Results of Proficiency Test
mixed-Xylenes
October 2017

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

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1 INTRODUCTION

Since 1995, the Institute for Interlaboratory Studies organized once every two years a proficiency test for Mixed-Xylenes. During the annual proficiency testing program 2017/2018, it was decided to continue the round robin for the analysis of Mixed-Xylenes. In this interlaboratory study, 29 laboratories from 16 different countries have participated. See appendix 2 for the number of participants per country. In this report, the results of the 2017 Mixed-Xylenes proficiency test are presented and discussed. This report is also electronically available through the iis website www.iisnl.com.

2 SET UP

The Institute for Interlaboratory Studies (iis) in Spijkenisse, the Netherlands, was the organiser of this proficiency test (PT). Sample analyses for fit-for-use and homogeneity testing were subcontracted to an ISO/IEC 17025 accredited laboratory. It was decided to send 2 samples of different composition (2 * 0.25 L glass bottles, labelled #17195 and #17196). Participants were requested to report rounded and unrounded test results. The unrounded test results were preferably used for statistical evaluation.

2.1 ACCREDITATION

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

2.2 PROTOCOL

The protocol followed in the organisation 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 March 2017 (iis-protocol, version 3.4). This protocol is electronically available through the iis website www.iisnl.com, from the FAQ page.

2.3 CONFIDENTIALITY STATEMENT

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

2.4 SAMPLES

Two different mixtures of Xylenes were prepared: sample #17195 without Ethylbenzene and sample #17196 with Ethylbenzene. Both batches (sample #17195 and sample #17196), were prepared in pre-cleaned cans from bulk material of high purity Xylenes. By mixing appropriate amounts, approximately 15 litres (13.2 kg) bulk of each mixture were prepared. See table 1 and table 2 respectively for sample #17195 and sample #17196.

	Ethylbenzene in kg	*p-Xylene in kg*	*m-Xylene in kg*	*o-Xylene in kg*
sample #17195	0.0	4.4	3.4	5.3

Table 1: preparation table for subsamples #17195.

	Ethylbenzene in kg	*p-Xylene in kg*	*m-Xylene in kg*	*o-Xylene in kg*
sample #17196	2.0	2.5	5.6	2.8

Table 2: preparation table for subsamples #17196.

Subsequently, out of each batch 62 amber glass bottles of 250 mL filled and labelled respectively #17195 and #17196. The homogeneity of the subsamples #17195 and #17196 was checked by determination of p+m -Xylene (%M/M) and o-Xylene (%M/M) accordance with test method ASTM D2306 on 8 stratified randomly selected samples.

	p+m Xylene %M/M	*o-Xylene %M/M*		*p+m Xylene %M/M*	*o-Xylene %M/M*
sample #17195-1	59.66	40.30	sample #17196-1	62.47	22.36
sample #17195-2	59.65	40.32	sample #17196-2	62.57	22.30
sample #17195-3	59.65	40.32	sample #17196-3	62.53	22.32
sample #17195-4	59.66	40.31	sample #17196-4	62.57	22.30
sample #17195-5	59.64	40.33	sample #17196-5	62.50	22.34
sample #17195-6	59.64	40.33	sample #17196-6	62.54	22.31
sample #17195-7	59.65	40.32	sample #17196-7	62.58	22.29
sample #17195-8	59.64	40.33	sample #17196-8	62.52	22.32

Table 3: homogeneity tests results of subsamples #17195 and #17196.

From the above test results, the repeatabilities were calculated and compared with 0.3 times the corresponding reproducibilities in agreement with the procedure of ISO 13528, Annex B2 in the next table:

	p+m-Xylene in %M/M	*o-Xylene in %M/M*
r (observed #17195)	0.02	0.03
reference method	ASTM D7504:17a	ASTM D6563:12
0.3 x R (ref. test method)	0.38	0.13

Table 4: evaluation of repeatabilities of subsamples #17195.

	p+m-Xylene in %M/M	*o-Xylene in %M/M*
r (observed #17196)	0.11	0.07
reference test method	ASTM D7504:17a	ASTM D6563:12
0.3 x R (ref. test method)	0.40	0.07

Table 5: evaluation of repeatabilities of subsamples #17196.

Each calculated repeatability was equal or less than 0.3 times the corresponding reproducibility of the reference test method. Therefore, homogeneity of the subsamples was assumed.
To each of the participating laboratories 2 bottles were sent (one bottle of 250 mL, labelled #17195 and one bottle of 250 mL, labelled #17196), on September 20, 2017. An SDS was added to the sample package

2.5 STABILITY OF THE SAMPLES

The stability of the materials, packed in the brown glass bottles, was checked. The materials were found sufficiently stable for the period of the proficiency test.

2.6 ANALYSES

The participants were asked to determine on both samples: Benzene, Toluene, Ethylbenzene p-Xylene, m-Xylene, o-Xylene, Sum of m+p Xylene, Cumene, Sum of C9+ aromatics and Nonaromatics.

It was explicitly requested to treat the samples as if they were routine samples and to report the test results using the indicated units on the report form and not to round the test results, but report as much significant figures as possible. It was also requested not to report ‘less than’ results, which are above the detection limit, because such test results cannot be used for meaningful statistical calculations.

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

3 RESULTS

During five weeks after sample dispatch, the test results of the individual laboratories were gathered via the data entry portal www.kpmd.co.uk/sgs-iis/. The reported test results are tabulated per determination in appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after the deadline, a reminder was sent to those laboratories that had not reported test results at that moment.

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

3.1 STATISTICS

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

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

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

For each assigned value, the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. 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 in this interlaboratory study.

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

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

The z-scores were calculated according to:

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

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

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

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

4 EVALUATION

In this proficiency test some problems were encountered with the dispatch of the sample to the laboratory in Brazil, Oman and Portugal. Four participants reported results after the final reporting date and two laboratories did not report any test results. Not all participants were able to report all requested parameters. Finally, 27 laboratories did report 502 numerical test results. Observed were 33 outlying test results, which is 6.6%. In proficiency studies outlier percentages of 3 - 7.5% are quite normal.

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

4.1 EVALUATION PER TEST

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

In the previous proficiency tests on mixed xylene a variety of test methods were required to have target reproducibilities of most components: eg. ASTM D2360 and ASTM D6563.
The Horwitz equation was used for the components that were not mentioned in these standardized test methods.
In 2016, a new standardized test method ASTM D7504 that covers all components evaluated in this study, was launched and it replaced ASTM D2360:11, which was withdrawn.

In ASTM D7504, for all components only reproducibilities at one defined concentration were given. In order to calculate the z-scores, estimated target reproducibilities derived from ASTM D7504 were used. Regretfully, not for all components the estimated target reproducibility derived from ASTM D7504 could be used. The estimated target reproducibility mentioned in ASTM D7504:17a for ortho-xylene, in both samples, is unrealistically large. Therefore, the target reproducibility estimated from ASTM D6563:12 was used instead. For Ethylbenzene (sample #17195) and Nonaromatics (both samples), the estimated target reproducibility from ASTM D7504:17a is unrealistically small. For these components, the Horwitz equation was used to extract a target reproducibility.

For laboratory 555 outliers were observed for six of the ten reported components for sample #17196. Therefore, all other components for sample #17196 were excluded from statistical evaluation.

Benzene: For sample #17195, the benzene content was near or below the limit of detection. Therefore, no significant conclusions were drawn.
For sample #17196, This determination was not problematic at a level 0.015%M/M. No statistical outliers were observed, but one test result was excluded. The calculated reproducibility after rejection of the suspect data is in good agreement with the estimated requirements of ASTM D7504:17a.

Toluene: For sample #17195 this determination was not problematic. Two statistical outliers were observed and one test result was excluded (zero is not a real test result). However, the calculated reproducibility after rejection of the suspect data is in agreement with the estimated requirements of ASTM D7504:17a.
For sample #17196 this determination was not problematic. One statistical outlier was observed and one test result was excluded. However, the calculated reproducibility after rejection of the suspect data is in agreement with the estimated requirements of ASTM D7504:17a.

Ethylbenzene: For sample #17195 this determination was problematic for a number of laboratories. Four statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated reproducibility using the Horwitz equation.
For sample #17196 this determination was not problematic. Two statistical outliers were observed and one test result was excluded. However, the calculated reproducibility after rejection of the suspect data is in agreement with the estimated requirements of ASTM D7504:17a.

p-Xylene: For sample #17195 this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements of ASTM D7504:17a.
For sample #17196 this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements of ASTM D7504:17a.

m-Xylene: For sample #17195, this determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the outliers is in agreement with the estimated requirements of ASTM D7504:17a.
For sample #17196, this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the requirements of ASTM D7504:17a.

o-Xylene: For sample #17195, this determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in full agreement with the estimated requirements of ASTM D6563:12.
For sample #17196, this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements of ASTM D6563:12.

Sum m+p-Xylene: For sample #17195, this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements from ASTM D7504:17a.
For sample #17196, this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements of ASTM D7504:17a.

Isopropylbenzene: For sample #17195, this determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements of ASTM D7504:17a.
Remarkably, for sample #17196 this determination was very problematic. No statistical outliers were observed. One test result was excluded. The calculated reproducibility after rejection of the suspect data is not at all in agreement with the estimated requirements of ASTM D7504:17a.

Sum $C9^+$ arom.: For sample #17195, this determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is in agreement with the estimated requirements of ASTM D7504:17a.
Remarkably, for sample #17196 this determination was very problematic. One statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is not at all in agreement with the estimated requirements of ASTM D7504:17a.

