		-0.03	
862	D7423	301		-0.22	
864	D7423	298		-0.37	
868		-----		-----	
873		-----		-----	
874	D7423	260.62		-2.18	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	>100		-----	
971		-----		-----	
974	D7423	301		-0.22	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D7423	387	C	3.94	first reported 810
1145		-----		-----	
1201	In house	422	C	5.63	first reported 610.61
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	321.8		0.78	
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	264		-2.01	
1862		-----		-----	
1950	D7754	290		-0.76	
1960		-----		-----	
1967		256		-2.40	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	279.3		-1.27	
6198	D7423	357.1		2.49	
6200		-----		-----	
6201	D7423	466	R(0.05)	7.76	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

				D7423 only
	normality	suspect		OK
	n	23		15
	outliers	2		1
	mean (n)	305.605		304.174
	st.dev. (n)	43.8291		40.3144
	R(calc.)	122.722		112.880
	st.dev.(Horwitz)	20.6646	st.dev. (D7423:17)	22.5904
	R(Horwitz)	57.861	R(D7423:17)	63.253
Compare				
	R(D7423:17)	63.534		

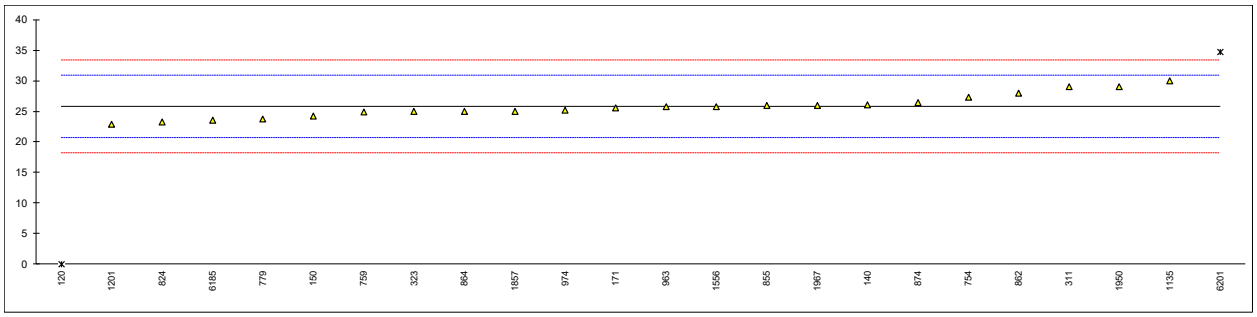


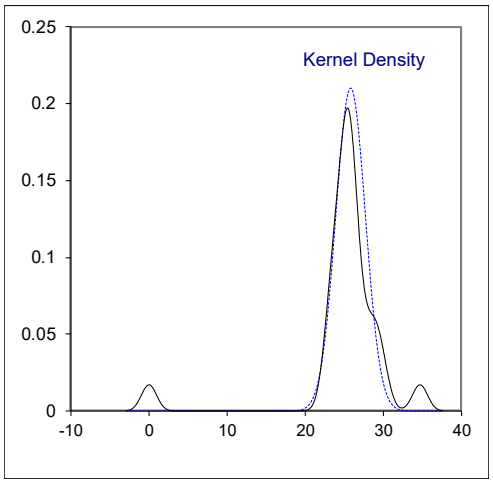


Determination of TAME on sample #19046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
120	D5599	0.00	R(0.01)	-10.20	
140	D7423	26.1		0.11	
150	D7423	24.2		-0.64	
158		-----		-----	
171	D7423	25.6		-0.09	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	29		1.26	
317		-----		-----	
323	INH-304	25		-0.32	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	D7423	27.33		0.60	
759	D7423	24.9		-0.36	
779	D7423	23.734		-0.82	
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	23.3		-0.99	
855	INH-024	26		0.07	
862	D7423	28		0.86	
864	D7423	25		-0.32	
868		-----		-----	
873		-----		-----	
874	D7423	26.48		0.26	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	25.8		-0.01	
971		-----		-----	
974	D7423	25.2		-0.24	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081		-----		-----	
1134		-----		-----	
1135	D7423	30	C	1.65	first reported 41
1145		-----		-----	
1201	In house	22.9		-1.15	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	25.8		-0.01	
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D7754	25		-0.32	
1862		-----		-----	
1950	D7754	29		1.26	
1960		-----		-----	
1967		26		0.07	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	23.6		-0.87	
6198		-----		-----	
6200		-----		-----	
6201	D7423	34.7	R(0.01)	3.51	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	
					D7423 only
	normality	OK			suspect
	n	22			14
	outliers	2			1
	mean (n)	25.816			25.817
	st.dev. (n)	1.8947			1.7606
	R(calc.)	5.305			4.930
	st.dev.(Horwitz)	2.5322		st.dev. (D7423:17)	1.3086
	R(Horwitz)	7.090		R(D7423:17)	3.664
Compare					
	R(D7423:17)	3.664			application range D7423:17: 0.50 – 100 mg/kg



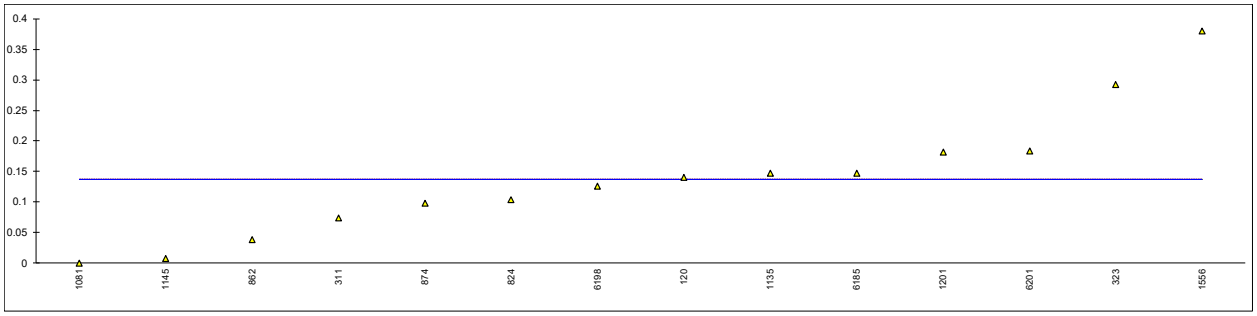


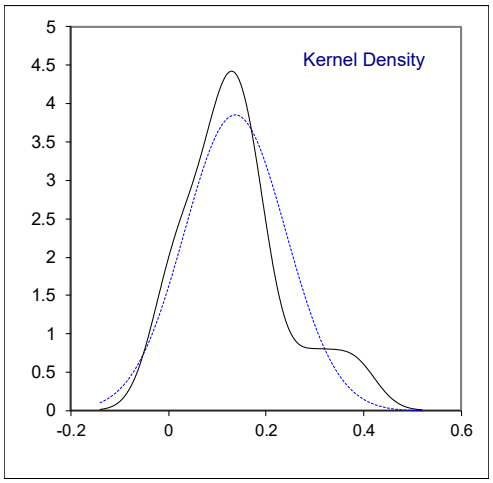
Determination of Total Oxygenates on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D5599	0.14		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171		-----		-----	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	INH-893	0.0740		-----	reported 740%M/M
317		-----		-----	
323	INH-304	0.2928		-----	reported 2928%M/M
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657		-----		-----	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754		-----		-----	
759		-----		-----	
779		-----		-----	
781		-----		-----	
785		-----		-----	
798		-----		-----	
824	D7423	0.10348		-----	reported 1034.8%M/M
855		-----		-----	
862	D7423	0.0379		-----	
864		-----		-----	
868		-----		-----	
873		-----		-----	
874		0.098374		-----	reported 983.74%M/M
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D7423	>0.01		-----	
971		-----		-----	
974		-----		-----	
982		-----		-----	
994		-----		-----	
995		-----		-----	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065		-----		-----	
1069		-----		-----	
1081	ISO22854-B	0.00		-----	
1134		-----		-----	
1135	D7423	0.147		-----	
1145	D4815	0.0075		-----	
1201	In house	0.182184	C	-----	first reported 0.20118
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544		-----		-----	
1556	D7423	0.38		-----	
1585		-----		-----	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857		-----		-----	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D7754Mod.	0.1470		-----	
6198	D7423	0.1257		-----	
6200		-----		-----	
6201	D7423	0.18355		-----	reported 1835.5%M/M
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

normality	suspect
n	14
outliers	0
mean (n)	0.13711
st.dev. (n)	0.103705
R(calc.)	0.29037
st.dev.(Horwitz 5 comp.)	(0.016538)
R(Horwitz 5 comp.)	(0.04631)





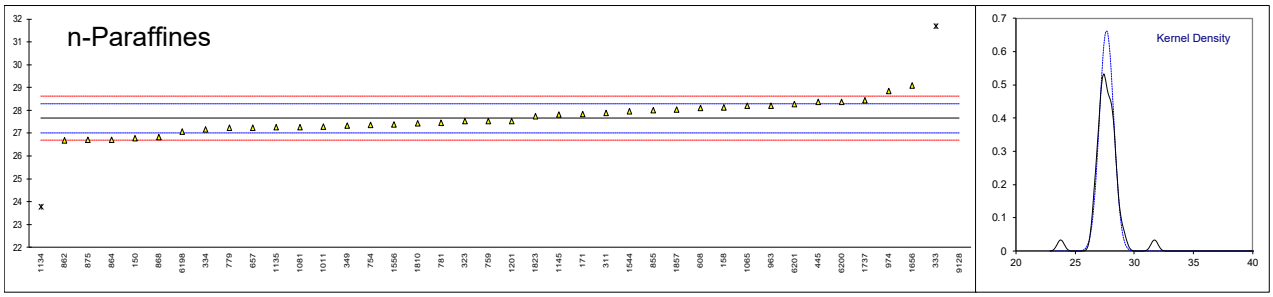
PONA/PIONA/PNA (n-Paraffines, i-Paraffines, Naphthenes) determination on sample #19046; results in %V/V

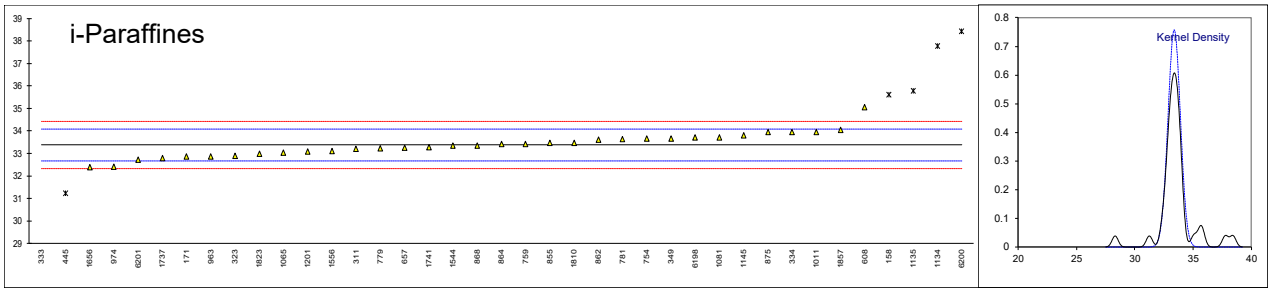
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
120		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D6729	26.789		-2.71	-----		-----	-----		-----
158	D6730	28.120		1.46	35.609	R(0.01)	6.36	24.983	R(0.01) / DHA	-31.92
171	D5443	27.83		0.55	32.87		-1.45	32.49		1.82
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
311	D5443Mod.	27.9		0.77	33.2		-0.51	32.0		-0.39
317		-----		-----	-----		-----	-----		-----
323	D5443	27.53		-0.39	32.89		-1.39	33.46		6.17
333	D6839	31.7	R(0.01)	12.67	28.3	R(0.01)	-14.48	29.5	R(0.05)	-11.62
334	D5134	27.17	C	-1.52	33.96	C	1.66	31.81	C / DHA	-1.24
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349	D5443	27.33		-1.02	33.67		0.83	32.07		-0.07
360		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D5443	28.37		2.24	31.24	R(0.01)	-6.09	33.28		5.37
541		-----		-----	-----		-----	-----		-----
608	D6730	28.1142		1.44	35.0628	C	4.80	27.6422	C,R(0.01) / DHA	-19.97
657	D5443	27.25		-1.27	33.25		-0.36	32.7		2.76
663		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754	GOST32507(B)	27.370		-0.89	33.656		0.79	31.917		-0.76
759	GOST52714(B)	27.54		-0.36	33.43		0.15	32.04		-0.21
779	D6729	27.240		-1.30	33.220		-0.45	32.325		1.07
781	D6839	27.45		-0.64	33.65		0.78	32.27		0.83
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
824		-----		-----	-----		-----	-----		-----
855	D6839	28.01		1.11	33.47		0.26	31.84		-1.11
862	D6839	26.69		-3.02	33.61		0.66	32.87		3.52
864	D6839	26.72		-2.93	33.42		0.12	32.76		3.03
868	D6839	26.82		-2.61	33.36		-0.05	32.82		3.30
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875	GOST P 52714	26.70		-2.99	33.95		1.63	32.15	DHA	0.29
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	28.21		1.74	32.88		-1.42	32.33		1.10
971		-----		-----	-----		-----	-----		-----
974	D6730	28.847		3.74	32.421		-2.73	31.430	DHA	-2.95
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
998		-----		-----	-----		-----	-----		-----
1011	D5443	27.28		-1.17	33.96		1.66	31.60		-2.18
1012		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1062		-----		-----	-----		-----	-----		-----
1065	In house	28.200		1.71	33.045		-0.95	31.323		-3.43
1069		-----		-----	-----		-----	-----		-----
1081	ISO22854-A	27.27		-1.20	33.72		0.98	31.91	DHA	-0.79
1134	D6839	23.78	R(0.01)	-12.13	37.77	R(0.01)	12.52	31.62		-2.09
1135	D6839	27.26		-1.23	35.79	R(0.01)	6.88	29.93		-9.69
1145	D6293	27.82		0.52	33.81		1.23	31.89		-0.88
1201	D6839	27.54		-0.36	33.08		-0.85	32.58		2.22
1254		-----		-----	-----		-----	-----		-----
1284		-----		-----	-----		-----	-----		-----
1320		-----		-----	-----		-----	-----		-----
1379		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1544	D5443	27.953		0.94	33.352		-0.07	31.885		-0.90
1556	ISO22854-A	27.39		-0.83	33.10		-0.79	32.83	DHA	3.34
1585		-----		-----	-----		-----	-----		-----
1603		-----		-----	-----		-----	-----		-----
1656	D5443	29.1		4.53	32.4		-2.79	31.6		-2.18
1737	In house	28.45		2.49	32.80		-1.65	31.60		-2.18
1741		-----		-----	33.28		-0.28	32.15		0.29
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----

