

**Results of Proficiency Test
Naphtha
April 2016**

Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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1 INTRODUCTION

Since 1994, the Institute for Interlaboratory Studies organizes a proficiency test 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 2015/2016, it was decided to continue the 4 PTs on Naphtha. For participation have registered; in the main PT, 97 laboratories in 40 different countries; in the PT for Mercury, 52 laboratories in 24 different countries; in the PT for Arsenic and Lead, 31 laboratories in 16 different countries and in the PT for Vapour Pressure, 60 laboratories in 25 different countries. See appendix 2 for the number of participants per country per PT. In this report, the results of the 2016 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 Spijkensisse, the Netherlands, was the organizer of this proficiency test. Sample analyses for fit-for-use and homogeneity testing were subcontracted. 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
#16045	0.5 L	For regular analyses	Real Naphtha
#16046	30 ml	For GC analyses	Real Naphtha
#16047	0.5 L	For Mercury	Real Naphtha
#16048	0.5 L	For Mercury	Artificial Naphtha
#16049	0.5 L	For Arsenic and Lead	Real Naphtha
#16050	0.5 L	For Arsenic and Lead	Artificial Naphtha
#16051	0.25 L	For DVPE	Real Naphtha

Table 1: Seven different Naphtha samples used in iis16N01

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

2.2 PROTOCOL

The protocol followed in the organisation of these proficiency tests was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3). This protocol is electronically available through the iis website site www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

One drum with approx. 200 litres of light Naphtha was obtained from a local supplier. This batch was used to prepare five different samples;

After homogenisation 95 kg of the Naphtha batch was spiked with 508 mg Chloroform especially for Organic Chloride determination and divided over 118 brown glass bottles of 0.5 litre and labelled #16045. The homogeneity of subsamples #16045 was checked by determination of Density at 15°C in accordance with ASTM D4052 on 8 stratified randomly selected samples, see table 2.

	Density at 15°C in kg/L		Density at 15°C in kg/L
sample #16045-1	0.71873	sample #16045-5	0.71873
sample #16045-2	0.71872	sample #16045-6	0.71874
sample #16045-3	0.71873	sample #16045-7	0.71874
sample #16045-4	0.71872	sample #16045-8	0.71873

Table 2: homogeneity test results of subsamples #16045

A second part, approximately 3 kg, was taken from the Naphtha batch and spiked with 150 mg MTBE and 150 mg Methanol especially for the GC analyses (PIONA). After homogenisation of this part 110 amber glass bottles of 30 ml were filled and labelled #16046. The homogeneity of subsamples #16046 was checked by determination of MTBE in accordance with an in house test method on 8 stratified randomly selected samples, see table 3.

	MTBE in mg/kg		MTBE in mg/kg
sample #16046-1	73	sample #16046-5	73
sample #16046-2	73	sample #16046-6	73
sample #16046-3	74	sample #16046-7	73
sample #16046-4	73	sample #16046-8	73

Table 3: homogeneity test results of subsamples #16046

A third part, approximately 26 kg, was taken from the Naphtha batch and spiked with 3 gram Conostan Hg std (100mg/kg) and with 311µg HgCl₂ especially for Mercury determination. After homogenisation of this part 68 amber glass bottles of 0.5 litres were filled and labelled #16047. The homogeneity of subsamples #16047 was checked by determination of Mercury in accordance with UOP938 on 4 stratified randomly selected samples, see table 4.

	Mercury in µg/kg
sample #16047-1	29.9
sample #16047-2	28.8
sample #16047-3	30.6
sample #16047-4	30.8

Table 4: homogeneity test results of subsamples #16047

A fourth part, approximately 22 kg, was taken from the Naphtha batch and spiked with 4.4 gram Conostan As std (100mg/kg) and with 1.4 gram AvGas (0.54 g Pb/L) especially for Arsenic and Lead determination. After homogenisation of this part, 58 amber glass bottles of 0.5 litres were filled and labelled #16049. The homogeneity of subsamples #16049 was checked by determination of Lead in accordance with a in house test method on 4 stratified randomly selected samples, see table 5.

	Lead in µg/kg
sample #16049-1	87
sample #16049-2	84
sample #16049-3	78
sample #16049-4	74

Table 5: homogeneity test results of subsamples #16049

The fifth and thus last part, approximately 25 litre, of the Naphtha batch was taken especially for DVPE determination and after homogenisation divided over 88 brown glass bottles of 0.25 litres and labelled #16051. The homogeneity of subsamples #16051 was checked by determination of TVP in accordance with ASTM D5191 on 7 stratified randomly selected samples, see table 6.

	TVP in psi		TVP in psi
sample #16051-1	7.06	sample #16051-5	7.08
sample #16051-2	7.06	sample #16051-6	7.08
sample #16051-3	7.06	sample #16051-7	7.08
sample #16051-4	7.08		

Table 6: homogeneity test results of subsamples #16051

Furthermore, a batch of 60 litre (approx. 44 kg) of artificial Naphtha was prepared, see table 7.

Light hydro treated Naphtha 100/140	64742-49-0	31.4 kg
Petroleum Ether 40/60 (ligroin)	8032-32-4	3.5 kg
Cyclo Hexane	110-82-7	4.2 kg
Mixed-Xylenes	1330-20-7	4.7 kg

Table 7: composition of artificial Naphtha

A part, approximately 26 kg, of the artificial Naphtha batch was spiked with 4.33 gram Conostan Hg std (100mg/kg) and with 430 µg HgCl₂ especially for Mercury determination. After homogenisation of this part, 64 amber glass bottles of 0.5 litres were filled and labelled #16048. The homogeneity of subsamples #16048 was checked by determination of Mercury in accordance with UOP938 on 4 stratified randomly selected samples, see table 8.

	Mercury in µg/kg
sample #16048-1	26.5
sample #16048-2	25.3
sample #16048-3	26.8
sample #16048-4	27.2

Table 8: homogeneity test results of subsamples #16048

The remainder part, approximately 16 kg of the artificial Naphtha batch, was spiked with 4.9 gram Conostan As std (100mg/kg) and with 1.9 gram AvGas (0.54 g Pb/L) especially for Arsenic and Lead. After homogenisation of this, part 54 amber glass bottles of 0.5 litres were filled and labelled #16050. The homogeneity of subsamples #16050 was checked by determination of Arsenic and Lead in accordance with an in house test method on 4 stratified randomly selected samples, see table 9.

	Lead in µg/kg
sample #16050-1	107
sample #16050-2	96
sample #16050-3	96
sample #16050-4	99

Table 9: homogeneity test results of subsamples #16050

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

	Density in kg/L	MTBE in mg/kg	Mercury in µg/kg	Lead in µg/kg	TVP in psi
r (#16045)	0.00002	--	--	--	--
r (#16046)	--	1.0	--	--	--
r (#16047)	--	--	2.5	--	--
r (#16048)	--	--	2.3	--	--
r (#16049)	--	--	--	16.4	--
r (#16050)	--	--	--	14.5	--
r (#16051)	--	--	--	--	0.02
0.3*R (ref.)	0.00015	5.2	6.8 / 6.1	15.9 / 18.9	0.12
reference	ISO12185:96	Horwitz	Horwitz	Horwitz	D5191:15

Table 10: repeatabilities of subsamples #16045, #16046, #16047, #16048, #16049, #16050 and #16051

The calculated repeatabilities of all samples, #16045 through #16051, were all in agreement with 0.3 times the corresponding reproducibilities of the reference test methods or with 0.3 times the estimated reproducibilities using the Horwitz equation. Therefore, the homogeneity of all prepared subsamples was assumed.

To each of the participating laboratories, depending on its registration, one or more of the following samples were sent on March 30, 2016.

Bottle size	Sample id.	Determinations
1 x 0.5 litre	#16045	Regular tests
1 x 0.03 litre	#16046	PIONA/PONA only
1 x 0.5 litre, each	#16047 & #16048	Mercury only
1 x 0.5 litre, each	#16049 & #16050	Arsenic/Lead only
1 x 0.25 litre	#16051	Vapour Pressure only

Table 11: bottle sizes, sample identification and determinations

2.5 STABILITY OF THE SAMPLES

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

2.6 ANALYSES

The participants were asked to determine the following analyses;

on sample #16045: Organic Chlorides, Colour Saybolt (Manual and/or Automated), Copper Corrosion 3hrs at 50°C, Density at 15°C, Distillation (IBP, 50% recovered and FBP), Mercaptan Sulphur as S and Sulphur.

on sample #16046: Oxygenates: Acetone, DIPE, MEK, Methanol, MTBE, TAME, Total Oxygenates, PONA / PIONA / PNA GC Determination (n-Paraffines, i-Paraffines, Olefins, Naphthenes, Aromatics, C4 & lighter hydrocarbons and Compounds with BP > 200°C) and Detail Hydrocarbon Analysis (DHA) (Benzene, Heptane, Octane, Pentane and Toluene).

on samples #16047 and #16048: Mercury only.

on samples #16049 and #16050: Arsenic and Lead only.

on sample #16051: TVP / DVPE only.

To get comparable test results a detailed report form, on which the units were prescribed as well as the reference test methods and a letter of instructions were prepared and made available on the data entry portal www.kpmd.co.uk/sgs-iis/.

A SDS and a form to confirm receipt of the samples were added to the sample package.

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 Organisation, Statistics and Evaluation' of April 2014 (iis-protocol, version 3.3).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded 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. Not all data sets proved to have a normal distribution, in which cases the statistical evaluation of the test results should be used with due care.

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

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation, no remarks are made in the report. However, when the uncertainty

failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported 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 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.

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:

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

The $Z_{(\text{target})}$ 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:

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

4 EVALUATION

In this interlaboratory study, major problems with sample despatch were encountered during the execution. Laboratories in Argentina, Iran, Kazakhstan, Nigeria and Oman, received the samples late or not at all due to several problems (i.e. courier, customs clearance). Some laboratories reported that their equipment was in repair or broken and could therefore not analyse the samples.

Most laboratories reported test results, but not all laboratories were able to perform all the requested analyses. Finally, 93 participants for sample #16045, 63 participants for sample #16046, 47 participants for sample #16047 and #16048, 24 participants for sample #16049 and sample #16050 and 54 participants for sample #16051 reported in total 1664 numerical test results. Observed were in total 88 outlying test results, which is 5.3%. In proficiency studies, outlier percentages of 3% - 7.5% are quite normal.

4.1 EVALUATION PER TEST

In this section, the results are discussed per sample and per test. The 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 data. The abbreviations, used in these tables, are listed in appendix 3.

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

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.

Evaluation for sample #16045

Organic Chloride: This determination was problematic. The sample was spiked with Chloroform. Therefore, the minimum Chloride concentration to be found was known (4.8 mg/kg). One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of ASTM D5808:09a(2104).

Colour Saybolt: This determination was very problematic both the manual and the automated modes. One statistical outlier was observed at each mode. The calculated reproducibilities for the manual and the automated modes are both not at all in agreement with the respective requirements of ASTM D156:15 and ASTM D6045:12. A partly explanation for the higher variation in the manual mode might be that with the manual mode the filter was in reality not 1 but 0.5. In this case Saybolt values +23 becomes +28, +24 becomes +29 and +25

becomes +30. Another cause might be that inappropriate cleaning of the bottom of the sample tube results in low intensity of light which leads to erroneous test results.

A partly explanation for the higher variation in the automated mode might be effect of different cuvettes (33, 50 or 100 mm) used. Test method ASTM D6045 advised the use of a 100 mm cuvette. Another cause might be the aging of the lamp.

Copper Corrosion: No problems have been observed. All reporting participants agreed on a test result of 1(1A).

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

Distillation: This determination was not problematic for IBP and 50% recovered but problematic for FBP. In total four statistical outliers were observed. The calculated reproducibilities after rejection of the statistical outliers are in agreement with the requirements of ASTM D86:12 (automated and manual mode) for IBP and 50% recovered but not for FBP.

Mercaptan Sulphur: This determination was problematic. Three statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D3227:13.

Sulphur: This determination may be somewhat problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D2622:16. However, when the test results are evaluated per type of analysis only (WD XRF, ED XRF, UV F) all calculated reproducibilities are in agreement with the requirements of their respective test methods. The average of UV F test results only is significantly lower (ANOVA; CL=95%) compared to the other two test methods.

Evaluation for sample #16046

Acetone: No significant conclusions were drawn. All laboratories, except one, agreed on a value "less 10 mg/kg".

DIPE: No significant conclusions were drawn. All laboratories, except one, agreed on a value "less 10 mg/kg".

MEK: This determination might be not problematic at the level of 2.5 mg/kg. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the estimated reproducibility calculated using the Horwitz equation.

Methanol: This determination is very problematic. The samples were spiked with Methanol. Therefore, the minimum Methanol concentration to be found was known (50 mg/kg). The laboratories should be able to find at least 40 mg/kg [50 mg/kg_(added amount) – 10 mg/kg_(R Horwitz)]. Seventeen laboratories reported a test result below this minimum concentration of 40 mg/kg. Therefore, it was decided not to calculate z-scores.

MTBE: This determination appeared to be not problematic at the level of 71 mg/kg. The samples were spiked with MTBE. Therefore, the minimum MTBE concentration to be found was known (50 mg/kg). The laboratories should be able to find at least 33 mg/kg [50 mg/kg_(added amount) – 17 mg/kg_(R Horwitz)]. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility calculated using the Horwitz equation.

TAME: This determination might be not problematic at the level of 1.9 mg/kg. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in agreement with the estimated reproducibility calculated using the Horwitz equation.

Total Oxygenates: This determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the suspect data is in agreement with the estimated reproducibility calculated using the Horwitz equation (based on 4 components).

PONA/PIONA (General): For this determination test results could be reported for 7 groups of compounds; n-Paraffines, i-Paraffines, Naphthenes, Aromatics, C4 and lighter and compounds with BP >200°C. Test results could be reported in %V/V and %M/M. This gives in total 14 groups (see appendix 2). The test results are related as in general the sum of the groups is normalized to 100% (per unit). Therefore, some test results are excluded as $\geq 50\%$ of the test results are observed as statistical outlier. The determination is discussed per group of compounds in more details below.

Most observed reproducibilities were in line with obtained reproducibilities of previous rounds (see table 12):

	2016	2015	2014	2013	2012	2011	2010	ASTM
n-Paraffines	6.8%	3.3%	8.5%	7.6%	5.7%	6.8%	5.1%	3.2%
i-Paraffines	6.5%	1.6%	6.0%	5.9%	4.0%	5.4%	4.0%	3.1%
Olefins *)	186%	n.e.	325%	225%	259%	271%	220%	250%
Naphthenes	5.2%	5.3%	3.0%	3.4%	5.9%	13%	10%	1.9%
Aromatics	11%	10%	12%	13%	8.8%	5.7%	12%	8.9%
C4 & lighter	28%	32%	44%	19%	19%	27%	38%	17%

Table 12: Comparison of observed relative target reproducibilities (%M/M)

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

One participant reported test method ASTM D6293. However this test method was intended for low boiling Gasoline only. ASTM D6293 was withdrawn in 2009 and replaced by D6839.

- n-Paraffines: This determination was very problematic for both %V/V and %M/M. For both sets two statistical outliers were detected and three other test results were excluded. The calculated reproducibilities after rejection of the suspect data are not at all in agreement with the requirements of ASTM D5443:14.
- i-Paraffines: This determination was very problematic for both %V/V and %M/M. For %V/V six statistical outliers were detected and one test result was excluded. For %M/M seven statistical outliers were observed and one test result was excluded. The calculated reproducibilities after rejection of the suspect data are not at all in agreement with the requirements of ASTM D5443:14.
- Naphthenes: This determination was very problematic for both %V/V and %M/M. For %V/V five statistical outliers were observed and eleven test results were excluded. For %M/M six statistical outliers were observed and eleven test results were excluded. The test results of test methods; ASTM D5134, ASTM D6729, ASTM D6730, GOST R 52714, ISO 22854 were excluded as these test methods are meant for DHA. It appeared that DHA test methods are not so suitable for the (more complex) Naphthenes determination. The calculated reproducibilities after rejection of the suspect data are not at all in agreement with the requirements of ASTM D5443:14.
- Aromatics: This determination was not problematic for both %V/V and %M/M. For %V/V five statistical outliers were observed and one test result was excluded. For %M/M six statistical outliers were observed and none of the test results were excluded. However, the calculated reproducibilities after rejection of the suspect data are in full agreement with the requirements of ASTM D5443:14.
- ≤ C4: This determination was problematic for both %V/V and %M/M. For both groups five statistical outliers were observed and three test results were excluded. The calculated reproducibilities after rejection of the suspect data are not in agreement with the requirements of ASTM D5134:14.
- BP>200°C: No statistical outliers were observed for the test results in %V/V and %M/M. No precision data is available for the determination of this group. Therefore, no significant conclusions were drawn.
- Olefines: This determination was not problematic for both %V/V and %M/M. For both groups two statistical outliers were observed and three test results were excluded. The calculated reproducibilities after rejection of the suspect data are in good agreement with the requirements of ASTM D6839:16.

Benzene (DHA): This determination was not problematic at a concentration of 0.5%M/M. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D5134:13.

Heptane (DHA): When the test results were evaluated against the requirements of ASTM D5134:13 the determination was very problematic: $R(\text{calc.})=0.31$, while $R(\text{D5134:13})=0.07$. However, the reproducibility based on ASTM D5134 is not in line with the reproducibilities obtained for the other groups based on the same reference test method ASTM D5134. The raw data of the interlaboratory study RR:D02-1265 by ASTM to the precision of n-Heptane determination was investigated. The requirements of ASTM D5134:13 for n-Heptane are indeed too strict, see figure 1.

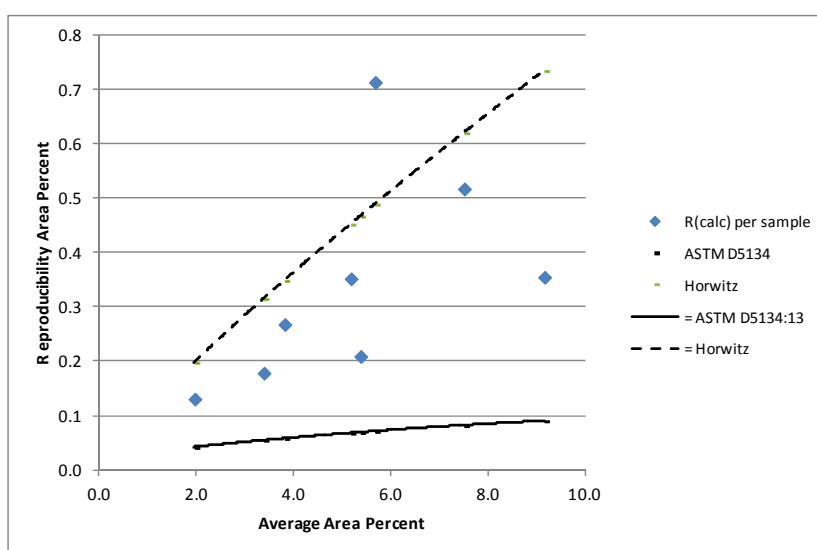


Figure 1 Precision ASTM study RR:D02-1265 of n-Heptane

The estimated reproducibility calculated using the Horwitz equation describes the reproducibility of n-Heptane much better. Therefore, the estimated reproducibility calculated using the Horwitz equation has been used to calculate the z-scores. Thus, the determination of n-Heptane might be not problematic at the level of 5.9%M/M. The calculated reproducibility after rejection of the statistical outlier is in agreement with the estimated reproducibility calculated using the Horwitz equation.

Octane (DHA): This determination was problematic at a concentration of 5.4%M/M. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D5134:13 nor with the estimated reproducibility calculated using the Horwitz equation.

Pentane (DHA): This determination was problematic at a concentration of 6.5%M/M. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the requirements of ASTM D5134:13 nor with the estimated reproducibility calculated using the Horwitz equation.

Toluene (DHA): When the test results were evaluated against the requirements of ASTM D5134:13 the determination was very problematic: $R(\text{calc.})=0.09$, while $R(\text{D5134:13})=0.04$. Therefore, analogue to the approach with n-Heptane the estimated reproducibility calculated using the Horwitz equation was used to calculate z-scores.
This determination was not problematic at a concentration of 1.3%M/M. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility calculated using the Horwitz equation.

Evaluation for sample #16047 and #16048

Mercury: For sample #16047 (real Naphtha), this determination was not problematic. Sample #16047 was spiked to a measurable concentration level of 25 µg/kg Hg. No statistical outliers were observed. The calculated reproducibility is in full agreement with the estimated reproducibility calculated using the Horwitz equation. The average recovery of Mercury may be good: "<112%".

For sample #16048 (artificial Naphtha), this determination was also not problematic. Sample #16048 was spiked to a measurable concentration level of 35 µg/kg Hg. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in good agreement with the estimated reproducibility calculated using the Horwitz equation. The average recovery of Mercury may be satisfactory: "<80%".

Evaluation for sample #16049 and #16050

Arsenic: For sample #16049 (real Naphtha), this determination was not problematic. Sample #16049 was spiked to a measurable concentration level of 20 µg/kg As. One statistical outlier was observed. The calculated reproducibility after rejection of the outlier is in full agreement with the estimated reproducibility calculated using the Horwitz equation. The average recovery of Arsenic may be a bit low: "<68%".

For sample #16050 (artificial Naphtha), this determination was also not problematic. Sample #16050 was spiked up to a level of 32 µg/kg As. Therefore, the minimum As concentration to be found was known. The laboratories should be able to find at least 17 µg/kg $[32 \mu\text{g}/\text{kg}_{(\text{added amount})} - 15 \mu\text{g}/\text{kg}_{(R_{\text{Horwitz}})]$. Three test results are below this minimum of 17 µg/kg and were excluded from the statistical evaluation. After exclusion of the three test results, no statistical outliers were observed. The calculated reproducibility after rejection of the suspect data is in full agreement with the estimated reproducibility calculated using the Horwitz equation. The average recovery of Arsenic may be a bit low: "<56%".

Lead: For sample #16049 (real Naphtha), this determination was not problematic. Sample #16049 was spiked to a measurable concentration level of 50 µg/kg Pb. Therefore, the minimum Pb concentration to be found was known. The laboratories should be able to find at least 8 µg/kg [50 µg/kg_(added amount) – 42 µg/kg_(R Horwitz)]. One of the laboratories reported a test result of 10 µg/kg which is close to this minimum. Since the other laboratories find on average 22% more Pb than the theoretical increment of 50 µg/kg Pb it was decided to exclude this test result. After exclusion of this test result one statistical outlier was observed. However, the calculated reproducibility after rejection of the suspect data is in full agreement with the estimated reproducibility calculated using the Horwitz equation. The average recovery of Lead may be good: “<122%”.

For sample #16050 (artificial Naphtha), this determination was also not problematic. Sample #16050 was spiked to a measurable concentration level of 70 µg/kg Pb. One statistical outlier was observed. However, the calculated reproducibility after rejection of the outlier is in full agreement with the estimated reproducibility calculated using the Horwitz equation. The average recovery of Lead may be excellent: “100%”.

Evaluation for sample #16051

TVP: This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in good agreement with the requirements of ASTM D5191:15.

DVPE: The conversion of the measured Total Vapour Pressure to the corresponding Dry Vapour Pressure Equivalent (DVPE) as described in the ASTM D5191:15, showed no statistical outliers. However, the test result of test method ASTM D6378 was excluded as this test method reports the Reid Vapour Pressure (RVPE). Test method ASTM D6378 mentions a bias to test method ASTM D5191 and a correction factor. It was not clear whether this correction factor was applied. The calculated reproducibility after rejection of the suspect test result is in good agreement with the requirements of ASTM D5191:15.