Nonaromatics: For sample #17195, this determination was not problematic. One statistical outlier was observed. However, the calculated reproducibility after rejection of the statistical outlier is in agreement with the estimated reproducibility using the Horwitz equation (n=9).
For sample #17196 this determination was problematic. Two statistical outliers were observed. The calculated reproducibility after rejection of the statistical outliers is not in agreement with the estimated reproducibility using the Horwitz equation (n=9).

4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant reference test method and the reproducibility as found for the group of participating laboratories. The average results per sample, calculated reproducibilities and reproducibilities derived from literature reference test methods (in casu ASTM test methods), are compared in the next tables.

	unit	n	average	2.8 *sd	R(lit)	Target ref.
Benzene	%M/M	23	<0.002	n.a.	n.a.	n.a.
Toluene	%M/M	20	0.005	0.001	0.011	D7504:17a
Ethylbenzene	%M/M	23	0.029	0.005	0.006	Horwitz
p-Xylene	%M/M	25	33.42	0.34	0.54	D7504:17a
m-Xylene	%M/M	24	26.13	0.20	0.37	D7504:17a
o-Xylene	%M/M	27	40.19	0.45	0.44	D6563:12
Sum m+p-Xylene	%M/M	25	59.56	0.36	1.27	D7504:17a
Isopropylbenzene	%M/M	23	0.124	0.014	0.015	D7504:17a
Sum $C9^+$ aromatics	%M/M	20	0.157	0.037	0.089	D7504:17a
Nonaromatics	%M/M	24	0.077	0.033	0.038	Horwitz (n9)

Table 6: reproducibilities of tests on sample #17195

	unit	n	average	2.8 *sd	R (lit)	Target ref.
Benzene	%M/M	25	0.015	0.011	0.034	D7504:17a
Toluene	%M/M	24	0.115	0.021	0.271	D7504:17a
Ethylbenzene	%M/M	24	15.60	0.20	0.51	D7504:17a
p-Xylene	%M/M	24	19.54	0.17	0.31	D7504:17a
m-Xylene	%M/M	24	41.70	0.35	0.59	D7504:17a
o-Xylene	%M/M	25	22.10	0.15	0.24	D6563:12
Sum m+p-Xylene	%M/M	25	61.24	0.45	1.31	D7504:17a
Isopropylbenzene	%M/M	24	0.073	0.024	0.009	D7504:17a
Sum $C9^+$ aromatics	%M/M	22	0.282	0.291	0.160	D7504:17a
Nonaromatics	%M/M	22	0.581	0.244	0.212	Horwitz (n9)

Table 7: reproducibilities of tests on sample #17196

Without further statistical calculations it can be concluded that for only some components there is a good compliance of the group of participating laboratories with the relevant reference test methods. The components that are problematic have been discussed in paragraph 4.1.

4.3 COMPARISON OF THE OCTOBER 2017 PROFICIENCY TEST WITH PREVIOUS PTS

	October 2017	*October 2015*	*September 2013*	*September 2011*
Number of reporting labs	27	29	29	29
Number of results reported	502	546	519	519
Statistical outliers	33	42	57	36
Percentage outliers	6.6%	7.7%	11.0%	6.9%

Table 8: 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:

	*October 2017 *)*		*October 2015*		*September 2013*		*September 2011*	
Benzene	n.e.	++	n.e.	-	n.e.	(--)	--	n.e.
Toluene	++	++	+	+/-	++	--	+/-	++
Ethylbenzene	+/-	++	++	--	+/-	++	--	++
p-Xylene	+	++	+	++	-	++	++	++
m-Xylene	++	++	-	+	-	++	+/-	-
o-Xylene	+/-	+	+	+	--	+/-	--	+/-
Sum of m+p Xylene	++	++	+	+	n.e.	n.e.	n.e.	n.e.
Isopropylbenzene	+/-	--	-	-	+	--	--	+
$C9^+$ aromatics	++	--	n.e.	n.e.	+	--	--	--
Nonaromatics	+	-	--	--	--	--	--	-

Table 9: comparison of performances against the reference test method requirements over the last PTs
Results between brackets are outside application range of test method.
*) This year a new target test method was used (ASTM D7504 instead of ASTM D2360 and D6563)

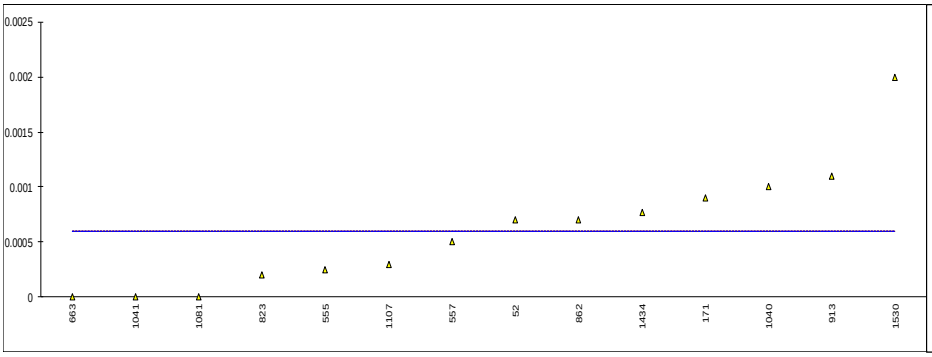
The performance of the determinations against the requirements of the respective reference test methods is listed in the above table. The following performance categories were used:

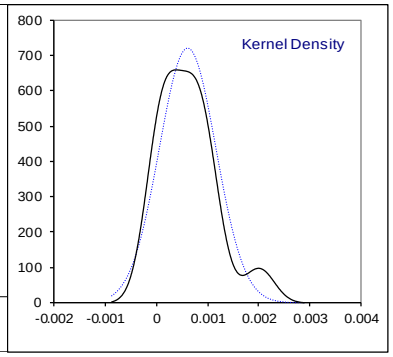
- ++: group performed much better than the reference test methods
- + : group performed better than the reference test methods
- +/-: group performance equals the reference test methods
- - : group performed worse than the reference test methods
- -- : group performed much worse than the reference test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

APPENDIX 1

Determination of Benzene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.0007		-----	
150	D6563	<0.01		-----	
171	D7504	0.0009		-----	
311	D2360	<0.001		-----	
317	D6563	<0.01		-----	
323	D7504	<0.0006		-----	
445		-----		-----	
446	D6563	<0.01		-----	
551	D6563	<0,01		-----	
555	D2360	0.00025		-----	
557	D6563	0.0005		-----	
663	D6563	0.00		-----	
823	D6563	0.0002		-----	
862	D6563	0.0007		-----	
913	D2360	0.0011		-----	
1011	D5917	<0.001		-----	
1040	D6563	0.001		-----	
1041	D6563	0.000		-----	
1067	D6563	< 0.01		-----	
1081	D6563	0		-----	
1107	D6563	0.0003		-----	
1201	D6563	<0.01		-----	
1357		-----		-----	
1434	D4492	0.00077		-----	
1530	D2360	0.002		-----	
1538		-----		-----	
1812		-----		-----	
1866	D6563	n.d		-----	
6007	In house	n.n.		-----	
	normality	23			
	n	n.a			
	outliers	n.a.			
	mean (n)	<0.002			
	st.dev. (n)	n.a			
	R(calc.)	n.a			
	st.dev.(lit.)	n.a			
	R(lit.)	n.a.			

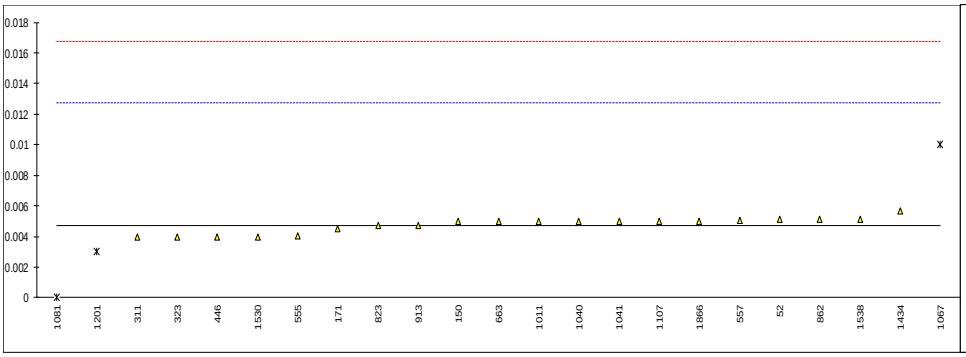


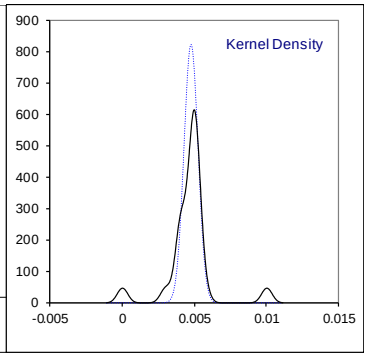


Determination of Toluene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.0051		0.09	
150	D6563	0.01	C	0.06	first reported 0.03
171	D7504	0.0045		-0.06	
311	D2360	0.004		-0.19	
317	D6563	<0.01		-----	
323	D7504	0.0040		-0.19	
445		-----		-----	
446	D6563	0.004		-0.19	
551	D6563	<0.01		-----	
555	D6563	0.00405		-0.17	
557	D2360	0.00503		0.07	
663	D6563	0.005		0.06	
823	D6563	0.0047		-0.01	
862	D6563	0.0051		0.09	
913	D2360	0.0047		-0.01	
1011	D5917	0.005		0.06	
1040	D6563	0.005		0.06	
1041	D6563	0.005		0.06	
1067	D6563	0.01	R(0.01)	1.31	
1081	D6563	0	ex	-1.19	result excluded, zero is not a real value
1107	D6563	0.005		0.06	
1201	D6563	0.003	R(0.01)	-0.44	
1357		-----		-----	
1434	D4492	0.00564		0.22	
1530	D2360	0.004		-0.19	
1538	D2360	0.0051		0.09	
1812		-----		-----	
1866	D6563	0.005		0.06	
6007	In house	n.n.		-----	

normality	OK
n	20
outliers	2 (+1 excl)
mean (n)	0.00475
st.dev. (n)	0.000486
R(calc.)	0.00136
st.dev.(D7504:17a)	0.003999
R(D7504:17a)	0.01120
Compare	
R(D2360:11)	0.00112
R(Horwitz)	0.00119