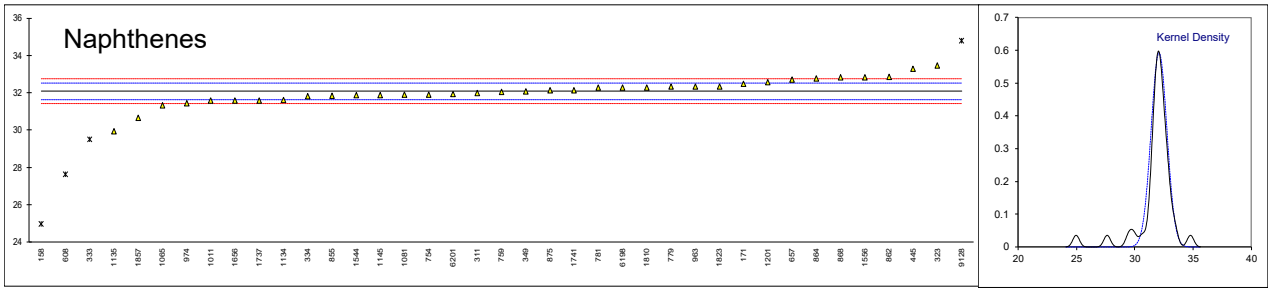
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
1918	D6839	27.44		-0.67	33.48		0.29	32.29		0.92
1823	D6839	27.75		0.30	32.99		-1.11	32.35		1.19
1849		-----		-----	-----		-----	-----		-----
1857	D5134	28.04		1.21	34.05		1.92	30.67	DHA	-6.36
1862		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1995		-----		-----	-----		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6056		-----		-----	-----		-----	-----		-----
6185		-----		-----	-----		-----	-----		-----
6198	D6839	27.06		-1.86	33.70		0.92	32.28		0.87
6200	D6730	28.3790	C	2.27	38.4265	C,R(0.01)	14.39	-----		-----
6201	D6839	28.27		1.93	32.73		-1.85	31.94		-0.66
9054		-----		-----	-----		-----	-----		-----
9055		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9128	D5443	58.25	C,R(0.01)	95.83	-----		-----	34.78	C,R(0.05)	12.11
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----

					without DHA methd.:
	normality	OK	not OK	not OK	OK
	n	37	33	35	28
	outliers	3	6	4	3+ 8ex
	mean (n)	27.6541	33.3778	32.0860	32.2243
	st.dev. (n)	0.60090	0.52730	0.67441	0.51570
	R(calc.)	1.6825	1.4764	1.8884	1.4439
	st.dev.(D5443:14)	0.31928	0.35077	0.22253	0.22301
	R(D5443:14)	0.8940	0.9821	0.6231	0.6244
Compare					
	R(D6839:18)	1.6	1.6	1.6	

DHA= test method used is meant for DHA analyses, see §4.1
Lab 334 first reported 28.97 for n-Paraffines and 36.24 for i-Paraffines and 27.25 for Naphthenes
Lab 608 first reported 38.3527 for i-Paraffines and 24.4666 for Naphthenes
Lab 6200 first reported 28.2146 for n-Paraffines and 38.2982 for i-Paraffines
Lab 9128 first reported 55.83 for n-Paraffines and 37.19 for Naphthenes





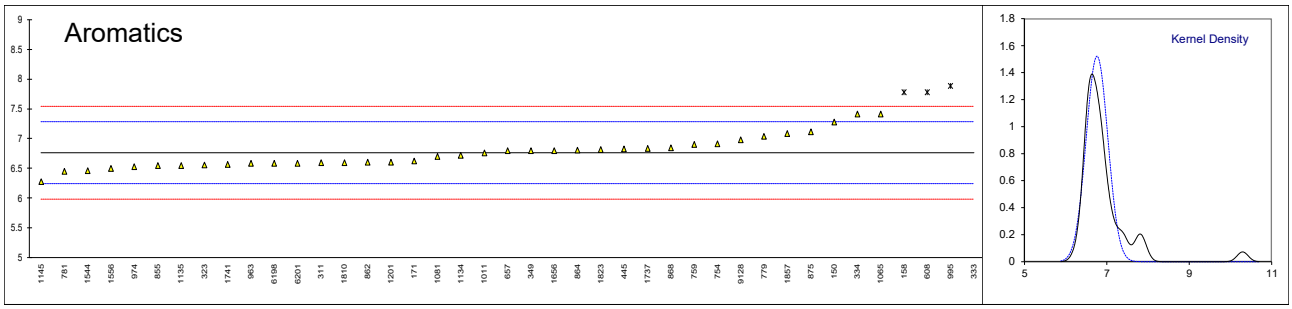


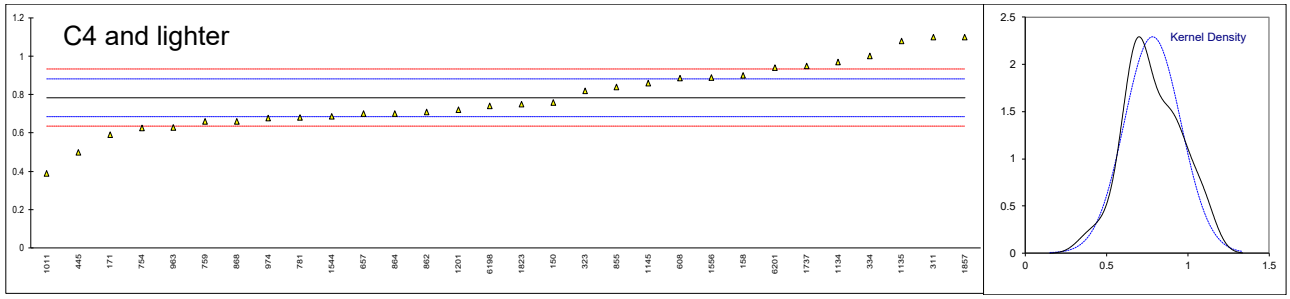
PONA/PIONA/PNA (Aromatics, C4 and lighter, Comp. with BP>200°C) determination on sample #19046; results in %V/V (continued)

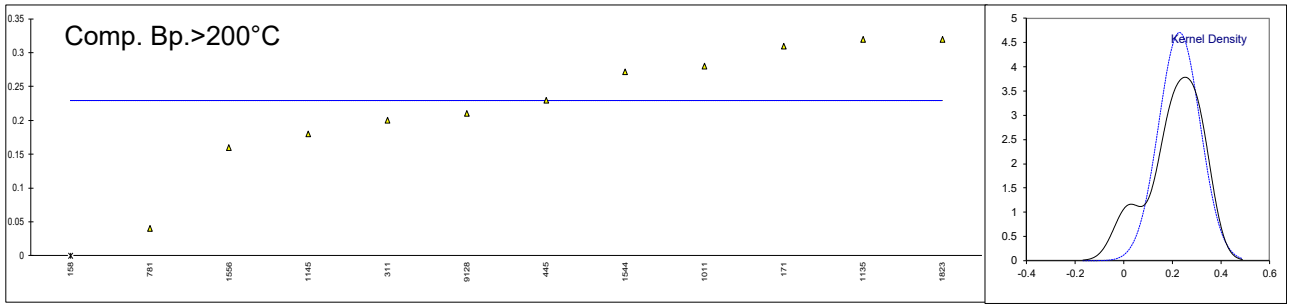
lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
120		-----		-----	-----		-----	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D6729	7.283		2.01	0.760		-0.49	-----		-----
158	D6730	7.777	R(0.05)	3.91	0.901		2.37	0	ex	-----
171	D5443	6.62		-0.54	0.59		-3.93	0.31		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
311	D5443	6.6		-0.62	1.1		6.40	0.2		-----
317		-----		-----	-----		-----	-----		-----
323	D5443	6.56	C	-0.77	0.82		0.73	<0.10	C	-----
333	D6839	10.3	R(0.01)	13.61	-----		-----	-----		-----
334	D5134	7.41		2.50	1.00		4.38	-----		-----
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349	D5443	6.80		0.15	-----		-----	-----		-----
360		-----		-----	-----		-----	-----		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D5443	6.83		0.27	0.50		-5.75	0.23		-----
541		-----		-----	-----		-----	-----		-----
608	D6730	7.7805	R(0.05)	3.92	0.8871		2.09	-----		-----
657	D5443	6.80		0.15	0.7		-1.70	-----		-----
663		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754		6.916		0.60	0.625		-3.22	-----		-----
759		6.90		0.54	0.66		-2.51	-----		-----
779		7.038		1.07	-----		-----	-----		-----
781		6.45		-1.20	0.68		-2.11	0.04		-----
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
824		-----		-----	-----		-----	-----		-----
855	D6839	6.55		-0.81	0.84		1.13	-----		-----
862	D6839	6.61		-0.58	0.71		-1.50	-----		-----
864	D6839	6.81		0.19	0.7		-1.70	-----		-----
868	D6839	6.85		0.34	0.66		-2.51	-----		-----
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875	GOST P 52714	7.12		1.38	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	6.59		-0.66	0.63		-3.12	-----		-----
971		-----		-----	-----		-----	-----		-----
974	D6730	6.533		-0.88	0.679		-2.13	-----		-----
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995	D5134	7.8865	R(0.05)	4.33	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
998		-----		-----	-----		-----	-----		-----
1011		6.76		0.00	0.39		-7.98	0.28		-----
1012		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1062		-----		-----	-----		-----	-----		-----
1065	In house	7.412		2.50	-----		-----	-----		-----
1069		-----		-----	-----		-----	-----		-----
1081	ISO22854-A	6.70		-0.23	-----		-----	-----		-----
1134	D6839	6.72		-0.16	0.97		3.77	-----		-----
1135	D6839	6.55		-0.81	1.08		6.00	0.32		-----
1145	D6293	6.28		-1.85	0.86		1.54	0.18		-----
1201	D6839	6.61		-0.58	0.72		-1.30	-----		-----
1254		-----		-----	-----		-----	-----		-----
1284		-----		-----	-----		-----	-----		-----
1320		-----		-----	-----		-----	-----		-----
1379		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1544	D5443	6.465		-1.14	0.688		-1.94	0.272		-----
1556	ISO22854-A	6.50		-1.00	0.89		2.15	0.16		-----
1585		-----		-----	-----		-----	-----		-----
1603		-----		-----	-----		-----	-----		-----
1656	D5443	6.8		0.15	-----		-----	-----		-----
1737	In house	6.84		0.30	0.95		3.36	-----		-----
1741	D6839	6.57		-0.73	-----		-----	-----		-----
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----

lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
1810	D6839	6.60		-0.62	-----		-----	-----		-----
1823	D6839	6.82		0.23	0.75		-0.69	0.32		-----
1849		-----		-----	-----		-----	-----		-----
1857	D5134	7.09		1.27	1.10		6.40	absence	C	-----
1862		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1995		-----		-----	-----		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6056		-----		-----	-----		-----	-----		-----
6185		-----		-----	-----		-----	-----		-----
6198	D6839	6.59		-0.66	0.74		-0.89	-----		-----
6200		-----		-----	-----		-----	-----		-----
6201	D6839	6.59		-0.66	0.94		3.16	-----		-----
9054		-----		-----	-----		-----	-----		-----
9055		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9128	D5443	6.98		0.84	-----		-----	0.21		-----
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----
	normality	OK			OK			suspect		
	n	37			30			11		
	outliers	4			0			1		
	mean (n)	6.7607			0.7840			0.2293		
	st.dev. (n)	0.26163			0.17399			0.08465		
	R(calc.)	0.7326			0.4872			0.2370		
	st.dev.(D5443:14)	0.26001			0.04937			n.a.		
	R(D5443:14)	0.7280		R(D5134:13)	0.1382			n.a.		
Compare										
	R(D6839:18)	0.6034								

Lab 158 excluded as zero is not a real test value
Lab 323 first reported 5.82 for Aromatics and 1.114 for Bp>200
Lab 1857 first reported 1.20 for Bp>200





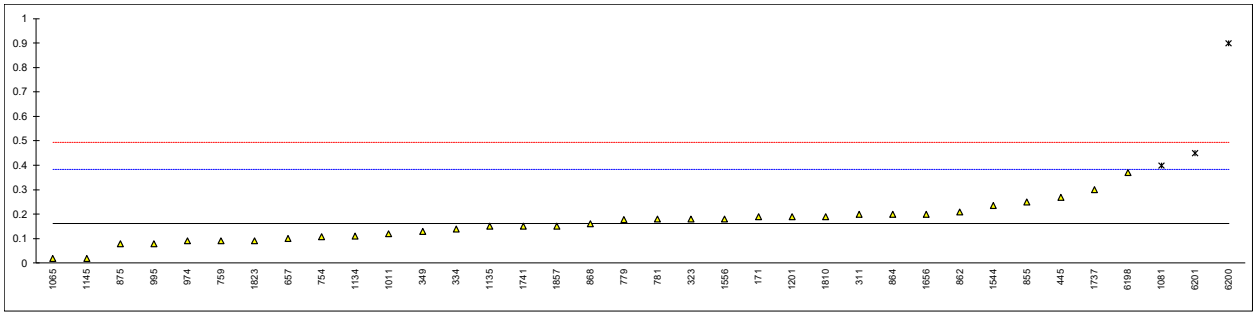


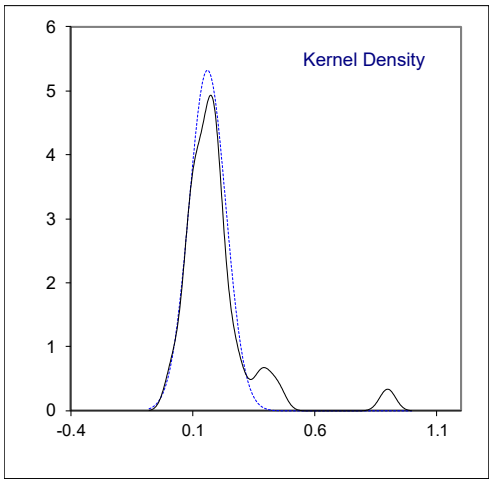
PONA/PIONA/PNA (Olefins) determination on sample #19046; results in %V/V (continued)

lab	method	value	mark	z(targ)	remarks
120		-----		-----	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D5443	0.19		0.26	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5443Mod.	0.2		0.35	
317		-----		-----	
323	D5443	0.18		0.17	
333	D6839	<1.5		-----	
334	D6839	0.14		-0.19	
336		-----		-----	
337		-----		-----	
349	D5443	0.13		-0.28	
360		-----		-----	
399		-----		-----	
444		-----		-----	
445	D6839	0.27		0.98	
541		-----		-----	
608		-----		-----	
657	D6839	0.1		-0.55	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754		0.107		-0.49	
759		0.09		-0.64	
779		0.177		0.15	
781		0.18		0.17	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855	D6839	0.25		0.80	
862	D6839	0.21		0.44	
864	D6839	0.2		0.35	
868	D6839	0.16		-0.01	
873		-----		-----	
874		-----		-----	
875	GOST P 52714	0.08		-0.73	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963		-----		-----	
971		-----		-----	
974	D6730	0.09		-0.64	
982		-----		-----	
994		-----		-----	
995		0.08		-0.73	
997		-----		-----	
998		-----		-----	
1011		0.12		-0.37	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	In house	0.020		-1.27	
1069		-----		-----	
1081	ISO22854-A	0.40	DG(0.05)	2.16	
1134	D6839	0.11		-0.46	
1135	D6839	0.15		-0.10	
1145	D6293	0.02		-1.27	
1201	D6839	0.19		0.26	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544	D6839	0.235		0.67	
1556	ISO22854	0.18		0.17	
1585		-----		-----	
1603		-----		-----	
1656	D5443	0.2		0.35	
1737	In house	0.30		1.25	
1741	D6839	0.15		-0.10	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810	D6839	0.19		0.26	
1823	D6839	0.09		-0.64	
1849		-----		-----	
1857	D6839	0.15		-0.10	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185		-----		-----	
6198	D6839	0.37		1.88	
6200	D6730	0.8985	C,G(0.01)	6.65	first reported 2.3881
6201	D6839	0.45	DG(0.05)	2.61	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

normality	OK
n	33
outliers	3
mean (n)	0.1609
st.dev. (n)	0.07496
R(calc.)	0.2099
st.dev.(D6839:18)	0.11096
R(D6839:18)	0.3107