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

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

Parameter	unit	n	average	2.8 * sd	R (lit)
Organic Chloride	mg/kg	35	5.6	2.7	1.3
Color Saybolt (automated)		39	27.4	4.4	1.2
Color Saybolt (manual)		37	27.4	5.0	2.0
Copper Corrosion		64	1(1A)	n.a.	n.a.
Density at 15°C	kg/L	84	0.7189	0.0005	0.0005
Initial Boiling Point	°C	77	38.3	4.7	4.7
50% recovered	°C	76	107.9	2.3	4.1
Final Boiling Point	°C	77	166.5	9.1	7.1
Mercaptan Sulphur	mg/kg	54	78.1	10.0	6.4
Sulphur	mg/kg	72	257.5	42.1	36.6

Table 13: comparison of the observed and target reproducibilities of the sample #16045

Parameter	unit	n	average	2.8 * sd	R (lit)
Acetone	mg/kg	22	<10	n.a.	n.a.
DIPE	mg/kg	24	<10	n.a.	n.a.
MEK	mg/kg	15	2.54	0.82	0.99
Methanol	mg/kg	25	38.4	45.4	(9.9)
MTBE	mg/kg	25	71.3	13.8	16.8
TAME	mg/kg	16	1.88	0.74	0.77
Total Oxygenates	%M/M	21	0.012	0.005	0.005
n-Paraffines	%V/V	39	32.9	2.0	1.0
i-Paraffines	%V/V	37	32.9	2.0	1.0
Naphthenes	%V/V	30	29.4	1.6	0.6
Aromatics	%V/V	41	5.24	0.59	0.64
C4 & lighter	%V/V	33	2.36	0.71	0.35
Compounds bp > 200 °C	%V/V	14	0.15	0.38	n.a.
Olefins	%V/V	31	0.11	0.20	0.26
n-Paraffines	%M/M	40	30.8	2.1	0.9
i-Paraffines	%M/M	37	31.6	2.0	1.0
Naphthenes	%M/M	30	31.8	1.7	0.6
Aromatics	%M/M	42	6.37	0.71	0.71
C4 & lighter	%M/M	34	1.92	0.54	0.30
Compounds bp > 200 °C	%M/M	13	0.18	0.44	n.a.
Olefins	%M/M	31	0.12	0.22	0.27
Benzene (DHA)	%M/M	38	0.51	0.04	0.06
Heptane (DHA)	%M/M	35	5.94	0.31	0.51
Octane (DHA)	%M/M	35	5.42	0.66	0.38
Pentane (DHA)	%M/M	35	6.54	0.77	0.49
Toluene (DHA)	%M/M	36	1.32	0.09	0.14

Table 14: comparison of the observed and target reproducibilities of the sample #16046

Parameter	unit	n	average	2.8 * sd	R (lit)
Mercury as Hg #16047	µg/kg	47	28.0	15.2	21.5
Mercury as Hg #16048	µg/kg	42	28.1	12.1	21.5

Table 15: comparison of the observed and target reproducibility of sample #16047 and #16048

Parameter	unit	n	average	2.8 * sd	R (lit)
Arsenic as As #16049	µg/kg	9	13.6	8.6	11.6
Arsenic as As #16050	µg/kg	4	18.0	13.8	14.7
Lead as Pb #16049	µg/kg	20	61.1	40.3	41.7
Lead as Pb #16050	µg/kg	20	70.3	42.8	47.0

Table 16: comparison of the observed and target reproducibilities of the samples #16049 and #16050

Parameter	unit	n	average	2.8 * sd	R (lit)
TVP	psi	44	7.04	0.25	0.40
DVPE	psi	53	6.23	0.26	0.40

Table 17: comparison of the observed and target reproducibilities of the sample #16051

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 2016 WITH PREVIOUS PTS

	April 2016	April 2015	April 2014	March 2013	April 2012
Number of reporting labs	93	84	74	72	71
Number of test results reported	1664	1560	1304	1339	1147
Statistical outliers	88	52	49	101	75
Percentage outliers	5.3%	3.3%	3.8%	7.5%	6.5%

Table 18: comparison with previous proficiency tests

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

Determination	April 2016	April 2015	April 2014	March 2013	April 2012
Organic Chloride	--	+	--	n.e.	n.e.
Colour Saybolt	--	++	++	++	++
Density at 15°C	+/-	++	++	+	++
Distillation	-	++	+	+	+
Mercaptan Sulphur	-	n.a.	--	-	--
Sulphur	+/-	n.a.	--	+/-	--
MEK	+/-	n.e.	n.e.	n.e.	n.e.
Methanol	n.e.	--	--	--	--
MTBE	+	+/-	--	-	--
TAME	+/-	n.e.	n.e.	n.e.	n.e.
Total Oxygenates	+/-	+	--	-	-
n-Paraffines	--	-	--	--	--
i-Paraffines	--	+	--	--	--
Naphthenes	--	--	--	--	--
Aromatics	+/-	++	+	-	+
C4 & lighter	--	--	--	-	+/-
Olefins	+	n.e.	--	+	n.e.
DHA analyses	+/-	+/-	n.e.	n.e.	n.e.
Mercury	+	+	++	+/-	+
Arsenic	+	+/-	+/-	--	n.e.
Lead	+/-	--	--	--	n.e.
Total Vapour Pressure	+	++	++	+	--
DVPE acc. to D5191	+	++	++	+	--

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

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

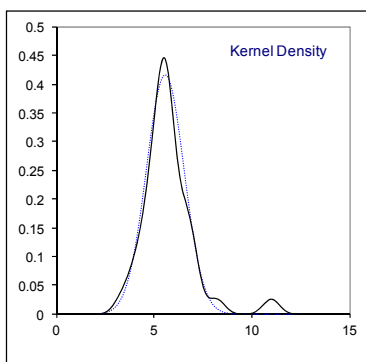
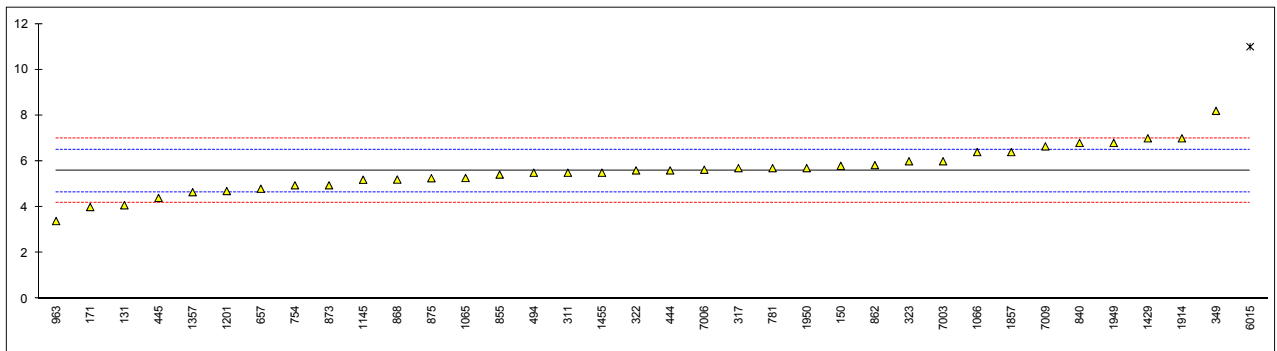
- ++: group performed much better than the reference test method
- + : group performed better than the reference test method
- +/-: group performance equals the reference test method
- : group performed worse than the reference test method
- : group performed much worse than the reference test method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

APPENDIX 1

Determination of Chlorides, Organic Total on sample #16045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		----		----	
131	D5808	4.08		-3.25	
140		----		----	
150	D7359	5.8		0.46	
171	D5808	4		-3.42	
225		----		----	
237		----		----	
238		----		----	
311	D5808	5.5		-0.19	
317	UOP779	5.7		0.24	
322	D5808	5.6		0.03	
323	D5808	6		0.89	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349	UOP588	8.2	C	5.63	first reported: 11.06
360		----		----	
399		----		----	
444	IP510	5.6		0.03	
445	IP510	4.4		-2.56	
494	D5808	5.5		-0.19	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	D5808	4.8		-1.70	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	UOP779	4.95		-1.37	
759		----		----	
781	UOP779	5.7		0.24	
785		----		----	
786		----		----	
824		----		----	
840	UOP588	6.8		2.61	
855	D5808	5.42		-0.36	
862	D5808	5.83		0.52	
868	D5808	5.2		-0.84	
872		----		----	
873	UOP779	4.95		-1.37	
875	UOP779	5.26		-0.71	
922		----		----	
962		----		----	
963	D5808	3.39		-4.73	
974		----		----	
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016		----		----	
1062		----		----	
1065	D7359	5.27		-0.68	
1066	UOP779	6.4		1.75	
1081		----		----	
1107		----		----	
1108		----		----	
1128		----		----	
1134		----		----	
1145	D5808	5.193		-0.85	
1161		----		----	
1200		----		----	
1201	UOP779	4.7		-1.91	
1257		----		----	
1264		----		----	
1284		----		----	
1357	UOP779	4.65		-2.02	
1404		----		----	
1429	D7359	7.0		3.04	
1455	UOP779	5.5		-0.19	
1556		----		----	
1585		----		----	

lab	method	value	mark	z(targ)	remarks
1613		----		----	
1656		----		----	
1720		----		----	
1737		----		----	
1788		----		----	
1796		----		----	
1823		----		----	
1833		----		----	
1857	UOP779	6.4		1.75	
1914	UOP588	7		3.04	
1949	UOP779	6.8		2.61	
1950	IP510	5.7		0.24	
6015	DIN51408-2	11	R(0.01)	11.66	
6016		----		----	
6028		----		----	
7003	D4929	6	C	0.89	first reported:4.25
7006	D5808	5.63		0.09	
7009	D7536	6.65		2.29	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145		----		----	
normality		OK			
n		35			
outliers		1	<u>Spike</u>		
mean (n)		5.588	4.79		<117% recovery
st.dev. (n)		0.9608			
R(calc.)		2.690			
R(D5808:09a)		1.300			



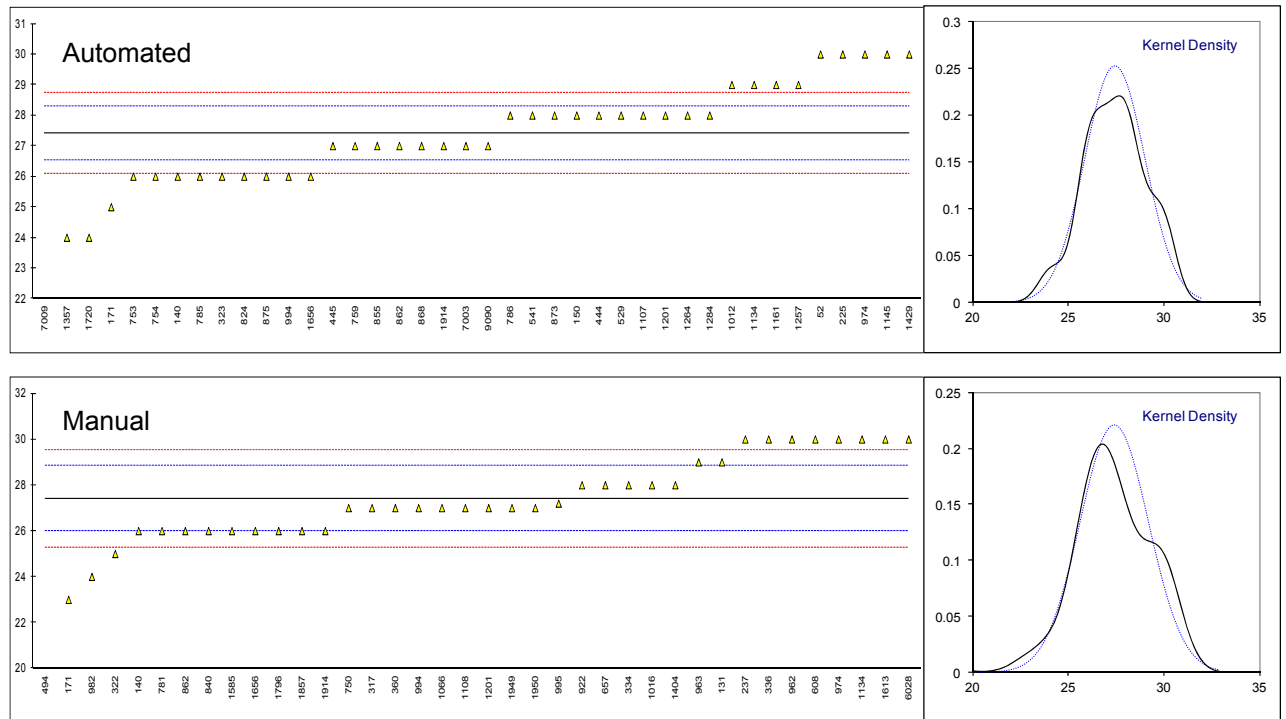
Determination of Color Saybolt Automated (D6045) and manual (D156) on sample #16045

lab	automatic	value	mark	z(targ)	filter	manual	value	mark	z(targ)
52	D6045	30		5.85			----		----
131		----			0.5	D156	29		2.22
140	D6045	26		-3.18		D156	26		-1.98
150	D6045	28		1.33			----		----
171	D6045	25		-5.44	1	D156	23		-6.18
225	D6045	30		5.85			----		----
237		----				D156	30		3.62
238		----					----		----
311		----					----		----
317		----			0.5	D156	27		-0.58
322		----			1	D156	25		-3.38
323	D6045	26		-3.18	0.5		----		----
333		----					----		----
334		----				D156	28		0.82
336		----				D156	30		3.62
337		----					----		----
349		----					----		----
360		----			0.5	D156	27		-0.58
399		----					----		----
444	D6045	28.0		1.33			----		----
445	D6045	27		-0.93			----		----
494		----			1	D156	18	R(0.01)	-13.18
529	D6045	28		1.33	0.5		----		----
541	D6045	28		1.33			----		----
604		----					----		----
608		----			0.5	D156	30		3.62
657		----			0.5	D156	28		0.82
663		----					----		----
750		----			0.5	D156	27		-0.58
751		----					----		----
753	D6045	26		-3.18			----		----
754	D6045	26		-3.18			----		----
759	D6045	27		-0.93			----		----
781		----			0.5	D156	26		-1.98
785	D6045	26		-3.18			----		----
786	D6045	28		1.33			----		----
824	D6045	26		-3.18			----		----
840		----				D156	26		-1.98
855	D6045	27		-0.93			----		----
862	D6045	27		-0.93		D156	26		-1.98
868	D6045	27		-0.93			----		----
872		----					----		----
873	D6045	28		1.33			----		----
875	D6045	26		-3.18			----		----
922		----				D156	28		0.82
962		----				D156	30		3.62
963		----				D156	29		2.22
974	D6045	30		5.85	0.5	D156	30		3.62
982		----			1	D156	24		-4.78
994	D6045	26		-3.18	0.5	D156	27		-0.58
995		----				D156	27.2		-0.30
1012	D6045	29		3.59			----		----
1016		----				D156	28		0.82
1062		----					----		----
1065		----					----		----
1066		----				D156	27		-0.58
1081		----					----		----
1107	D6045	28		1.33			----		----
1108		----				D156	27		-0.58
1128		----					----		----
1134	D6045	29		3.59		D156	30		3.62
1145	D6045	30	C	5.85			----		----
1161	D6045	29		3.59		D1500	<0,5	*)	----
1200		----					----		----
1201	D6045	28		1.33	0.5	D156	27		-0.58
1257		29		3.59			----		----
1264	D6045	28		1.33			----		----
1284	D6045	28		1.33			----		----
1357	D6045	24		-7.70			----		----
1404		----			0.5	D156	28		0.82
1429	D6045	30		5.85			----		----
1455		----					----		----
1556		----					----		----
1585		----			0.5	D156	26		-1.98
1613		----				D156	30		3.62

lab	automatic	value	mark	z(targ)	filter	manual	value	mark	z(targ)
1656	D5386	26		-3.18	0.5	D156	26		-1.98
1720	D6045	24		-7.70			----		----
1737		----		----			----		----
1788		----		----			----		----
1796		----		----		D156	26		-1.98
1823		----		----			----		----
1833		----		----			----		----
1857		----		----	0.5	D156	26		-1.98
1914	D6045	27		-0.93	0.5	D156	26		-1.98
1949		----		----	0.5	D156	27		-0.58
1950		----		----		D156	27		-0.58
6015		----		----			----		----
6016		----		----			----		----
6028		----		----		D156	30		3.62
7003	D6045	27		-0.93			----		----
7006		----		----			----		----
7009		15.5	R(0.01)	-26.89			----		----
9057		----		----			----		----
9058		----		----			----		----
9061		----		----			----		----
9090	D6045	27		-0.93			----		----
9145		----		----			----		----
	normality	OK				normality	OK		
	n	39				n	37		
	outliers	1				outliers	1		
	mean (n)	27.410				mean (n)	27.411		
	st.dev. (n)	1.5848				st.dev. (n)	1.8012		
	R(calc.)	4.437				R(calc.)	5.04		
	R(D6045:12)	1.240				R(D156:15)	2.00		

Lab 1145 reported in remarks: Color Saybolt (automated) refer ASTM D156 and placed test value in column of D6045. After check e-mail the test method pointed out to be ASTM6045.

*) D1500 is a different colour test method which direct to D156 when test result is <0.5.



Determination of Copper Corrosion 3 hrs at 50°C on sample #16045

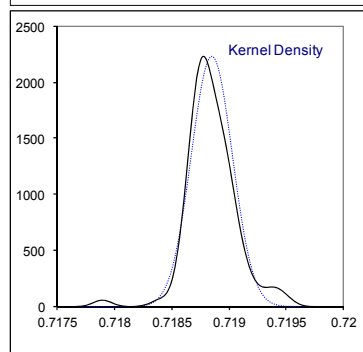
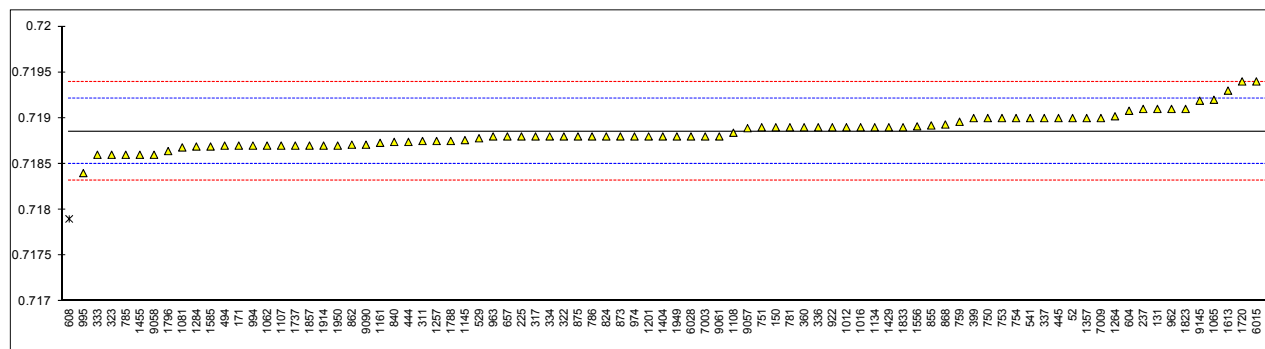
lab	method	value	mark	z(targ)	remarks
52	D130	1a		----	
131	D130	1a		----	
140	D130	1a		----	
150	D130	1a		----	
171	D130	1a		----	
225	D130	1a		----	
237	D130	1A		----	
238		----		----	
311	D130	1A		----	
317	D130	1a		----	
322		----		----	
323	D130	1A		----	
333	D130	1b		----	
334	D130	1a		----	
336	D130	1		----	
337		----		----	
349		----		----	
360	D130	1A		----	
399		----		----	
444		----		----	
445	IP154	1A		----	
494	D130	1a		----	
529	D130	1A		----	
541	D130	1a		----	
604		----		----	
608	D130	1a		----	
657	D130	No.1a		----	
663		----		----	
750	D130	1A		----	
751	D130	1a		----	
753	D130	1a		----	
754	D130	1a		----	
759		----		----	
781	D130	1a		----	
785		----		----	
786		----		----	
824	D130	1a		----	
840	D130	1a		----	
855	D130	1a		----	
862	D130	1a		----	
868	D130	1a		----	
872		----		----	
873	D130	1A		----	
875	D130	1a		----	
922	D130	1A		----	
962	D130	1A		----	
963	D130	1a		----	
974	D130	1a		----	
982		----		----	
994	D130	1a		----	
995	D130	1A		----	
1012		----		----	
1016	D130	1a		----	
1062		----		----	
1065		----		----	
1066	D130	1A		----	
1081	D130	1a		----	
1107	D130	1a		----	
1108		----		----	
1128		----		----	
1134	D130	1b		----	
1145		----		----	
1161	ISO2160	1A		----	
1200		----		----	
1201	D130	1a		----	
1257	D130	1a		----	
1264	D130	1B		----	
1284		----		----	
1357	D130	1a		----	
1404	ISO2160	1a		----	
1429	D130	1a		----	
1455	D130	1A		----	
1556	ISO2160	class 1		----	
1585	D130	1a		----	
1613	D130	1A		----	

lab	method	value	mark	z(targ)	remarks
1656	IP154	1		----	
1720		----		----	
1737		----		----	
1788		----		----	
1796	D130	1a		----	
1823		----		----	
1833		----		----	
1857	D130	1 a		----	
1914	D130	1a		----	
1949	D130	1a		----	
1950	D130	1a		----	
6015	ISO2160	1a		----	
6016		----		----	
6028	ISO2160	1a		----	
7003		----		----	
7006		----		----	
7009	D849	1A		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D130	1A		----	
	normality	n.a.			
	n	64			
	outliers	0			
	mean (n)	1 (1A)			
	st.dev. (n)	n.a.			
	R(calc.)	n.a.			
	R(D130:12)	n.a.			

