# Results of Proficiency Test Biodiesel 100% FAME (B100) April 2011


Organised by: Institute for Interlaboratory Studies
Spijkenisse, the Netherlands

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# 1 INTRODUCTION

Since 2001, a proficiency test for Fatty Acid Methyl Esters (FAME) used as Biodiesel B100 is organised every year by the Institute for Interlaboratory Studies (iis).
In this interlaboratory study 53 laboratories from 28 different countries have participated. See appendix 2 for a list of number of participants per country. In this report the results of the Biodiesel B100 proficiency test are presented and discussed.

# 2 SET UP

In this proficiency test Biodiesel B100 produced from Rapeseed Oil was used. Sample analyses for fit-for-use and homogeneity testing were subcontracted. It was decided to send one 0.5 litre and one 1 litre bottle of Biodiesel B100 (both labelled #11036), and separately a 1 litre bottle Biodiesel B100 (labelled #11037) specifically for Total Contamination test and another 0.5 litre bottle Biodiesel B100 (labelled #11038) specifically for Cold Soak Test and/or Filter Bocking Tendency.
The test scopes were set up according to both EN14214/:08+A1:09 and ASTM D6751:09 specifications. Participants were requested to report the analytical results as "rounded and unrounded results" and to use the indicated units on the report form(s). The unrounded results were preferably used for statistical evaluation.

## 2.1 QUALITY SYSTEM

The Institute for Interlaboratory Studies in Spijkenisse, the Netherlands, has implemented a quality system based on ISO guide 43, ILAC-G13:2007 and ISO 17043:2010.
This ensures 100% confidentially of participant's data. Also customer's satisfaction is measured on regular basis by the distribution of questionnaires.

## 2.2 PROTOCOL

The protocol followed in the organization of this proficiency test was the one as described for proficiency testing in the report 'iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2), which can be downloaded from www.iisnl.com.

## 2.3 CONFIDENTIALITY STATEMENT

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

## 2.4 SAMPLES

The necessary bulk material of Biodiesel B100 type RME “Rapeseed Methyl Ester” was purchased from a European producer. After fit-for-use testing and homogenisation in a precleaned metal drum, the B100 was transferred to 83 brown glass bottles of 1 litre and 83 brown bottles of 500 ml, both labelled #11036.
The homogeneity of the subsamples #11036 was checked by the determination of Water in accordance with ISO12937:02 and Density in accordance with ASTM D4052:09 on 10 stratified randomly selected samples:

| | Water in mg/kg | Density at 15ºC in kg/m$^3$ |
|---|---|---|
| sample 1 #11036-1 | 243 | 882.7 |
| sample 2 #11036-2 | 272 | 882.7 |
| sample 3 #11036-3 | 250 | 882.8 |
| sample 4 #11036-4 | 250 | 882.7 |
| sample 5 #11036-5 | 260 | 882.8 |
| sample 6 #11036-6 | 241 | 882.7 |
| sample 7 #11036-7 | 234 | 882.8 |
| sample 8 #11036-8 | 240 | 882.8 |
| sample 9 #11036-9 | 275 | 882.8 |
| sample 10 #11036-10 | 260 | 882.8 |

table 1: homogeneity test of subsamples #11036

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:

| | Water in mg/kg | Density at 15ºC in kg/m$^3$ |
|---|---|---|
| r (sample #11036) | 34.8 | 0.10 |
| Reference test | ISO12937:00 | ISO12185:96 |
| 0.3*$R_{(reference\ test)}$ | 32.9 | 0.15 |

table 2: repeatabilities of subsamples #11036

Each calculated repeatability was equal or less than 0.3 times the corresponding reproducibility of the respective reference method. The above difference between 34.8 and 32.9 is not significant. Therefore, homogeneity of the subsamples was assumed.

For Total Contamination approx 50 litre of bulk material was used. After homogenization, the material was subsequently divided over 62 amber glass bottles of 1L with inner and outer caps (85% filled) and labelled #11037. Each sample was spiked with 1 ml of a freshly prepared and ultrasonically homogenized, 25 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspension. The homogeneity was checked by weighing the bottles before and after addition of the spike.