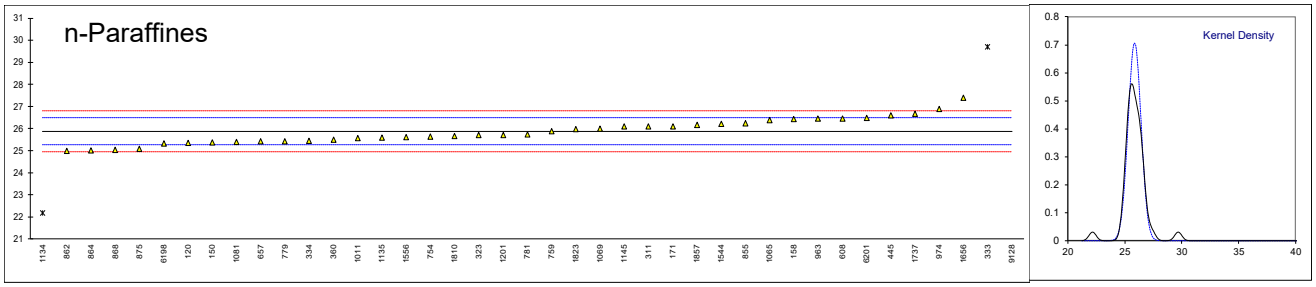
PONA/PIONA/PNA (n-Paraffines, i-Paraffines, Naphthenes) determination on sample #19046; results in %M/M

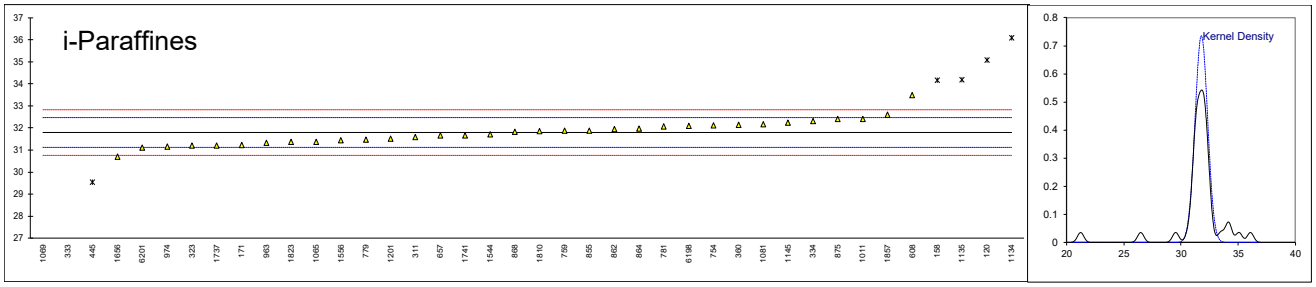
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
120	D6730	25.347		-1.70	35.083	R(0.05)	9.60	27.320	R(0.01) / DHA	-29.73
140		-----		-----	-----		-----	-----		-----
150	D6729	25.372		-1.62	-----		-----	-----		-----
158	D6730	26.440		1.84	34.168	R(0.01)	6.93	26.532	R(0.01) / DHA	-33.17
171	D5443	26.10		0.74	31.23		-1.65	34.57		1.85
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
311	D5443Mod.	26.1		0.74	31.6		-0.57	34.1		-0.20
317		-----		-----	-----		-----	-----		-----
323	D5443	25.71		-0.53	31.20		-1.74	35.95		7.86
333	D6839	29.7	R(0.01)	12.39	26.5	R(0.01)	-15.47	31.3		-12.40
334	D5134	25.45	C	-1.37	32.32	C	1.53	33.88	C / DHA	-1.16
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360	D5443	25.49		-1.24	32.14		1.01	34.26		0.50
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D5443	26.60		2.36	29.55	R(0.01)	-6.56	35.43		5.59
541		-----		-----	-----		-----	-----		-----
608	D6730	26.4567		1.89	33.4990	C	4.98	29.3690	C,R(0.01)/ DHA	-20.81
657	D5443	25.43		-1.43	31.66		-0.39	34.81		2.89
663		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754	GOST32507(B)	25.631		-0.78	32.112		0.93	33.871		-1.20
759	GOST52714(B)	25.87		-0.01	31.88		0.25	33.85		-1.29
779	D6729	25.433		-1.42	31.476		-0.93	34.555		1.78
781	D6839	25.74		-0.43	32.07		0.80	34.27		0.54
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
824		-----		-----	-----		-----	-----		-----
855	D6839	26.23		1.16	31.88		0.25	33.93		-0.94
862	D6839	24.98		-2.89	31.96		0.48	34.97		3.59
864	D6839	25.02		-2.76	31.98		0.54	34.71		2.46
868	D6839	25.03		-2.73	31.83		0.10	34.85		3.07
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875	GOST P 52714	25.08		-2.57	32.42		1.83	33.97	DHA	-0.77
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	26.45		1.87	31.33		-1.36	34.37		0.98
971		-----		-----	-----		-----	-----		-----
974	D6730	26.898		3.32	31.160		-1.85	33.384	DHA	-3.32
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		-----		-----	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
998		-----		-----	-----		-----	-----		-----
1011	D5443	25.56		-1.01	32.42		1.83	33.56		-2.55
1012		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1062		-----		-----	-----		-----	-----		-----
1065	In house	26.390		1.68	31.379		-1.21	33.338		-3.52
1069	In house	26.01		0.45	21.25	R(0.01)	-30.80	22.08	R(0.01)	-52.56
1081	ISO22854-A	25.40		-1.53	32.18		1.13	34.04	DHA	-0.46
1134	D6839	22.18	R(0.01)	-11.96	36.08	R(0.01)	12.52	33.61		-2.34
1135	D6839	25.59		-0.91	34.18	R(0.01)	6.97	31.87		-9.91
1145	D6293	26.09		0.70	32.23		1.27	33.94		-0.90
1201	D6839	25.72		-0.49	31.52		-0.80	34.69		2.37
1254		-----		-----	-----		-----	-----		-----
1284		-----		-----	-----		-----	-----		-----
1320		-----		-----	-----		-----	-----		-----
1379		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1544	D5443	26.221		1.13	31.713		-0.24	33.998		-0.65
1556	ISO22854-A	25.62		-0.82	31.45		-1.01	34.99	DHA	3.68
1585		-----		-----	-----		-----	-----		-----
1603		-----		-----	-----		-----	-----		-----
1656	D5443	27.4		4.95	30.7		-3.20	33.6		-2.38
1737	In house	26.67		2.58	31.20		-1.74	33.67		-2.07
1741		-----		-----	31.66		-0.39	34.25		0.45
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----

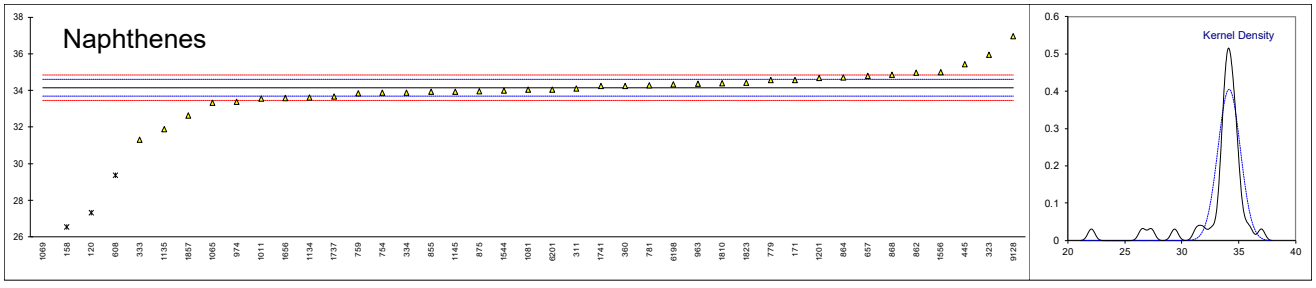
lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
1810	D6839	25.66		-0.69	31.86		0.19	34.40		1.11
1823	D6839	25.98		0.35	31.37		-1.24	34.42		1.19
1849		-----		-----	-----		-----	-----		-----
1857	D5134	26.17		0.96	32.59		2.32	32.63	DHA	-6.60
1862		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1995		-----		-----	-----		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6056		-----		-----	-----		-----	-----		-----
6185		-----		-----	-----		-----	-----		-----
6198	D6839	25.33		-1.76	32.09		0.86	34.34		0.84
6200		-----		-----	-----		-----	-----		-----
6201	D6839	26.48		1.97	31.12		-1.97	34.06		-0.38
9054		-----		-----	-----		-----	-----		-----
9055		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9128	D5443	54.76	C,R(0.01)	93.54	-----		-----	36.97	C	12.30
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----

					without DHA methd.:
	normality	OK		suspect	not OK	not OK
	n	38		33	37	29
	outliers	3		7	4	2 +9ex
	mean (n)	25.8723		31.7948	34.1461	34.2152
	st.dev. (n)	0.56315		0.54274	0.98315	0.72898
	R(calc.)	1.5768		1.5197	2.7528	2.0411
	st.dev.(D5443:14)	0.30882		0.34235	0.22956	0.22979
	R(D5443:14)	0.8647		0.9586	0.6428	0.6434
Compare						
	R(D6839:18)	1.6		1.6	1.6	

DHA= test method used is meant for DHA analyses, see §4.1
Lab 334 first reported 27.20 for n-Paraffines and 34.78 for i-Paraffines and 28.94 for Naphthenes
Lab 608 first reported 36.9541 for i-Paraffines and 25.9875 for Naphthenes
Lab 9128 first reported 52.24 for n-Paraffines and 39.49 for Naphthenes





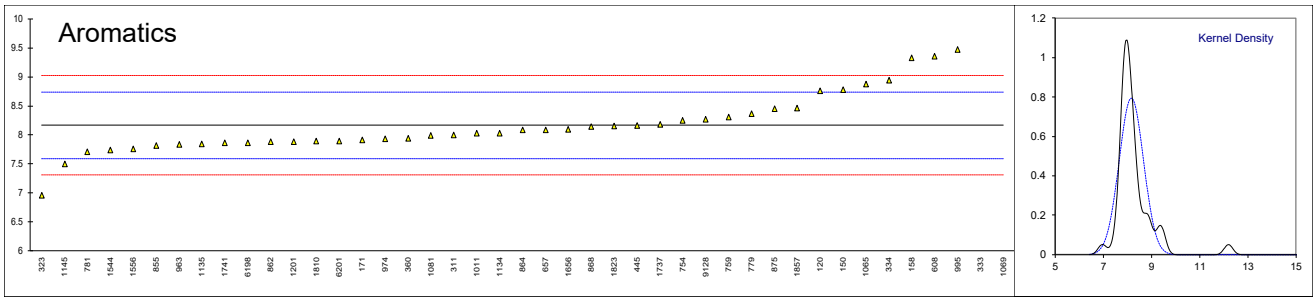


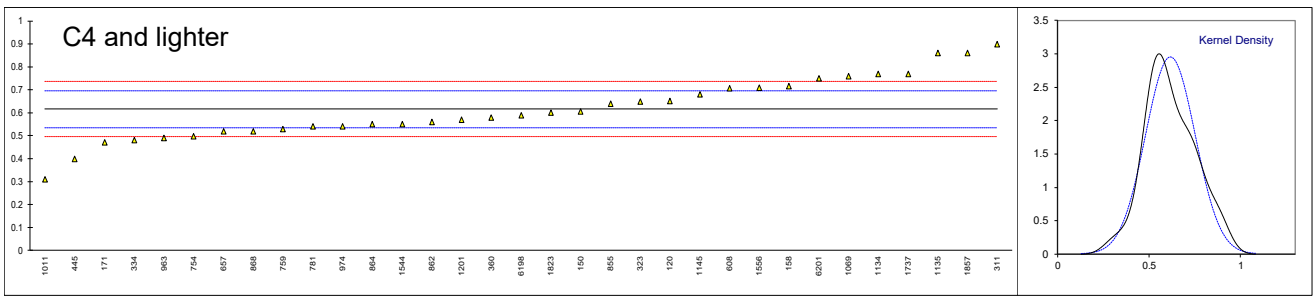
PONA/PIONA/PNA (Aromatics, C4 and lighter, Comp. with BP>200°C) determination on sample #19046; results in %M/M (continued)