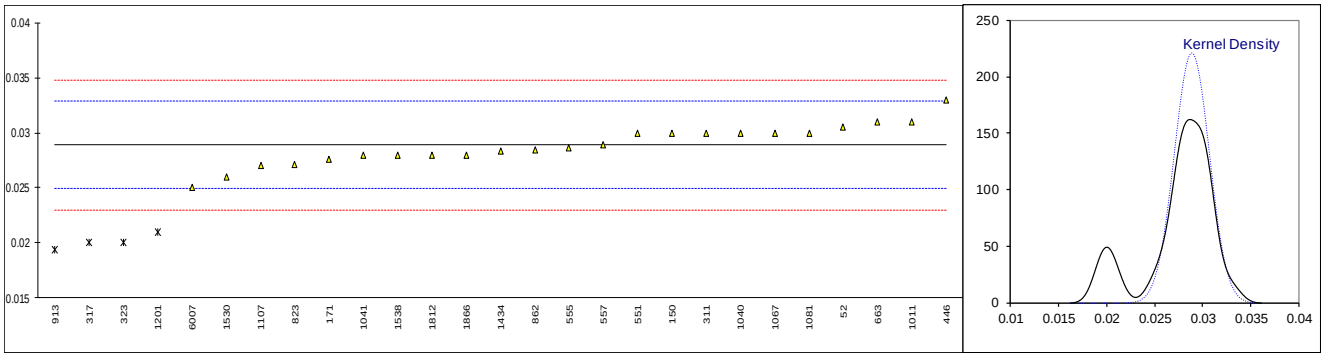




Determination of Ethylbenzene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.0305		0.82	
150	D6563	0.03		0.56	
171	D7504	0.0276		-0.66	
311	D2360	0.03		0.56	
317	D6563	0.02	R(0.05)	-4.51	
323	D6563	0.02	R(0.05)	-4.51	
445		-----		-----	
446	D6563	0.033		2.09	
551	D6563	0.03		0.56	
555	D6563	0.0286		-0.15	
557	D6563	0.02894		0.02	
663	D6563	0.031		1.07	
823	D6563	0.0271		-0.91	
862	D6563	0.0284		-0.25	
913	D6563	0.0194	R(0.05)	-4.82	
1011	D5917	0.031		1.07	
1040	D6563	0.030		0.56	
1041	D6563	0.028		-0.45	
1067	D6563	0.03		0.56	
1081	D6563	0.03		0.56	
1107	D6563	0.027		-0.96	
1201	D6563	0.021	R(0.01)	-4.01	
1357		-----		-----	
1434	D4492	0.02835		-0.27	
1530	D2360	0.026		-1.47	
1538	D6563	0.028		-0.45	
1812	D6563	0.028		-0.45	
1866	D6563	0.028		-0.45	
6007	In house	0.025		-1.97	

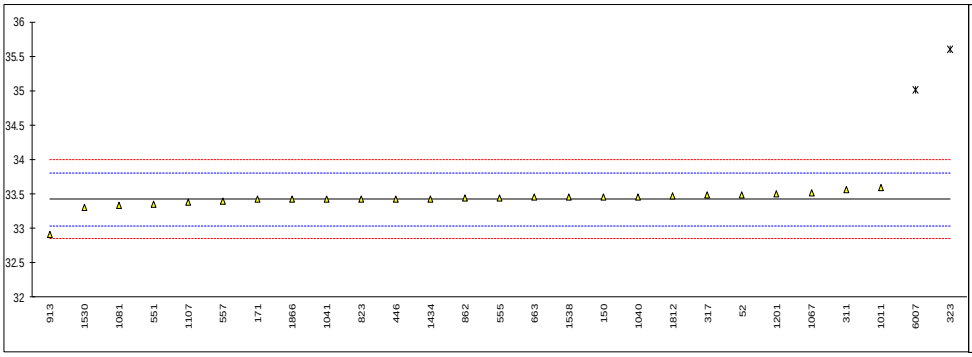
	normality	OK
	n	23
	outliers	4
	mean (n)	0.02889
	st.dev. (n)	0.001803
	R(calc.)	0.00505
	st.dev.(Horwitz)	0.001970
	R(Horwitz)	0.00552
Compare		
	R(D7504:17a)	0.00095

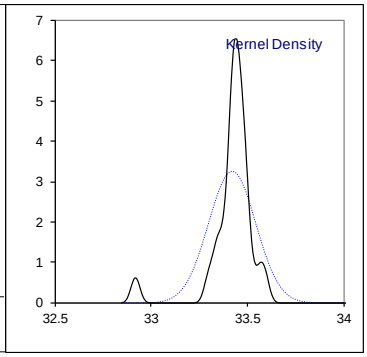


Determination of p-Xylene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	33.4873		0.34	
150	D6563	33.46		0.20	
171	D7504	33.4192		-0.01	
311	D2360	33.56		0.72	
317	D6563	33.48		0.30	
323	D6563	35.60	R(0.01)	11.38	
445		-----		-----	
446	D6563	33.430		0.04	
551	D6563	33.35		-0.38	
555	D6563	33.4465		0.13	
557	D6563	33.39473		-0.14	
663	D6563	33.453		0.16	
823	D6563	33.4224		0.00	
862	D6563	33.4350		0.07	
913	D6563	32.92		-2.62	
1011	D5917	33.592		0.89	
1040	D6563	33.461		0.20	
1041	D6563	33.421		0.00	
1067	D6563	33.51		0.46	
1081	D6563	33.34		-0.43	
1107	D6563	33.378		-0.23	
1201	D6563	33.497		0.39	
1357		-----		-----	
1434	D4492	33.43229		0.05	
1530	D2360	33.300		-0.64	
1538	D6563	33.458		0.19	
1812	D6563	33.479		0.30	
1866	D6563	33.420		-0.01	
6007	In house	35.008	R(0.01)	8.28	

	normality	not OK
	n	25
	outliers	2
	mean (n)	33.4219
	st.dev. (n)	0.12245
	R(calc.)	0.3429
	st.dev.(D7504:17a)	0.19145
	R(D7504:17a)	0.5361
Compare		
	R(D6563:12)	0.3200

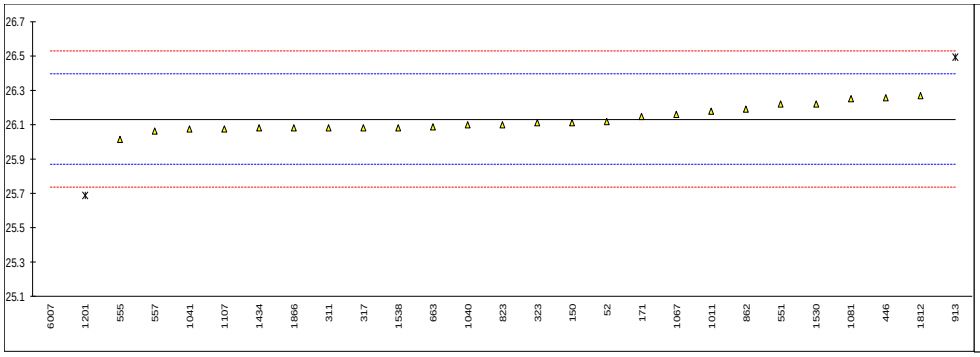


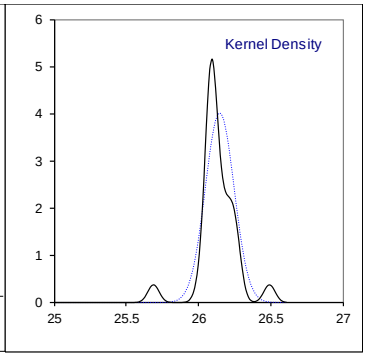


Determination of m-Xylene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	26.1182		-0.10	
150	D6563	26.11		-0.16	
171	D7504	26.1466		0.12	
311	D2360	26.08		-0.39	
317	D6563	26.08		-0.39	
323	D6563	26.11		-0.16	
445		-----		-----	
446	D6563	26.255		0.94	
551	D6563	26.22		0.67	
555	D6563	26.015		-0.88	
557	D6563	26.06426		-0.51	
663	D6563	26.086	C	-0.34	first reported 25.086
823	D6563	26.1015		-0.23	
862	D6563	26.1923		0.46	
913	D6563	26.49	R(0.01)	2.72	
1011	D5917	26.180		0.37	
1040	D6563	26.100		-0.24	
1041	D6563	26.073		-0.44	
1067	D6563	26.16		0.22	
1081	D6563	26.25		0.90	
1107	D6563	26.075		-0.43	
1201	D6563	25.687	R(0.01)	-3.37	
1357		-----		-----	
1434	D4492	26.07866		-0.40	
1530	D2360	26.223		0.70	
1538	D6563	26.084		-0.36	
1812	D6563	26.2688		1.04	
1866	D6563	26.079		-0.40	
6007	In house	22.620	R(0.01)	-26.61	

	normality	OK
	n	24
	outliers	3
	mean (n)	26.1313
	st.dev. (n)	0.07050
	R(calc.)	0.1974
	st.dev.(D7504:17a)	0.13195
	R(D7504:17a)	0.3695
Compare		
	R(D6563:12)	0.2187