Determination of Density at 15°C on sample #16045; results in kg/L

lab	method	value	mark	z(targ)	remarks
52	D4052	0.7190		0.82	
131	D4052	0.7191		1.38	
140	D4052	0.7195	R(0.05)	3.62	
150	D4052	0.7189		0.26	
171	D4052	0.7187		-0.86	
225	D4052	0.7188		-0.30	
237	D4052	0.7191	C	1.38	reported 719.1 kg/L
238		----		----	
311	ISO12185	0.71875		-0.58	
317	ISO12185	0.7188		-0.30	
322	ISO12185	0.7188	C	-0.30	reported 0.7188 kg/m ³
323	D4052	0.7186		-1.42	
333	ISO12185	0.7186		-1.42	
334	D4052	0.7188		-0.30	
336	ISO12185	0.7189		0.26	
337	ISO12185	0.7190		0.82	
349		----		----	
360	ISO12185	0.7189		0.26	
399	D4052	0.7190		0.82	
444	D4052	0.71874		-0.64	
445	IP365	0.7190		0.82	
494	ISO12185	0.7187		-0.86	
529	D4052	0.71878		-0.42	
541	ISO12185	0.7190		0.82	
604	D4052	0.71908		1.26	
608	D4052	0.7179	R(0.01)	-5.34	
657	ISO12185	0.7188		-0.30	
663		----		----	
750	D4052	0.7190		0.82	
751	D1298	0.7189		0.26	
753	D4052	0.7190		0.82	
754	D4052	0.7190		0.82	
759	ISO12185	0.71896		0.59	
781	ISO12185	0.7189		0.26	
785	D4052	0.7186		-1.42	
786	D4052	0.7188		-0.30	
824	ISO12185	0.7188		-0.30	
840	D4052	0.71874		-0.64	
855	D1298	0.71892		0.37	
862	D4052	0.71871		-0.81	
868	D4052	0.71893		0.42	
872		----		----	
873	D4052	0.7188		-0.30	
875	D4052	0.7188		-0.30	
922	D4052	0.7189		0.26	
962	D4052	0.7191		1.38	
963	ISO12185	0.7188		-0.30	
974	D4052	0.7188		-0.30	
982		----		----	
994	ISO12185	0.7187		-0.86	
995	ISO12185	0.7184		-2.54	
1012	D4052	0.7189		0.26	
1016	D4052	0.7189		0.26	
1062	D4052	0.7187		-0.86	
1065	D4052	0.7192		1.94	
1066		----		----	
1081	D4052	0.71868		-0.98	
1107	D4052	0.7187		-0.86	
1108	ISO12185	0.71884		-0.08	
1128		----		----	
1134	IP365	0.7189		0.26	
1145	D4052	0.71876		-0.53	
1161	ISO12185	0.71873		-0.70	
1200		----		----	
1201	ISO12185	0.7188		-0.30	
1257	D4052	0.71875		-0.58	
1264	D4052	0.71902		0.93	
1284	D4052	0.71869		-0.92	
1357	D4052	0.7190		0.82	
1404	ISO12185	0.7188		-0.30	
1429	D4052	0.7189		0.26	
1455	ISO12185	0.7186		-1.42	
1556	ISO12185	0.71891		0.31	
1585	D4052	0.71869		-0.92	
1613	D4052	0.7193		2.50	

lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720	D4052	0.7194		3.06	
1737	D4052	0.7187		-0.86	
1788	D4052	0.71875		-0.58	
1796	ISO12185	0.71864		-1.20	
1823	D4052	0.7191		1.38	
1833	ISO12185	0.7189		0.26	
1857	D4052	0.7187		-0.86	
1914	D4052	0.7187		-0.86	
1949	ISO12185	0.7188		-0.30	
1950	ISO12185	0.7187		-0.86	
6015	ISO12185	0.7194		3.06	
6016		----		----	
6028	ISO12185	0.7188		-0.30	
7003	D4052	0.7188		-0.30	
7006		----		----	
7009	D4052	0.7190		0.82	
9057	D5002	0.71889		0.20	
9058	D5002	0.7186		-1.42	
9061	D5002	0.7188		-0.30	
9090	D4052	0.71871		-0.81	
9145	D4052	0.71919		1.88	
normality		suspect			
n		84			
outliers		2			
mean (n)		0.718854			
st.dev. (n)		0.0001791			
R(calc.)		0.000501			
R(ISO12185:96)		0.000500			



Determination of Distillation (automated and manual mode) on sample #16045; results in °C

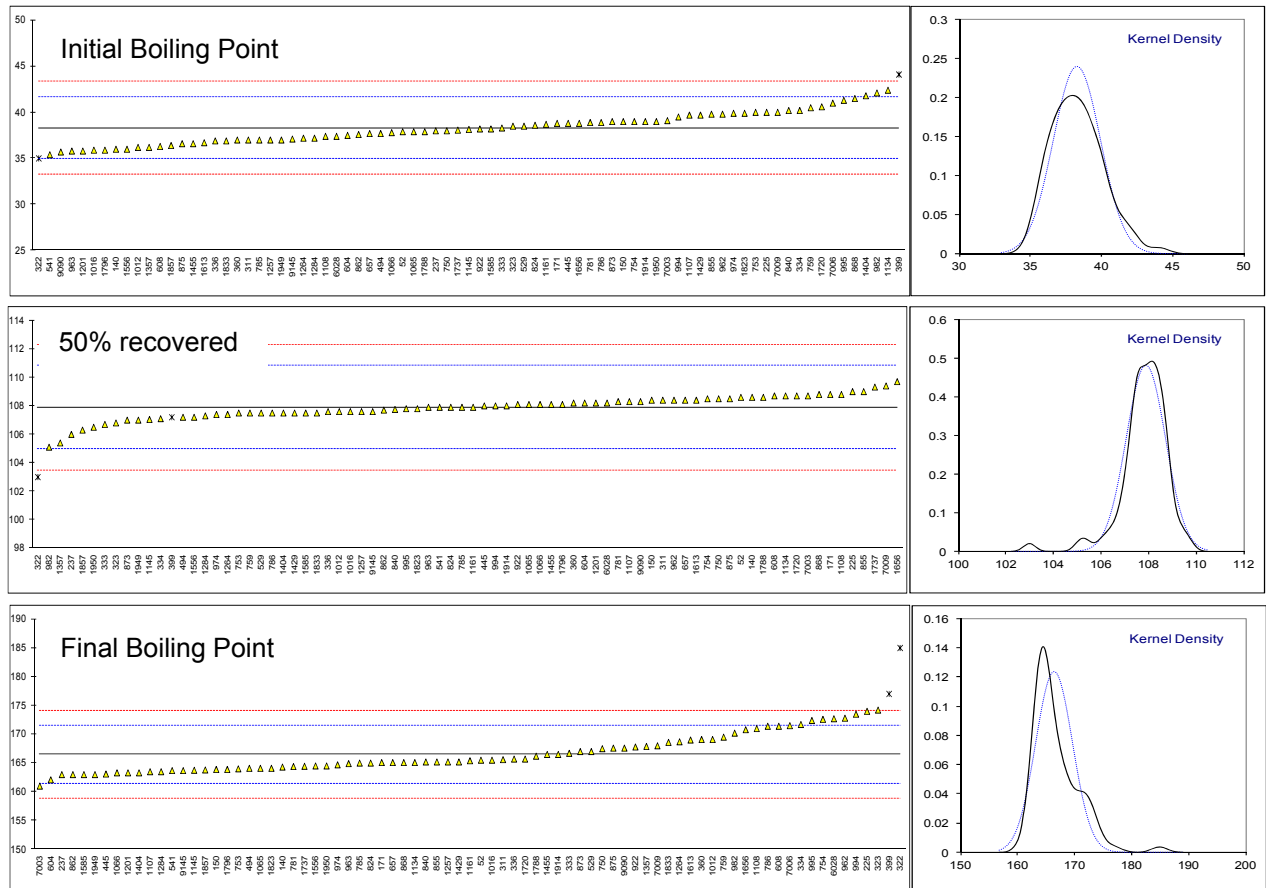
lab	mode	method	IBP	mark	z(targ)	50%rec.	mark	z(targ)	FBP	mark	z(targ)
52	Automated	D86	37.9		-0.23	108.6		0.49	165.5		-0.40
131			----		----	----		----	----		----
140	Automated	D86	36.0		-1.36	108.6		0.49	164.3		-0.87
150	Automated	D86	39.0		0.43	108.4		0.35	163.9		-1.03
171	Automated	D86	38.8		0.31	108.8		0.62	165.1		-0.55
225	Manual	D86	40.0		1.02	109.0		0.76	174.0		2.96
237	Manual	D86	38.0		-0.17	106.0		-1.28	163.0		-1.38
238			----		----	----		----	----		----
311	Automated	D86	37.0		-0.77	108.4		0.35	165.6		-0.36
317			----		----	----		----	----		----
322	Manual	D86	35.0	ex	-1.96	103.0	R(0.01)	-3.32	185.0	R(0.01)	7.29
323	Automated	D86	38.5		0.13	106.8		-0.74	174.2		3.03
333	Automated	D86	38.3		0.01	106.7		-0.80	166.7		0.08
334	Automated	D86	40.2		1.14	107.1		-0.53	171.7		2.05
336	Automated	D86	36.9		-0.83	107.6		-0.19	165.7		-0.32
337			----		----	----		----	----		----
349			----		----	----		----	----		----
360	Automated	D86	37.0		-0.77	108.2		0.22	169.1		1.02
399	Automated	D86	44.1	R(0.05)	3.46	107.2	ex	-0.46	177.0	R(0.05)	4.14
444			----		----	----		----	----		----
445	Automated	IP123	38.8		0.31	108.0		0.08	163.1		-1.34
494	Automated	D86	37.7		-0.35	107.2		-0.46	164.1		-0.95
529	Automated	D86	38.5		0.13	107.5		-0.26	167.0		0.19
541	Automated	D86	35.4		-1.72	107.9		0.01	163.7		-1.11
604	Automated	D86	37.5		-0.47	108.2		0.22	162.1		-1.74
608	Automated	D86	36.3		-1.18	108.7		0.56	171.4		1.93
657	Automated	D86	37.7		-0.35	108.4		0.35	165.1		-0.55
663			----		----	----		----	----		----
750	Manual	D86	38.0		-0.17	108.5		0.42	167.5		0.39
751			----		----	----		----	----		----
753	Manual	D86	40.0		1.02	107.5		-0.26	164.0		-0.99
754	Automated	D86	39.0		0.43	108.5		0.42	172.6		2.40
759	Manual	D86	40.5		1.32	107.5		-0.26	169.5		1.18
781	Automated	D86	38.9		0.37	108.3		0.28	164.4		-0.83
785	Automated	D86	37.0		-0.77	107.9		0.01	165.0		-0.59
786		D86	38.9		0.37	107.5		-0.26	171.4		1.93
824	Automated	D86	38.6		0.19	107.9		0.01	165.0		-0.59
840	Automated	D86	40.20		1.14	107.75		-0.09	165.19		-0.52
855	Automated	D86	39.8		0.90	109.0		0.76	165.2		-0.52
862	Automated	D86	37.6		-0.41	107.7		-0.12	163.0		-1.38
868	Automated	D86	41.5		1.91	108.8		0.62	165.1		-0.55
872			----		----	----		----	----		----
873	Manual	D86	39.0		0.43	107.0		-0.60	167.0		0.19
875	Automated	D86	36.6		-1.00	108.5		0.42	167.6		0.43
922	Automated	D86	38.2		-0.05	108.1		0.15	167.8		0.51
962	Automated	D86	39.8		0.90	108.4		0.35	172.8		2.48
963	Automated	D86	35.8		-1.48	107.9		0.01	164.9		-0.63
974	Automated	D86	39.9		0.96	107.4		-0.33	164.7		-0.71
982	Manual	D86	42.1	C	2.27	105.1		-1.89	170.2		1.46
994	Manual	D86	39.5		0.72	108.0		0.08	173.5		2.76
995		D86	41.3		1.80	107.8		-0.06	172.4		2.32
1012		D86	36.2		-1.24	107.6		-0.19	169.1		1.02
1016	Automated	D86	35.9		-1.42	107.6		-0.19	165.5		-0.40
1062			----		----	----		----	----		----
1065	Automated	D86	37.9		-0.23	108.1		0.15	164.1		-0.95
1066	Automated	D86	37.8		-0.29	108.1		0.15	163.3		-1.26
1081			----		----	----		----	----		----
1107	Automated	D86	39.7		0.84	108.3		0.28	163.5		-1.19
1108	Automated	D86	37.4		-0.53	108.8		0.62	171.0		1.77
1128			----		----	----		----	----		----
1134	Automated	IP123	42.4		2.45	108.7		0.56	165.1		-0.55
1145	Automated	D86	38.15		-0.08	107.05		-0.57	163.75		-1.09
1161	Automated	D86	38.7		0.25	107.9		0.01	165.4		-0.44
1200			----		----	----		----	----		----
1201	Automated	D86	35.8		-1.48	108.2		0.22	163.3		-1.26
1257	Automated	D86	37.0		-0.77	107.6		-0.19	165.2		-0.52
1264	Automated	D86	37.2		-0.65	107.40		-0.33	168.7		0.87
1284	Automated	D86	37.2		-0.65	107.3		-0.40	163.5		-1.19
1357	Automated	D86	36.2		-1.24	105.4		-1.69	167.9		0.55
1404	Automated	ISO3405	41.8		2.09	107.5		-0.26	163.3		-1.26
1429	Automated	D86	39.7		0.84	107.5		-0.26	165.2		-0.52
1455	Automated	D86	36.6		-1.00	108.1		0.15	166.5		0.00
1556	Automated	ISO3405	36.0		-1.36	107.2		-0.46	164.5		-0.79
1585	Automated	D86	38.2		-0.05	107.5		-0.26	163.0		-1.38
1613	Automated	D86	36.7		-0.94	108.4		0.35	169.0		0.98

lab	mode	method	IBP	mark	z(targ)	50%rec.	mark	z(targ)	FBP	mark	z(targ)
1656	Automated	IP123	38.8		0.31	109.7		1.24	170.8		1.69
1720	Automated	D86	40.6		1.38	108.7		0.56	165.7		-0.32
1737	Automated	D86	38.07		-0.13	109.32		0.98	164.44		-0.81
1788	Automated	D86	37.9		-0.23	108.6		0.49	166.2		-0.12
1796	Automated	D86	35.9		-1.42	108.1		0.15	163.9		-1.03
1823	Automated	D86	39.9		0.96	107.8		-0.06	164.1		-0.95
1833	Automated	ISO3405	36.9		-0.83	107.5		-0.26	168.6		0.83
1857	Automated	D86	36.4		-1.12	106.3		-1.08	163.8		-1.07
1914	Manual	D86	39.0		0.43	108.0		0.08	166.5		0.00
1949	Manual	D86	37.0		-0.77	107.0		-0.60	163.0		-1.38
1950	Manual	D86	39.0		0.43	106.5		-0.94	164.5		-0.79
6015			----		----	----		----	----		----
6016			----		----	----		----	----		----
6028	Automated	ISO3405	37.4		-0.53	108.2		0.22	172.7		2.44
7003		D86	39.1		0.48	108.7		0.56	161		-2.17
7006		D86	41.0		1.62	----		----	171.5		1.97
7009	Automated	D86	40.0		1.02	109.4		1.03	168.0		0.59
9057			----		----	----		----	----		----
9058			----		----	----		----	----		----
9061			----		----	----		----	----		----
9090	Automated	D86	35.7		-1.54	108.3		0.28	167.6		0.43
9145	Automated	D86	37.1		-0.71	107.6		-0.19	163.7		-1.11
		normality	OK			suspect			OK		
		n	77			76			77		
		outliers	1+1ex			1+1ex			2		
		mean (n)	38.29			107.88			166.51		
		st.dev. (n)	1.667			0.827			3.231		
		R(calc.)	4.67			2.32			9.05		
		R(D86-A:15)	4.70			4.12			7.10		
Compare		R(D86-M:15)	5.60			4.23			7.20		

Lab 982 first reported for IBP: 45.1

Lab 399 reported a leakage in the bottle upon sample receipt. This could be explain the deviating results.

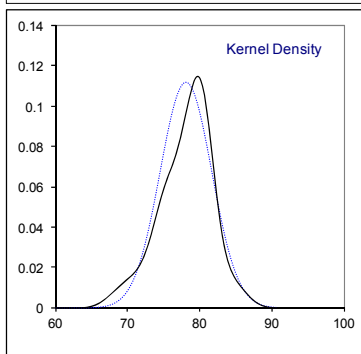
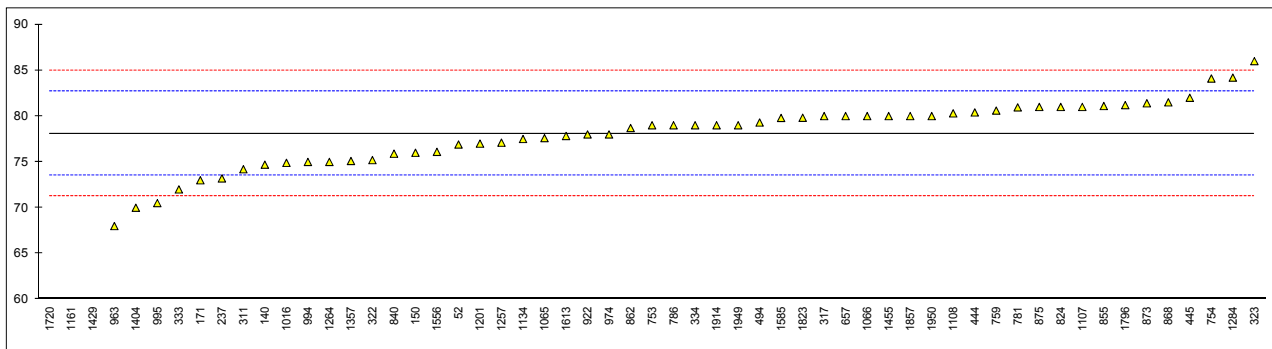
Lab 322 and Lab 399 two of the three reported test results were statistical outliers. Therefore the other test result was excluded, as the test results are not independent from each other.



Determination of Mercaptan Sulphur as S on sample #16045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D3227	76.9		-0.53	
131		----		----	
140	D3227	74.7		-1.50	
150	D3227	76		-0.93	
171	D3227	73		-2.24	
225		----		----	
237	D3227	73.2		-2.16	
238		----		----	
311	UOP163	74.2		-1.72	
317	UOP163	80	C	0.83	first reported: 65
322	D3227	75.2		-1.28	
323	D3227	86		3.46	
333	D3227	72		-2.68	
334	D3227	79		0.39	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444	UOP163	80.4		1.00	
445	IP342	82		1.71	
494	D3227	79.3		0.52	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	D3227	80		0.83	
663		----		----	
750		----		----	
751		----		----	
753	UOP163	79		0.39	
754	UOP163	84.1		2.63	
759	UOP163	80.6		1.09	
781	D3227	80.95		1.24	
785		----		----	
786	UOP163	79		0.39	
824	D3227	81		1.27	
840	D3227	75.9		-0.97	
855	D3227	81.1		1.31	
862	D3227	78.7		0.26	
868	D3227	81.5		1.49	
872		----		----	
873	D3227	81.4		1.44	
875	UOP163	81		1.27	
922	D3227	78	C	-0.05	first reported: 88
962		----		----	
963	D3227	68		-4.44	
974	D3227	78		-0.05	
982		----		----	
994	D3227	75		-1.37	
995	D3227	70.51		-3.34	
1012		----		----	
1016	UOP163	74.9		-1.41	
1062		----		----	
1065	D3227	77.6		-0.23	
1066	D3227	80		0.83	
1081		----		----	
1107	UOP163	81		1.27	
1108	D3227	80.3		0.96	
1128		----		----	
1134	IP342	77.5		-0.27	
1145		----		----	
1161	ISO3012	46.0	C,R(0.01)	-14.09	first reported: 56.2
1200		----		----	
1201	D3227	77		-0.49	
1257	D3227	77.1		-0.44	
1264	D3227	75		-1.37	
1284	D3227	84.2		2.67	
1357	D3227	75.1		-1.32	
1404	ISO3012	70		-3.56	
1429	D3227	48.0	R(0.01)	-13.21	
1455	D3227	80		0.83	
1556	UOP163	76.1		-0.88	
1585	UOP163	79.8		0.74	
1613	D3227	77.83		-0.12	

lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720	D3227	20	R(0.01)	-25.50	
1737		----		----	
1788		----		----	
1796	UOP163	81.2		1.35	
1823	UOP163	79.82		0.75	
1833		----		----	
1857	UOP163	80		0.83	
1914	D3227	79		0.39	
1949	D3227	79		0.39	
1950	D3227	80		0.83	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145		----		----	
normality		OK			
n		54			
outliers		3			
mean (n)		78.113			
st.dev. (n)		3.5784			
R(calc.)		10.020			
R(D3227:13)		6.381			



Determination of Sulphur on sample #16045; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52	D5453	279.58		1.69	
131		----		----	
140	D2622	278.7		1.62	
150	D2622	261		0.26	
171	D2622	265		0.57	
225		----		----	
237	D5453	248.4		-0.70	
238		----		----	
311	D2622	250		-0.58	
317	D2622	257		-0.04	
322	D2622	245		-0.96	
323	D5453	237		-1.57	
333	D4294	238		-1.50	
334	D5453	243		-1.11	
336	D4294	275		1.34	
337		239		-1.42	
349		----		----	
360	D2622	255.8		-0.13	
399	D4294	225		-2.49	
444		----		----	
445	D2622	271		1.03	
494	D5453	269		0.88	
529		----		----	
541	D4294	250		-0.58	
604		----		----	
608		----		----	
657	D5453	236.6		-1.60	
663	D5453	237.8		-1.51	
750	D2622	257.4		-0.01	
751	D4294	280		1.72	
753	D4294	261		0.26	
754	D4294	268		0.80	
759	ISO20884	264		0.49	
781	ISO20846	279.3		1.67	
785	D2622	260		0.19	
786	D4294	274		1.26	
824	D5453	247		-0.81	
840	D4294	256.8		-0.06	
855	D5453	269		0.88	
862	D2622	262.9		0.41	
868	D5453	251.5		-0.46	
872		----		----	
873	D4294	268		0.80	
875	D4294	276		1.41	
922		----		----	
962		----		----	
963	D4294	268		0.80	
974	D4294	280		1.72	
982		----		----	
994	D4294	278		1.57	
995	D2622	287		2.26	
1012	D5453	249.8		-0.59	
1016	ISO20846	263.639		0.47	
1062		----		----	
1065	D4294	315.4	R(0.05)	4.43	
1066	D2622	278		1.57	
1081	D4294	276.1		1.42	
1107	D5453	249		-0.65	
1108	D4294	263		0.42	
1128	D2622	273.2		1.20	
1134	IP490	245.23		-0.94	
1145	D5453	250.27		-0.56	
1161	ISO20846	250		-0.58	
1200		----		----	
1201	D2622	315	R(0.05)	4.40	
1257	D5453	259		0.11	
1264	D5453	256.0		-0.12	
1284	D2622	260		0.19	
1357	D5453	240.0		-1.34	
1404	ISO20846	262		0.34	
1429	D5453	233		-1.88	
1455	D2622	286		2.18	
1556	ISO20884	246.3		-0.86	
1585	D4294	257.3		-0.02	
1613	D4294	246.0		-0.88	

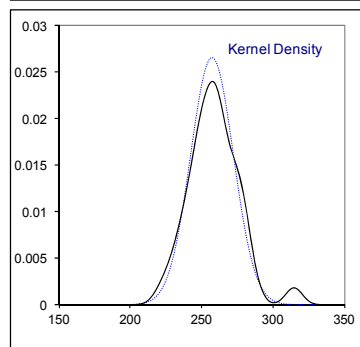
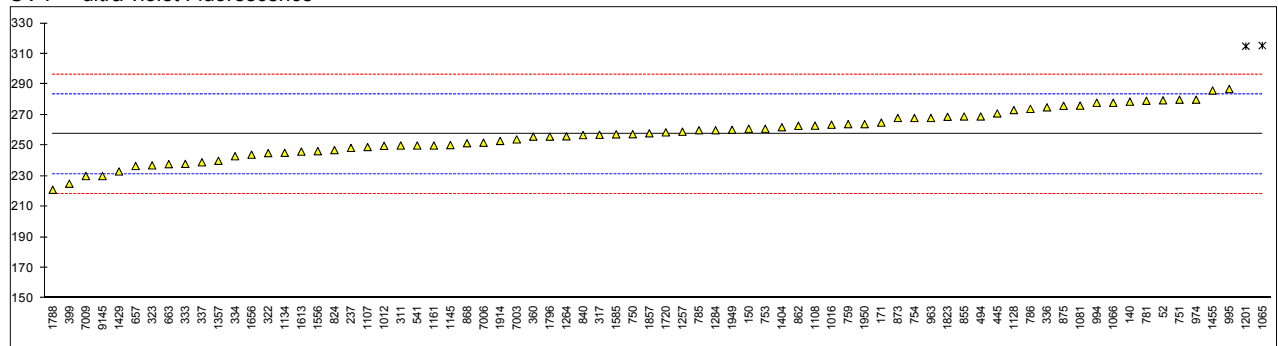
lab	method	value	mark	z(targ)	remarks
1656	D5453	244		-1.04	
1720	D5453	258.6		0.08	
1737		----		----	
1788	D5453	221		-2.80	
1796	D4294	255.8		-0.13	
1823	D4294	268.8		0.86	
1833	IP336	<3000		----	
1857	ISO20884	258		0.04	
1914	ISO20846	253		-0.35	
1949	ISO20884	260.3		0.21	
1950	D2622	264		0.49	
6015		----		----	
6016		----		----	
6028		----		----	
7003	D5453	254		-0.27	
7006	D5453	251.83		-0.44	
7009	D5453	230.0		-2.11	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4294	230		-2.11	

		<u>WD XRF only</u> (D2622&ISO20884)	<u>ED XRF only</u> (D4294&IP336)	<u>UV F only</u> (D5453+IP490&ISO20846)
normality	OK	OK	OK	OK
n	72	21	21	29
outliers	2	1	1	0
mean (n)	257.541	263.838	261.657	250.640
st.dev. (n)	15.0398	11.5784	16.1588	13.6839
R(calc.)	42.111	32.419	45.245	38.315
R(D2622:16)	36.562			
	R according to	37.276	69.401	36.517
	reference test method:	D2622:16	D4294:16e1	D5453:16

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 #16046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150	D7423	1.1		----	
171	D7423	0.7		----	
225		----		----	
237		----		----	
238		----		----	
311	INH-403	<10		----	
317		----		----	
322		----		----	
323	INH-306	<2		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	1.0		----	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D7423	1.34		----	
759	D7423	1.5		----	
781		----		----	
785		----		----	
786		----		----	
824	D7423	0.8		----	
840		----		----	
855	INH-024	<10		----	
862	D7423	0.9		----	
868	D7423	<10		----	
872		----		----	
873	D7423	1.09		----	
875		----		----	
922		----		----	
962		----		----	
963	D7423	<0.5		----	
974	D7423	1.3		----	
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016		----		----	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	0.7		----	
1108		----		----	
1128		----		----	
1134		----		----	
1145	D4815	1.035		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		0.8		----	
1429		----		----	
1455	D7423	< 5		----	
1556	D7423	1.06		----	
1585		----		----	
1613		----		----	

lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720		----		----	
1737	In house	<0.5		----	
1788		----		----	
1796		----		----	
1823		----		----	
1833		----		----	
1857		----		----	
1914	D7754	28	D(0.01)	----	false positive test result?
1949	D7754	Less 10		----	
1950		----		----	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4815	<1		----	
	normality	n.a.			
	n	22			
	outliers	1			
	mean (n)	<10			
	st.dev. (n)	n.a.			
	R(calc.)	n.a.			
	R(lit.)	n.a.			