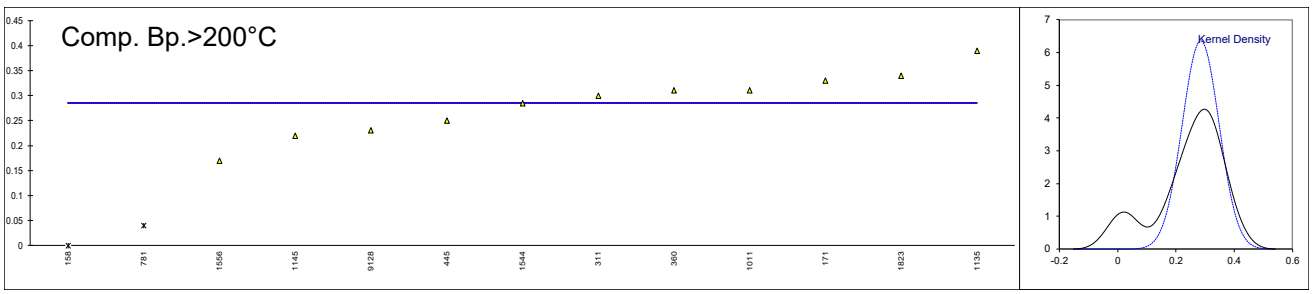
lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
120	D6730	8.764		2.09	0.651		0.87	-----		-----
140		-----		-----	-----		-----	-----		-----
150	D6729	8.780		2.15	0.606		-0.25	-----		-----
158	D6730	9.330		4.07	0.717		2.51	0	ex	-----
171	D5443	7.91		-0.90	0.47		-3.63	0.33		-----
225		-----		-----	-----		-----	-----		-----
237		-----		-----	-----		-----	-----		-----
238		-----		-----	-----		-----	-----		-----
311	D5443	8.0		-0.58	0.9		7.06	0.3		-----
317		-----		-----	-----		-----	-----		-----
323	D5443	6.96		-4.22	0.65		0.85	<0.10	C	-----
333	D6839	12.2	R(0.01)	14.12	-----		-----	-----		-----
334	D5134	8.94		2.71	0.48	C	-3.38	-----		-----
336		-----		-----	-----		-----	-----		-----
337		-----		-----	-----		-----	-----		-----
349		-----		-----	-----		-----	-----		-----
360	D5443	7.94		-0.79	0.58		-0.89	0.31		-----
399		-----		-----	-----		-----	-----		-----
444		-----		-----	-----		-----	-----		-----
445	D5443	8.16		-0.02	0.40		-5.37	0.25		-----
541		-----		-----	-----		-----	-----		-----
608	D6730	9.3543		4.16	0.7058		2.23	-----		-----
657	D5443	8.09		-0.27	0.52		-2.39	-----		-----
663		-----		-----	-----		-----	-----		-----
750		-----		-----	-----		-----	-----		-----
753		-----		-----	-----		-----	-----		-----
754		8.247		0.28	0.497		-2.96	-----		-----
759		8.31		0.50	0.53		-2.14	-----		-----
779		8.363		0.69	-----		-----	-----		-----
781		7.71		-1.60	0.54		-1.89	0.04	G(0.05)	-----
785		-----		-----	-----		-----	-----		-----
798		-----		-----	-----		-----	-----		-----
824		-----		-----	-----		-----	-----		-----
855	D6839	7.82		-1.21	0.64		0.60	-----		-----
862	D6839	7.88		-1.00	0.56		-1.39	-----		-----
864	D6839	8.09		-0.27	0.55		-1.64	-----		-----
868	D6839	8.14		-0.09	0.52		-2.39	-----		-----
873		-----		-----	-----		-----	-----		-----
874		-----		-----	-----		-----	-----		-----
875	GOST P 52714	8.45		0.99	-----		-----	-----		-----
912		-----		-----	-----		-----	-----		-----
922		-----		-----	-----		-----	-----		-----
962		-----		-----	-----		-----	-----		-----
963	D5443	7.84		-1.14	0.49		-3.13	-----		-----
971		-----		-----	-----		-----	-----		-----
974	D6730	7.928		-0.83	0.540		-1.89	-----		-----
982		-----		-----	-----		-----	-----		-----
994		-----		-----	-----		-----	-----		-----
995		9.4761		4.58	-----		-----	-----		-----
997		-----		-----	-----		-----	-----		-----
998		-----		-----	-----		-----	-----		-----
1011		8.03		-0.48	0.31		-7.61	0.31		-----
1012		-----		-----	-----		-----	-----		-----
1016		-----		-----	-----		-----	-----		-----
1062		-----		-----	-----		-----	-----		-----
1065	In house	8.875		2.48	-----		-----	-----		-----
1069	In house	21.300	R(0.01)	45.96	0.76		3.58	-----		-----
1081	ISO22854-A	7.99		-0.62	-----		-----	-----		-----
1134	D6839	8.03		-0.48	0.77		3.83	-----		-----
1135	D6839	7.85		-1.11	0.86		6.07	0.39		-----
1145	D6293	7.50		-2.33	0.68		1.59	0.22		-----
1201	D6839	7.88		-1.00	0.57		-1.14	-----		-----
1254		-----		-----	-----		-----	-----		-----
1284		-----		-----	-----		-----	-----		-----
1320		-----		-----	-----		-----	-----		-----
1379		-----		-----	-----		-----	-----		-----
1381		-----		-----	-----		-----	-----		-----
1429		-----		-----	-----		-----	-----		-----
1544	D5443	7.742		-1.48	0.551		-1.62	0.284		-----
1556	ISO22854	7.76		-1.42	0.71		2.34	0.17		-----
1585		-----		-----	-----		-----	-----		-----
1603		-----		-----	-----		-----	-----		-----
1656	D5443	8.1		-0.23	-----		-----	-----		-----
1737	In house	8.18		0.05	0.77		3.83	-----		-----
1741	D6839	7.87		-1.04	-----		-----	-----		-----
1788		-----		-----	-----		-----	-----		-----
1796		-----		-----	-----		-----	-----		-----

lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
1810	D6839	7.89		-0.97	-----		-----	-----		-----
1823	D6839	8.15		-0.06	0.60		-0.40	0.34		-----
1849		-----		-----	-----		-----	-----		-----
1857	D5134	8.46		1.03	0.86		6.07	absence	C	-----
1862		-----		-----	-----		-----	-----		-----
1950		-----		-----	-----		-----	-----		-----
1960		-----		-----	-----		-----	-----		-----
1967		-----		-----	-----		-----	-----		-----
1995		-----		-----	-----		-----	-----		-----
6016		-----		-----	-----		-----	-----		-----
6056		-----		-----	-----		-----	-----		-----
6185		-----		-----	-----		-----	-----		-----
6198	D6839	7.87		-1.04	0.59		-0.65	-----		-----
6200		-----		-----	-----		-----	-----		-----
6201	D6839	7.89		-0.97	0.75		3.33	-----		-----
9054		-----		-----	-----		-----	-----		-----
9055		-----		-----	-----		-----	-----		-----
9057		-----		-----	-----		-----	-----		-----
9058		-----		-----	-----		-----	-----		-----
9061		-----		-----	-----		-----	-----		-----
9101		-----		-----	-----		-----	-----		-----
9128	D5443	8.27		0.36	-----		-----	0.23		-----
9142		-----		-----	-----		-----	-----		-----
9143		-----		-----	-----		-----	-----		-----
	normality	suspect			OK			OK		
	n	41			33			11		
	outliers	2			0			2		
	mean (n)	8.1663			0.6160			0.2849		
	st.dev. (n)	0.50292			0.13506			0.06265		
	R(calc.)	1.4082			0.3782			0.1754		
	st.dev.(D5443:14)	0.28577			0.04022			n.a.		
	R(D5443:14)	0.8001		R(D5134:13)	0.1126			n.a.		
Compare										
	R(D6839:18)	0.6540								

Lab 158 excluded for Bp>200 as zero is not a real test value
Lab 323 first reported 1.36 for Bp>200
Lab 334 first reported 1.23 for ≤C4
Lab 1857 first reported 1.30 for Bp>200





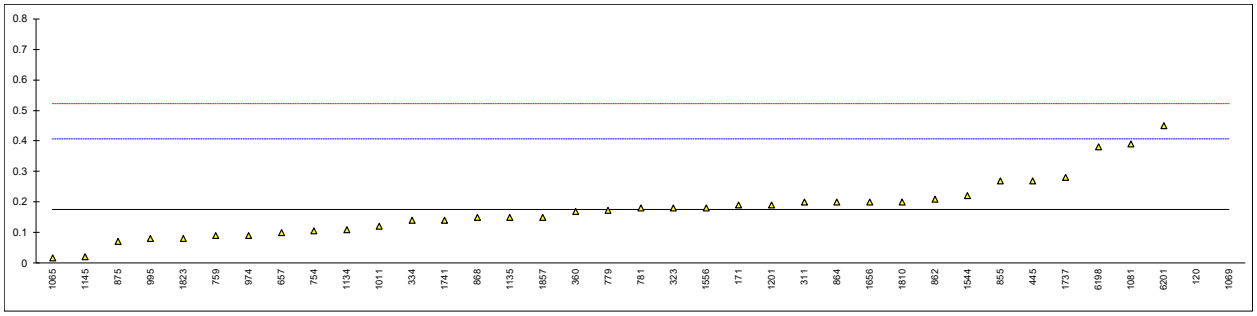


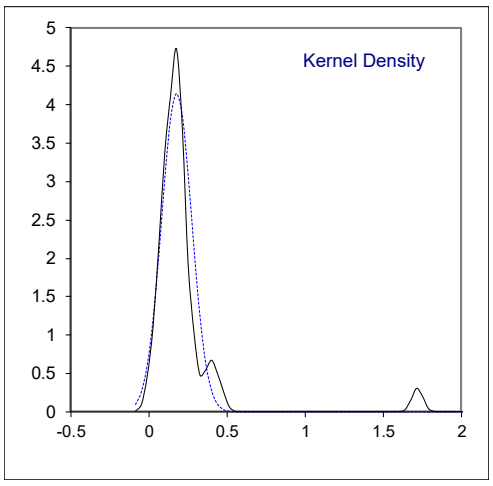
PONA/PIONA/PNA (Olefins) determination on sample #19046; results in %M/M (continued)

lab	method	value	mark	z(targ)	remarks
120	D6730	1.716	R(0.01)	13.33	
140		-----		-----	
150		-----		-----	
158		-----		-----	
171	D5443	0.19		0.12	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5443Mod.	0.2		0.21	
317		-----		-----	
323	D5443	0.18		0.04	
333	D6839	<2		-----	
334	D6839	0.14		-0.31	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D6839	0.17		-0.05	
399		-----		-----	
444		-----		-----	
445	D6839	0.27		0.82	
541		-----		-----	
608		-----		-----	
657	D6839	0.1		-0.65	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754		0.105		-0.61	
759		0.09		-0.74	
779		0.173		-0.02	
781		0.18		0.04	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855	D6839	0.27		0.82	
862	D6839	0.21		0.30	
864	D6839	0.2		0.21	
868	D6839	0.15		-0.22	
873		-----		-----	
874		-----		-----	
875	GOST P 52714	0.07		-0.91	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963		-----		-----	
971		-----		-----	
974	D6730	0.09		-0.74	
982		-----		-----	
994		-----		-----	
995		0.08		-0.83	
997		-----		-----	
998		-----		-----	
1011		0.12		-0.48	
1012		-----		-----	
1016		-----		-----	
1062		-----		-----	
1065	In house	0.018		-1.36	
1069	In house	9.36	R(0.01)	79.50	
1081	ISO22854-A	0.39		1.86	
1134	D6839	0.11		-0.57	
1135	D6839	0.15		-0.22	
1145	D6293	0.02		-1.35	
1201	D6839	0.19		0.12	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		-----		-----	
1544	D6839	0.221		0.39	
1556	ISO22854	0.18		0.04	
1585		-----		-----	
1603		-----		-----	
1656	D5443	0.2		0.21	
1737	In house	0.28		0.90	
1741	D6839	0.14		-0.31	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796		-----		-----	
1810	D6839	0.20		0.21	
1823	D6839	0.08		-0.83	
1849		-----		-----	
1857	D6839	0.15		-0.22	
1862		-----		-----	
1950		-----		-----	
1960		-----		-----	
1967		-----		-----	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185		-----		-----	
6198	D6839	0.38		1.77	
6200		-----		-----	
6201	D6839	0.45		2.37	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

normality	not OK
n	35
outliers	2
mean (n)	0.1756
st.dev. (n)	0.09604
R(calc.)	0.2689
st.dev.(D6839:18)	0.11553
R(D6839:18)	0.3235



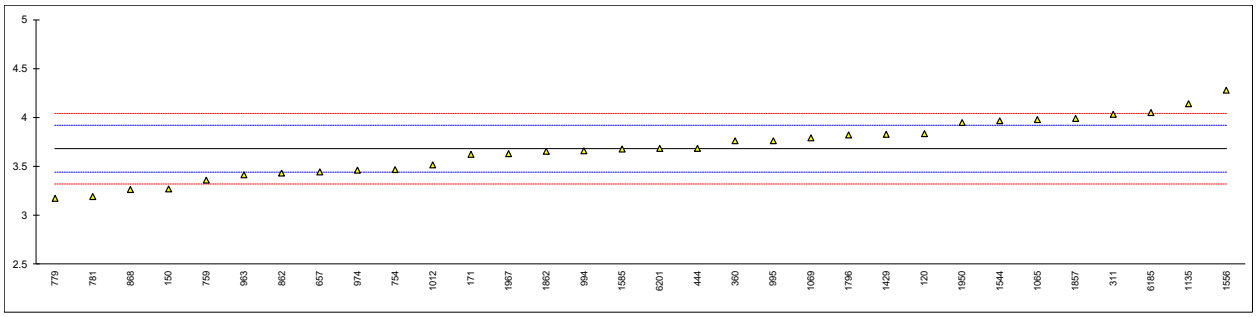


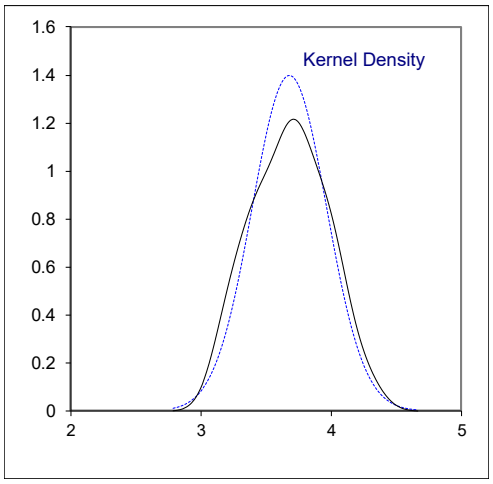
Determination of Pentane (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	3.837		1.31	
140		-----		-----	
150	D6729	3.266		-3.46	
158		-----		-----	
171	D5134	3.621		-0.49	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5134	4.03		2.92	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	3.76		0.67	
399		-----		-----	
444	D5134	3.6846		0.04	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	3.4403		-2.00	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	3.467		-1.78	
759	GOST52714(B)	3.36		-2.67	
779	D6729	3.172		-4.24	
781	D6729	3.192		-4.08	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	3.429		-2.10	
864		-----		-----	
868	D6729	3.2627		-3.49	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	3.411		-2.25	
971		-----		-----	
974	D6730	3.459		-1.85	
982		-----		-----	
994	D5134	3.66		-0.17	
995		3.7615		0.68	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		3.5147		-1.38	
1016		-----		-----	
1062		-----		-----	
1065		3.98		2.51	
1069		3.79		0.92	
1081		-----		-----	
1134		-----		-----	
1135	D6729	4.14		3.84	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		3.830		1.25	
1544	D5134	3.964		2.37	
1556	D6729	4.28		5.01	
1585	D5134	3.676		-0.03	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	3.82		1.17	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	3.991		2.60	
1862		3.652		-0.23	
1950	D5134	3.95		2.26	
1960		-----		-----	
1967	D5134	3.63		-0.42	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	4.05		3.09	
6198		-----		-----	
6200		-----		-----	
6201		3.681		0.01	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	32
	outliers	0
	mean (n)	3.6801
	st.dev. (n)	0.28562
	R(calc.)	0.7997
	st.dev.(D5134:13)	0.11970
	R(D5134:13)	0.3352
Compare		
	R(Horwitz)	0.3388