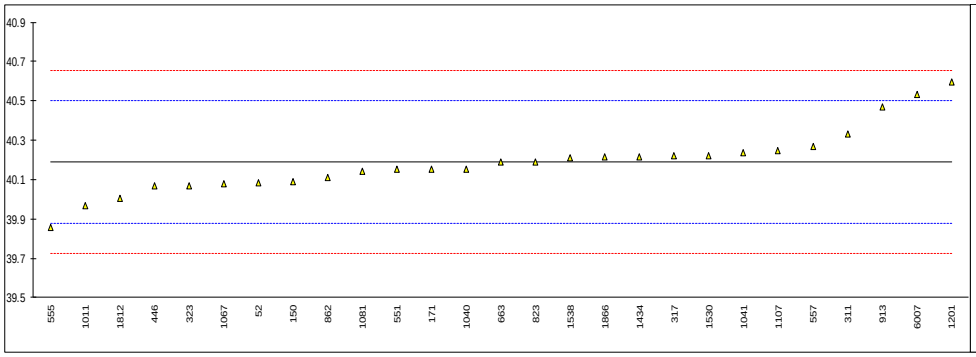


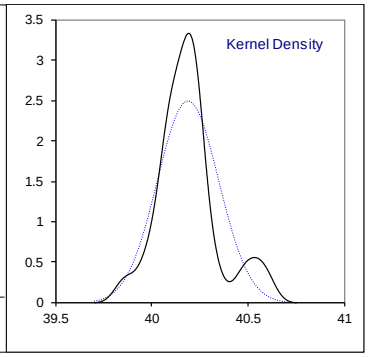


Determination of o-Xylene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	40.0848		-0.66	
150	D6563	40.09		-0.63	
171	D7504	40.1530		-0.22	
311	D2360	40.33		0.91	
317	D6563	40.22		0.21	
323	D6563	40.07		-0.76	
445		-----		-----	
446	D6563	40.069		-0.77	
551	D6563	40.15		-0.24	
555	D2360	39.859		-2.12	
557	D6563	40.26685		0.51	
663	D6563	40.190		0.01	
823	D6563	40.1909		0.02	
862	D6563	40.1114		-0.49	
913	D6563	40.47		1.82	
1011	D5917	39.965		-1.43	
1040	D6563	40.155		-0.21	
1041	D6563	40.236		0.31	
1067	D6563	40.08		-0.69	
1081	D6563	40.14		-0.31	
1107	D6563	40.247		0.38	
1201	D6563	40.594		2.61	
1357		-----		-----	
1434	D4492	40.21724		0.19	
1530	D2360	40.220		0.21	
1538	D6563	40.209		0.14	
1812	D6563	40.005		-1.18	
1866	D6563	40.217		0.19	
6007	In house	40.533		2.22	

	normality	suspect
	n	27
	outliers	0
	mean (n)	40.1879
	st.dev. (n)	0.15970
	R(calc.)	0.4472
	st.dev.(D6563:12)	0.15536
	R(D6563:12)	0.4350
Compare		
	R(D7504:17a)	2.0340

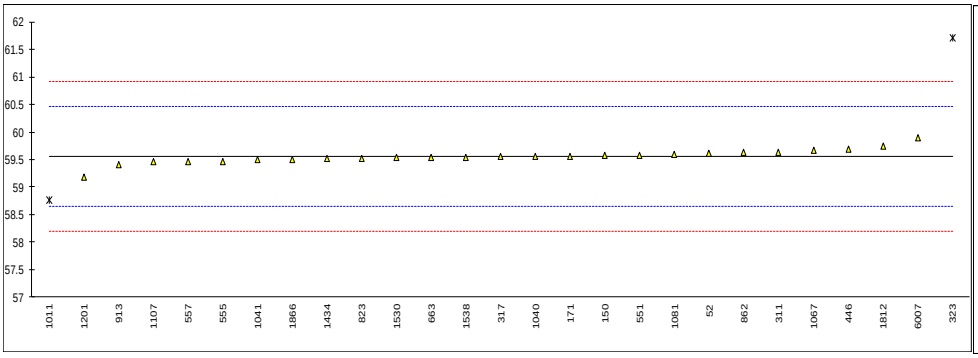


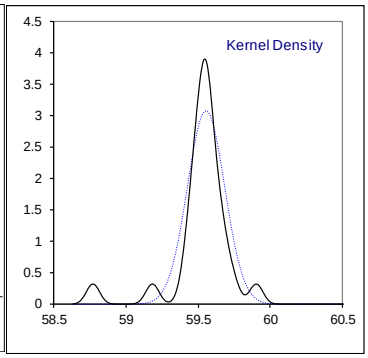


Determination of Sum of m+p-Xylene on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	59.6055		0.11	
150	D6563	59.57		0.03	
171	D7504	59.5658		0.02	
311	D2360	59.64		0.19	
317	D6563	59.56		0.01	
323	D6563	61.71	R(0.01)	4.74	
445		-----		-----	
446	D6563	59.684		0.28	
551	D6563	59.57		0.03	
555	D6563	59.46		-0.21	
557	D6563	59.45899		-0.21	
663	D6563	59.539	C	-0.04	first reported 58.539
823	D6563	59.5239		-0.07	
862	D6563	59.6273		0.16	
913	D6563	59.41		-0.32	
1011	D5917	58.772	R(0.01)	-1.72	
1040	D6563	59.561		0.01	
1041	D6563	59.494		-0.14	
1067	D6563	59.67		0.25	
1081	D6563	59.59		0.08	
1107	D6563	59.453		-0.23	
1201	D6563	59.184		-0.82	
1357		-----		-----	
1434	D4492	59.51095		-0.10	
1530	D2360	59.53		-0.06	
1538	D6563	59.542		-0.03	
1812	D6563	59.744		0.41	
1866	D6563	59.499		-0.13	
6007	In house	59.904		0.77	

	normality	not OK
	n	25
	outliers	2
	mean (n)	59.5559
	st.dev. (n)	0.12948
	R(calc.)	0.3625
	st.dev.(D7504:17a)	0.45462
	R(D7504:17a)	1.2729
Compare		
	R(D6563:12)	0.7573

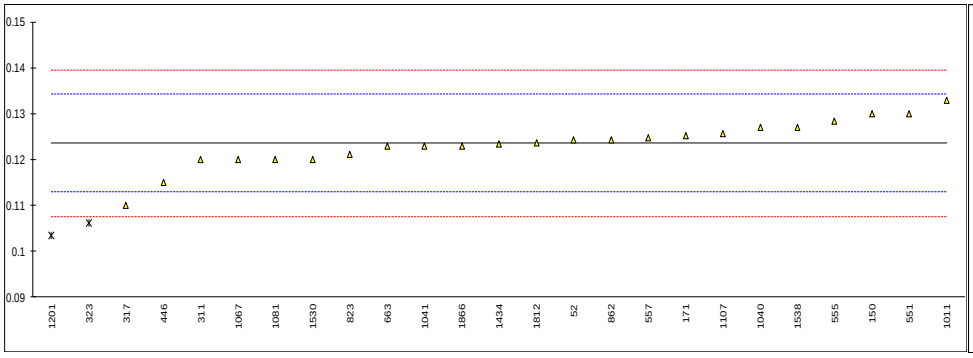


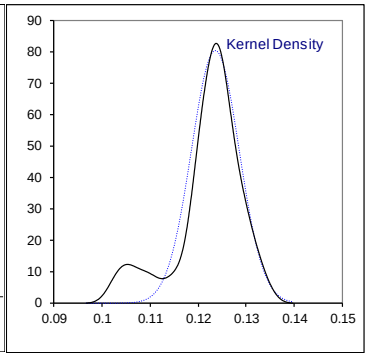


Determination of Isopropylbenzene (Cumene) on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.1243		0.14	
150	D6563	0.13		1.21	
171	D7504	0.1252		0.31	
311	D2360	0.120		-0.67	
317	D6563	0.11		-2.54	
323	D7504	0.1062	R(0.01)	-3.26	
445		-----		-----	
446	D6563	0.115		-1.61	
551	D6563	0.13		1.21	
555	D6563	0.1283		0.89	
557	D2360	0.12482		0.24	
663	D6563	0.123		-0.10	
823	D6563	0.1212		-0.44	
862	D6563	0.1243		0.14	
913		-----		-----	
1011	D5917	0.133		1.77	
1040	D6563	0.127		0.65	
1041	D6563	0.123		-0.10	
1067	D6563	0.12		-0.67	
1081	D6563	0.12		-0.67	
1107	D7504	0.1256		0.38	
1201	D6563	0.1034	R(0.01)	-3.78	
1357		-----		-----	
1434	D4492	0.12329		-0.05	
1530	D2360	0.120		-0.67	
1538	D2360	0.127		0.65	
1812	D6563	0.1237		0.03	
1866	D6563	0.123		-0.10	
6007		-----		-----	

	normality	suspect
	n	23
	outliers	2
	mean (n)	0.1236
	st.dev. (n)	0.00496
	R(calc.)	0.0139
	st.dev.(D7504:17a)	0.00533
	R(D7504:17a)	0.0149
Compare		
	R(D2360:11)	0.0161
	R(Horwitz)	0.0190