Determination of DIPE on sample #16046; results in mg/kg

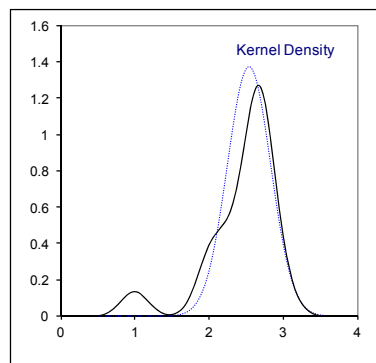
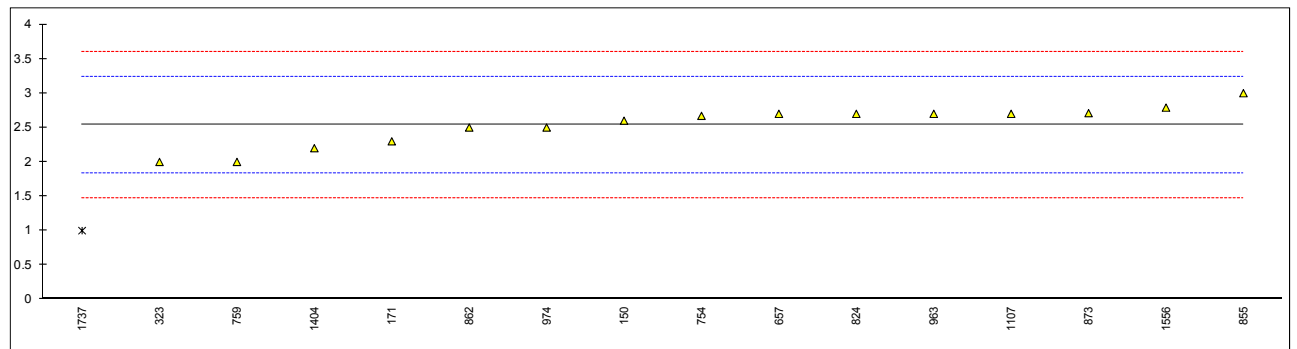
lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150	D7423	<0.5		----	
171	D7423	<0.5		----	
225		----		----	
237		----		----	
238		----		----	
311	INH-403	<1		----	
317		----		----	
322		----		----	
323	INH-306	<2		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	<0.1	C	----	first reported: 3.5
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D7423	< 0.5		----	
759	D7423	less 0.5		----	
781		----		----	
785		----		----	
786		----		----	
824	D7423	0		----	
840		----		----	
855	INH-024	<10		----	
862	D7423	<10		----	
868	D7423	<10		----	
872		----		----	
873	D7423	0.22		----	
875		----		----	
922		----		----	
962		----		----	
963	D7423	<0.5		----	
974	D7423	1.0		----	
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016		----		----	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	<0.1		----	
1108		----		----	
1128		----		----	
1134		----		----	
1145	D4815	<1.00		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		<1		----	
1429		----		----	
1455	D7423	< 5		----	
1556	D7423	<0,5		----	
1585		----		----	
1613		----		----	

lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720		----		----	
1737	In house	<0.5		----	
1788		----		----	
1796		----		----	
1823		----		----	
1833		----		----	
1857	D7754	n.d.		----	
1914	D7754	< 10		----	
1949	D7754	Less 10		----	
1950		----		----	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4815	<1		----	
	normality	n.a.			
	n	24			
	outliers	0			
	mean (n)	<10			
	st.dev. (n)	n.a.			
	R(calc.)	n.a.			
	R(Lit.)	n.a.			

Determination of MEK on sample #16046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150	D7423	2.6	C	0.18	first reported: 0.5
171	D7423	2.3		-0.67	
225		----		----	
237		----		----	
238		----		----	
311	INH-403	<10		----	
317		----		----	
322		----		----	
323	INH-306	2		-1.52	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	2.7		0.46	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D7423	2.67		0.37	
759	D7423	2.0		-1.52	
781		----		----	
785		----		----	
786		----		----	
824	D7423	2.7		0.46	
840		----		----	
855	INH-024	3		1.31	
862	D7423	2.5		-0.11	
868	D7423	<10		----	
872		----		----	
873	D7423	2.71		0.49	
875		----		----	
922		----		----	
962		----		----	
963	D7423	2.7		0.46	
974	D7423	2.5	C	-0.11	first reported: 0.2
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016		----		----	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	2.7		0.46	
1108		----		----	
1128		----		----	
1134		----		----	
1145		----	W	----	first reported: <1.00
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		2.2		-0.96	
1429		----		----	
1455	D7423	< 5		----	
1556	D7423	2.79		0.71	
1585		----		----	
1613		----		----	

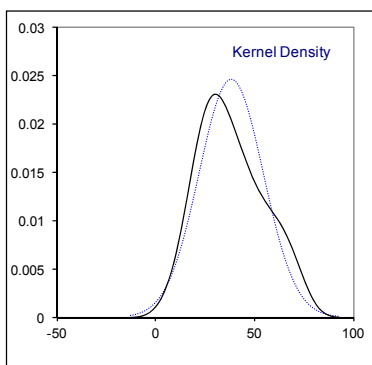
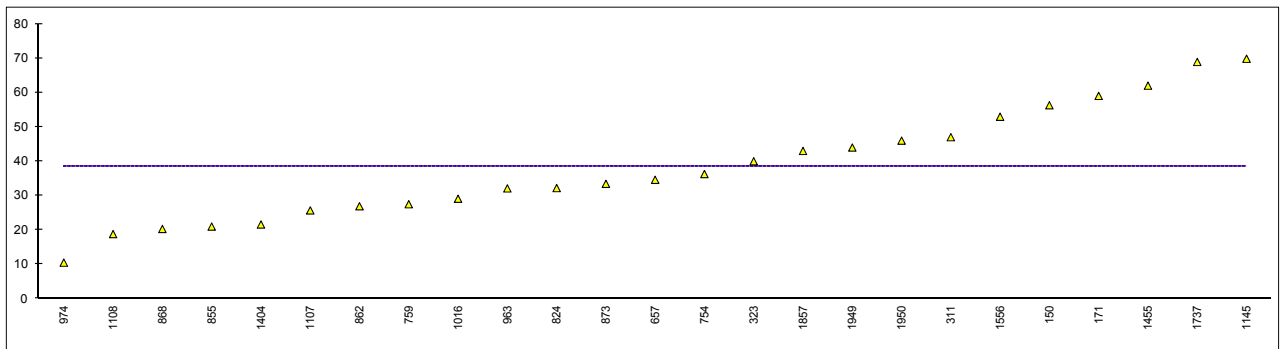
lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720		----		----	
1737	In house	1.0	C,D(0.05)	-4.36	first reported: <0.5
1788		----		----	
1796		----		----	
1823		----		----	
1833		----		----	
1857		----	W	----	first reported: n.d., reported: method D7754 does not determine MEK
1914	D7754	< 10 (2)		(-1.52)	
1949	D7754	Less 10		----	
1950		----		----	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4815	<1		<-4.36	False negative test result?
	normality	OK			
	n	15			
	outliers	1			
	mean (n)	2.538			
	st.dev. (n)	0.2910			
	R(calc.)	0.815			
	R(Horwitz)	0.988			
					Compare R(D7423:16e1) = 1.152



Determination of Methanol on sample #16046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150	D7423	56.3		----	
171	D7423	59.03		----	
225		----		----	
237		----		----	
238		----		----	
311	INH-403	47		----	
317		----		----	
322		----		----	
323	INH-306	40		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	34.6		----	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D7423	36.28		----	
759	D7423	27.5		----	
781		----		----	
785		----		----	
786		----		----	
824	D7423	32.2		----	
840		----		----	
855	INH-024	21		----	
862	D7423	26.9		----	
868	D7423	20.3		----	
872		----		----	
873	D7423	33.43		----	
875		----		----	
922		----		----	
962		----		----	
963	D7423	32.1		----	
974	D7423	10.5		----	
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016	INH-6046	29.1		----	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	25.7		----	
1108	D7423	18.8		----	
1128		----		----	
1134		----		----	
1145	D4815	69.827		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		21.6		----	
1429		----		----	
1455	D7423	62		----	
1556	D7423	52.95		----	
1585		----		----	
1613		----		----	

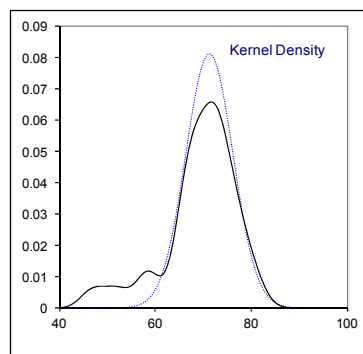
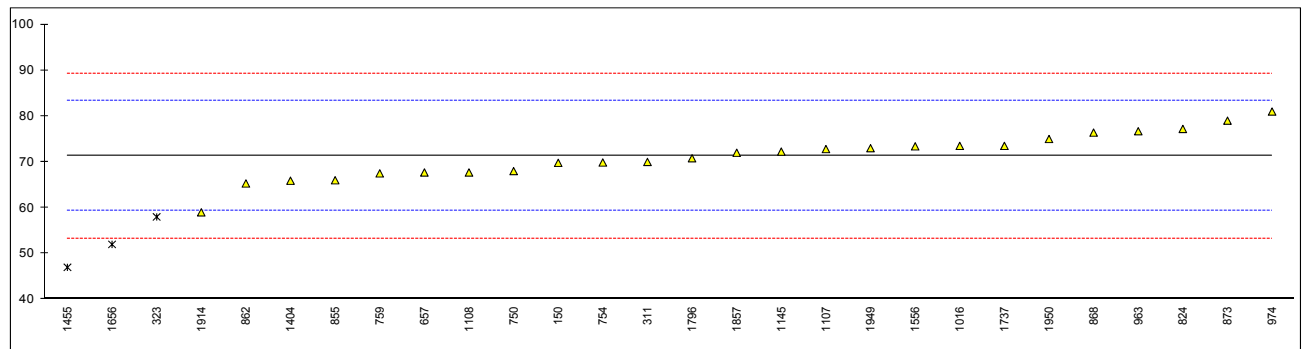
lab	method	value	mark	z(targ)	remarks
1656	IP466Mod.	<5		----	False negative test result?
1720				----	
1737	In house	68.9		----	
1788				----	
1796				----	
1823				----	
1833				----	
1857	D7754	43		----	
1914	D7754	< 10 (2)		----	False negative test result?
1949	D7754	44		----	
1950	D7754	46		----	
6015				----	
6016				----	
6028				----	
7003				----	
7006				----	
7009				----	
9057				----	
9058				----	
9061				----	
9090				----	
9145	D4815	<1		----	False negative test result?
	normality	OK			
	n	25			
	outliers	0			
	mean (n)	38.361	<u>Spike</u>		
	st.dev. (n)	16.2213	50		"Recovery: <77%" see §4.1
	R(calc.)	45.420			
	R(Horwitz)	(9.926)			
					Compare R(iis15N01)= 33.979
					Compare R(D7423:16e1) = 11.706



Determination of MTBE on sample #16046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150	D7423	69.8		-0.26	
171	D7423	<0.5	C	<-11.80	first reported:24.1; False negative test result?
225		----		----	
237		----		----	
238		----		----	
311	INH-403	70		-0.22	
317		----		----	
322		----		----	
323	INH-306	58	DG(0.05)	-2.22	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	67.7		-0.61	
663		----		----	
750	GOSTR52531	68	C	-0.56	first reported: 2.097
751		----		----	
753		----		----	
754	D7423	69.88		-0.24	
759	D7423	67.5		-0.64	
781		----		----	
785		----		----	
786		----		----	
824	D7423	77.2		0.98	
840		----		----	
855	INH-024	66		-0.89	
862	D7423	65.3		-1.00	
868	D7423	76.4		0.84	
872		----		----	
873	D7423	79.01		1.28	
875		----		----	
922		----		----	
962		----		----	
963	D7423	76.7		0.89	
974	D7423	81.0	C	1.61	first reported: 93.6
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016	INH-6046	73.5		0.36	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	72.8		0.24	
1108	D7423	67.7		-0.61	
1128		----		----	
1134		----		----	
1145	D4815	72.247		0.15	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		65.9		-0.90	
1429		----		----	
1455	D7423	47	G(0.05)	-4.05	
1556	D7423	73.4	C	0.34	first reported: 91.98
1585		----		----	
1613		----		----	

lab	method	value	mark	z(targ)	remarks
1656	IP466Mod.	52	DG(0.05)	-3.22	
1720		----		----	
1737	In house	73.5	C	0.36	first reported: 49.3
1788		----		----	
1796	IP PM BG/91	70.8		-0.09	
1823		----		----	
1833		----		----	
1857	D7754	72		0.11	
1914	D7754	59		-2.05	
1949	D7754	73		0.28	
1950	D7754	75		0.61	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4815	<1	C	<-11.71	first reported: 5704; False negative test result?
	normality	OK			
	n	25			
	outliers	3	<u>Spike</u>		
	mean (n)	71.333	50		Recovery: <143%
	st.dev. (n)	4.9151			
	R(calc.)	13.762			
	R(Horwitz)	16.812			Compare R(D7423:16e1) = 16.084

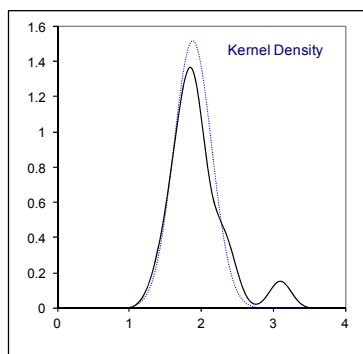
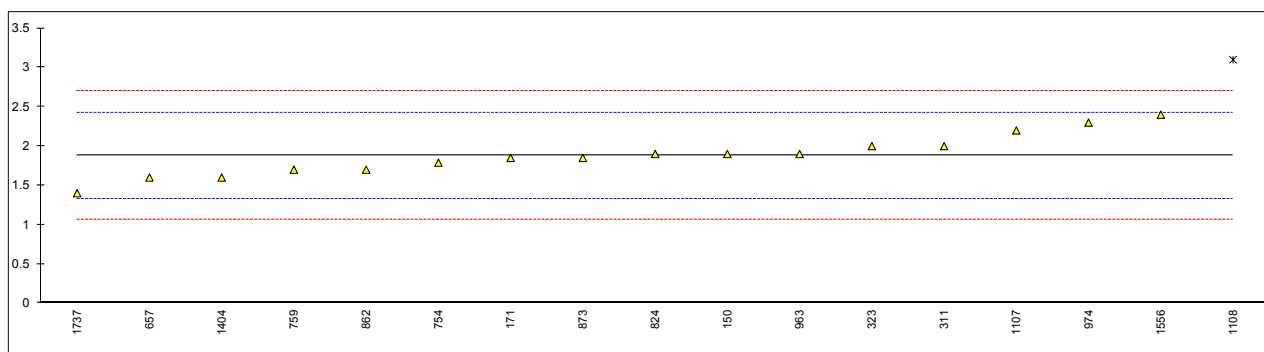


Determination of TAME on sample #16046; results in mg/kg

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150	D7423	1.9		0.07	
171	D7423	1.85		-0.11	
225		----		----	
237		----		----	
238		----		----	
311	INH-403	2		0.44	
317		----		----	
322		----		----	
323	INH-306	2		0.44	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	1.6		-1.03	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D7423	1.79		-0.33	
759	D7423	1.7		-0.66	
781		----		----	
785		----		----	
786		----		----	
824	D7423	1.9		0.07	
840		----		----	
855	INH-024	<10		----	
862	D7423	1.7		-0.66	
868	D7423	<10		----	
872		----		----	
873	D7423	1.85		-0.11	
875		----		----	
922		----		----	
962		----		----	
963	D7423	1.9		0.07	
974	D7423	2.3		1.53	
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016		----		----	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	2.2		1.17	
1108	D7423	3.1	D(0.05)	4.46	
1128		----		----	
1134		----		----	
1145	D4815	<1.00		<-3.22	False negative test result?
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		1.6		-1.03	
1429		----		----	
1455	D7423	< 5		----	
1556	D7423	2.40		1.90	
1585		----		----	
1613		----		----	

lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720		----		----	
1737	In house	1.4		-1.76	
1788		----		----	
1796		----		----	
1823		----		----	
1833		----		----	
1857	D7754	n. d.		----	
1914	D7754	< 10 (1)		----	
1949	D7754	Less 10		----	
1950	D7754	Less 10		----	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4815	<1		<-3.22	False negative test result?
	normality	OK			
	n	16			
	outliers	1			
	mean (n)	1.881			
	st.dev. (n)	0.2635			
	R(calc.)	0.738			
	R(Horwitz)	0.766			

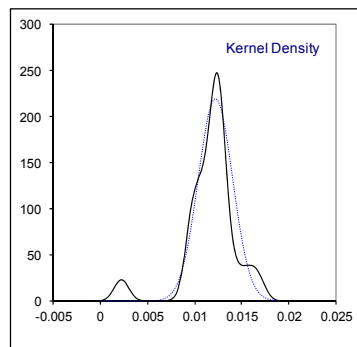
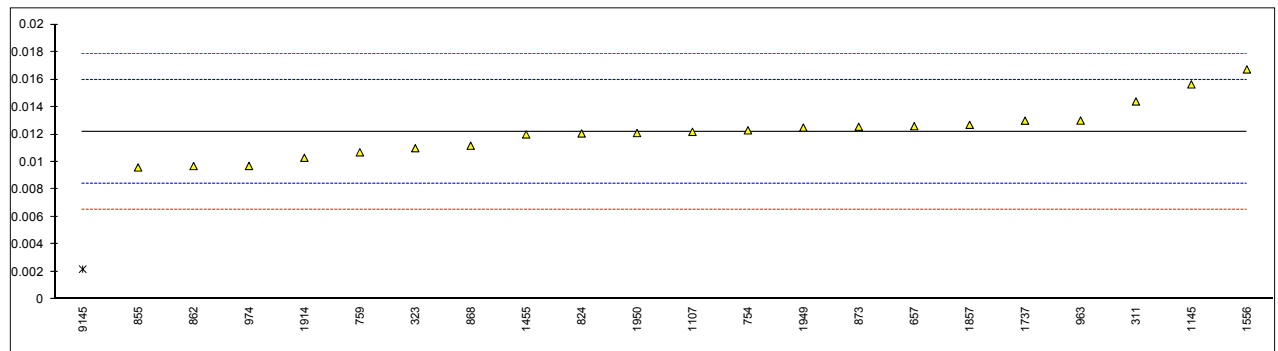
Compare R(D7423:16e1) = 1.281



Determination of Total Oxygenates on sample #16046; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150		----		----	
171		----		----	
225		----		----	
237		----		----	
238		----		----	
311	INH-403	0.0144	C	1.17	first reported: 144%M/M
317		----		----	
322		----		----	
323	INH-306	0.0110		-0.63	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		----		----	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608		----		----	
657	INH-130	0.0126		0.22	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D7423	0.0123		0.06	
759	D7423	0.0107		-0.79	
781		----		----	
785		----		----	
786		----		----	
824	D7423	0.01207	C	-0.06	first reported: 120.7%M/M
840		----		----	
855	INH-024	0.0096		-1.37	
862	D7423	0.0097		-1.32	
868	D7423	0.01118		-0.53	
872		----		----	
873	D7423	0.01256		0.20	
875		----		----	
922		----		----	
962		----		----	
963	D7423	0.01301	C	0.43	first reported: 130.1%M/M
974	D7423	0.00971	C	-1.31	first reported: 111.5%M/M
982		----		----	
994		----		----	
995		----		----	
1012		----		----	
1016		----		----	
1062		----		----	
1065		----		----	
1066		----		----	
1081		----		----	
1107	D7423	0.01219	C	0.00	first reported: 121.9%M/M
1108		----		----	
1128		----		----	
1134		----		----	
1145	D4815	0.01564		1.82	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264		----		----	
1284		----		----	
1357		----		----	
1404		<0.1		----	
1429		----		----	
1455	D7423	0.0120		-0.10	
1556	D7423	0.01673		2.40	
1585		----		----	
1613		----		----	

lab	method	value	mark	z(targ)	remarks
1656		----		----	
1720		----		----	
1737	In house	0.013		0.43	
1788		----		----	
1796		----		----	
1823		----		----	
1833		----		----	
1857	D7754	0.0127		0.27	
1914	D7754	0.0103		-1.00	
1949	D7754	0.0125		0.16	
1950	D7754	0.0121		-0.05	
6015		----		----	
6016		----		----	
6028		----		----	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D4815	0.0022	C,R(0.01)	-5.28	first reported: 0.573
	normality	OK			
	n	21			
	outliers	1			
	mean (n)	0.01219			
	st.dev. (n)	0.001827			
	R(calc.)	0.00512			
	R(Horwitz; n=4)	0.00530			