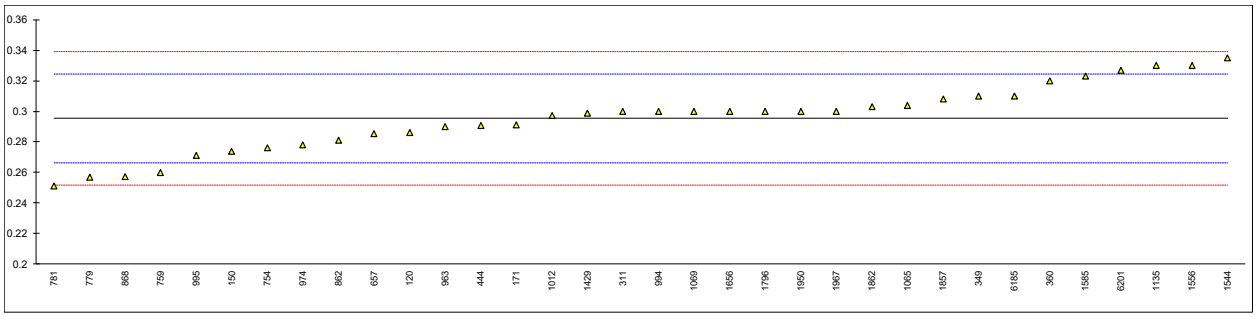


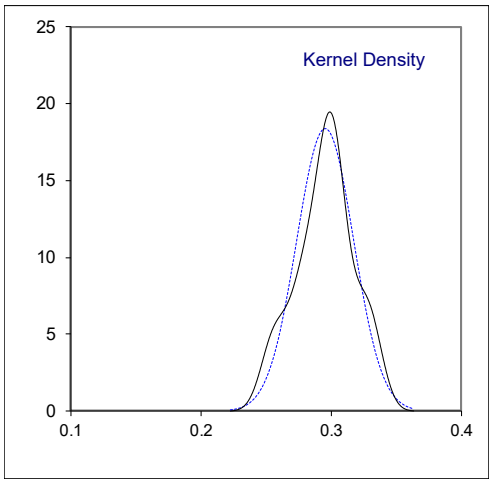
Determination of Benzene (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	0.286		-0.65	
140		-----		-----	
150	D6729	0.274		-1.48	
158		-----		-----	
171	D5134	0.291		-0.31	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5134	0.30		0.31	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349	D5443	0.31		1.00	
360	D5134	0.32		1.69	
399		-----		-----	
444	D5134	0.2907		-0.33	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	0.2855		-0.68	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	0.276		-1.34	
759	GOST52714(B)	0.26		-2.44	
779	D6729	0.257		-2.65	
781	D6729	0.251		-3.06	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	0.281		-0.99	
864		-----		-----	
868	D6729	0.2572		-2.63	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	0.290		-0.37	
971		-----		-----	
974	D6730	0.278		-1.20	
982		-----		-----	
994	D5134	0.30		0.31	
995		0.2713		-1.66	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		0.2973		0.13	
1016		-----		-----	
1062		-----		-----	
1065		0.304		0.59	
1069		0.30		0.31	
1081		-----		-----	
1134		-----		-----	
1135	D6729	0.33		2.38	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		0.299		0.25	
1544	D5134	0.335		2.73	
1556	D6729	0.33		2.38	
1585	D5134	0.323		1.90	
1603		-----		-----	
1656	D5443	0.3		0.31	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	0.30		0.31	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	0.308		0.87	
1862		0.303		0.52	
1950	D5134	0.30		0.31	
1960		-----		-----	
1967	D5134	0.30		0.31	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	0.31		1.00	
6198		-----		-----	
6200		-----		-----	
6201		0.327		2.17	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	34
	outliers	0
	mean (n)	0.2954
	st.dev. (n)	0.02171
	R(calc.)	0.0608
	st.dev.(D5134:13)	0.01452
	R(D5134:13)	0.0406
Compare		
	R(Horwitz)	0.0398



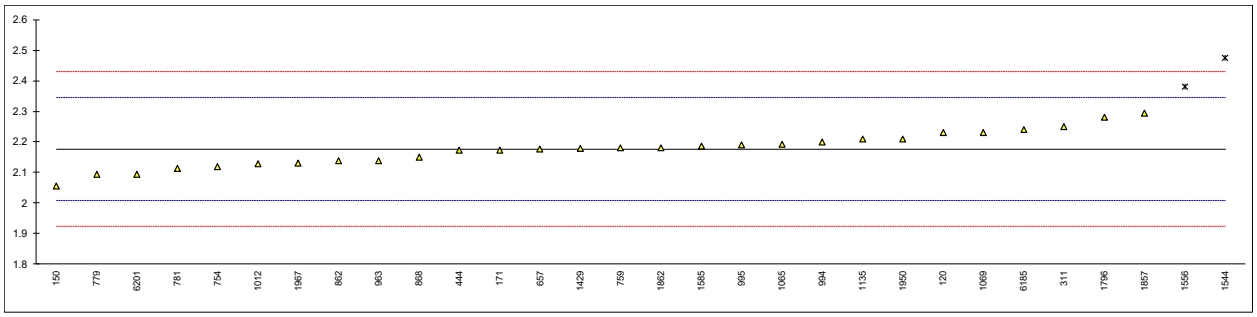


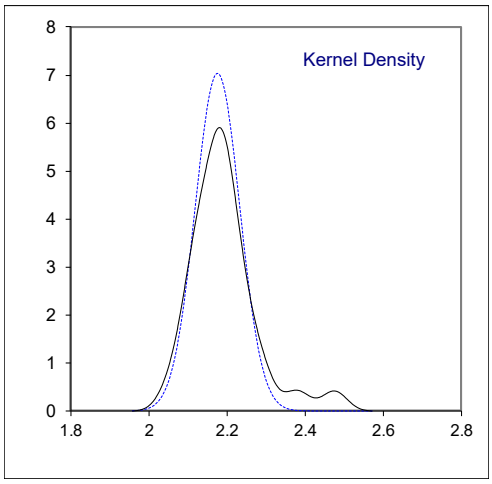
Determination of Cyclohexane (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	2.230		0.64	
140		-----		-----	
150	D6729	2.055		-1.44	
158		-----		-----	
171	D5134	2.174		-0.03	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5134	2.25		0.87	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	D5134	2.1734		-0.04	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	2.1769		0.01	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	2.120		-0.67	
759	GOST52714(B)	2.18		0.04	
779	D6729	2.094		-0.98	
781	D6729	2.113		-0.75	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	2.138		-0.46	
864		-----		-----	
868	D6729	2.1494		-0.32	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	2.139		-0.44	
971		-----		-----	
974		-----		-----	
982		-----		-----	
994	D5134	2.20		0.28	
995		2.1895		0.16	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		2.1284		-0.57	
1016		-----		-----	
1062		-----		-----	
1065		2.193		0.20	
1069		2.23		0.64	
1081		-----		-----	
1134		-----		-----	
1135	D6729	2.21		0.40	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		2.178		0.02	
1544	D5134	2.475	R(0.01)	3.54	
1556	D6729	2.38	R(0.05)	2.41	
1585	D5134	2.187		0.13	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	2.28		1.23	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	2.295		1.41	
1862		2.181		0.05	
1950	D5134	2.21		0.40	
1960		-----		-----	
1967	D5134	2.13		-0.55	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	2.24		0.75	
6198		-----		-----	
6200		-----		-----	
6201		2.095		-0.97	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	28
	outliers	2
	mean (n)	2.1764
	st.dev. (n)	0.05671
	R(calc.)	0.1588
	st.dev.(D5134:13)	0.08430
	R(D5134:13)	0.2360
Compare		
	R(Horwitz)	0.2168



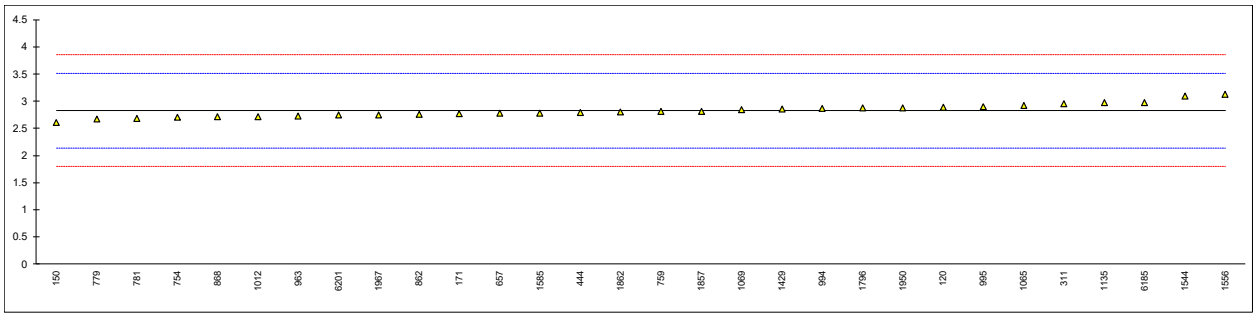


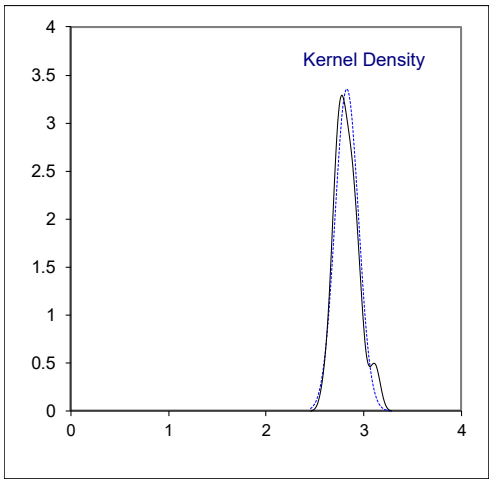
Determination of 2-Methylpentane (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	2.891		0.19	
140		-----		-----	
150	D6729	2.612		-0.63	
158		-----		-----	
171	D5134	2.771		-0.16	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5134	2.95		0.36	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	D5134	2.7864		-0.12	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	2.7838		-0.12	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	2.706		-0.35	
759	GOST52714(B)	2.81		-0.05	
779	D6729	2.669		-0.46	
781	D6729	2.687		-0.41	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	2.755		-0.21	
864		-----		-----	
868	D6729	2.7162		-0.32	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	2.722		-0.30	
971		-----		-----	
974		-----		-----	
982		-----		-----	
994	D5134	2.87		0.13	
995		2.8995		0.21	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		2.7207		-0.31	
1016		-----		-----	
1062		-----		-----	
1065		2.921		0.28	
1069		2.85		0.07	
1081		-----		-----	
1134		-----		-----	
1135	D6729	2.97		0.42	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		2.851		0.07	
1544	D5134	3.092		0.77	
1556	D6729	3.13		0.88	
1585	D5134	2.785		-0.12	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	2.88		0.16	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	2.816		-0.03	
1862		2.804		-0.07	
1950	D5134	2.88		0.16	
1960		-----		-----	
1967	D5134	2.75		-0.22	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	2.97		0.42	
6198		-----		-----	
6200		-----		-----	
6201		2.748		-0.23	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	30
	outliers	0
	mean (n)	2.8266
	st.dev. (n)	0.11913
	R(calc.)	0.3336
	st.dev.(D5134:13)	0.34322
	R(D5134:13)	0.9610
Compare		
	R(Horwitz)	0.2707