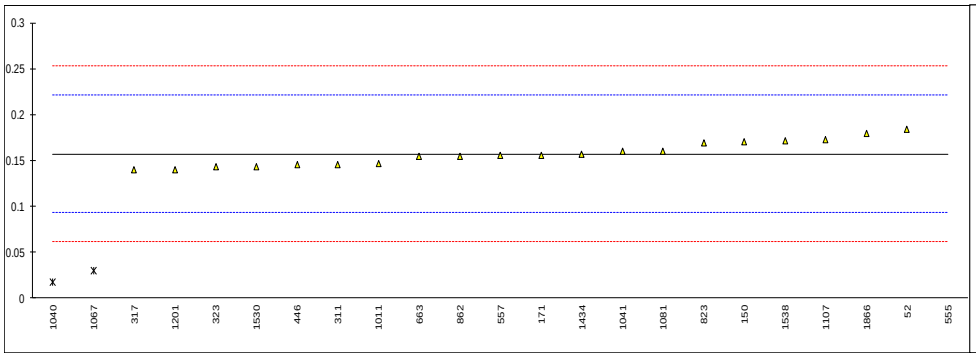


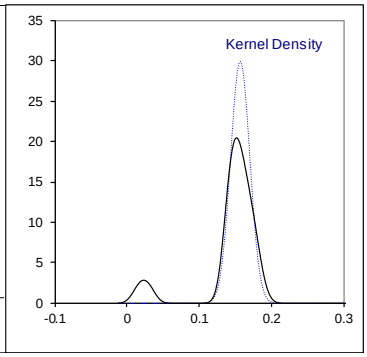


Determination of Sum of C9⁺ aromatics on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.1844		0.85	
150	D6563	0.17		0.40	
171	D7504	0.1560		-0.04	
311	D2360	0.146		-0.36	
317	D6563	0.14		-0.55	
323	D7504	0.1427		-0.46	
445		-----		-----	
446	D6563	0.145		-0.39	
551		-----		-----	
555	D2360	0.39965	R(0.01)	7.63	
557	D6563	0.15546		-0.06	
663	D6563	0.154		-0.10	
823	D6563	0.1690		0.37	
862	D6563	0.1540		-0.10	
913		-----		-----	
1011	D5917	0.147		-0.32	
1040	D6563	0.017	R(0.01)	-4.42	
1041	D6563	0.160		0.08	
1067	D6563	0.03	R(0.01)	-4.01	
1081	D6563	0.16		0.08	
1107	D6563	0.173		0.49	
1201	D6563	0.14		-0.55	
1357		-----		-----	
1434	D4492	0.15666		-0.02	
1530	D2360	0.143		-0.45	
1538	D6563	0.171		0.43	
1812		-----		-----	
1866	D6563	0.179		0.68	
6007		-----		-----	

	normality	OK
	n	20
	outliers	3
	mean (n)	0.1573
	st.dev. (n)	0.01334
	R(calc.)	0.0374
	st.dev.(D7504:17a)	0.03176
	R(D7504:17a)	0.0889
Compare		
	R(D6563:12)	0.0379
	R(Horwitz n=4)	0.0465

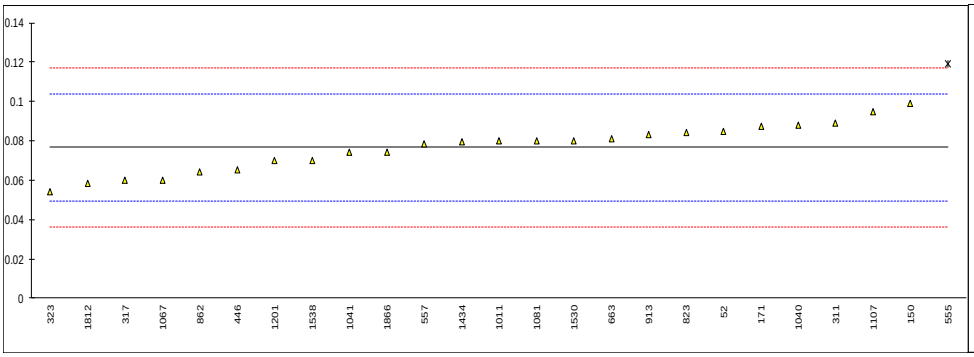


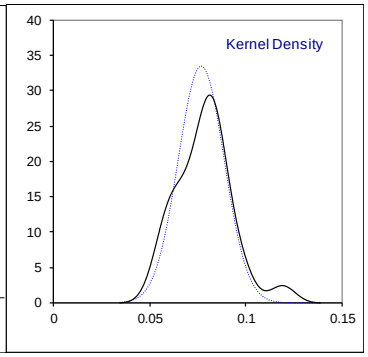


Determination of Nonaromatics on sample #17195; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.0846		0.59	
150	D6563	0.10	C	1.65	first reported 0.11
171	D7504	0.0874		0.80	
311	D2360	0.089		0.91	
317	D6563	0.06		-1.23	
323	D7504	0.0539		-1.68	
445		-----		-----	
446	D6563	0.065		-0.86	
551		-----		-----	
555	D2360	0.11895	R(0.01)	3.13	
557	D2360	0.07859		0.14	
663	D6563	0.081		0.32	
823	D6563	0.0843		0.57	
862	D6563	0.0641		-0.93	
913	D2360	0.0833		0.49	
1011	D5917	0.080		0.25	
1040	D6563	0.088		0.84	
1041	D6563	0.074		-0.19	
1067	D6563	0.06		-1.23	
1081	D6563	0.08		0.25	
1107	D6563	0.095		1.36	
1201	D6563	0.07		-0.49	
1357		-----		-----	
1434	D4492	0.07974		0.23	
1530	D2360	0.08		0.25	
1538	D2360	0.070		-0.49	
1812	D6563	0.0582		-1.36	
1866	D6563	0.074		-0.19	
6007		-----		-----	

	normality	OK
	n	24
	outliers	1
	mean (n)	0.07663
	st.dev. (n)	0.011929
	R(calc.)	0.03340
	st.dev.(Horwitz)	0.013536
	R(Horwitz n=9)	0.03790
Compare		
	R(D7504:17a)	0.00891
	R(D2360:11)	0.02441

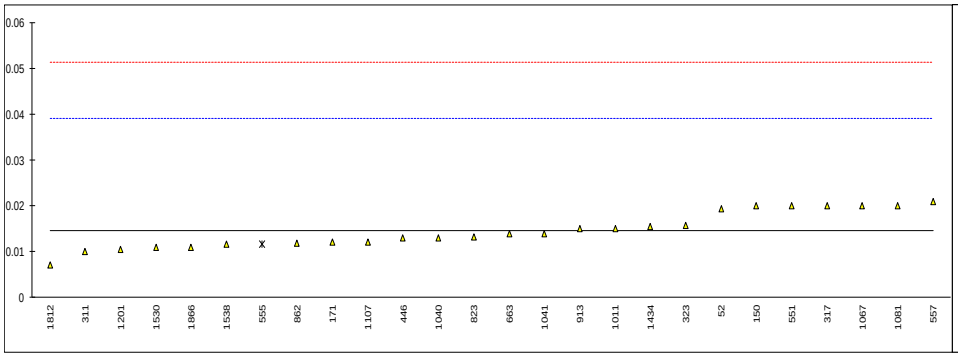


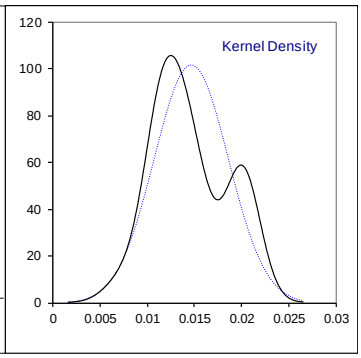


Determination of Benzene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.0193		0.38	
150	D6563	0.02		0.44	
171	D7504	0.0120		-0.22	
311	D2360	0.010		-0.38	
317	D6563	0.02		0.44	
323	D7504	0.0157		0.09	
445		-----		-----	
446	D6563	0.013		-0.13	
551	D6563	0.02		0.44	
555	D2360	0.0117	ex	-0.24	see §4.1
557	D6563	0.020985		0.52	
663	D6563	0.014		-0.05	
823	D6563	0.0133		-0.11	
862	D6563	0.0119		-0.22	
913	D2360	0.0150		0.03	
1011	D5917	0.015		0.03	
1040	D6563	0.013		-0.13	
1041	D6563	0.014		-0.05	
1067	D6563	0.02		0.44	
1081	D6563	0.02		0.44	
1107	D6563	0.012		-0.22	
1201	D6563	0.0105		-0.34	
1357		-----		-----	
1434	D4492	0.01557		0.08	
1530	D2360	0.011		-0.30	
1538	D2360	0.0116		-0.25	
1812		0.0071		-0.62	
1866	D6563	0.011		-0.30	
6007	In house	n.n.		-----	

	normality	OK
	n	25
	outliers	1
	mean (n)	0.01464
	st.dev. (n)	0.003919
	R(calc.)	0.01097
	st.dev.(D7504:17a)	0.012199
	R(D7504:17a)	0.03416
Compare		
	R(Horwitz)	0.00310