PONA/PIONA/PNA (n-Paraffines, i-Paraffines, Naphthenes) determination on sample #16046;
results in %V/V

lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
52		----		----			----			----
131		----		----			----			----
140		----		----			----			----
150		----		----			----			----
171	D6729	33.65		2.27	33.87		2.73	22.3	ex,C	-33.30
225		----		----			----			----
237		----		----			----			----
238		----		----			----			----
311	D5443	33.0		0.41	32.6		-0.91	29.1		-1.38
317	D5443	32.80		-0.17	32.77		-0.43	29.32		-0.34
322		----		----			----			----
323	D5443	33.11		0.72	33.01		0.26	28.76		-2.97
333	D6839	32.1		-2.18	32.3		-1.77	30.2		3.79
334		----		----			----			----
336		----		----			----			----
337		----		----			----			----
349		----		----			----			----
360		----		----			----			----
399		----		----			----			----
444		----		----			----			----
445	D5443	33.64		2.25	31.69		-3.53	29.07		-1.52
494	D6839	33.26		1.15	32.52		-1.14	29.19		-0.95
529		----		----			----			----
541		----		----			----			----
604		----		----			----			----
608	D6730	32.7007	ex,C	-0.45	38.3932	C,G(0.01)	15.72	20.5078	ex,C	-41.72
657	D5443	32.79		-0.20	32.58		-0.97	29.37		-0.11
663		----		----			----			----
750	GOSTR52714	33.5487	C	1.98	34.1793	C	3.62	26.2854	ex,C	-14.59
751		----		----			----			----
753		----		----			----			----
754	D6729	34.072		3.49	33.197		0.80	27.195	ex	-10.32
759	D6729	34.05	C	3.42	33.33		1.18	27.20	ex	-10.30
781		----		----			----			----
785	GOSTR52714	33.9054		3.01	33.2110		0.84	27.2978	ex	-9.84
786		----		----			----			----
824	D5443	32.11		-2.15	32.57		-1.00	29.83		2.05
840		----		----			----			----
855	D6839	32.91		0.15	32.75		-0.48	29.14		-1.19
862	D6839	33.07		0.61	32.19		-2.09	29.11		-1.33
868	D6839	32.46		-1.14	33.12		0.58	29.20		-0.91
872		----		----			----			----
873		----		----			----			----
875	GOSTR52714	33.9728		3.20	33.1032		0.53	27.4358	ex	-9.19
922		----		----			----			----
962		----		----			----			----
963	D5443	32.08		-2.24	33.22		0.87	29.38		-0.06
974		----		----			----			----
982		----		----			----			----
994	D5134	33.15		0.84	34.92	DG(0.05)	5.75	26.10	ex	-15.46
995		----		----			----			----
1012	D5134	32.558	ex	-0.86	35.424	DG(0.05)	7.19	24.397	ex	-23.46
1016	ISO22854	32.74		-0.34	32.45		-1.34	29.35		-0.20
1062	D5443	32.78		-0.23	32.95		0.09	29.00		-1.85
1065	In house	32.092		-2.20	30.039	G(0.05)	-8.27	31.743	R(0.05)	11.03
1066	In house	32.9		0.12	32.3		-1.77	29.4		0.03
1081	ISO22854	31.98		-2.52	33.36		1.27	29.52		0.60
1107	D5443	31.26		-4.59	33.35		1.24	30.22		3.88
1108	D5443	32.5		-1.03	32.1		-2.35	30.2		3.79
1128		----		----			----			----
1134	D6839	33.37	C	1.47	32.40	C	-1.49	29.12	C	-1.28
1145	D6293	32.475		-1.10	32.755		-0.47	29.280		-0.53
1161		----		----			----			----
1200		----		----			----			----
1201	D5134Mod.	32.1		-2.18	33.3		1.10	29.4		0.03
1257		----		----			----			----
1264	D5443	32.68		-0.51	32.69		-0.66	29.41		0.08
1284		----		----			----			----
1357	D6839	28.23	R(0.01)	-13.30	34.65		4.97	31.09		7.97
1404	D5443	32.08		-2.24	30.93		-5.71	31.82	R(0.05)	11.39
1429		----		----			----			----
1455		----		----			----			----
1556	ISO22854	33.27		1.18	32.34		-1.66	29.24		-0.72
1585		----		----			----			----
1613		----		----			----	29.48		0.41

lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
1656	D5443	31.3		-4.48	33.3		1.10	29.8		1.91
1720	D5134	33.73		2.50	33.84		2.65	26.98	ex	-11.33
1737	In house	33.80		2.71	32.60		-0.91	27.76		-7.67
1788	D5443	32.65		-0.60	41.77	G(0.01)	25.41	20.26	R(0.01)	-42.88
1796		----		----	----		----	----		----
1823	D6839	32.32		-1.55	33.51		1.70	28.86		-2.50
1833		----		----	----		----	----		----
1857	D5443	32.60		-0.74	33.39		1.35	29.14		-1.19
1914	In house	33.17		0.90	33.55		1.81	27.19	R(0.05)	-10.34
1949		----		----	----		----	29.85		2.15
1950		----		----	----		----	----		----
6015		----		----	----		----	----		----
6016		----		----	----		----	----		----
6028	D5443	39.21	R(0.01)	18.25	33.02	ex	0.29	23.71	R(0.01)	-26.68
7003		----		----	----		----	----		----
7006		----		----	----		----	----		----
7009		----		----	----		----	----		----
9057		----		----	----		----	----		----
9058		----		----	----		----	----		----
9061		----		----	----		----	----		----
9090		----		----	----		----	----		----
9145	D6730	32.9436	ex,C	0.24	37.2144	C,G(0.01)	12.33	21.9319	ex,C	-35.03
	normality	OK			suspect			not OK		
	n	39			37			30		
	outliers	2+3ex			6+1ex			5+11 ex		
	mean (n)	32.8584			32.9183			29.3930		
	st.dev. (n)	0.71923			0.69666			0.57407		
	R(calc.)	2.0139			1.9506			1.6074		
	R(D5443:14)	0.9745			0.9754			0.5964		

See for excluded test results discussion in § 4.1

Lab 171 first reported for Naphthenes: 24.98

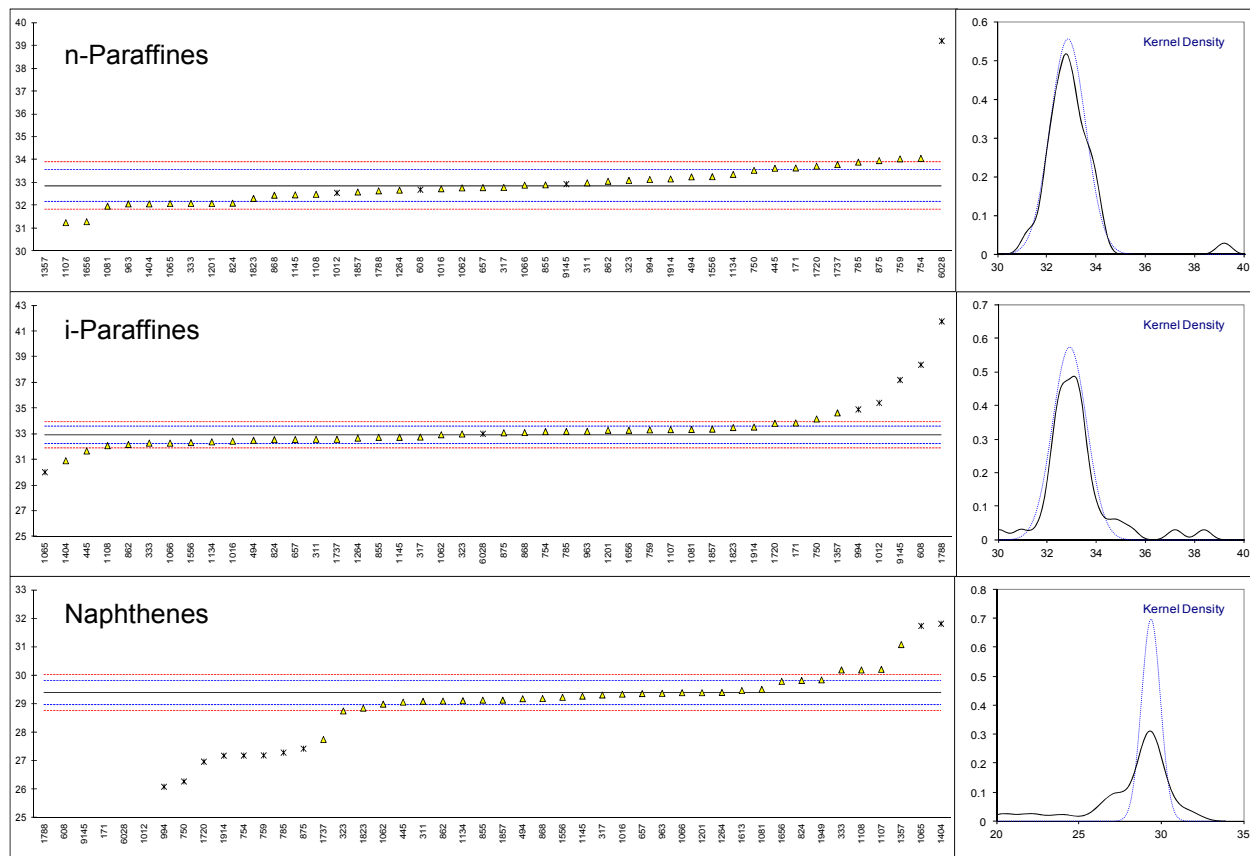
Lab 608 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 30.2567, 55.6992, 13.2853

Lab 750 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 33.3496, 33.8816, 5.0804

Lab 759 first reported for n-Paraffins: 34.25

Lab 1134 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 33.86, 30.85, 30.44

Lab 9145 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 32.8721, 37.4733, 21.2139



PONA/PIONA/PNA (Aromatics, C4 and lighter, Comp. with BP>200°C) determination on sample #16046; results in %V/V (continued)

lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
52										
131										
140										
150										
171	D6729	7.19	C,R(0.01)	8.52						
225										
237										
238										
311	D5443	5.1		-0.61	2.6		1.92	0.1		
317	D5443	5.04		-0.88	2.29		-0.54	<0.05		
322										
323	D5443	5.10		-0.61	2.52		1.28	<0.10		
333	D6839	5.3		0.26						
334										
336										
337										
349										
360										
399										
444										
445	D5443	5.40		0.70	2.52		1.28	0.36		
494	D6839	5.03		-0.92	2.54		1.44			
529										
541										
604										
608	D6730	6.1319	C,R(0.05)	3.89	2.3457	ex,C	-0.10	0.0183	ex,C	
657	D5443	5.12		-0.53	2.26		-0.78	<0.1		
663										
750	GOSTR52714	5.2384	C	-0.01						
751										
753										
754	D6729	5.476		1.03	2.590		1.84	0.004		
759	D6729	5.13		-0.48	2.85		3.91			
781										
785	GOSTR52714	5.3615		0.53	2.38465		0.21			
786										
824	D5443	5.41		0.74	1.77		-4.67			
840										
855	D6839	5.18		-0.27	2.38		0.17	<0.1		
862	D6839	5.57		1.44	2.526		1.33			
868	D6839	5.06		-0.79	2.31		-0.38	<0.1		
872										
873										
875	GOSTR52714	5.3825		0.62	2.527		1.34			
922										
962										
963	D5443	5.17		-0.31	1.57	DG(0.05)	-6.26			
974										
982										
994	D5134	5.64		1.74						
995										
1012	D5134	6.200	R(0.05)	4.19	2.419	ex	0.48			
1016	ISO22854	5.38		0.61	2.06		-2.37	0.26		
1062	D5443	5.11		-0.57	2.16		-1.58	0.17		
1065	In house	6.126	R(0.05)	3.87	2.57		1.68			
1066	In house	5.2		-0.18	1.9		-3.64	<0.1		
1081	ISO22854	5.10		-0.61	2.02		-2.69			
1107	D5443	5.15		-0.40	0.73	G(0.01)	-12.93			
1108	D5443	5.21		-0.13	2.55		1.52	0		
1128										
1134	D6839	5.10	C	-0.61	2.48		0.97	0		
1145	D6293	5.370		0.56	2.475		0.93	0.155		
1161	EN22854	5.30		0.26						
1200										
1201	D5134Mod.	5.2		-0.18	1.5	DG(0.05)	-6.82			
1257										
1264	D5443	5.06		-0.79	2.02		-2.69			
1284										
1357	D6839	5.45		0.91	2.08		-2.21	0.27		
1404	D5443	5.16		-0.35	1.00	G(0.01)	-10.79	0.06		
1429										
1455										
1556	ISO22854	5.09		-0.66	2.08		-2.21	0.12		
1585										
1613	D6839	4.99		-1.10	2.56		1.60			

lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
1656	D5443	5.3		0.26	----		----	----		----
1720	D5134	5.45		0.91	2.143		-1.71	----		----
1737	In house	5.71		2.05	2.69		2.63	----		----
1788	D5443	5.06		-0.79	2.57		1.68	0.08		----
1796		----		----	----		----	----		----
1823	D6839	5.25		0.04	2.08		-2.21	0.05		----
1833		----		----	----		----	----		----
1857	D5443	4.68		-2.45	2.35		-0.07	n.d.		----
1914	In house	5.74		2.18	2.51		1.20	----		----
1949	D5443	5.10		-0.61	2.46		0.81	0.42		----
1950		----		----	----		----	----		----
6015		----		----	----		----	----		----
6016		----		----	----		----	----		----
6028	D5443	3.96	R(0.01)	-5.59	0.46	G(0.01)	-15.08	0.5	ex	----
7003		----		----	----		----	----		----
7006		----		----	----		----	----		----
7009		----		----	----		----	----		----
9057		----		----	----		----	----		----
9058		----		----	----		----	----		----
9061		----		----	----		----	----		----
9090		----		----	----		----	----		----
9145	D6730	6.0171	ex,C	3.39	2.396	ex,C	0.30	----		----
	normality	OK			OK			OK		
	n	41			33			14		
	outliers	5+1ex			5+3ex			0+2ex		
	mean (n)	5.2407			2.3584			0.1464		
	st.dev. (n)	0.21030			0.25277			0.13487		
	R(calc.)	0.5888			0.7078			0.3776		
	R(D5443:14)	0.6410	R(D5134:13)		0.3525			n.a.		

See for excluded test results discussion in § 4.1

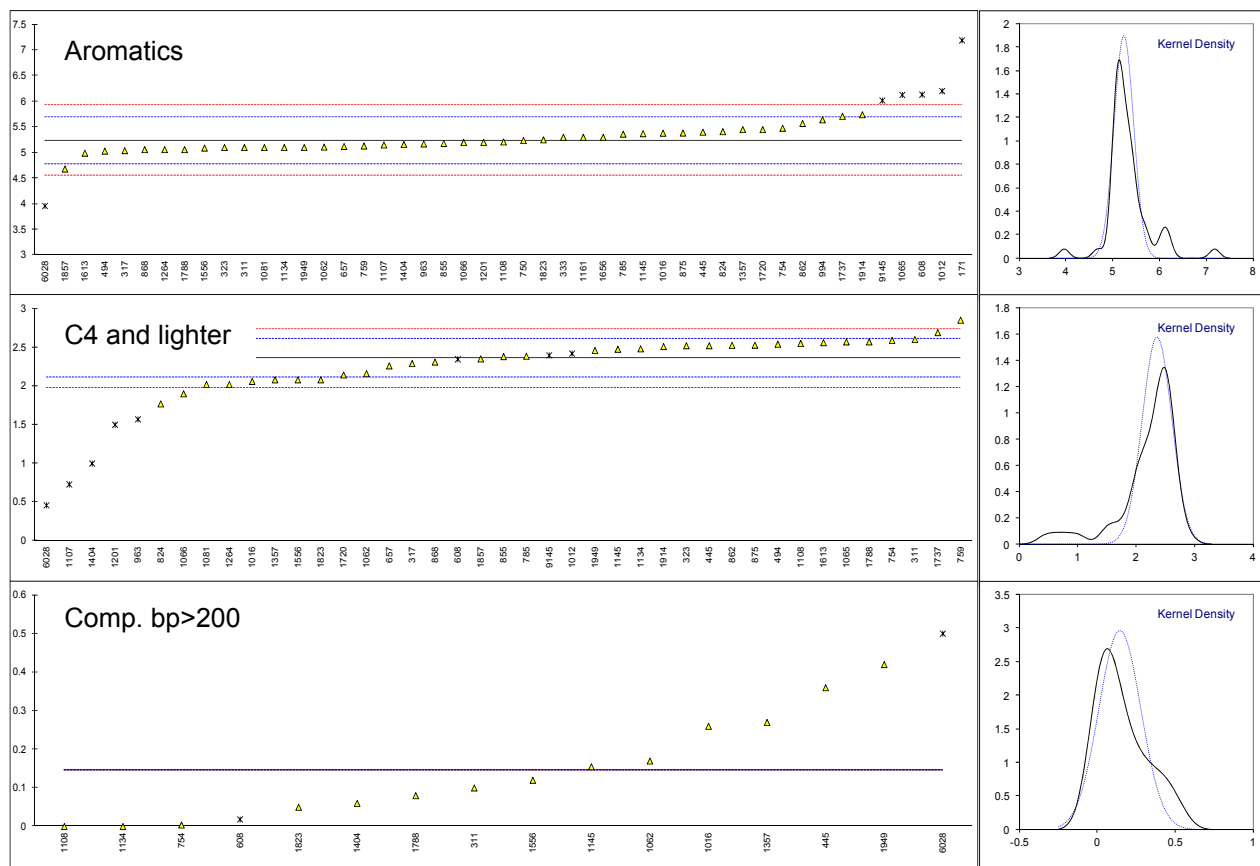
Lab 171 first reported for Aromatics: 6.44

Lab 608 first reported for Aromatics, ≤C4, BP>200 respectively: 0.5383, 1.2594, 0.0205

Lab 750 first reported nothing for Aromatics

Lab 1134 first reported for Aromatics: 4.82

Lab 9145 first reported for Aromatics and ≤C4 respectively: 6.0041, 2.3908

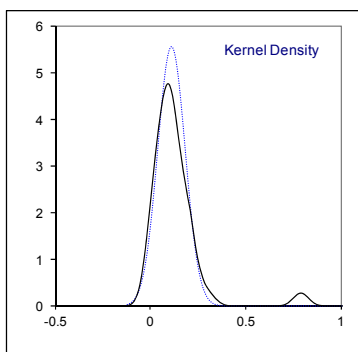
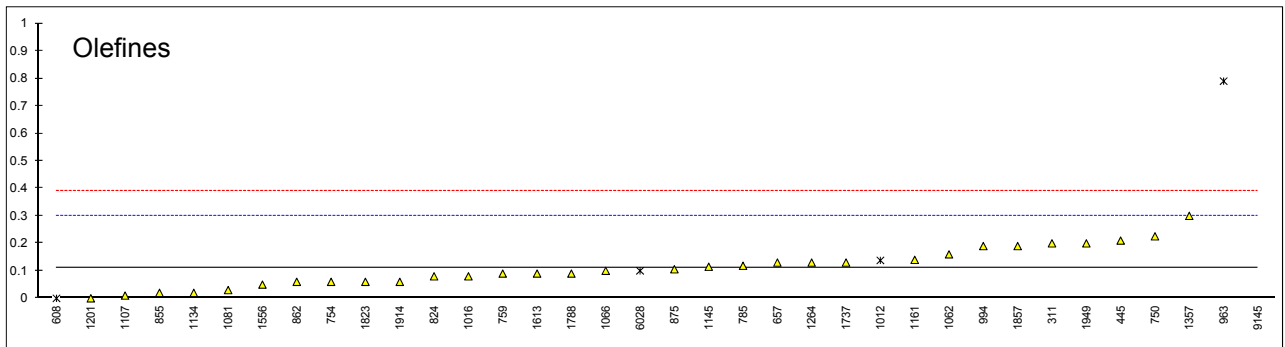


PONA/PIONA/PNA (Olefines) determination on sample #16046; results in %V/V (continued)

lab	method	Olefines	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150		----		----	
171		----		----	
225		----		----	
237		----		----	
238		----		----	
311	D5443Mod.	0.2		0.95	
317	D6839	<0.1		----	
322		----		----	
323	D6839	<1.5		----	
333	D6839	<1.5		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		0.21		1.06	
494	D6839	<0,01		----	
529		----		----	
541		----		----	
604		----		----	
608		0	ex,C	-1.19	first reported: 0.2089
657	D6839	0.13		0.20	
663		----		----	
750	GOSTR52714	0.2255	C	1.22	first reported: 25.7357
751		----		----	
753		----		----	
754		0.060		-0.55	
759		0.09		-0.23	
781		----		----	
785	GOSTR52714	0.1183		0.08	
786		----		----	
824	D6839	0.08		-0.33	
840		----		----	
855	D6839	0.02		-0.97	
862	D6839	0.06		-0.55	
868	D6839	<0.1		----	
872		----		----	
873		----		----	
875	GOSTR52714	0.1057		-0.06	
922		----		----	
962		----		----	
963	D6839	0.79	R(0.01)	7.25	
974		----		----	
982		----		----	
994	D5134	0.19		0.84	
995		----		----	
1012	D5134	0.138	ex	0.29	
1016	ISO22854	0.08		-0.33	
1062	D6839	0.16		0.52	
1065		----		----	
1066	In house	0.1		-0.12	
1081	ISO22854	0.03		-0.87	
1107	D6839	0.01		-1.08	
1108	D6839	<0.1		----	
1128		----		----	
1134	D6839	0.02	C	-0.97	first reported: 0.03
1145	D6293	0.115		0.04	
1161	EN22854	0.14		0.31	
1200		----		----	
1201	D5134Mod.	0		-1.19	
1257		----		----	
1264	D5443	0.13		0.20	
1284		----		----	
1357	D6839	0.30		2.02	
1404	D6839	<0.01		----	
1429		----		----	
1455		----		----	
1556	ISO22854	0.05		-0.65	
1585		----		----	
1613	D6839	0.09		-0.23	

lab	method	Olefines	mark	z(targ)	remarks
1656	D5443	<0.1		----	
1720		----		----	
1737	In house	0.13		0.20	
1788		0.09		-0.23	
1796		----		----	
1823	D6839	0.06		-0.55	
1833		----		----	
1857	D6839	0.19		0.84	
1914	In house	0.06		-0.55	
1949	D6839	0.20	C	0.95	first reported: 0.72
1950		----		----	
6015		----		----	
6016		----		----	
6028	D5443	0.1	ex	-0.12	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6730	1.7469	C,R(0.01)	17.48	first reported: 1.7431
	normality	OK			
	n	31			
	outliers	2+3ex			
	mean (n)	0.1111			
	st.dev. (n)	0.07177			
	R(calc.)	0.2009			
	R(D6839:16)	0.2621			

See for excluded test results discussion in § 4.1



PONA/PIONA/PNA (n-Paraffines, i-Paraffines, Naphthenes) determination on sample #16046;
results in %M/M

lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
52		----		----			----			----
131		----		----			----			----
140		----		----			----			----
150		----		----			----			----
171	D6729	31.62		2.48	32.49		2.63	24.02	ex,C	-35.18
225		----		----			----			----
237		----		----			----			----
238		----		----			----			----
311	D5443	30.8		0.05	31.2		-1.15	31.6		-0.97
317	D5443	30.73		-0.16	31.38		-0.63	31.68		-0.61
322		----		----			----			----
323	D5443	31.01		0.67	31.66		0.20	31.10		-3.23
333	D6839	30.1		-2.03	30.7		-2.62	32.7		3.99
334	ISO22854	30.68		-0.31	18.83	G(0.01)	-37.40	43.9	R(0.01)	54.54
336		----		----			----			----
337		----		----			----			----
349		----		----			----			----
360		----		----			----			----
399		----		----			----			----
444		----		----			----			----
445	D5443	31.50		2.12	30.26		-3.91	31.47		-1.56
494	D6839	31.15		1.08	31.13		-1.36	31.58		-1.06
529		----		----			----			----
541		----		----			----			----
604		----		----			----			----
608	D6730	30.8455	ex,C	0.18	37.2435	C,G(0.01)	16.56	22.1563	ex,C	-43.59
657	D5443	30.72		-0.19	31.18		-1.21	31.73		-0.39
663		----		----			----			----
750	GOSTR52714	31.5431	C	2.25	32.9261	C	3.91	28.3919	ex,C	-15.45
751		----		----			----			----
753		----		----			----			----
754	D6729	31.967		3.51	31.853		0.76	29.429	ex	-10.77
759	D6729	32.17		4.11	31.95		1.04	29.46	ex	-10.63
781		----		----			----			----
785	GOSTR52714	31.8613		3.20	31.8591		0.78	29.5129	ex	-10.39
786		----		----			----			----
824	D5443	30.07		-2.12	31.08		-1.50	32.20		1.74
840		----		----			----			----
855	D6839	31.93		3.40	30.23		-4.00	31.51		-1.38
862	D6839	30.96		0.52	30.74		-2.50	31.47		-1.56
868	D6839	30.43		-1.05	31.75		0.46	31.50		-1.42
872		----		----			----			----
873		----		----			----			----
875	GOSTR52714	31.8718		3.23	31.7783		0.54	29.6802	ex	-9.64
922		----		----			----			----
962		----		----			----			----
963	D5443	30.00		-2.33	31.78		0.55	31.79		-0.11
974		----		----			----			----
982		----		----			----			----
994	D5134	31.12		0.99	33.63		5.97	28.17	ex	-16.45
995		----		----			----			----
1012	D5134	30.639	ex	-0.43	34.193	G(0.05)	7.62	26.127	ex	-25.67
1016	ISO22854	30.66		-0.37	30.99		-1.77	31.73		-0.39
1062	D5443	30.65		-0.40	31.54		-0.16	31.42		-1.78
1065	In house	29.790		-2.95	28.508	DG(0.05)	-9.04	34.266	R(0.05)	11.06
1066	In house	30.3		-1.44	31.5		-0.27	31.8		-0.07
1081	ISO22854	29.84		-2.80	31.96		1.07	31.97		0.70
1107	D5443	29.35		-4.26	31.82		0.66	32.57		3.41
1108	D5443	30.3		-1.44	30.7		-2.62	32.7		3.99
1128		----		----			----			----
1134	D6839	31.24	C	1.35	31.02	C	-1.68	31.53	C	-1.29
1145	D6293	30.360		-1.26	31.340		-0.74	31.650		-0.75
1161		----		----			----			----
1200		----		----			----			----
1201	D5134Mod.	30.0		-2.33	31.9		0.90	31.8		-0.07
1257		----		----			----			----
1264	D5443	30.58		-0.61	31.30		-0.86	31.81		-0.02
1284		----		----			----			----
1357	D6839	26.30	R(0.01)	-13.31	33.04		4.24	33.45		7.38
1404	D5443	30.05		-2.18	29.28	DG(0.05)	-6.78	34.42	R(0.05)	11.75
1429		----		----			----			----
1455		----		----			----			----
1556	ISO22854	31.25		1.38	30.91		-2.00	31.59		-1.02
1585		----		----			----			----
1613		----		----			----	31.89		0.34

lab	method	n-Paraf.	mark	z(targ)	i-Paraf.	mark	z(targ)	Naphth.	mark	z(targ)
1656	D5443	29.4		-4.11	31.7		0.31	32.1		1.28
1720	D5134	31.69		2.69	32.49		2.63	29.17	ex	-11.94
1737	In house	31.65		2.57	31.23		-1.06	30.02		-8.10
1788	D5443	30.77		-0.04	40.89	G(0.05)	27.24	21.85	R(0.01)	-44.97
1796		----		----	----		----	----		----
1823		----		----	----		----	----		----
1833		----		----	----		----	----		----
1857	D5443	30.46		-0.96	32.08		1.43	31.57		-1.11
1914	In house	31.10		0.94	32.22		1.84	29.32	R(0.05)	-11.26
1949		----		----	----		----	32.31		2.23
1950		----		----	----		----	----		----
6015		----		----	----		----	----		----
6016		----		----	----		----	----		----
6028	D5443	36.98	C,R(0.01)	18.39	32.25	ex,C	1.92	25.84	C,R(0.01)	-26.97
7003		----		----	----		----	----		----
7006		----		----	----		----	----		----
7009		----		----	----		----	----		----
9057		----		----	----		----	----		----
9058		----		----	----		----	----		----
9061		----		----	----		----	----		----
9090	D5443	29.72		-3.16	31.64		0.14	32.22		1.83
9145	D6730	31.0174	ex,C	0.69	35.9682	C,G(0.01)	12.82	23.6879	ex,C	-36.68
	normality	OK			OK			not OK		
	n	40			37			30		
	outliers	2+3ex			7+1ex			6+11ex		
	mean (n)	30.7848			31.5934			31.8153		
	st.dev. (n)	0.74920			0.72982			0.59166		
	R(calc.)	2.0978			2.0435			1.6566		
	R(D5443:14)	0.9432			0.9555			0.6205		