For “Cold Soak Test” determination 32 bottles of 0.5 litre with the regular Biodiesel B100 were filled and labelled #11038. For homogeneity of subsamples #11038 see table 1.

Depending on the registration of the participant, two bottles labelled #11036 (1x1 L and 1x0.5 L), and/or one 1 litre bottle labelled #11037, and/or one 0.5 litre bottle labelled #11038, were dispatched to each of the participating laboratories on April 6, 2011.

### 2.5 STABILITY OF THE SAMPLES

The stability of the Biodiesel B100, packed in the brown glass bottles, was checked. The material was found sufficiently stable for the period of the proficiency test.

### 2.6 ANALYSES

The tests methods to be used by the participating laboratories should be in accordance with the requirements of EN14214:03/:08+A1:09 and/or ASTM D6751:09, e.g.:

| Parameter | EN14214/:08+A1:09 | Parameter | ASTM D6751:09 |
|---|---|---|---|
| Acid Value | EN14104 | Acid Number | ASTM D664 |
| Carbon Residue | ISO10370 | Carbon Residue | ASTM D4530 |
| CFPP | EN116 | | |
| Copper Strip Corrosion | ISO2160 | Copper Strip Corrosion | ASTM D130 |
| Total Contamination | EN12662 | | |
| Density @ 15°C | ISO12185 | | |
| Flash Point | ISO3679 | Flash Point | ASTM D93-C |
| Iodine Value | EN14111 | | |
| Kin. Visc. @ 40°C | ISO3104 | Kin. Visc. @ 40°C | ASTM D445 |
| Oxidation Stability | EN14112 | Oxidation Stability | EN14112 |
| Sulphated Ash | ISO3987 | Sulphated Ash | ASTM D874 |
| Sulphur | ISO20846 | Sulphur | ASTM D5453 |
| Water | ISO12937 | Water and Sediment | ASTM D2709 |
| Calcium + Magnesium | EN14538 | Calcium + Magnesium | EN14538 |
| Phosphorus | EN14107 | Phosphorus | ASTM D4951 |
| Potassium + Sodium | EN14108/14109 | Potassium + Sodium | EN14538 |
| Methanol | EN14110 | Methanol | EN14110 |
| mono-, di-, tri-Glycerides | EN14105 | | |
| Free + Total Glycerol | EN14105 | Free + Total Glycerol | ASTM D6584 |
| Total ester content | EN14103 | | |
| Linolenic Acid | EN14103 | | |

table 3: requirements and test methods acc. to specifications EN14214/:08+A1:09 and ASTM D6751:09

To get comparable results a detailed report form, on which the units were prescribed as well as some of the required standards, was sent together with each set of samples. Also a letter of instructions and a SDS were added to the package.

## 3 RESULTS

During four weeks after sample despatch, the results of the individual laboratories were gathered. The original data are tabulated per determination in the appendix 1 of this report. The laboratories are presented by their code numbers.
Directly after deadline, a reminder fax was sent to those laboratories that had not yet reported. Shortly after the deadline, the available results were screened for suspect data. A result was called suspect in case the Huber Elimination Rule (a robust outlier test) found

it to be an outlier. The laboratories that produced these suspect data were asked to check the (raw data of the) reported results. Additional or corrected results have been used for data analysis and the original results are placed under 'Remarks' in the result tables in appendix 1.

## 3.1 STATISTICS

Statistical calculations were performed as described in the report 'iis Interlaboratory Studies: Protocol for the Organization, Statistics and Evaluation' of January 2010 (iis-protocol, version 3.2).

For the statistical evaluation the *unrounded* (when available) figures were used instead of the rounded results. Results reported as '<…' or '>…' were not used in the statistical evaluation.
First, the normality of the distribution of the various data sets per determination was checked by means of the Lilliefors-test. After removal of outliers, this check was repeated. Not all data sets proved to have a normal distribution, in which cases the conclusions of statistical evaluation should be used with due care.
In accordance with ISO 5725 (1986 and 1994) the original results per determination were submitted subsequently to Dixon and Grubbs outlier tests.
Outliers are marked by D(0.01) for the Dixon test, by G(0.01) or DG(0.01) for the Grubbs test. Stragglers are marked by D(0.05) for the Dixon test, by G(0.05) or DG(0.05) for the Grubbs test. Both outliers and stragglers were not included in the calculations of averages and standard deviations.