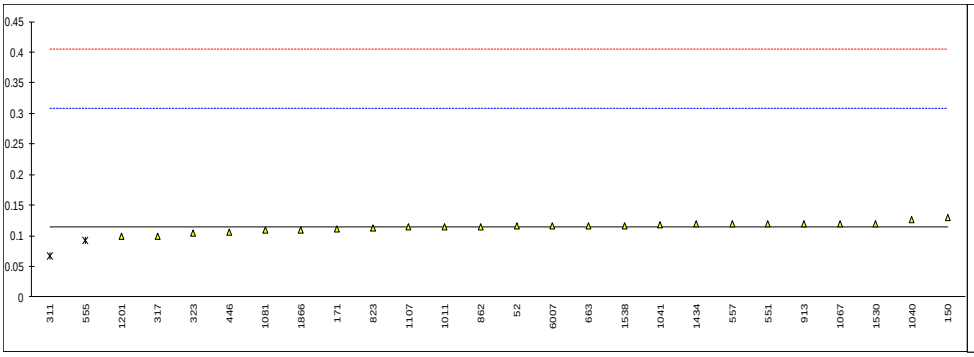


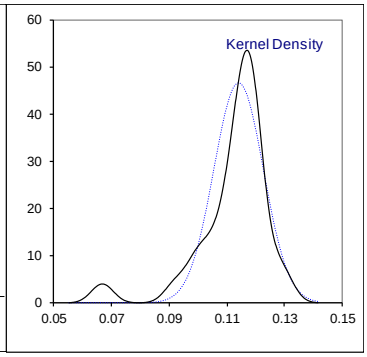


Determination of Toluene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.1159		0.01	
150	D6563	0.13		0.16	
171	D7504	0.1119		-0.03	
311	D2360	0.067	R(0.01)	-0.50	
317	D6563	0.10		-0.15	
323	D7504	0.1045		-0.11	
445		-----		-----	
446	D6563	0.106		-0.09	
551	D6563	0.12		0.05	
555	D6563	0.09225	ex	-0.23	see §4.1
557	D2360	0.11991		0.05	
663	D6563	0.117		0.02	
823	D6563	0.1131		-0.02	
862	D6563	0.1154		0.00	
913	D2360	0.120		0.05	
1011	D5917	0.115		0.00	
1040	D6563	0.127		0.12	
1041	D6563	0.118		0.03	
1067	D6563	0.12		0.05	
1081	D6563	0.11		-0.05	
1107	D6563	0.114		-0.01	
1201	D6563	0.0992		-0.16	
1357		-----		-----	
1434	D4492	0.11964		0.05	
1530	D2360	0.120		0.05	
1538	D2360	0.117		0.02	
1812		-----		-----	
1866	D6563	0.110		-0.05	
6007	In house	0.116		0.01	

	normality	OK
	n	24
	outliers	1 (+1 excl)
	mean (n)	0.1150
	st.dev. (n)	0.00741
	R(calc.)	0.0208
	st.dev.(D7504:17a)	0.09689
	R(D7504:17a)	0.2713
Compare		
	R(Horwitz)	0.0178
	R(D2360:11)	0.0271

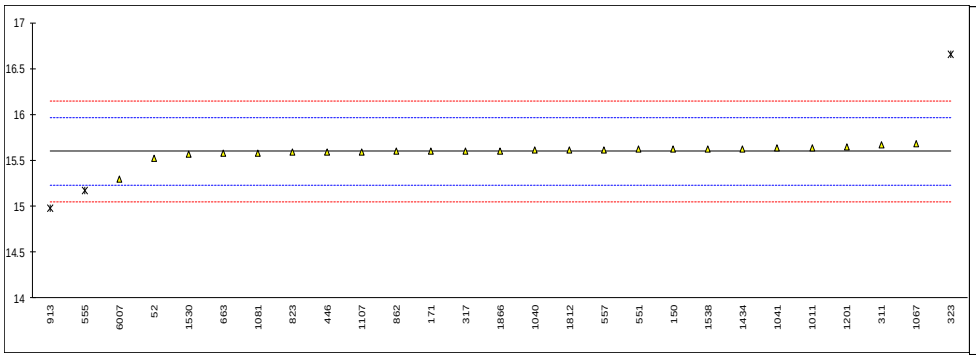


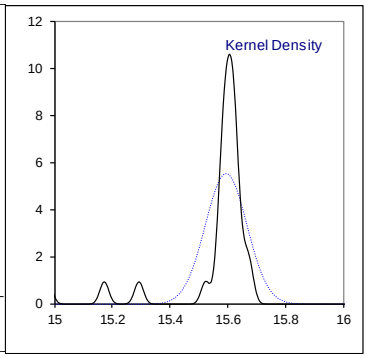


Determination of Ethylbenzene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	15.5257		-0.39	
150	D6563	15.62		0.13	
171	D7504	15.5974		0.00	
311	D2360	15.67		0.40	
317	D6563	15.60		0.02	
323	D6563	16.66	R(0.01)	5.82	
445		-----		-----	
446	D6563	15.591		-0.03	
551	D6563	15.62		0.13	
555	D6563	15.1749	ex	-2.31	See §4.1
557	D6563	15.616755		0.11	
663	D6563	15.576		-0.11	
823	D6563	15.5881		-0.05	
862	D6563	15.5967		0.00	
913	D6563	14.98	R(0.01)	-3.38	
1011	D5917	15.638		0.23	
1040	D6563	15.614	C	0.09	
1041	D6563	15.632		0.19	
1067	D6563	15.68		0.46	
1081	D6563	15.58		-0.09	
1107	D6563	15.594		-0.02	
1201	D6563	15.65		0.29	
1357		-----		-----	
1434	D4492	15.62518		0.15	
1530	D2360	15.571		-0.14	
1538	D6563	15.625		0.15	
1812	D6563	15.6153	C	0.10	first reported 15.8074
1866	D6563	15.604		0.04	
6007	In house	15.295		-1.65	

	normality	not OK
	n	24
	outliers	2 (+1 excl)
	mean (n)	15.5969
	st.dev. (n)	0.07207
	R(calc.)	0.2018
	st.dev.(D7504:17a)	0.18266
	R(D7504:17a)	0.5114
Compare		
	R(D6563:12)	0.1331

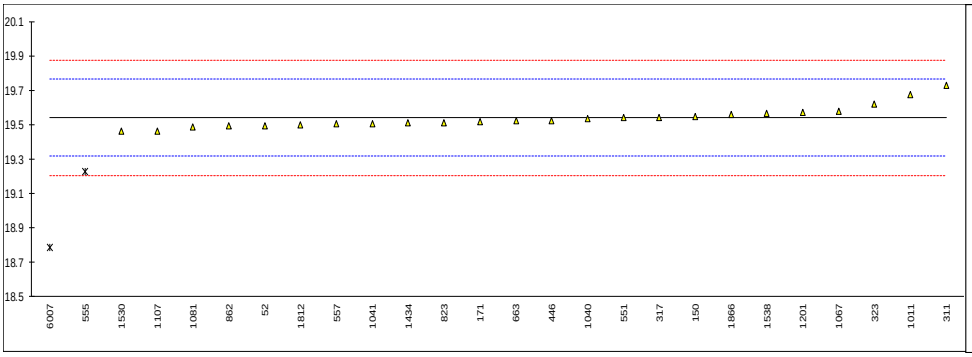


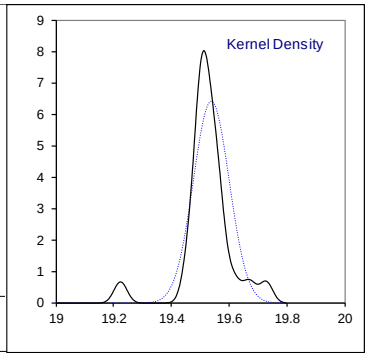


Determination of p-Xylene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	19.4957		-0.40	
150	D6563	19.55		0.09	
171	D7504	19.5167		-0.21	
311	D2360	19.73		1.70	
317	D6563	19.54		0.00	
323	D6563	19.62		0.71	
445		-----		-----	
446	D6563	19.525		-0.13	
551	D6563	19.54		0.00	
555	D6563	19.226	R(0.01)	-2.81	
557	D6563	19.505515		-0.31	
663	D6563	19.521		-0.17	
823	D6563	19.5120		-0.25	
862	D6563	19.4955		-0.40	
913		-----		-----	
1011	D5917	19.672		1.18	
1040	D6563	19.536	C	-0.04	first reported 19.578
1041	D6563	19.506		-0.30	
1067	D6563	19.58		0.36	
1081	D6563	19.49		-0.45	
1107	D6563	19.463		-0.69	
1201	D6563	19.57		0.27	
1357		-----		-----	
1434	D4492	19.50838		-0.28	
1530	D2360	19.462		-0.70	
1538	D6563	19.563		0.20	
1812	D6563	19.5000		-0.36	
1866	D6563	19.560		0.18	
6007	In house	18.788	R(0.01)	-6.72	

	normality	not OK
	n	24
	outliers	2
	mean (n)	19.5401
	st.dev. (n)	0.06213
	R(calc.)	0.1740
	st.dev.(D7504:17a)	0.11186
	R(D7504:17a)	0.3132
Compare		
	R(D6563:12)	0.1871