See for excluded test results discussion in § 4.1

Lab 171 first reported for Naphthenes: 26.9

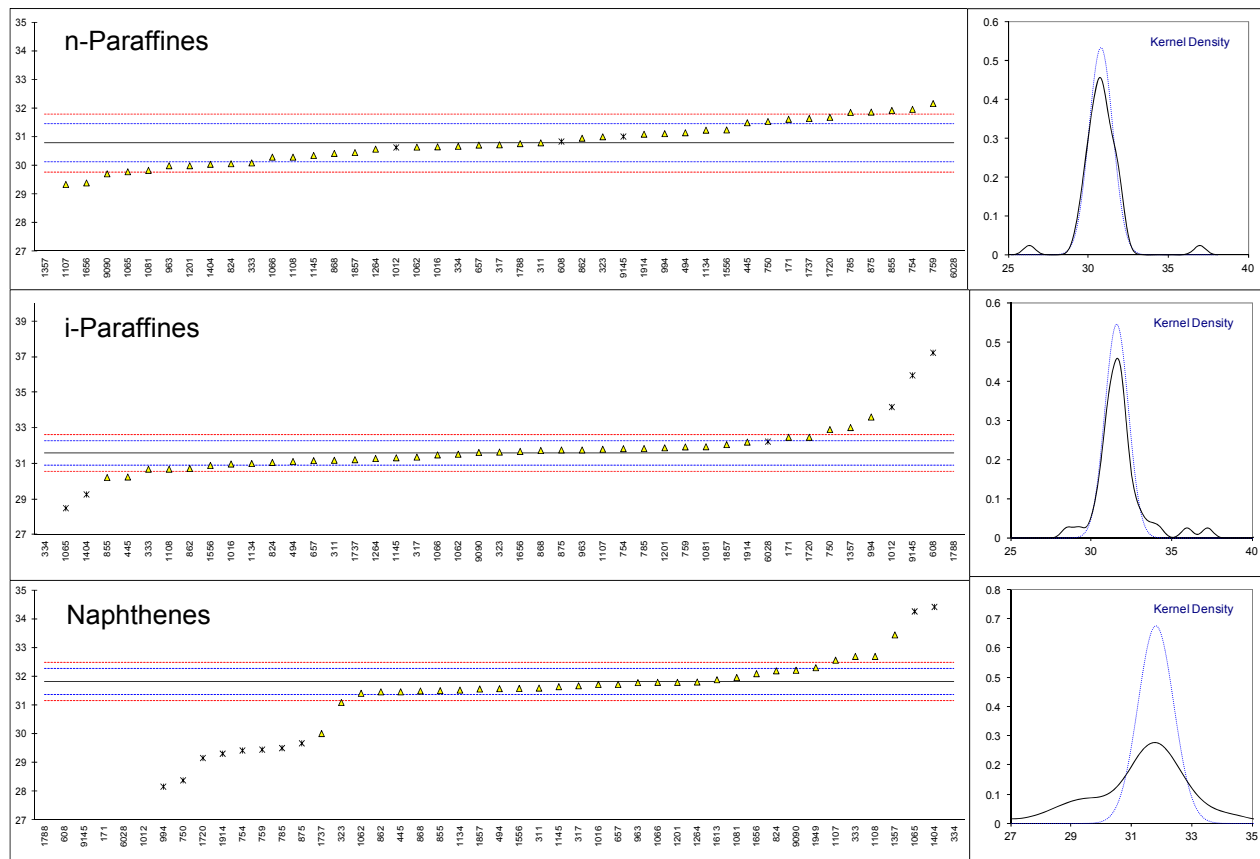
Lab 608 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 29.4226, 54.2768, 15.3477

Lab 750 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 31.2987, 32.6210, 27.8139

Lab 1134 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 31.69, 29.32, 33.10

Lab 6028 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 38.42, 27.05, 28.41

Lab 9145 first reported for n-Paraffins, i-Paraffins, Naphthenes respectively: 30.9605, 36.2182, 22.9415



PONA/PIONA/PNA (Aromatics, C4 and lighter, Comp. with BP>200°C) determination on sample #16046; results in %M/M (continued)

lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
52		----		----			----			----
131		----		----			----			----
140		----		----			----			----
150		----		----			----			----
171	D6729	8.82	C,G(0.01)	9.69	----		----			----
225		----		----			----			----
237		----		----			----			----
238		----		----			----			----
311	D5443	6.2		-0.69	2.1		1.74	0.2		----
317	D5443	6.13		-0.97	1.86		-0.54	<0.05		----
322		----		----			----			----
323	D5443	6.21		-0.65	2.05		1.26	<0.10		----
333	D6839	6.4		0.10	----		----			----
334	ISO22854	6.32		-0.22	----		----			----
336		----		----			----			----
337		----		----			----			----
349		----		----			----			----
360		----		----			----			----
399		----		----			----			----
444		----		----			----			----
445	D5443	6.57		0.77	2.06		1.36	0.44		----
494	D6839	6.14		-0.93	2.07		1.45	----		----
529		----		----			----			----
541		----		----			----			----
604		----		----			----			----
608	D6730	7.5174	C,DG(0.05)	4.53	1.9042	ex,C	-0.12	0.0189	ex,C	----
657	D5443	6.24		-0.53	1.83		-0.82	<0.1		----
663		----		----			----			----
750	GOSTR52714	6.3895	C	0.06	----		----			----
751		----		----			----			----
753		----		----			----			----
754	D6729	6.692		1.26	2.099		1.73	0.004		----
759	D6729	6.32		-0.22	2.25		3.16	----		----
781		----		----			----			----
785	GOSTR52714	6.5371		0.64	1.93048		0.13	----		----
786		----		----			----			----
824	D5443	6.57		0.77	1.43		-4.61	----		----
840		----		----			----			----
855	D6839	6.31		-0.26	1.94		0.22	<0.1		----
862	D6839	6.77		1.57	2.047		1.24	----		----
868	D6839	6.15		-0.89	1.84		-0.72	<0.1		----
872		----		----			----			----
873		----		----			----			----
875	GOSTR52714	6.5656		0.76	2.046		1.23	----		----
922		----		----			----			----
962		----		----			----			----
963	D5443	6.28		-0.37	1.25	DG(0.01)	-6.32	----		----
974		----		----			----			----
982		----		----			----			----
994	D5134	6.89		2.04	----		----			----
995		----		----			----			----
1012	D5134	7.593	DG(0.05)	4.83	1.961	ex	0.42	----		----
1016	ISO22854	6.54		0.66	1.67		-2.34	0.32		----
1062	D5443	6.22		-0.61	1.73		-1.77	0.20		----
1065	In house	7.436	G(0.05)	4.20	2.08		1.55	----		----
1066	In house	6.3		-0.29	1.6		-3.00	<0.1		----
1081	ISO22854	6.20		-0.69	1.62		-2.81	----		----
1107	D6730	6.24		-0.53	0.59	G(0.01)	-12.57	----		----
1108	D5443	6.33		-0.18	2.02		0.98	0		----
1128		----		----			----			----
1134	D6839	6.20	C	-0.69	1.98		0.60	0		----
1145	D6293	6.530		0.62	2.005		0.84	0.195		----
1161	EN22854	6.38		0.02	----		----			----
1200		----		----			----			----
1201	D5134Mod.	6.3		-0.29	1.2	DG(0.01)	-6.79	----		----
1257		----		----			----			----
1264	D5443	6.15		-0.89	1.62		-2.81	----		----
1284		----		----			----			----
1357	D6839	6.62		0.97	1.66		-2.43	0.28		----
1404	D5443	6.25		-0.49	0.80	G(0.01)	-10.58	0.06		----
1429		----		----	2.003		0.82	----		----
1455		----		----			----			----
1556	ISO22854	6.19		-0.73	1.69		-2.15	0.15		----
1585		----		----			----			----
1613	D6839	6.08		-1.17	2.06		1.36	----		----

lab	method	Arom.	mark	z(targ)	≤C4	mark	z(targ)	Bp>200	mark	z(targ)
1656	D5443	6.4		0.10	----		----	----		----
1720	D5134	6.64		1.05	1.742		-1.65	----		----
1737	In house	6.97		2.36	2.17		2.40	----		----
1788	D5443	6.22		-0.61	2.10		1.74	0.09		----
1796		----		----	----		----	----		----
1823		----		----	----		----	----		----
1833		----		----	----		----	----		----
1857	D5443	5.69		-2.71	1.88		-0.35	n.d.		----
1914	In house	6.99		2.44	2.03		1.08	----		----
1949	D5443	6.21		-0.65	1.99		0.70	0.45		----
1950		----		----	----		----	----		----
6015		----		----	----		----	----		----
6016		----		----	----		----	----		----
6028	D5443	4.83	C,G(0.01)	-6.12	0.37	G(0.01)	-14.65	0.56	ex	----
7003		----		----	----		----	----		----
7006		----		----	----		----	----		----
7009		----		----	1.959		0.40	----		----
9057		----		----	----		----	----		----
9058		----		----	----		----	----		----
9061		----		----	----		----	----		----
9090	D5443	6.39		0.06	----		----	----		----
9145	D6730	7.3589	C,G(0.05)	3.90	1.9412	ex,C	0.23	----		----
	normality	suspect			OK			OK		
	n	42			34			13		
	outliers	6			5+3ex			0+2ex		
	mean (n)	6.3744			1.91651			0.18377		
	st.dev. (n)	0.25480			0.194138			0.155487		
	R(calc.)	0.7134			0.54359			0.43536		
	R(D5443:14)	0.7069	R(D5134:13)		0.29552			n.a.		

See for excluded test results discussion in § 4.1

Lab 171 first reported for Aromatics: 7.86

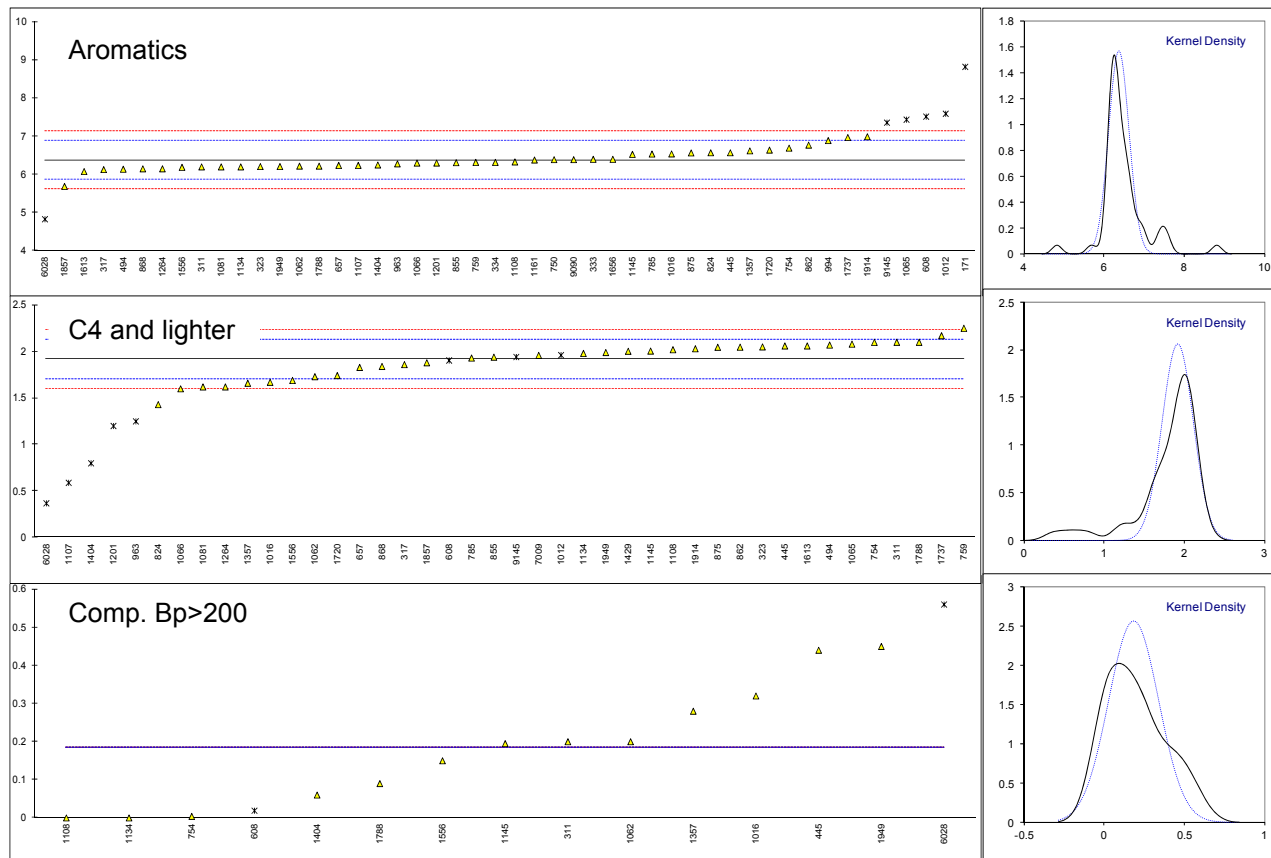
Lab 608 first reported for Aromatics, ≤C4, BP>200 respectively: 0.7195, 1.0992, 0.0234

Lab 750 first reported for Aromatics: 6.1989

Lab 1134 first reported for Aromatics: 5.86

Lab 6028 first reported for Aromatics: 6.12

Lab 9145 first reported for Aromatics and ≤C4 respectively: 7.3454, 1.9377

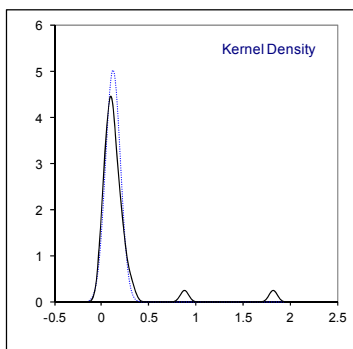
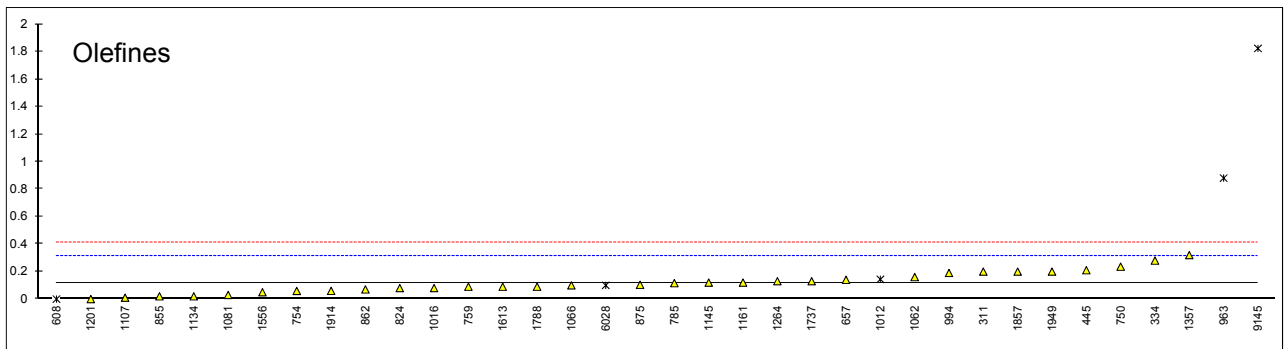


PONA/PIONA/PNA (Olefines) determination on sample #16046; results in %M/M (continued)

lab	Olefines	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140		----		----	
150		----		----	
171		----		----	
225		----		----	
237		----		----	
238		----		----	
311	D5443Mod.	0.2		0.83	
317	D6839	<0.1		----	
322		----		----	
323	D6839	<1.5		----	
333	D6839	<2		----	
334	ISO22854	0.28		1.66	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444		----		----	
445		0.21		0.94	
494	D6839	<0,01		----	
529		----		----	
541		----		----	
604		----		----	
608	D6839	0	ex,C	-1.23	first reported: 0.2208
657	D6839	0.14		0.21	
663		----		----	
750	GOSTR52714	0.2357	C	1.20	first reported: 0.6938
751		----		----	
753		----		----	
754		0.059		-0.63	
759		0.09		-0.30	
781		----		----	
785	GOSTR52714	0.1159		-0.04	
786		----		----	
824	D6839	0.08		-0.41	
840		----		----	
855	D6839	0.02		-1.03	
862	D6839	0.07		-0.51	
868	D6839	<0.1		----	
872		----		----	
873		----		----	
875	GOSTR52714	0.1041		-0.16	
922		----		----	
962		----		----	
963	D6839	0.88	R(0.01)	7.86	
974		----		----	
982		----		----	
994	D5134	0.19		0.73	
995		----		----	
1012	D5134	0.144	ex	0.25	
1016	ISO22854	0.08		-0.41	
1062	D6839	0.16		0.42	
1065		----		----	
1066	In house	0.1		-0.20	
1081	ISO22854	0.03		-0.92	
1107	D6839	0.01		-1.13	
1108	D6839	<0.1		----	
1128		----		----	
1134	D6839	0.02	C	-1.03	first reported: 0.03
1145	D6293	0.120		0.01	
1161	EN22854	0.12		0.01	
1200		----		----	
1201	D5134Mod.	0		-1.23	
1257		----		----	
1264	D5443	0.13		0.11	
1284		----		----	
1357	D6839	0.32		2.07	
1404		<0.01		----	
1429		----		----	
1455		----		----	
1556	ISO22854	0.05		-0.72	
1585		----		----	
1613	D6839	0.09		-0.30	

lab	Olefines	value	mark	z(targ)	remarks
1656	D5443	<0.1		----	
1720		----		----	
1737	In house	0.13		0.11	
1788		0.09		-0.30	
1796		----		----	
1823		----		----	
1833		----		----	
1857	D6839	0.20		0.83	
1914	In house	0.06		-0.61	
1949	D6839	0.20	C	0.83	first reported: 0.72
1950		----		----	
6015		----		----	
6016		----		----	
6028	D5443	0.1	ex	-0.20	
7003		----		----	
7006		----		----	
7009		----		----	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6730	1.8236	C,R(0.01)	17.61	first reported: 1.8202
	normality	OK			
	n	31			
	outliers	2+3ex			
	mean (n)	0.1195			
	st.dev. (n)	0.07943			
	R(calc.)	0.2224			
	R(D6839:16)	0.2710			

See for excluded test results discussion in § 4.1

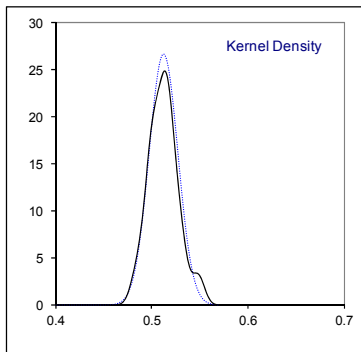
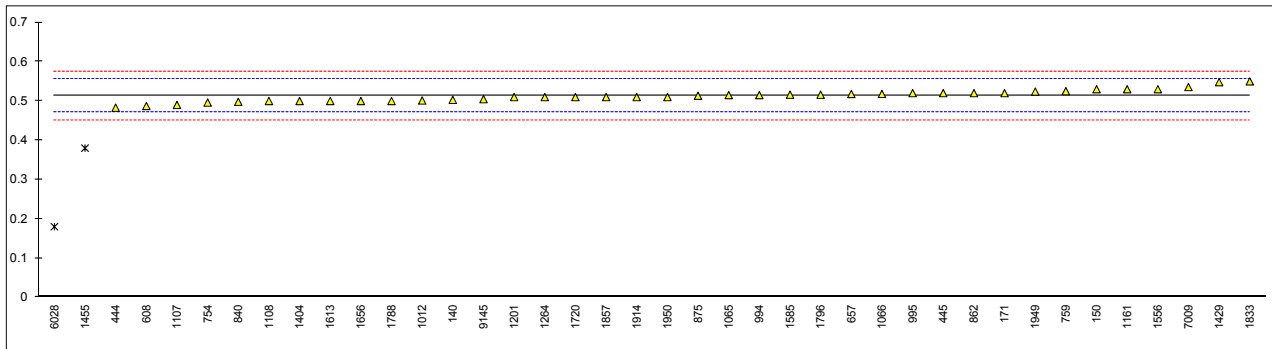


Determination of Benzene (DHA) on sample #16046; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140	D6729	0.503		-0.47	
150	D5134	0.53		0.82	
171	D6729	0.52		0.34	
225		----		----	
237		----		----	
238		----		----	
311		----		----	
317		----		----	
322		----		----	
323		----		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444	D5134	0.483		-1.42	
445	D5134	0.52		0.34	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608	D6730	0.4872	C	-1.22	first reported: 0.6783
657	D6730	0.5179		0.24	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D6729	0.496		-0.80	
759	D6729	0.525		0.58	
781		----		----	
785		----		----	
786		----		----	
824		----		----	
840	D5134	0.498		-0.71	
855		----		----	
862	D6730	0.520		0.34	
868		----		----	
872		----		----	
873		----		----	
875		0.5133		0.02	
922		----		----	
962		----		----	
963		----		----	
974		----		----	
982		----		----	
994	D5134	0.515		0.10	
995	D5134	0.52		0.34	
1012	D5134	0.5013		-0.55	
1016		----		----	
1062		----		----	
1065	In house	0.515		0.10	
1066	In house	0.518		0.25	
1081		----		----	
1107	D5134	0.49		-1.09	
1108	D5134	0.50		-0.61	
1128		----		----	
1134		----		----	
1145		----		----	
1161	EN22854	0.53	C	0.82	first reported: 0.43
1200		----		----	
1201		0.51		-0.13	
1257		----		----	
1264	D5443	0.51		-0.13	
1284		----		----	
1357		----		----	
1404	D5134	0.50		-0.61	
1429	D5134	0.548		1.68	
1455	In house	0.380	R(0.01)	-6.32	
1556	D6729	0.53		0.82	
1585	D5134	0.516		0.15	
1613	D6839	0.50		-0.61	

lab	method	value	mark	z(targ)	remarks
1656	D5443	0.5		-0.61	
1720	D5134	0.510		-0.13	
1737		----		----	
1788	D5134	0.50		-0.61	
1796	D5134	0.516		0.15	
1823		----		----	
1833	D5134	0.55		1.77	
1857	D5134	0.51		-0.13	
1914	In house	0.51		-0.13	
1949	D5134Mod.	0.524		0.53	
1950	D5134	0.51		-0.13	
6015		----		----	
6016		----		----	
6028	D5443	0.18	R(0.01)	-15.85	
7003		----		----	
7006		----		----	
7009	D5134	0.5355		1.08	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6729	0.5047		-0.39	
	normality	OK			
	n	38			
	outliers	2			
	mean (n)	0.5128			
	st.dev. (n)	0.01499			
	R(calc.)	0.0420			
	R(D5134:13)	0.0588			