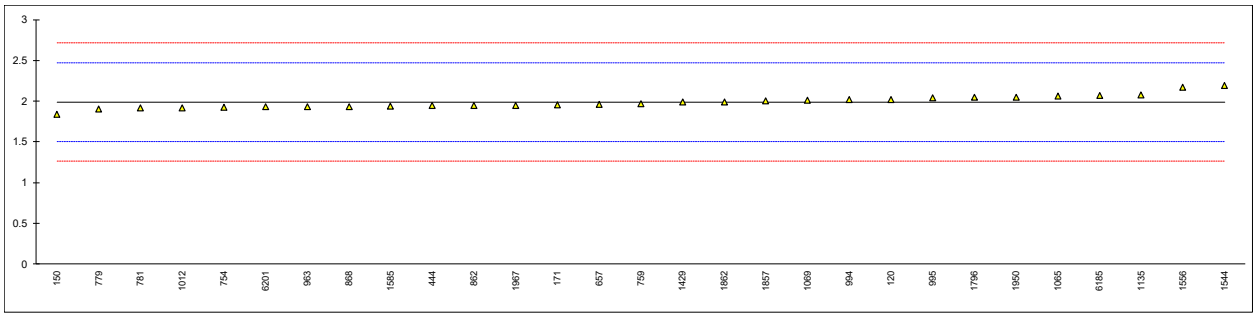


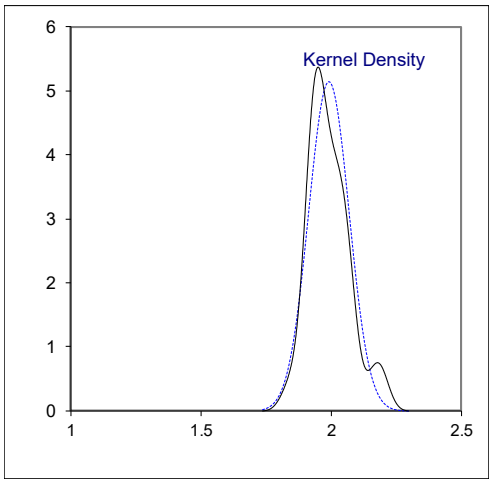
Determination of 3-Methylpentane (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	2.023		0.14	
140		-----		-----	
150	D6729	1.842		-0.61	
158		-----		-----	
171	D5134	1.955		-0.15	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360		-----		-----	
399		-----		-----	
444	D5134	1.9455		-0.19	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	1.9627		-0.11	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	1.923		-0.28	
759	GOST52714(B)	1.97		-0.08	
779	D6729	1.901		-0.37	
781	D6729	1.916		-0.31	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	1.95		-0.17	
864		-----		-----	
868	D6729	1.9350		-0.23	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	1.932		-0.24	
971		-----		-----	
974		-----		-----	
982		-----		-----	
994	D5134	2.02		0.12	
995		2.0386		0.20	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		1.922		-0.28	
1016		-----		-----	
1062		-----		-----	
1065		2.060		0.29	
1069		2.01		0.08	
1081		-----		-----	
1134		-----		-----	
1135	D6729	2.08		0.37	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		1.990		0.00	
1544	D5134	2.190		0.83	
1556	D6729	2.17		0.74	
1585	D5134	1.939		-0.21	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	2.05		0.25	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	2.004		0.06	
1862		1.990		0.00	
1950	D5134	2.05		0.25	
1960		-----		-----	
1967	D5134	1.95		-0.17	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	2.07		0.33	
6198		-----		-----	
6200		-----		-----	
6201		1.931		-0.25	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	29
	outliers	0
	mean (n)	1.9903
	st.dev. (n)	0.07755
	R(calc.)	0.2171
	st.dev.(D5134:13)	0.24168
	R(D5134:13)	0.6767
Compare		
	R(Horwitz)	0.2010



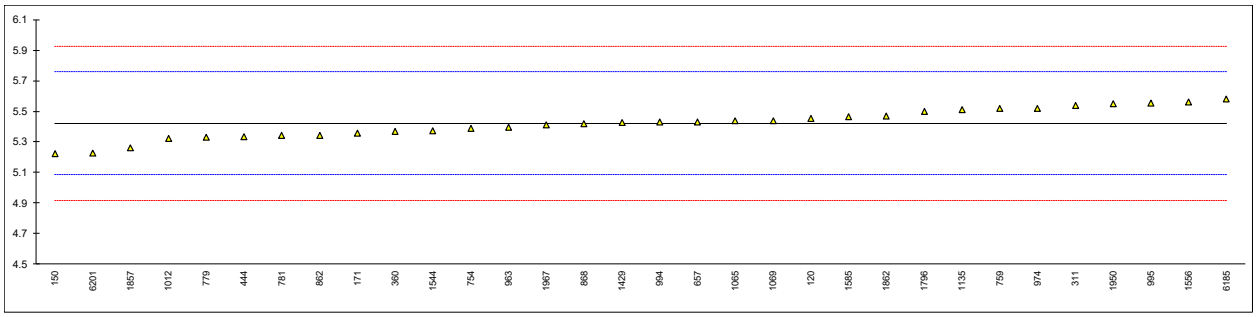


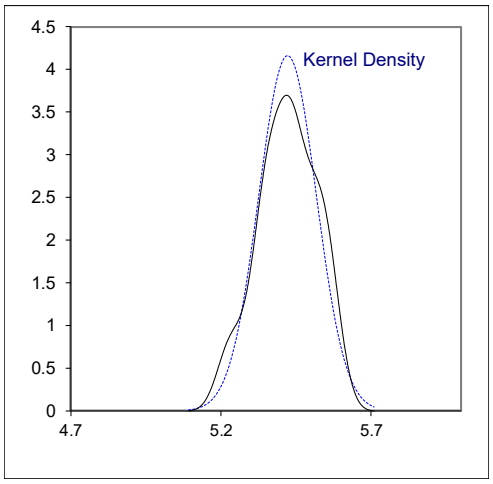
Determination of Heptane (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	5.453		0.19	
140		-----		-----	
150	D6729	5.222		-1.19	
158		-----		-----	
171	D5134	5.358		-0.38	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5134	5.54		0.70	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	5.37		-0.31	
399		-----		-----	
444	D5134	5.3338		-0.52	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	5.4307		0.05	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	5.389		-0.19	
759	GOST52714(B)	5.52		0.58	
779	D6729	5.331		-0.54	
781	D6729	5.343		-0.47	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	5.343		-0.47	
864		-----		-----	
868	D6729	5.4194		-0.01	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	5.398		-0.14	
971		-----		-----	
974	D6730	5.520		0.58	
982		-----		-----	
994	D5134	5.43		0.05	
995		5.5550		0.79	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		5.3241		-0.58	
1016		-----		-----	
1062		-----		-----	
1065		5.44		0.11	
1069		5.44		0.11	
1081		-----		-----	
1134		-----		-----	
1135	D6729	5.51		0.53	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		5.428		0.04	
1544	D5134	5.372		-0.30	
1556	D6729	5.56		0.82	
1585	D5134	5.467		0.27	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	5.50		0.47	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	5.260		-0.96	
1862		5.469		0.28	
1950	D5134	5.55		0.76	
1960		-----		-----	
1967	D5134	5.41		-0.07	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	5.58		0.94	
6198		-----		-----	
6200		-----		-----	
6201		5.228		-1.15	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	32
	outliers	0
	mean (n)	5.4217
	st.dev. (n)	0.09574
	R(calc.)	0.2681
	st.dev.(Horwitz)	0.16815
	R(Horwitz)	0.4708
Compare		
	R(D5134:13)	0.0699



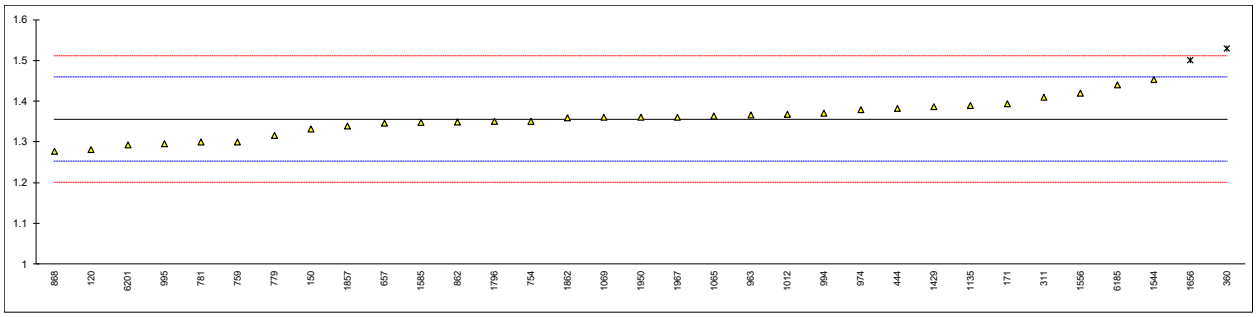


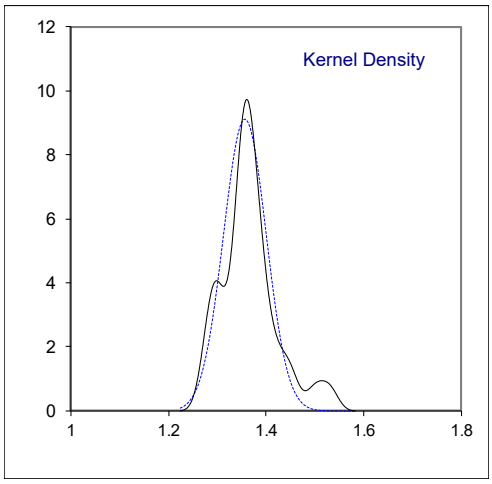
Determination of Toluene (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	1.281		-1.45	
140		-----		-----	
150	D6729	1.332		-0.47	
158		-----		-----	
171	D5134	1.394		0.73	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311	D5134	1.41		1.04	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	1.53	DG(0.05)	3.35	
399		-----		-----	
444	D5134	1.3829		0.52	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	1.3458		-0.20	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	1.351		-0.10	
759	GOST52714(B)	1.30		-1.08	
779	D6729	1.316		-0.78	
781	D6729	1.300		-1.08	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	1.349		-0.14	
864		-----		-----	
868	D6729	1.2766		-1.54	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	1.367		0.21	
971		-----		-----	
974	D6730	1.380		0.46	
982		-----		-----	
994	D5134	1.37		0.27	
995		1.2963		-1.16	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		1.3672		0.21	
1016		-----		-----	
1062		-----		-----	
1065		1.364		0.15	
1069		1.36		0.07	
1081		-----		-----	
1134		-----		-----	
1135	D6729	1.39		0.65	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		1.387		0.59	
1544	D5134	1.453		1.87	
1556	D6729	1.42		1.23	
1585	D5134	1.348		-0.16	
1603		-----		-----	
1656	D5443	1.5	DG(0.05)	2.78	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	1.35		-0.12	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	1.339		-0.33	
1862		1.359		0.05	
1950	D5134	1.36		0.07	
1960		-----		-----	
1967	D5134	1.36		0.07	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	1.44		1.62	
6198		-----		-----	
6200		-----		-----	
6201		1.293		-1.22	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	31
	outliers	2
	mean (n)	1.3562
	st.dev. (n)	0.04373
	R(calc.)	0.1225
	st.dev.(Horwitz)	0.05182
	R(Horwitz)	0.1451
Compare		
	R(D5134:13)	0.0420



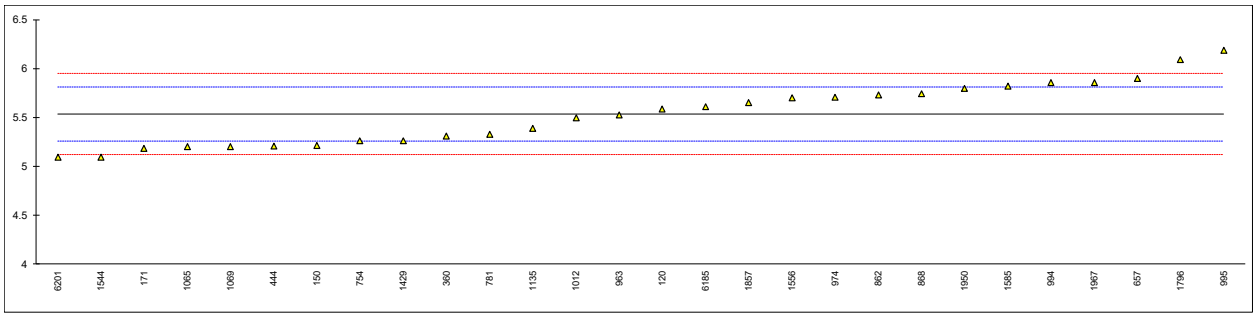


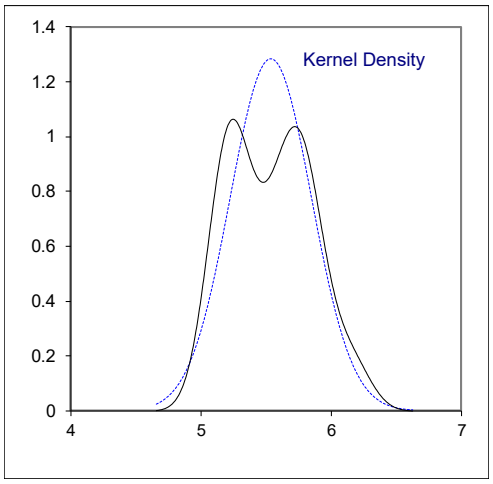
Determination of Octane (DHA) on sample #19046; results in %M/M

lab	method	value	mark	z(targ)	remarks
120	D6730	5.585		0.35	
140		-----		-----	
150	D6729	5.215		-2.32	
158		-----		-----	
171	D5134	5.184		-2.54	
225		-----		-----	
237		-----		-----	
238		-----		-----	
311		-----		-----	
317		-----		-----	
323		-----		-----	
333		-----		-----	
334		-----		-----	
336		-----		-----	
337		-----		-----	
349		-----		-----	
360	D5134	5.31		-1.63	
399		-----		-----	
444	D5134	5.2054		-2.39	
445		-----		-----	
541		-----		-----	
608		-----		-----	
657	D6730	5.8970		2.61	
663		-----		-----	
750		-----		-----	
753		-----		-----	
754	GOST32507(B)	5.260		-2.00	
759		-----		-----	
779		-----		-----	
781	D6729	5.330		-1.49	
785		-----		-----	
798		-----		-----	
824		-----		-----	
855		-----		-----	
862	D5134	5.730		1.40	
864		-----		-----	
868	D6729	5.7428		1.49	
873		-----		-----	
874		-----		-----	
875		-----		-----	
912		-----		-----	
922		-----		-----	
962		-----		-----	
963	D5134	5.526		-0.07	
971		-----		-----	
974	D6730	5.705		1.22	
982		-----		-----	
994	D5134	5.86		2.34	
995		6.1908		4.73	
997		-----		-----	
998		-----		-----	
1011		-----		-----	
1012		5.4945		-0.30	
1016		-----		-----	
1062		-----		-----	
1065		5.20		-2.43	
1069		5.20		-2.43	
1081		-----		-----	
1134		-----		-----	
1135	D6729	5.39		-1.06	
1145		-----		-----	
1201		-----		-----	
1254		-----		-----	
1284		-----		-----	
1320		-----		-----	
1379		-----		-----	
1381		-----		-----	
1429		5.263		-1.97	
1544	D5134	5.095		-3.19	
1556	D6729	5.70		1.18	
1585	D5134	5.824		2.08	
1603		-----		-----	
1656		-----		-----	
1737		-----		-----	
1741		-----		-----	

lab	method	value	mark	z(targ)	remarks
1788		-----		-----	
1796	D5134	6.09		4.00	
1810		-----		-----	
1823		-----		-----	
1849		-----		-----	
1857	D5134	5.655		0.86	
1862		-----		-----	
1950	D5134	5.80		1.91	
1960		-----		-----	
1967	D5134	5.86		2.34	
1995		-----		-----	
6016		-----		-----	
6056		-----		-----	
6185	D6729	5.61		0.53	
6198		-----		-----	
6200		-----		-----	
6201		5.091		-3.22	
9054		-----		-----	
9055		-----		-----	
9057		-----		-----	
9058		-----		-----	
9061		-----		-----	
9101		-----		-----	
9128		-----		-----	
9142		-----		-----	
9143		-----		-----	

	normality	OK
	n	28
	outliers	0
	mean (n)	5.5362
	st.dev. (n)	0.31082
	R(calc.)	0.8703
	st.dev.(D5134:13)	0.13840
	R(D5134:13)	0.3875
Compare		
	R(Horwitz)	0.4793