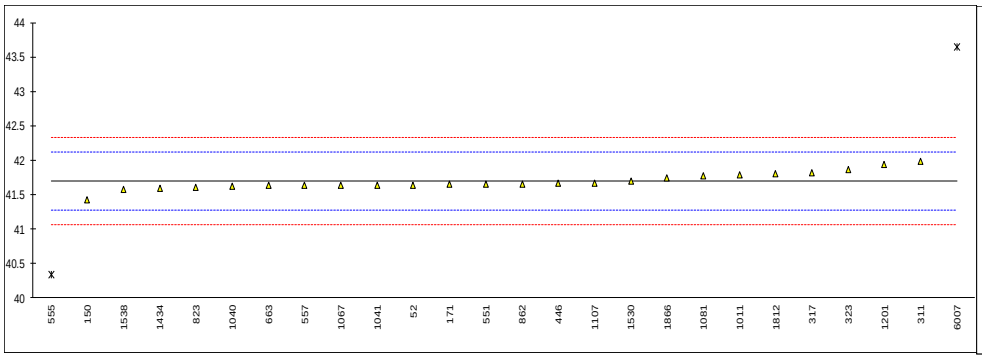


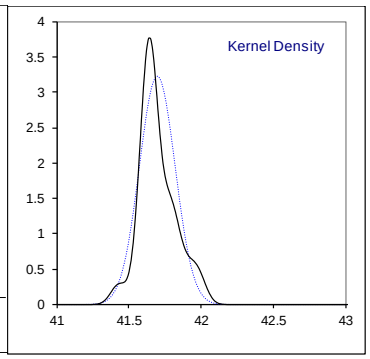


Determination of m-Xylene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	41.6436		-0.25	
150	D6563	41.43		-1.27	
171	D7504	41.6498		-0.22	
311	D2360	41.99	C	1.39	first reported 42.39
317	D6563	41.82		0.58	
323	D6563	41.87		0.82	
445		-----		-----	
446	D6563	41.668		-0.14	
551	D6563	41.65		-0.22	
555	D6563	40.332	R(0.01)	-6.48	
557	D6563	41.634125		-0.30	
663	D6563	41.633		-0.30	
823	D6563	41.6096		-0.42	
862	D6563	41.6550		-0.20	
913		-----		-----	
1011	D5917	41.783		0.41	
1040	D6563	41.619	C	-0.37	first reported 41.660
1041	D6563	41.643		-0.26	
1067	D6563	41.64		-0.27	
1081	D6563	41.78		0.39	
1107	D6563	41.670		-0.13	
1201	D6563	41.94		1.15	
1357		-----		-----	
1434	D4492	41.59329		-0.49	
1530	D2360	41.695		-0.01	
1538	D6563	41.575		-0.58	
1812	D6563	41.7995		0.49	
1866	D6563	41.738		0.19	
6007	In house	43.642	R(0.01)	9.24	

	normality	OK
	n	24
	outliers	2
	mean (n)	41.6970
	st.dev. (n)	0.12370
	R(calc.)	0.3464
	st.dev.(D7504:17a)	0.21055
	R(D7504:17a)	0.5895
Compare		
	R(D6563:12)	0.3490

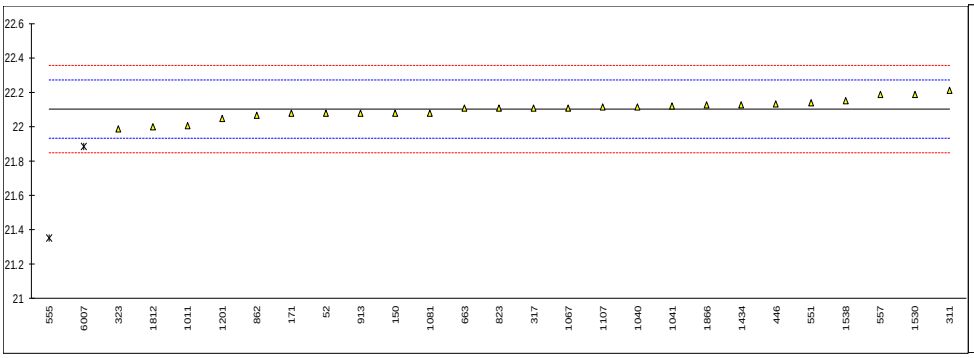


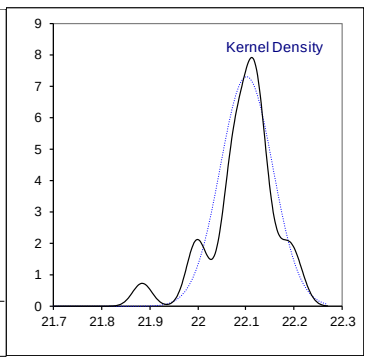


Determination of o-Xylene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	22.0771		-0.29	
150	D6563	22.08		-0.26	
171	D7504	22.0755		-0.31	
311	D2360	22.21		1.26	
317	D6563	22.11		0.09	
323	D6563	21.99		-1.31	
445		-----		-----	
446	D6563	22.135		0.38	
551	D6563	22.14		0.44	
555	D2360	21.3535	R(0.01)	-8.76	
557	D6563	22.18515		0.97	
663	D6563	22.105		0.03	
823	D6563	22.1096		0.09	
862	D6563	22.0680		-0.40	
913	D6563	22.08		-0.26	
1011	D5917	22.004		-1.15	
1040	D6563	22.115	C	0.15	first reported 22.149
1041	D6563	22.122		0.23	
1067	D6563	22.11		0.09	
1081	D6563	22.08		-0.26	
1107	D6563	22.114		0.14	
1201	D6563	22.05		-0.61	
1357		-----		-----	
1434	D4492	22.12635		0.28	
1530	D2360	22.189		1.02	
1538	D6563	22.152		0.58	
1812	D6563	22.0022		-1.17	
1866	D6563	22.124		0.26	
6007	In house	21.885	R(0.05)	-2.54	

	normality	OK
	n	25
	outliers	2
	mean (n)	22.1022
	st.dev. (n)	0.05474
	R(calc.)	0.1533
	st.dev.(D6563:12)	0.08544
	R(D6563:12)	0.2392
Compare		
	R(7504:17a)	1.1186

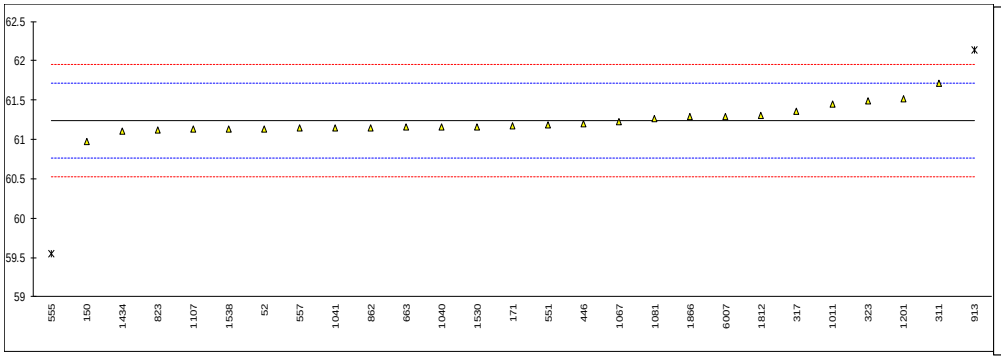


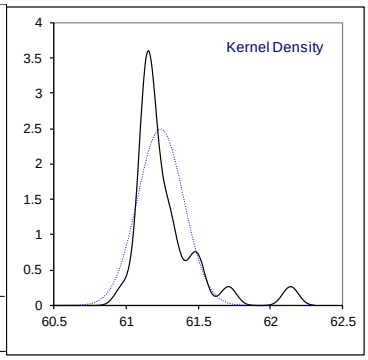


Determination of Sum of m+p-Xylene on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	61.1393		-0.21	
150	D6563	60.98		-0.55	
171	D7504	61.1665		-0.16	
311	D2360	61.71	C	1.01	first reported 62.12
317	D6563	61.36		0.26	
323	D6563	61.49		0.54	
445		-----		-----	
446	D6563	61.194		-0.10	
551	D6563	61.19		-0.11	
555	D6563	59.545	R(0.01)	-3.62	
557	D6563	61.13964		-0.21	
663	D6563	61.154		-0.18	
823	D6563	61.1216		-0.25	
862	D6563	61.1505		-0.19	
913	D6563	62.14	R(0.01)	1.93	
1011	D5917	61.455		0.46	
1040	D6563	61.155		-0.18	
1041	D6563	61.149		-0.19	
1067	D6563	61.22		-0.04	
1081	D6563	61.27		0.07	
1107	D6563	61.133		-0.23	
1201	D6563	61.51		0.58	
1357		-----		-----	
1434	D4492	61.10167		-0.29	
1530	D2360	61.16		-0.17	
1538	D6563	61.138		-0.22	
1812	D6563	61.2995		0.13	
1866	D6563	61.298		0.13	
6007	In house	61.298		0.13	

	normality	not OK
	n	25
	outliers	2
	mean (n)	61.2393
	st.dev. (n)	0.16055
	R(calc.)	0.4495
	st.dev.(D7504:17a)	0.46747
	R(D7504:17a)	1.3089
Compare		
	R(D6563:12)	0.7787