Compare R(Horwitz)=0.0635

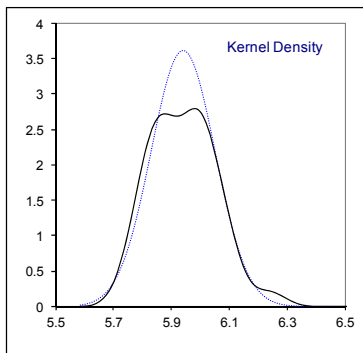
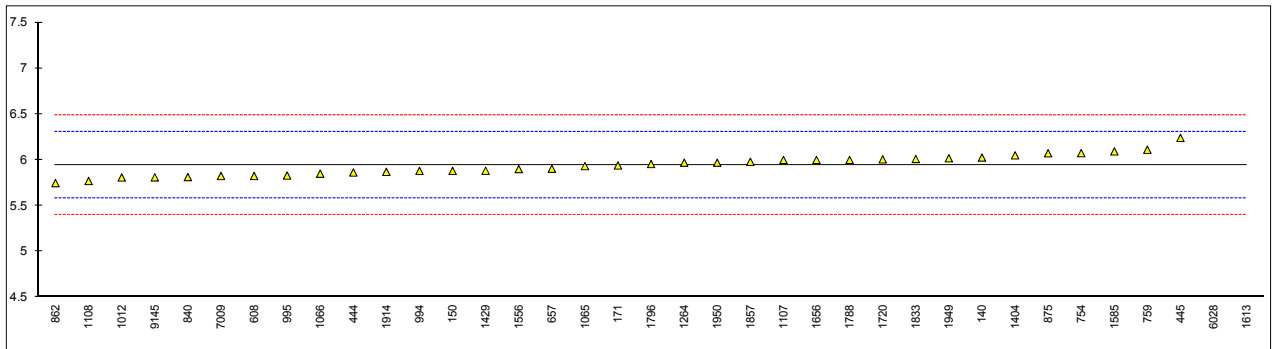


Determination of Heptane (DHA) on sample #16046; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140	D6729	6.026		0.47	
150	D5134	5.88		-0.33	
171	D6729	5.94		0.00	
225		----		----	
237		----		----	
238		----		----	
311		----		----	
317		----		----	
322		----		----	
323		----		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444	D5134	5.863		-0.42	
445	D5134	6.24		1.65	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608	D6730	5.8246	C	-0.64	first reported: 0.0263
657	D6730	5.9040		-0.20	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D6729	6.074		0.74	
759	D6729	6.111		0.94	
781		----		----	
785		----		----	
786		----		----	
824		----		----	
840	D5134	5.813		-0.70	
855		----		----	
862	D6730	5.747		-1.06	
868		----		----	
872		----		----	
873		----		----	
875		6.0726		0.73	
922		----		----	
962		----		----	
963		----		----	
974		----		----	
982		----		----	
994	D5134	5.88		-0.33	
995	D5134	5.83		-0.61	
1012	D5134	5.8084		-0.73	
1016		----		----	
1062		----		----	
1065	In house	5.933		-0.04	
1066	In house	5.850		-0.50	
1081		----		----	
1107	D5134	6.00		0.33	
1108	D5134	5.77		-0.94	
1128		----		----	
1134		----		----	
1145		----		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264	D5443	5.97		0.16	
1284		----		----	
1357		----		----	
1404	D5134	6.05		0.60	
1429	D5134	5.882		-0.32	
1455		----		----	
1556	D6729	5.90		-0.22	
1585	D5134	6.093		0.84	
1613	D6839	11.20	R(0.01)	28.95	

lab	method	value	mark	z(targ)	remarks
1656	D5443	6.0		0.33	
1720	D5134	6.006		0.36	
1737		----		----	
1788	D5134	6.00		0.33	
1796	D5134	5.955		0.08	
1823		----		----	
1833	D5134	6.01		0.38	
1857	D5134	5.98		0.22	
1914	In house	5.87		-0.39	
1949	D5134Mod.	6.018		0.43	
1950	D5134	5.97		0.16	
6015		----		----	
6016		----		----	
6028	D5443	9.01	R(0.01)	16.89	
7003		----		----	
7006		----		----	
7009	D5134	5.8245		-0.64	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6729	5.8099		-0.72	
	normality	OK			
	n	35			
	outliers	2			
	mean (n)	5.940			
	st.dev. (n)	0.1105			
	R(calc.)	0.309			
	R(Horwitz)	0.509			

Compare (D5134:13)=0.0731; see §4.1

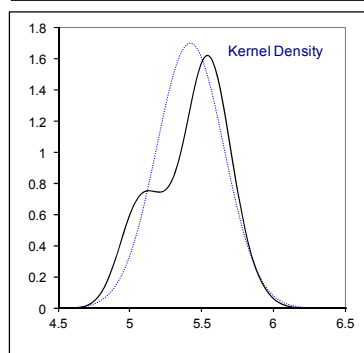
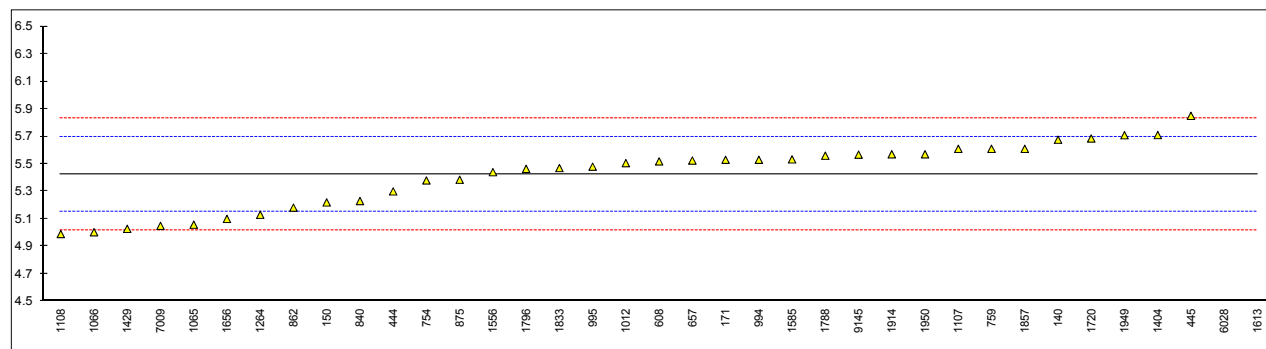


Determination of Octane (DHA) on sample #16046; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140	D6729	5.676		1.87	
150	D5134	5.22		-1.49	
171	D6729	5.53		0.79	
225		----		----	
237		----		----	
238		----		----	
311		----		----	
317		----		----	
322		----		----	
323		----		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444	D5134	5.300		-0.90	
445	D5134	5.85		3.16	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608	D6730	5.5184	C	0.71	first reported: 0.0501
657	D6730	5.5246		0.75	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D6729	5.380		-0.31	
759	D6729	5.610		1.38	
781		----		----	
785		----		----	
786		----		----	
824		----		----	
840	D5134	5.230		-1.42	
855		----		----	
862	D6730	5.182		-1.77	
868		----		----	
872		----		----	
873		----		----	
875		5.385		-0.27	
922		----		----	
962		----		----	
963		----		----	
974		----		----	
982		----		----	
994	D5134	5.53		0.79	
995	D5134	5.48		0.43	
1012	D5134	5.5059		0.62	
1016		----		----	
1062		----		----	
1065	In house	5.058		-2.69	
1066	In house	5.003		-3.09	
1081		----		----	
1107	D5134	5.61		1.38	
1108	D5134	4.99		-3.19	
1128		----		----	
1134		----		----	
1145		----		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264	D5443	5.13		-2.16	
1284		----		----	
1357		----		----	
1404	D5134	5.71		2.12	
1429	D5134	5.028		-2.91	
1455		----		----	
1556	D6729	5.44		0.13	
1585	D5134	5.533		0.82	
1613	D6839	11.08	R(0.01)	41.74	

lab	method	value	mark	z(targ)	remarks
1656	D5443	5.1		-2.38	
1720	D5134	5.685		1.94	
1737		----		----	
1788	D5134	5.56		1.02	
1796	D5134	5.464		0.31	
1823		----		----	
1833	D5134	5.47		0.35	
1857	D5134	5.61		1.38	
1914	In house	5.57		1.09	
1949	D5134Mod.	5.709		2.12	
1950	D5134	5.57		1.09	
6015		----		----	
6016		----		----	
6028	D5443	7.68	R(0.01)	16.66	
7003		----		----	
7006		----		----	
7009	D5134	5.0495		-2.75	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6729	5.5676		1.07	
normality		OK			
n		35			
outliers		2			
mean (n)		5.4223			
st.dev. (n)		0.23474			
R(calc.)		0.6573			
R(D5134:13)		0.3796			

Compare R(Horwitz)=0.4709

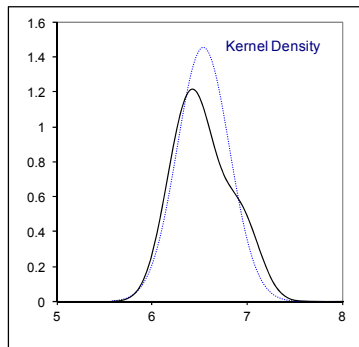
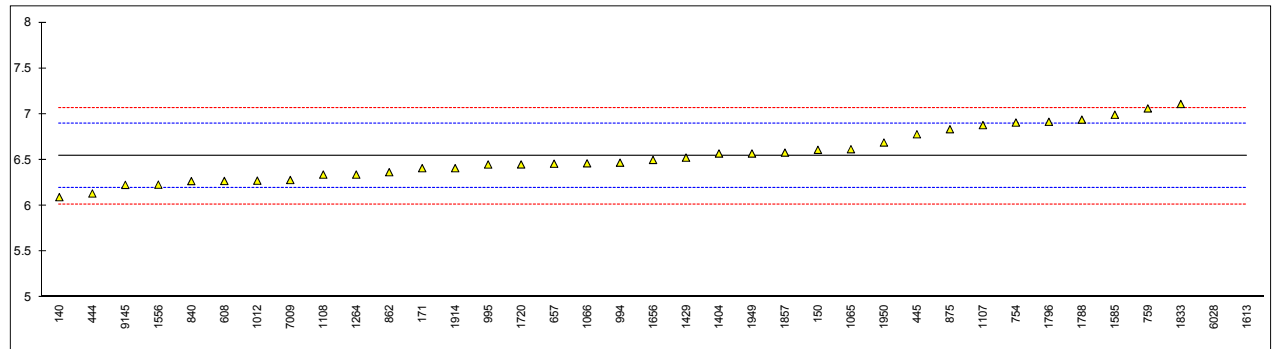


Determination of Pentane (DHA) on sample #16046; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140	D6729	6.094		-2.55	
150	D5134	6.61		0.38	
171	D6729	6.41		-0.76	
225		----		----	
237		----		----	
238		----		----	
311		----		----	
317		----		----	
322		----		----	
323		----		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444	D5134	6.134		-2.33	
445	D5134	6.78		1.34	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608	D6730	6.2705	C	-1.55	first reported: 15.0153
657	D6730	6.4590		-0.48	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D6729	6.908		2.07	
759	D6729	7.062		2.95	
781		----		----	
785		----		----	
786		----		----	
824		----		----	
840	D5134	6.269		-1.56	
855		----		----	
862	D6730	6.366		-1.01	
868		----		----	
872		----		----	
873		----		----	
875		6.8352		1.66	
922		----		----	
962		----		----	
963		----		----	
974		----		----	
982		----		----	
994	D5134	6.47		-0.42	
995	D5134	6.45		-0.53	
1012	D5134	6.2736		-1.53	
1016		----		----	
1062		----		----	
1065	In house	6.617		0.42	
1066	In house	6.463		-0.46	
1081		----		----	
1107	D5134	6.88		1.91	
1108	D5134	6.34		-1.16	
1128		----		----	
1134		----		----	
1145		----		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264	D5443	6.34		-1.16	
1284		----		----	
1357		----		----	
1404	D5134	6.57		0.15	
1429	D5134	6.525		-0.11	
1455		----		----	
1556	D6729	6.23		-1.78	
1585	D5134	6.993		2.55	
1613	D6839	10.90	R(0.01)	24.75	

lab	method	value	mark	z(targ)	remarks
1656	D5443	6.5		-0.25	
1720	D5134	6.451		-0.53	
1737		----		----	
1788	D5134	6.94		2.25	
1796	D5134	6.916		2.12	
1823		----		----	
1833	D5134	7.11		3.22	
1857	D5134	6.58		0.21	
1914	In house	6.41		-0.76	
1949	D5134Mod.	6.570		0.15	
1950	D5134	6.69		0.83	
6015		----		----	
6016		----		----	
6028	D5443	9.83	R(0.01)	18.67	
7003		----		----	
7006		----		----	
7009	D5134	6.281		-1.49	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6729	6.2278		-1.79	
	normality	OK			
	n	35			
	outliers	2			
	mean (n)	6.5436			
	st.dev. (n)	0.27423			
	R(calc.)	0.7678			
	R(D5134:13)	0.4929			

Compare R(Horwitz)=0.5524

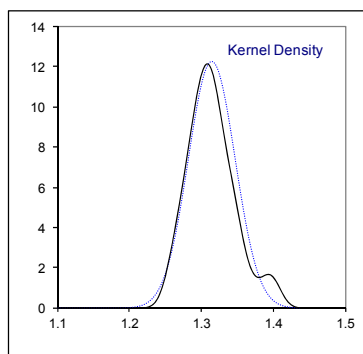
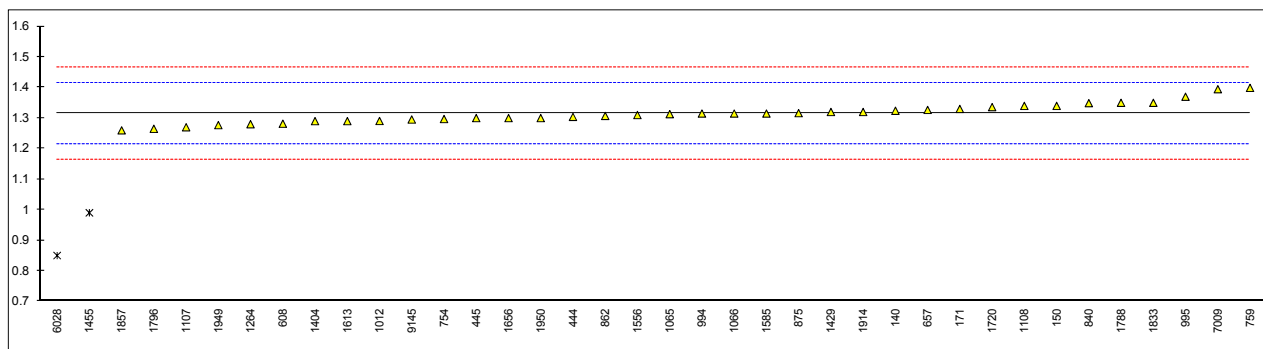


Determination of Toluene (DHA) on sample #16046; results in %M/M

lab	method	value	mark	z(targ)	remarks
52		----		----	
131		----		----	
140	D6729	1.324		0.18	
150	D5134	1.34		0.49	
171	D6729	1.33		0.30	
225		----		----	
237		----		----	
238		----		----	
311		----		----	
317		----		----	
322		----		----	
323		----		----	
333		----		----	
334		----		----	
336		----		----	
337		----		----	
349		----		----	
360		----		----	
399		----		----	
444	D5134	1.304		-0.22	
445	D5134	1.30		-0.30	
494		----		----	
529		----		----	
541		----		----	
604		----		----	
608	D6730	1.2816	C	-0.66	first reported: 0.0057
657	D6730	1.3267		0.23	
663		----		----	
750		----		----	
751		----		----	
753		----		----	
754	D6729	1.297		-0.36	
759	D6729	1.399		1.66	
781		----		----	
785		----		----	
786		----		----	
824		----		----	
840	D5134	1.349		0.67	
855		----		----	
862	D6730	1.307		-0.16	
868		----		----	
872		----		----	
873		----		----	
875		1.3162		0.02	
922		----		----	
962		----		----	
963		----		----	
974		----		----	
982		----		----	
994	D5134	1.315		0.00	
995	D5134	1.37		1.09	
1012	D5134	1.2905		-0.49	
1016		----		----	
1062		----		----	
1065	In house	1.313		-0.04	
1066	In house	1.315		0.00	
1081		----		----	
1107	D5134	1.27		-0.89	
1108	D5134	1.34		0.49	
1128		----		----	
1134		----		----	
1145		----		----	
1161		----		----	
1200		----		----	
1201		----		----	
1257		----		----	
1264	D5443	1.28		-0.69	
1284		----		----	
1357		----		----	
1404	D5134	1.29		-0.50	
1429	D5134	1.32		0.10	
1455	In house	0.990	R(0.01)	-6.44	
1556	D6729	1.31		-0.10	
1585	D5134	1.315		0.00	
1613	D6839	1.29		-0.50	

lab	method	value	mark	z(targ)	remarks
1656	D5443	1.3		-0.30	
1720	D5134	1.336		0.42	
1737		----		----	
1788	D5134	1.35		0.69	
1796	D5134	1.265		-0.99	
1823		----		----	
1833	D5134	1.35		0.69	
1857	D5134	1.26		-1.09	
1914	In house	1.32		0.10	
1949	D5134Mod.	1.277		-0.75	
1950	D5134	1.30		-0.30	
6015		----		----	
6016		----		----	
6028	D5443	0.85	R(0.01)	-9.21	
7003		----		----	
7006		----		----	
7009	D5134	1.3945	C	1.57	
9057		----		----	
9058		----		----	
9061		----		----	
9090		----		----	
9145	D6729	1.2954		-0.39	
	normality	OK			
	n	36			
	outliers	2			
	mean (n)	1.3150			
	st.dev. (n)	0.03250			
	R(calc.)	0.0910			
	R(Horwitz)	0.1413			

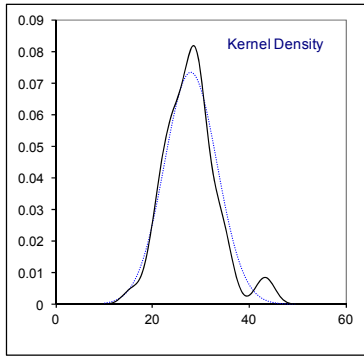
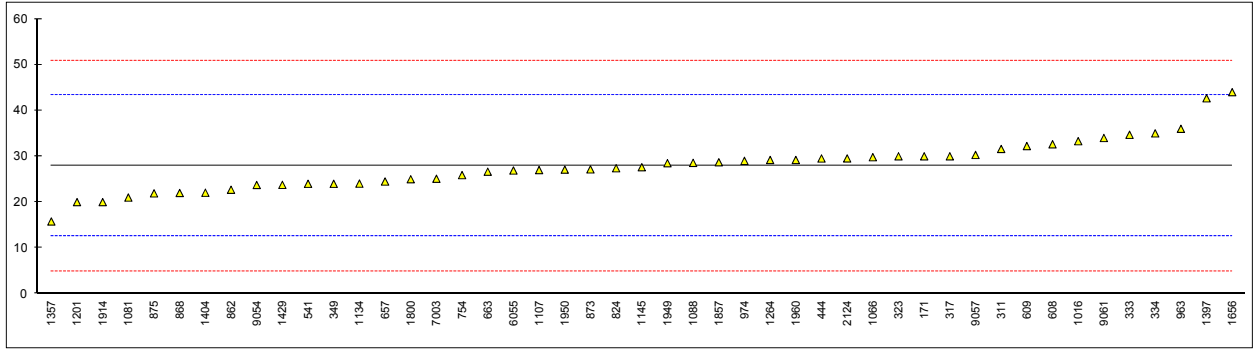
Compare R(D5134:13)=0.0408



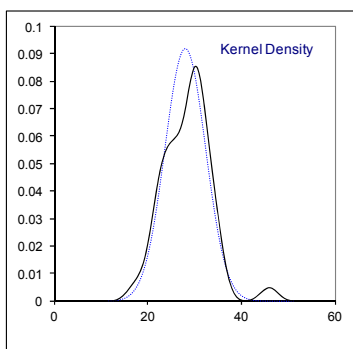
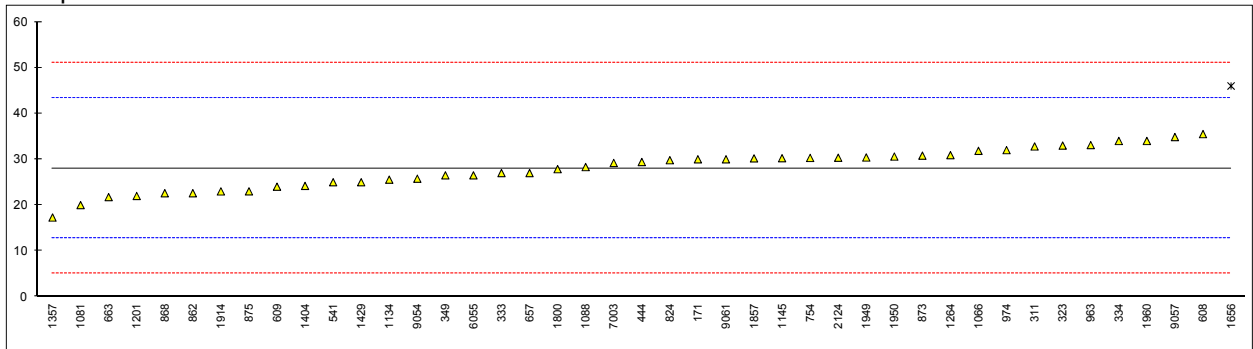
Determination of Mercury content as Hg on sample #16047 and #16048; results in µg/kg

lab	method	#16047	mark	z(targ)	#16048	mark	z(targ)	remarks
171	UOP938	30		0.27	30		0.25	
311	UOP938	31.6		0.48	32.8		0.62	
317	INH-003	30		0.27	----		----	
323	UOP938	30		0.27	33		0.64	
333	UOP938	34.7		0.88	27.0		-0.14	
334	INH-003	35		0.92	34		0.77	
349	UOP938	24		-0.52	26.5		-0.20	
444	UOP938 - B	29.53		0.21	29.41		0.18	
541	INH-244	24		-0.52	25		-0.40	
608	D7623	32.624		0.61	35.494		0.97	
609	UOP938	32.2390		0.56	24.023	C	-0.52	for #16048: f.r. 37.945
657	UOP938	24.5		-0.45	27.0		-0.14	
663	UOP938	26.64		-0.17	21.75		-0.82	
754	UOP938	25.9		-0.27	30.3		0.29	
824	UOP938	27.4		-0.07	29.8		0.23	
862	UOP938	22.7		-0.69	22.6		-0.71	
868	UOP938	22.0		-0.78	22.6		-0.71	
873	UOP938 - B	27.144		-0.11	30.794		0.36	
875	EPA7473	21.92		-0.79	23.01		-0.66	
912		----		----	----		----	
922		----		----	----		----	
963	UOP938	36.0		1.05	33.1		0.66	
974	UOP938	29		0.14	32		0.51	
1016	UOP938	33.3		0.70	----		----	
1066	INH-80	29.81		0.24	31.84		0.49	
1081	In house	21	C	-0.91	20	C	-1.05	f.r. 16.889/16.658 resp.
1088	D6350	28.57307		0.08	28.30548		0.03	
1107	In house	27		-0.12	----		----	
1134	In house	24.04		-0.51	25.56		-0.32	
1145	UOP938	27.6217		-0.04	30.2394		0.28	
1200		----		----	----		----	
1201	In house	20		-1.04	22		-0.79	
1264	UOP938	29.2		0.16	30.9		0.37	
1357	IFP9606	15.78		-1.59	17.295		-1.40	
1397	In house	42.66		1.92	----		----	
1404	UOP938	22.05		-0.77	24.2		-0.50	
1429	In house	23.77		-0.55	25.00		-0.40	
1455		----		----	----		----	
1656	UOP938	44	C	2.09	46	C,R(0.01)	2.34	f.r. 13/14 resp.
1800	UOP938	25.00		-0.39	27.845		-0.03	
1857	UOP938	28.7		0.10	30.2		0.28	
1914	In house	20		-1.04	23		-0.66	
1949	In house	28.5		0.07	30.4		0.31	
1950	UOP938	27.1		-0.11	30.6		0.33	
1960		29.2		0.16	34.0		0.77	
2124	In house	29.541		0.21	30.341		0.30	
6016		----		----	----		----	
6055	In house	26.9		-0.14	26.5		-0.20	
7003	D3223	25.1		-0.37	29.2		0.15	
9054	UOP938	23.7404		-0.55	25.7626		-0.30	
9057	In house	30.3		0.31	34.86		0.89	
9061	EPA200.7/200.8Mod.	34		0.79	30		0.25	
	normality	suspect			OK			
	n	47			42			
	outliers	0	<u>Spike</u>	recovery	1	<u>Spike</u>	recovery	
	mean (n)	27.953	25	<112%	28.053	35	<80%	
	st.dev. (n)	5.4414			4.3383			
	R(calc.)	15.236			12.147			
	R(Horwitz)	21.456			21.521			