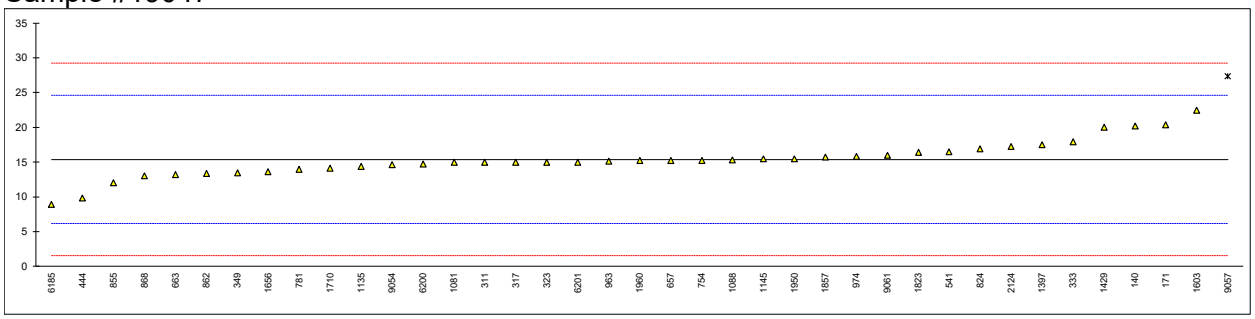


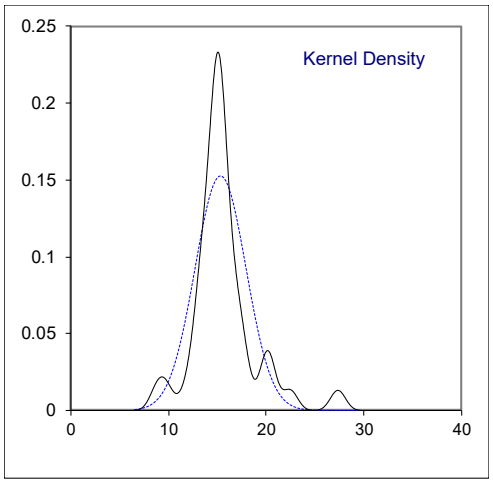


Determination of Mercury content as Hg on sample #19047 and #19048; results in µg/kg

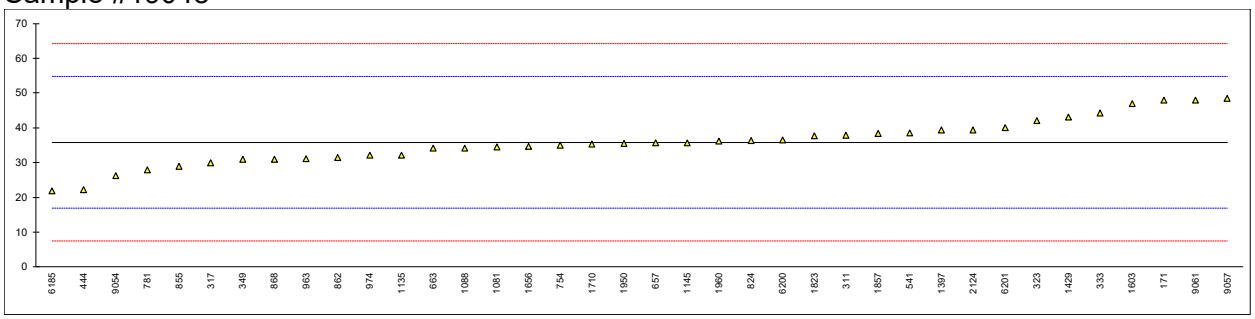
lab	method	#19047	mark	z(targ)	#19048	mark	z(targ)	remarks
140	UOP938	20.2		1.04	-----		-----	
171	UOP938	20.4		1.09	47.9		1.28	
311	UOP938	15.0		-0.08	37.8		0.21	
317	INH-003	15		-0.08	30		-0.62	
323	UOP938	15		-0.08	42		0.65	
333	EPA7423	17.9		0.55	44.3		0.90	
334		-----		-----	-----		-----	
349	UOP938	13.43		-0.42	30.97		-0.51	
444	UOP938	9.846		-1.20	22.24		-1.44	
541	INH-244	16.5		0.24	38.5		0.28	
657	UOP938	15.2005		-0.04	35.6985		-0.01	
663	UOP938	13.2433		-0.46	34.1033		-0.18	
754	UOP938	15.256		-0.03	34.959		-0.09	
781	D7622	14		-0.30	28		-0.83	
798		-----		-----	-----		-----	
824	UOP938	16.95		0.34	36.4		0.06	
855	UOP938	12.0		-0.73	29.0		-0.72	
862	UOP938	13.4		-0.43	31.5		-0.46	
868	UOP938	13		-0.52	31		-0.51	
873		-----		-----	-----		-----	
874		-----		-----	-----		-----	
912		-----		-----	-----		-----	
922		-----		-----	-----		-----	
963	UOP938	15.1		-0.06	31.10		-0.50	
974	UOP938	15.8		0.09	32.1		-0.39	
1081	In house	14.951		-0.09	34.46		-0.14	
1088	D6350	15.35		-0.01	34.11		-0.18	
1134		-----		-----	-----		-----	
1135	UOP938	14.4		-0.21	32.2		-0.38	
1145	UOP938	15.5		0.03	35.7		-0.01	
1201		-----		-----	-----		-----	
1397	In house	17.5		0.46	39.3		0.37	
1429	In house	20		1.00	43		0.76	
1603	In house	22.5		1.54	46.9		1.17	
1656	UOP938	13.6		-0.39	34.7		-0.12	
1710	UOP938	14.10		-0.28	35.33		-0.05	
1823	D7623	16.41		0.22	37.65		0.19	
1857	UOP938	15.7		0.07	38.3		0.26	
1950	UOP938	15.5		0.03	35.5		-0.03	
1960	UOP938	15.2		-0.04	36.1		0.03	
1995		-----		-----	-----		-----	
2124	UOP938	17.231	C	0.40	39.430	C	0.38	fr. 43.140 and 20.033
6016		-----		-----	-----		-----	
6185	UOP938	8.9		-1.40	21.8		-1.48	
6200	UOP938	14.719		-0.14	36.561		0.08	
6201	UOP938	15		-0.08	40		0.44	
9054	UOP938	14.6727		-0.15	26.2759		-1.01	
9057		27.39	R(0.01)	2.60	48.46		1.34	
9061		16		0.13	48		1.29	
	normality	suspect			OK			
	n	38			38			
	outliers	1			0			
	mean (n)	15.381			35.825			
	st.dev. (n)	2.6084			6.4535			
	R(calc.)	7.303			18.070			
	st.dev.(Horwitz)	4.6130			9.4607			
	R(Horwitz)	12.916			26.490			

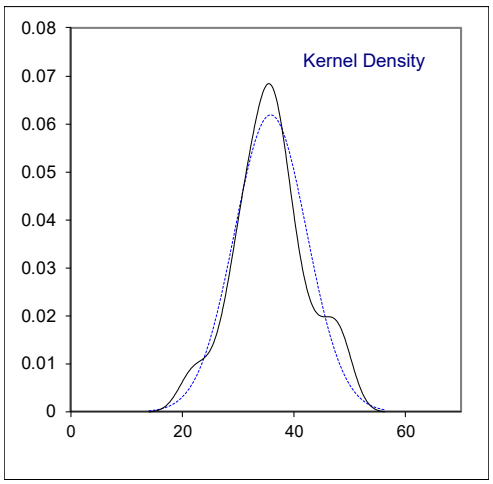
Sample #19047





Sample #19048

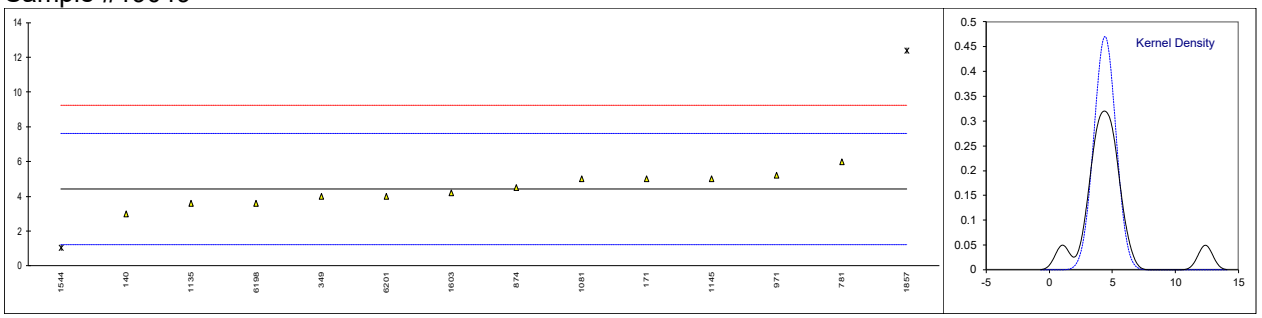




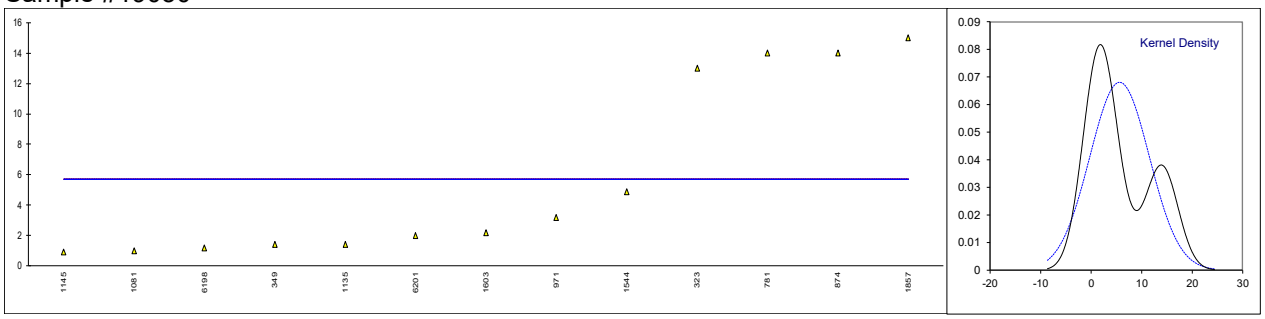
Determination of Arsenic content as As on sample #19049 and #19050; results in µg/kg

lab	method	#19049	mark	z(targ)	#19050	mark	z(targ)	remarks
140	INH-014	3		-0.89	-----		-----	
150		-----		-----	-----		-----	
171	INH-014	5		0.36	<5		-----	
237		-----		-----	-----		-----	
311		-----		-----	-----		-----	
317		-----		-----	-----		-----	
323	INH-018	<10		-----	13		-----	
349	INH-9312	4.0		-0.27	1.4		-----	
360		-----		-----	-----		-----	
444		-----		-----	-----		-----	
445		-----		-----	-----		-----	
657	INH-177	<10		-----	<10		-----	
781	UOP946	6		0.98	14		-----	
824		-----		-----	-----		-----	
855		-----		-----	-----		-----	
862		-----		-----	-----		-----	
864		-----		-----	-----		-----	
868		-----		-----	-----		-----	
873		-----		-----	-----		-----	
874	UOP946	4.5		0.05	14.0		-----	
912		-----		-----	-----		-----	
963		-----		-----	-----		-----	
971	UOP946	5.2		0.48	3.2		-----	
1081	In house	5	C	0.36	1	C	-----	fr. 80 and 32.5
1134		-----		-----	-----		-----	
1135	In house	3.6		-0.52	1.4		-----	
1145	INH-9312	5.0		0.36	0.9		-----	
1544	In house	1.05	D(0.05)	-2.11	4.90		-----	
1603	In house	4.2		-0.14	2.2		-----	
1857	UOP946	12.4	D(0.01)	4.98	15.0		-----	
1862		-----		-----	-----		-----	
1950		-----		-----	-----		-----	
6185		-----		-----	-----		-----	
6198	In house	3.6		-0.52	1.2		-----	
6201	In house	4		-0.27	2		-----	
	normality	OK			OK			
	n	12			13			
	outliers	2			0			
	mean (n)	4.43			5.71			
	st.dev. (n)	0.847			5.865			
	R(calc.)	2.37			16.42			
	st.dev.(Horwitz)	1.601			(1.987)			
	R(Horwitz)	4.48			(5.56)			