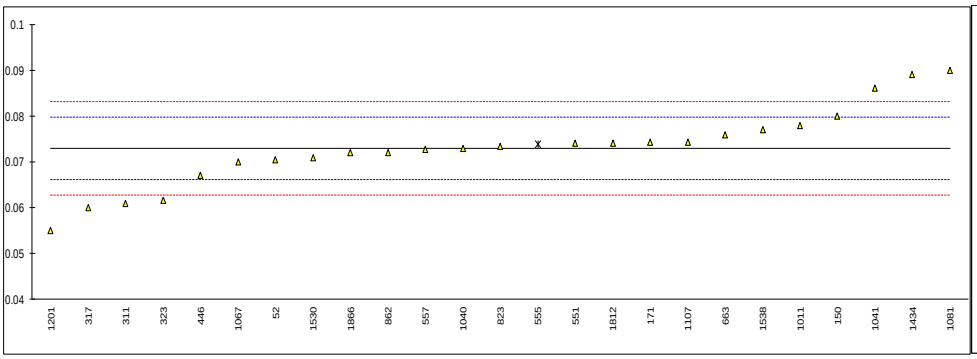


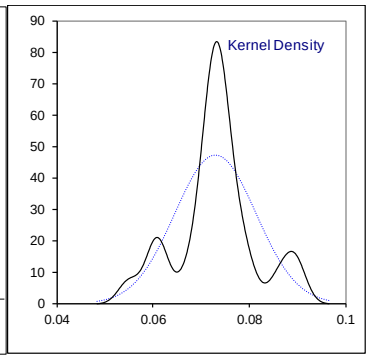


Determination of Isopropylbenzene (Cumene) on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.0705		-0.79	
150	D6563	0.08		2.23	
171	D7504	0.0743		0.41	
311	D2360	0.061		-3.81	
317	D6563	0.06		-4.13	
323	D7504	0.0616		-3.62	
445		-----		-----	
446	D6563	0.067		-1.90	
551	D6563	0.074	C	0.32	first reported 0.72
555	D6563	0.0739	ex	0.29	see §4.1
557	D2360	0.072685		-0.10	
663	D6563	0.076		0.96	
823	D6563	0.0733		0.10	
862	D6563	0.0721		-0.28	
913		-----		-----	
1011	D5917	0.078		1.59	
1040	D6563	0.073		0.00	
1041	D6563	0.086		4.13	
1067	D6563	0.07		-0.95	
1081	D6563	0.09		5.40	
1107	D7504	0.0744		0.45	
1201	D6563	0.055		-5.72	
1357		-----		-----	
1434	D4492	0.08898		5.08	
1530	D2360	0.071		-0.63	
1538	D2360	0.077		1.27	
1812	D6563	0.074		0.32	
1866	D6563	0.072		-0.32	
6007		-----		-----	

	normality	OK
	n	24
	outliers	0 (+1 excl)
	mean (n)	0.07299
	st.dev. (n)	0.008450
	R(calc.)	0.02366
	st.dev.(D7504:17a)	0.003147
	R(D7504:17a)	0.00881
Compare		
	R(Horwitz)	0.01212
	R(D2360:11)	0.00949

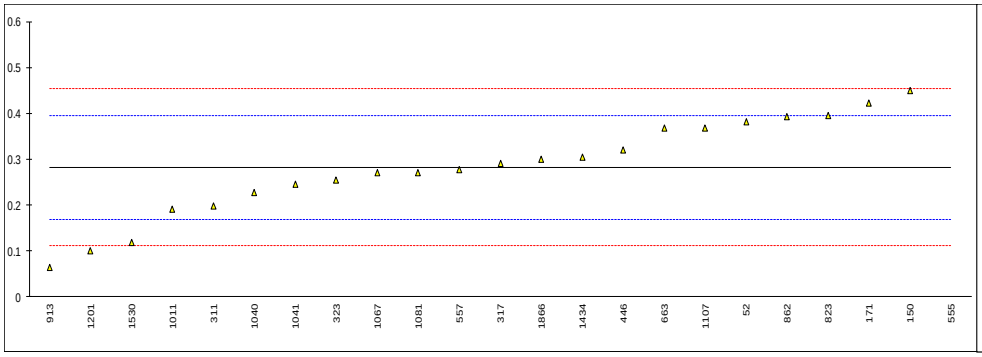


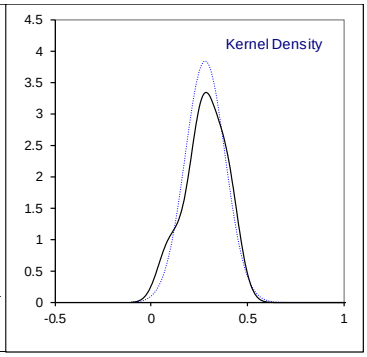


Determination of Sum of C9⁺ aromatics on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.3805		1.72	
150	D6563	0.45		2.94	
171	D7504	0.4212		2.44	
311	D2360	0.197		-1.50	
317	D6563	0.29		0.14	
323	D7504	0.2553		-0.47	
445		-----		-----	
446	D6563	0.321		0.68	
551		-----		-----	
555	D2360	2.63105	R(0.01)	41.22	
557	D6563	0.278245		-0.07	
663	D6563	0.368		1.50	
823	D6563	0.3944		1.97	
862	D6563	0.3921		1.93	
913	D6563	0.064		-3.83	
1011	D5917	0.192		-1.58	
1040	D6563	0.228	C	-0.95	first reported 0.059
1041	D6563	0.246		-0.64	
1067	D6563	0.27		-0.22	
1081	D6563	0.27		-0.22	
1107	D6563	0.369		1.52	
1201	D6563	0.10	C	-3.20	first reported 0.15
1357		-----		-----	
1434	D4492	0.30496		0.40	
1530	D2360	0.118		-2.88	
1538		-----		-----	
1812		-----		-----	
1866	D6563	0.300		0.31	
6007		-----		-----	

	normality	OK
	n	22
	outliers	1
	mean (n)	0.28226
	st.dev. (n)	0.104096
	R(calc.)	0.29147
	st.dev.(D7504:17a)	0.056978
	R(D7504:17a)	0.15954
Compare		
	R(D6563:12)	0.06794
	R(Horwitz n=4)	0.07649

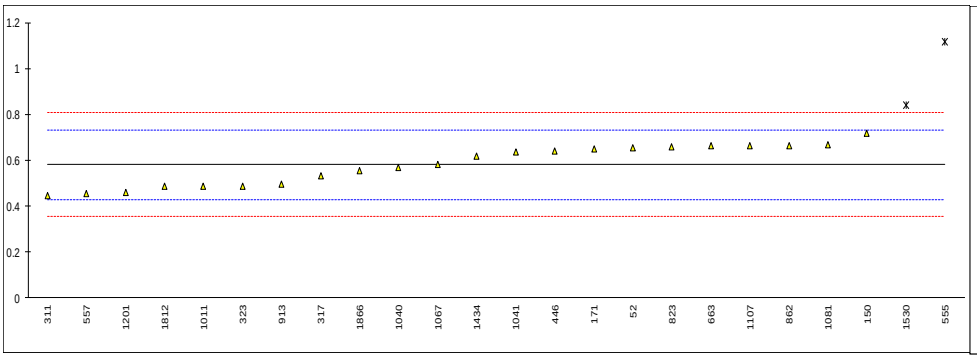


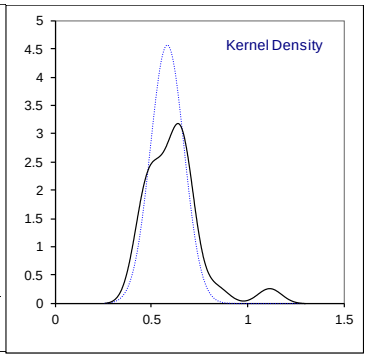


Determination of Nonaromatics on sample #17196; results in %M/M

lab	method	value	mark	z(targ)	remarks
52	D7504	0.6560		0.99	
150	D6563	0.72		1.83	
171	D7504	0.6514		0.93	
311	D2360	0.445	C	-1.81	first reported 0.413
317	D6563	0.53		-0.68	
323	D7504	0.4866		-1.25	
445		-----		-----	
446	D6563	0.641		0.79	
551		-----		-----	
555	D2360	1.11465	R(0.01)	7.05	
557	D2360	0.454595		-1.67	
663	D6563	0.663		1.08	
823	D6563	0.6599		1.04	
862	D6563	0.6650		1.11	
913	D2360	0.495		-1.14	
1011	D5917	0.486		-1.26	
1040	D6563	0.569	C	-0.16	first reported 0.586
1041	D6563	0.636		0.72	
1067	D6563	0.58		-0.02	
1081	D6563	0.67		1.17	
1107	D6563	0.664		1.09	
1201	D6563	0.46		-1.60	
1357		-----		-----	
1434	D4492	0.61765		0.48	
1530	D2360	0.841	R(0.01)	3.43	
1538		-----		-----	
1812	D6563	0.4852	C	-1.27	first reported 0.415
1866	D6563	0.554		-0.36	
6007		-----		-----	

	normality	OK
	n	22
	outliers	2
	mean (n)	0.58131
	st.dev. (n)	0.087265
	R(calc.)	0.24434
	st.dev.(Horwitz)	0.075692
	R(Horwitz n=9)	0.21194
Compare		
	R(D7504:17a)	0.06761
	R(D2360:11)	0.18515





APPENDIX 2

Number of participants per country

2 labs in	BELGIUM
3 labs in	BRAZIL
1 lab in	CANADA
1 lab in	CHINA, People's Republic
5 labs in	GERMANY
1 lab in	INDIA
1 lab in	ISRAEL
5 labs in	NETHERLANDS
1 lab in	OMAN
1 lab in	POLAND
1 lab in	PORTUGAL
1 lab in	SAUDI ARABIA
1 lab in	SOUTH KOREA
1 lab in	THAILAND
2 labs in	UNITED KINGDOM
2 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
ex = test result excluded from the statistical evaluation
n.a. = not applicable
n.e. = not evaluated
n.d. = not detected
fr. = first reported
SDS = Safety Data Sheet

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