Sample #16047



Sample #16048

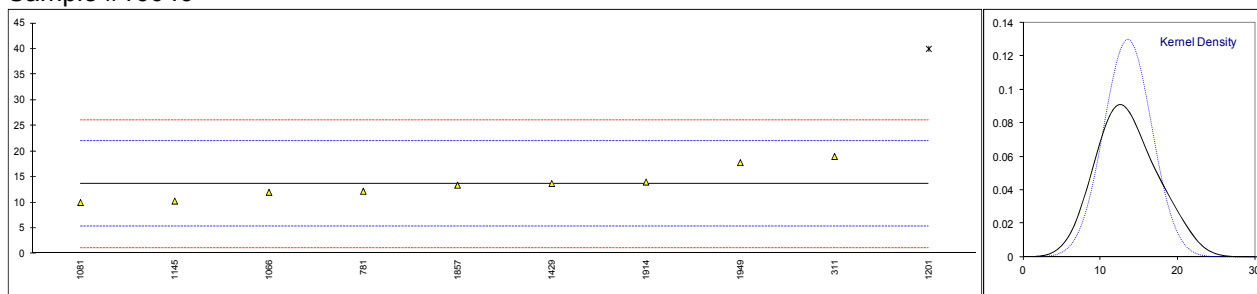


Determinations of Arsenic content as As on sample #16049 and #16050; results in µg/kg

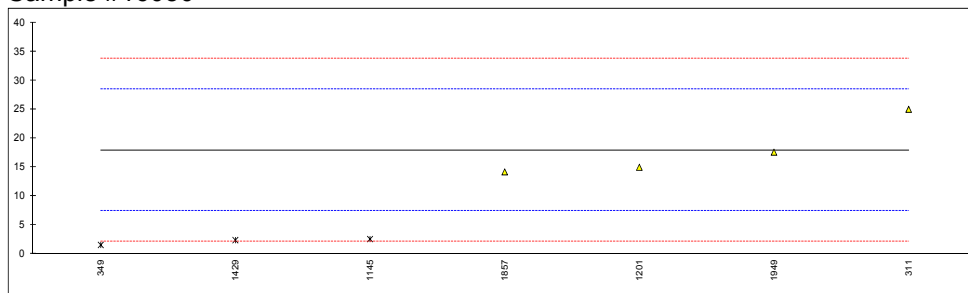
lab	method	#16049	mark	z(targ)	#16050	mark	z(targ)	remarks
150		----		----			----	
171	INH-014	<5		----	<5		----	
311	INH-006	19	C	1.30	25		1.34	for #16049: f.r. 30
322		----		----			----	
323		----		----			----	
349	IFP9312	<5	C	----	1.6	ex	-3.11	for #16049: f.r. 2.8
360		----		----			----	
444		----		----			----	
754		----		----			----	
781	UOP946	12.2		-0.34	----		----	
855		----		----			----	
862		----		----			----	
868		----		----			----	
875		----		----			----	
912		----		----			----	
922		----		----			----	
963		----		----			----	
1066	In house	12		-0.39	<3		<-2.84	for #16050: false neg.?
1081	In house	10		-0.87	<1		<-3.22	for #16050: false neg.?
1107		----		----			----	
1134		----		----			----	
1145	IFP-AM-9312	10.286		-0.80	2.600	ex	-2.92	
1201	In house	40	G(0.01)	6.35	15		-0.56	
1264		----		----			----	
1404		----		----			----	
1429	In house	13.73		0.03	2.43	ex	-2.95	
1720		----		----			----	
1857	In house	13.4		-0.05	14.2		-0.71	
1914	UOP946	14		0.10	<1		<-3.22	for #16050: false neg.?
1949	UOP946	17.8		1.01	17.6		-0.07	
1950		----		----			----	
normality		OK			unknown			
n		9			4			
outliers		1	spike	recovery	0+3ex	spike	recovery	
mean (n)		13.602	20	<68%	17.950	32	<56%	
st.dev. (n)		3.0716			4.9190			
R(calc.)		8.601			13.773			
R(Horwitz)		11.636			14.728			

See for excluded test results discussion in § 4.1

Sample #16049



Sample #16050

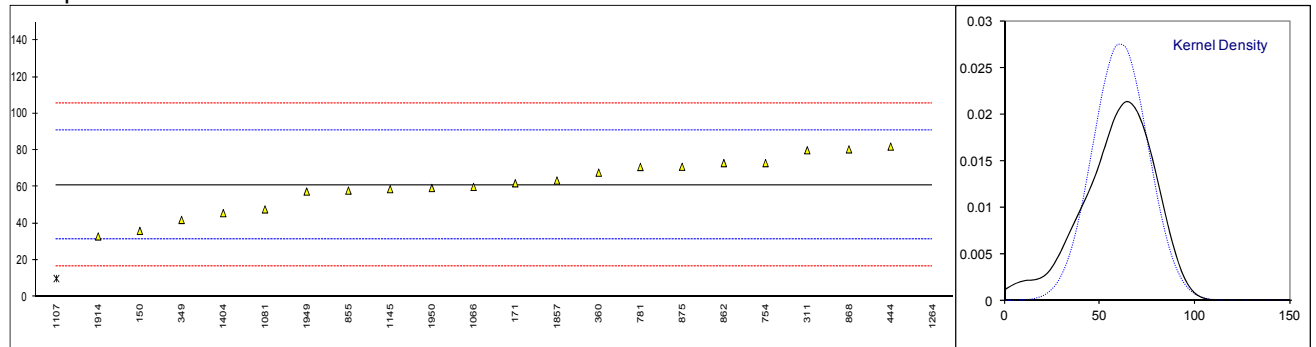


Determinations of Lead content as Pb on sample #16049 and #16050; results in µg/kg

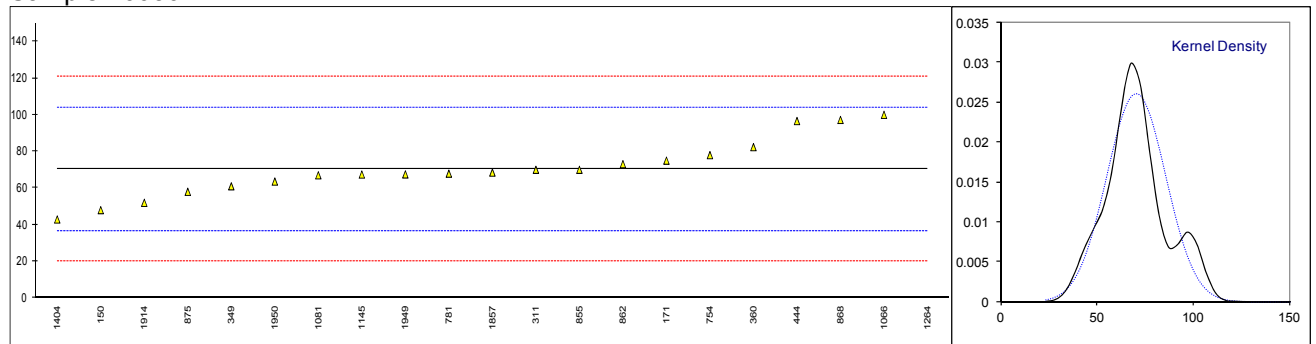
lab	method	#16049	mark	z(targ)	#16050	mark	z(targ)	remarks
150	UOP952	36	C	-1.69	48	C	-1.33	f.r. 83.1/103.0 resp.
171	INH-014	62		0.06	75		0.28	
311	INH-005	80		1.27	70		-0.02	
322		----		----	----		----	
323		----		----	----		----	
349	UOP952	42		-1.28	61		-0.55	
360	In house	67.79		0.45	82.37		0.72	
444	UOP952	82.0		1.40	96.6		1.57	
754	UOP952	73		0.80	78		0.46	
781	UOP952	70.9		0.66	67.9		-0.14	
855	SH/T0242	58		-0.21	70		-0.02	
862	UOP952	73.0		0.80	73.1		0.17	
868	UOP952	80.5		1.30	97.2		1.60	
875	UOP952	71		0.67	58		-0.73	
912		----		----	----		----	
922		----		----	----		----	
963		----		----	----		----	
1066	In house	60		-0.07	100		1.77	
1081	In house	47.73		-0.90	67.0	C	-0.20	for #16050: f.r. 42.33
1107	In house	10	ex	-3.43	----		----	
1134		----		----	----		----	
1145	IFP-AM-9406	58.785		-0.15	67.441		-0.17	
1201	IP224	<25		<-2.42)	<25		<-2.70	
1264	D6595	1453	G(0.01)	93.50	1255	R(0.01)	70.62	
1404	IP224	45.7	C	-1.03	42.9	C	-1.63	f.r. 15.969/14.863 resp.
1429		----		----	----		----	
1720		----		----	----		----	
1857	UOP952	63.5		0.16	68.5		-0.11	
1914	IP224	33		-1.89	52		-1.09	
1949	UOP952	57.5		-0.24	67.5		-0.17	
1950	UOP952	59.4		-0.11	63.6		-0.40	
normality		OK			OK			
n		20			20			
outliers		1+1ex	spike	recovery	1	spike	recovery	
mean (n)		61.090	50	<122%	70.306	70	<100%	
st.dev. (n)		14.3845			15.2764			
R(calc.)		40.277			42.774			
R(Horwitz)		41.685			46.969			

See for excluded test result discussion in § 4.1

Sample 16049

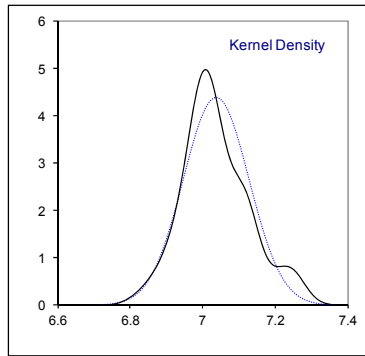
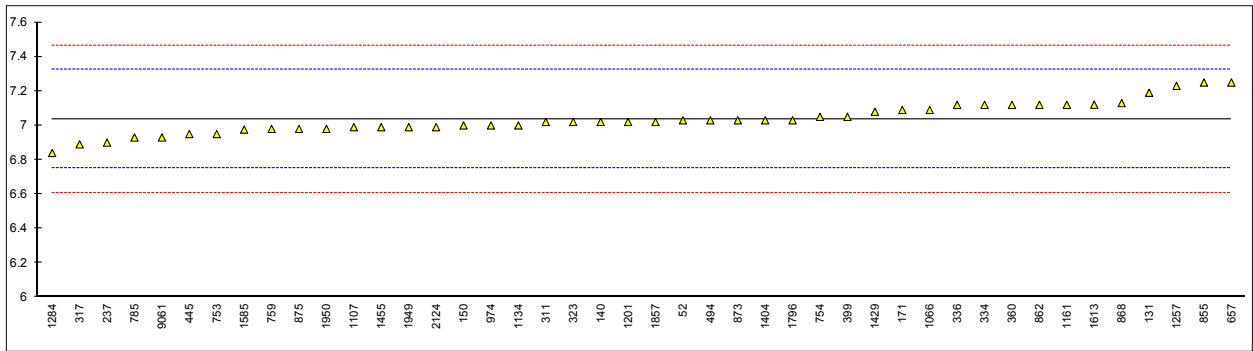


Sample 16050



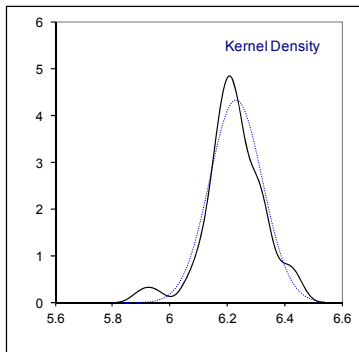
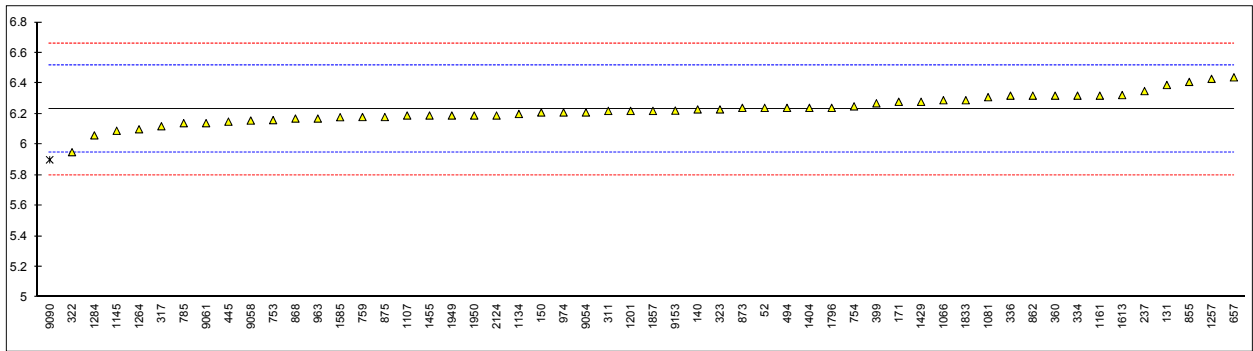
Determination of Total Vapour Pressure on sample #16051; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	7.03		-0.05	
131	D5191	7.19		1.07	
140	D5191	7.02		-0.12	
150	D5191	7.00		-0.26	
171	D5191	7.09		0.37	
225		----		----	
237	D5191	6.90		-0.96	
238		----		----	
311	D5191	7.02		-0.12	
317	D5191	6.89		-1.03	
322		----		----	
323	D5191	7.02		-0.12	
334	D5191	7.12		0.58	
336	D5191	7.12		0.58	
360	D5191	7.12		0.58	
399	D5191	7.05		0.09	
445	D5191	6.95		-0.61	
494	D5191	7.03		-0.05	
541		----		----	
657	D5191	7.25		1.49	
753	D5191	6.95		-0.61	
754	D5191	7.05		0.09	
759	D5191	6.98		-0.40	
785	D5191	6.93		-0.75	
855	D5191	7.25		1.49	
862	D5191	7.12		0.58	
868	D5191	7.13		0.65	
872		----		----	
873	D5191	7.03		-0.05	
875	D5191	6.98		-0.40	
922		----		----	
963		----		----	
974	D5191	7.00		-0.26	
1066	D5191	7.09		0.37	
1081		----		----	
1107	D5191	6.99		-0.33	
1134	D5191	7.00		-0.26	
1145		----		----	
1161	EN13016-1	7.12		0.58	
1201	D5191	7.02		-0.12	
1257		7.23		1.35	
1264		----		----	
1284	D5191	6.84		-1.38	
1404	D5191	7.03		-0.05	
1429	D5191	7.08		0.30	
1455	D5191	6.99		-0.33	
1585	D5191	6.976		-0.43	
1613	D5191	7.121		0.58	
1796	D5191	7.03		-0.05	
1833		----		----	
1857	D5191	7.02		-0.12	
1949	D5191	6.99		-0.33	
1950	D5191	6.98		-0.40	
2124	D5191	6.99		-0.33	
6016		----		----	
9054		----		----	
9058		----		----	
9061	D5191	6.93		-0.75	
9090		----		----	
9153		----		----	
	normality	OK			
	n	44			
	outliers	0			
	mean (n)	7.037			
	st.dev. (n)	0.0908			
	R(calc.)	0.254			
	R(D5191:15)	0.400			



Determination of DVPE acc. D5191 on sample #16051; results in psi

lab	method	value	mark	z(targ)	remarks
52	D5191	6.24		0.07	
131	D5191	6.39		1.12	
140	D5191	6.23		0.00	
150	D5191	6.21		-0.14	
171	D5191	6.28		0.35	
225		----		----	
237	D5191	6.35	E	0.84	iis calculated 6.11 from TVP value
238		----		----	
311	D5191	6.22		-0.07	
317	D5191	6.12		-0.77	
322	D5191	5.95		-1.96	
323	D5191	6.23		0.00	
334	D5191	6.32		0.63	
336	D5191	6.32		0.63	
360	D5191	6.32		0.63	
399	D5191	6.27		0.28	
445	D5191	6.15		-0.56	
494	D5191	6.24		0.07	
541	D6378	----		----	use sample for internal control (method ASTM D6378 reports RVPE)
657	D5191	6.44		1.47	
753	D5191	6.16		-0.49	
754	D5191	6.25		0.14	
759	D5191	6.18		-0.35	
785	D5191	6.14		-0.63	
855	D5191	6.41		1.26	
862	D5191	6.32		0.63	
868	D5191	6.17	E	-0.42	iis calculated 6.33 from TVP value
872		----		----	
873	D5191	6.24		0.07	
875	D5191	6.18		-0.35	
922		----		----	
963	D5191	6.17		-0.42	
974	D5191	6.21		-0.14	
1066	D5191	6.29		0.42	
1081	D5191	6.31		0.56	
1107	D5191	6.19		-0.28	
1134	D5191	6.20		-0.21	
1145	D5191	6.090		-0.98	
1161	EN13016-1	6.32		0.63	
1201	D5191	6.22		-0.07	
1257		6.43		1.40	
1264	D5191	6.10		-0.91	
1284	D5191	6.06		-1.19	
1404	D5191	6.24		0.07	
1429	D5191	6.28		0.35	
1455	D5191	6.19		-0.28	
1585	D5191	6.179		-0.36	
1613	D5191	6.324		0.66	
1796	D5191	6.24		0.07	
1833	EN13016-1	6.29		0.42	
1857	D5191	6.22		-0.07	
1949	D5191	6.19		-0.28	
1950	D5191	6.19		-0.28	
2124	D5191	6.19		-0.28	
6016		----		----	
9054	D5191	6.21		-0.14	
9058	D5191	6.157		-0.51	
9061	D5191	6.14		-0.63	
9090	D6378	5.90	ex	-2.31	excluded; test method D6378 reports Reid vapour pressure (RVPE)
9153	D5191	6.222		-0.05	
	normality	suspect			
	n	53			
	outliers	0+1ex			
	mean (n)	6.230			
	st.dev. (n)	0.0921			
	R(calc.)	0.258			
	R(D5191:15)	0.400			



APPENDIX 2**Number of participants per country****iis16N01**

1 lab in ARGENTINA
 1 lab in AZERBAIJAN
 3 labs in BELGIUM
 1 lab in BULGARIA
 2 labs in CANADA
 4 labs in CHINA, People's Republic
 1 lab in COTE D'IVOIRE
 6 labs in FRANCE
 1 lab in GEORGIA
 2 labs in GERMANY
 1 lab in GREECE
 4 labs in IRAN, Islamic Republic of
 1 lab in ISRAEL
 1 lab in ITALY
 1 lab in JORDAN
 1 lab in KAZAKHSTAN
 1 lab in LATVIA
 2 labs in MALAYSIA
 1 lab in MEXICO
 11 labs in NETHERLANDS
 3 labs in NIGERIA
 1 lab in NORWAY
 1 lab in OMAN
 1 lab in PAKISTAN
 1 lab in PORTUGAL
 2 labs in QATAR
 16 labs in RUSSIAN FEDERATION
 3 labs in SAUDI ARABIA
 1 lab in SINGAPORE
 1 lab in SOUTH KOREA
 1 lab in SPAIN
 1 lab in SUDAN
 1 lab in SWEDEN
 2 labs in THAILAND
 1 lab in TUNISIA
 2 labs in TURKEY
 3 labs in UNITED ARAB EMIRATES
 5 labs in UNITED KINGDOM
 4 labs in UNITED STATES OF AMERICA
 1 lab in VIETNAM

iis16N01AsPb

2 labs in BELGIUM
 1 lab in BULGARIA
 3 labs in CHINA, People's Republic
 1 lab in FRANCE
 1 lab in INDIA
 1 lab in LATVIA
 5 labs in NETHERLANDS
 1 lab in PAKISTAN
 6 labs in RUSSIAN FEDERATION
 1 lab in SAUDI ARABIA
 1 lab in SPAIN
 1 lab in SUDAN
 1 lab in THAILAND
 1 lab in UNITED ARAB EMIRATES
 3 labs in UNITED KINGDOM
 2 labs in UNITED STATES OF AMERICA

iis16N01Hg

1 lab in ARGENTINA
 2 labs in AUSTRALIA
 2 labs in BELGIUM
 2 labs in CHINA, People's Republic
 1 lab in CROATIA
 3 labs in FRANCE
 1 lab in INDIA
 1 lab in IRAN, Islamic Republic of
 1 lab in KAZAKHSTAN
 1 lab in LATVIA
 2 labs in MALAYSIA
 9 labs in NETHERLANDS
 2 labs in NORWAY
 1 lab in OMAN
 1 lab in PAKISTAN
 6 labs in RUSSIAN FEDERATION
 2 labs in SAUDI ARABIA
 1 lab in SINGAPORE
 1 lab in SOUTH KOREA
 1 lab in SPAIN
 2 labs in THAILAND
 2 labs in UNITED ARAB EMIRATES
 6 labs in UNITED KINGDOM
 1 lab in UNITED STATES OF AMERICA

iis16N01DVPE

1 lab in ARGENTINA
 1 lab in AUSTRALIA
 2 labs in BELGIUM
 1 lab in BULGARIA
 1 lab in CANADA
 3 labs in CHINA, People's Republic
 1 lab in COTE D'IVOIRE
 3 labs in FRANCE
 1 lab in GERMANY
 1 lab in ITALY
 1 lab in JORDAN
 1 lab in KAZAKHSTAN
 8 labs in NETHERLANDS
 2 labs in NIGERIA
 1 lab in NORWAY
 1 lab in PAKISTAN
 2 labs in QATAR
 12 labs in RUSSIAN FEDERATION
 1 lab in SAUDI ARABIA
 1 lab in SINGAPORE
 1 lab in THAILAND
 2 labs in TURKEY
 3 labs in UNITED ARAB EMIRATES
 5 labs in UNITED KINGDOM
 4 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	= probably an error in calculations
U	= test result probably reported in a different unit
W	= test result withdrawn on request of participant
ex	= test result excluded from calculations
n.a.	= not applicable
n.e.	= not evaluated
n.d.	= not detected
fr.	= first reported
SDS	= Safety Data Sheet

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