Sample #19049



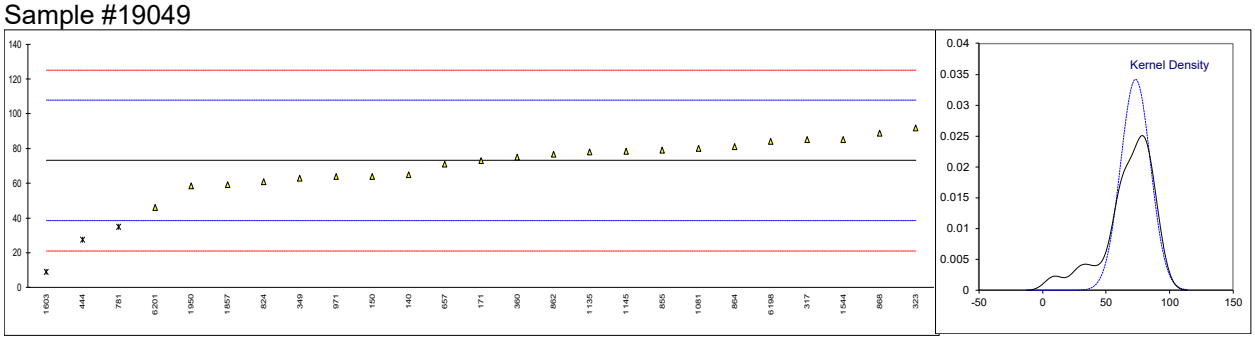
Sample #19050



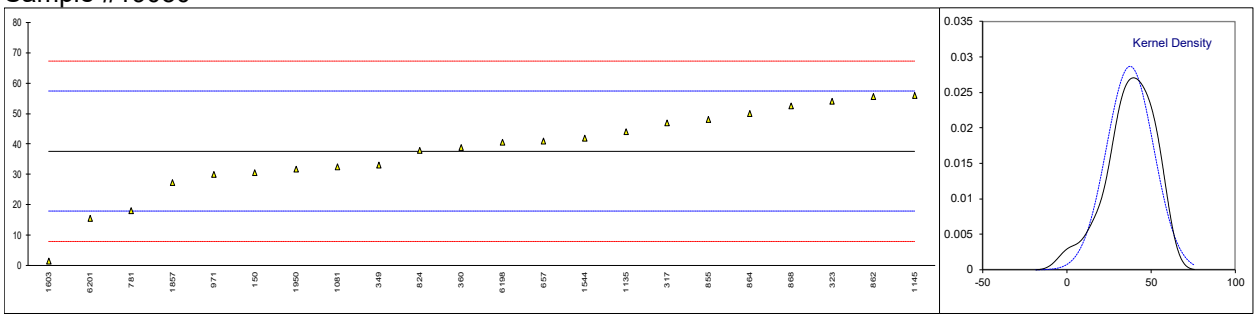
Determination of Lead content as Pb on sample #19049 and #19050; results in µg/kg

lab	method	#19049	mark	z(targ)	#19050	mark	z(targ)	remarks
140	INH-014	65		-0.47	-----		-----	
150	UOP952	64.04		-0.52	30.49		-0.72	
171	INH-014	73		-0.01	<5		<-3.31	possibly a false negative test result?
237		-----		-----	-----		-----	
311		-----		-----	-----		-----	
317	INH-002	85		0.69	47		0.95	
323	INH-002	92		1.09	54		1.66	
349	UOP952	63		-0.58	33		-0.47	
360	In house	75.08		0.11	38.75		0.12	
444	UOP952	27.5	DG(0.05)	-2.63	<10		-----	
445		-----		-----	-----		-----	
657	INH-180	71		-0.12	41		0.34	
781	UOP952	35	DG(0.05)	-2.20	18		-1.99	
824	UOP952	60.9		-0.70	37.9		0.03	
855	SH/T0242	79		0.34	48		1.05	
862	UOP952	76.6		0.20	55.6		1.82	
864	UOP952	81		0.46	50		1.26	
868	UOP952	88.8		0.91	52.5		1.51	
873		-----		-----	-----		-----	
874		-----		-----	-----		-----	
912		-----		-----	-----		-----	
963		-----		-----	-----		-----	
971	UOP952	64		-0.52	30		-0.77	
1081	In house	80	C	0.40	32.5	C	-0.52	fr. 5 and 1
1134		-----		-----	-----		-----	
1135	In house	78		0.28	44		0.65	
1145	INH-9406	78.5		0.31	56		1.86	
1544	In house	85.21		0.70	41.96		0.44	
1603	In house	9.0	C,G(0.05)	-3.70	1.5	C	-3.66	fr. 6.7 and 1.1
1857	UOP952	59.1		-0.81	27.3		-1.05	
1862		-----		-----	-----		-----	
1950	UOP952	58.7		-0.83	31.8		-0.59	
6185		-----		-----	-----		-----	
6198	In house	84.1		0.63	40.6		0.30	
6201	In house	46		-1.56	15.6		-2.23	
	normality	OK			OK			
	n	22			22			
	outliers	3			0			
	mean (n)	73.09			37.61			
	st.dev. (n)	11.651			13.891			
	R(calc.)	32.62			38.90			
	st.dev.(Horwitz)	17.338			9.860			
	R(Horwitz)	48.55			27.61			

Sample #19049



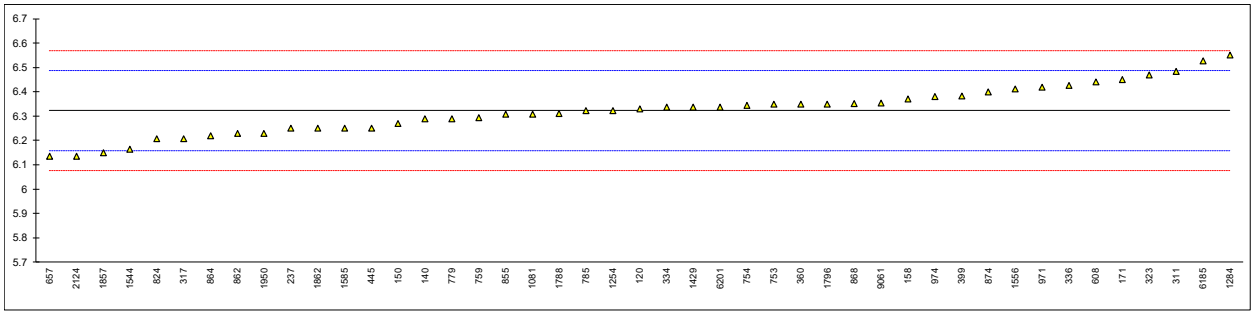
Sample #19050

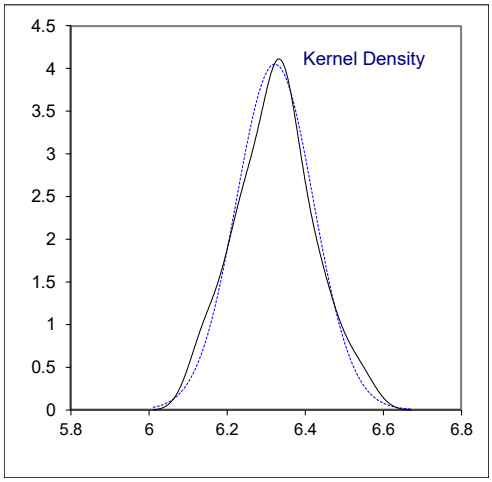


Determination of Total Vapour Pressure on sample #19051; results in psi

lab	method	value	mark	z(targ)	remarks
120	D5191	6.33		0.08	
140	D5191	6.29		-0.41	
150	D5191	6.27		-0.65	
158	D5191	6.37		0.57	
171	D5191	6.45		1.54	
237	D5191	6.2495		-0.90	
238		-----		-----	
311	D5191	6.48		1.95	
317	D5191	6.21		-1.41	
323	D5191	6.47		1.77	
334	D5191	6.34		0.18	
336	D5191	6.43		1.24	
360	D5191	6.35		0.32	
399	D5191	6.38		0.71	
445	D5191	6.25	C	-0.88	first reported 37.8 kPa
541		-----		-----	
608	D5191	6.44		1.42	
657	D5191	6.14	C	-2.29	first reported 40.9 kPa
750		-----		-----	
753	D5191	6.35		0.32	
754	D5191	6.345		0.26	
759	D5191	6.294		-0.36	
779	D5191	6.29		-0.41	
785		6.32		0.00	
798		-----		-----	
824	D5191	6.21		-1.41	
855	D5191	6.31		-0.17	
862	D5191	6.23		-1.16	
864	D5191	6.22		-1.26	
868	D5191	6.35		0.36	
873		-----		-----	
874	D5191	6.40		0.93	
875		-----		-----	
963		-----		-----	
971	D5191	6.42		1.18	
974	D5191	6.38		0.69	
1011		-----		-----	
1016		-----		-----	
1081	D5191	6.31		-0.17	
1134		-----		-----	
1145		-----		-----	
1254	D5191	6.32		0.00	
1284	D5191	6.55		2.76	
1429	D5191	6.34		0.18	
1544	D5191	6.164		-1.94	
1556	EN13016-1	6.41		1.06	
1585	D5191	6.251		-0.88	
1788	D5191	6.31		-0.16	
1796	D5191	6.35		0.32	
1857	D5191	6.15		-2.12	
1862	D5191	6.25		-0.89	
1950	D5191	6.23		-1.14	
1995		-----		-----	
2124	D5191	6.14	C	-2.29	first reported 47.6 kPa
6016		-----		-----	
6185	D6378	6.53		2.48	
6200		-----		-----	
6201	D5191	6.34		0.18	
9054		-----		-----	
9061	D5191	6.355		0.39	

normality	OK
n	45
outliers	0
mean (n)	6.323
st.dev. (n)	0.0984
R(calc.)	0.275
st.dev.(D5191:19)	0.0821
R(D5191:19)	0.23

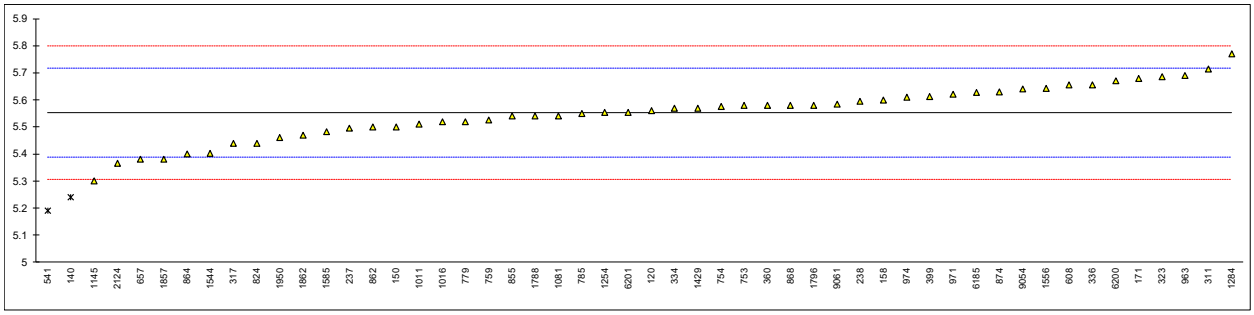

6.7
6.6
6.5
6.4
6.3
6.2
6.1
6
5.9
5.8
5.7
657 2124 1857 1544 824 317 864 862 1950 237 1862 1585 445 150 140 779 759 855 1081 1788 785 1254 120 334 1429 6201 754 753 360 1796 868 9061 158 974 399 874 1556 971 336 608 171 323 311 6185 1284

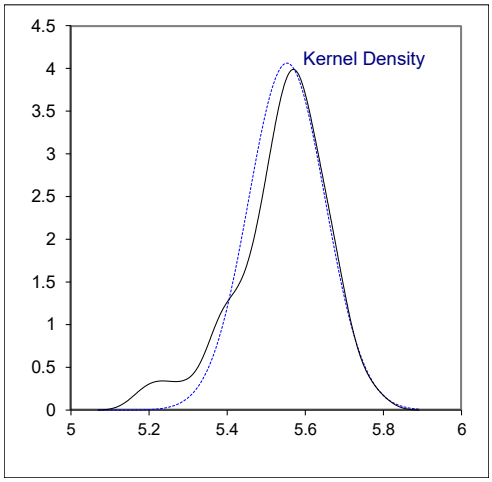

Kernel Density
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
5.8
6
6.2
6.4
6.6
6.8

Determination of DVPE acc. D5191 on sample #19051; results in psi

lab	method	value	mark	z(targ)	remarks
120	D5191	5.56		0.08	
140	D5191	5.24	DG(0.05)	-3.81	
150	D5191	5.50		-0.65	
158	D5191	5.60		0.57	
171	D5191	5.68		1.55	
237	D5191	5.4955		-0.70	
238	D5191	5.596		0.52	
311	D5191	5.71		1.96	
317	D5191	5.44		-1.39	
323	D5191	5.69		1.61	
334	D5191	5.57		0.20	
336	D5191	5.66		1.26	
360	D5191	5.58		0.33	
399	D5191	5.61		0.73	
445		-----		-----	
541	D6378	5.19	DG(0.05)	-4.42	
608	D5191	5.7		1.26	
657	D5191	5.4	C	-2.10	first reported 35.6 kPa
750		-----		-----	
753	D5191	5.58		0.33	
754	D5191	5.576		0.28	
759	D5191	5.526		-0.33	
779	D5191	5.52		-0.40	
785		5.55		-0.04	
798		-----		-----	
824	D5191	5.4		-1.38	
855	D5191	5.54		-0.16	
862	D5191	5.50		-0.65	
864	D5191	5.40		-1.86	
868	D5191	5.58		0.33	
873		-----		-----	
874	D5191	5.63		0.94	
875		-----		-----	
963	D5191	5.69		1.67	
971	D5191	5.62		0.81	
974	D5191	5.61		0.69	
1011	EN13016-1	5.51		-0.52	
1016	D5191	5.52		-0.42	
1081	D5191	5.54		-0.15	
1134		-----		-----	
1145	D5191	5.30		-3.08	
1254	D5191	5.55		0.02	
1284	D5191	5.77		2.64	
1429	D5191	5.57		0.20	
1544	D5191	5.403		-1.83	
1556	EN13016-1	5.64		1.08	
1585	D5191	5.482		-0.87	
1788	D5191	5.54		-0.16	
1796	D5191	5.58		0.33	
1857	D5191	5.38		-2.10	
1862	D5191	5.47		-1.01	
1950	D5191	5.46		-1.13	
1995		-----		-----	
2124	D5191	5.37	C	-2.27	first reported 42.2
6016		-----		-----	
6185	D6378	5.63		0.91	
6200	D5191	5.67		1.42	
6201	D5191	5.55		0.02	
9054	D5191	5.64		1.06	
9061	D5191	5.585		0.39	

normality	OK
n	50
outliers	2
mean (n)	5.553
st.dev. (n)	0.0982
R(calc.)	0.275
st.dev.(D5191:19)	0.0821
R(D5191:19)	0.23


5.9
5.8
5.7
5.6
5.5
5.4
5.3
5.2
5.1
5
541 140 1145 2124 657 1857 864 1544 317 824 1950 1862 1585 237 862 150 1011 1016 779 759 855 1788 1081 785 1254 6201 120 334 1429 754 753 360 868 1796 9061 238 158 974 399 971 6185 874 9054 1556 608 336 6200 171 323 963 311 1284


Kernel Density
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
5
5.2
5.4
5.6
5.8
6

APPENDIX 2 Number of participants per country -main round iis19N01

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

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	= possibly an error in calculations
W	= test result withdrawn on request of participant
ex	= test result excluded from statistical evaluation
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported
SDS	= Safety Data Sheet

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