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

## 3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported analysis results are plotted. The corresponding laboratory numbers are under the X-axis.
The straight horizontal line presents the consensus value (a trimmed mean). The four striped lines, parallel to the consensus value line, are the +3s, +2s, -2s and -3s target reproducibility limits of the selected standard. Outliers and other data, which were excluded from the calculations, are represented as a cross. Accepted data are represented as a triangle.
Furthermore, Kernel Density Graphs were made. This is a method for producing a smooth density approximation to a set of data that avoids some problems associated with histograms (see appendix 3, nr.12-13).

### 3.3 Z-SCORES

To evaluate the performance of the participating laboratories the z-scores were calculated. As it was decided to evaluate the performance of the participants in this proficiency test (PT) against the literature requirements, e.g. ASTM reproducibilities, the z-scores were calculated using a target standard deviation. This results in an evaluation independent of the spread of this interlaboratory study.
The target standard deviation was calculated from the literature reproducibility by division with 2.8. The z-scores were calculated according to:

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

The $z_{(target)}$ scores are listed in the result tables in appendix 1.
Absolute values for z<2 are very common and absolute values for z>3 are very rare. Therefore the usual interpretation of z-scores is as follows:

| | | |
|---|---|---|
| | \| z \| < 1 | good |
| 1 < | \| z \| < 2 | satisfactory |
| 2 < | \| z \| < 3 | questionable |
| | \| z \| > 3 | unsatisfactory |

## 4 EVALUATION

In this proficiency test some problems were encountered during the execution. Only one laboratory had trouble receiving the samples on time. In total 2 laboratories reported after the deadline. All laboratories but one reported test results, but not all laboratories were able to perform all analyses requested. From 53 participants, 815 numerical results were received. Observed were 52 outlying results, which is 6.4% of the numerical results. In proficiency studies outlier percentages of 3% - 7.5% are quite normal.

Not all original data sets proved to have a normal distribution. Not Gaussian distributions were found for the following determinations: Cold Filter Plugging Point, Cloud point, Density, Iodine Value, Kinematic Viscosity, Water, Sodium, Linolenic Acid Methyl Ester, Total Contamination and Filter Blocking Tendency. In these cases the results of the statistical evaluations should be used with care.

### 4.1 EVALUATION PER TEST

In this section, the results are discussed per test. The specified test methods and requirements acc. to EN14214:03/:08+A1:09 and ASTM D6751:09 were taken into account for explaining the observed differences when possible and applicable. These methods are also in the tables together with the original data in appendix 1. The abbreviations, used in these tables, are listed in appendix 3.

| | |
|---|---|
| Acid Value (EN) | This determination was not problematic. No statistical outliers were detected and the calculated reproducibility and the calculated reproducibility is in full agreement with the requirements of EN14104:03. |

Acid Number (ASTM): This determination was problematic. One statistical outlier was detected. The calculated reproducibility is not at all in agreement with the requirements of ASTM D664:09a. Four laboratories used ASTM D974, a method that is not equivalent to ASTM D664, which may give deviating results. Therefore these test results were excluded prior to the statistical calculations.

Carbon Residue This determination was problematic. Two statistical outliers were observed. The calculated reproducibility, after rejection of the statistical outliers, is not at all in agreement with the requirements of ISO10370. According to the EN14214:08 specifications, it is required to perform the analysis on a sample reduced to 10% of its volume by distillation. And also ASTM D4530:07 mentions this requirement. However, ASTM D6751:2009 specifications require the analysis to be performed on an undistilled sample. In this study it was requested to reduce the sample volume to 10% prior to the determination of the Carbon Residue. Perhaps not all participants did fulfil this request.

CFPP: This determination was not problematic. No statistical outliers were detected and the calculated reproducibility is in good agreement with the requirements of EN116:97. However, it must be noted that according to EN14214:03/:08+A1:09, no reproducibility requirements are available for the EN116:97 method applied on Biodiesel B100.

Cloud Point: This determination was not problematic. No statistical outliers were detected and the calculated reproducibility is in good agreement with the requirements of ASTM D2500:09.

Copper Corrosion: No problems have been observed. In this determination all participants agree on a result of 1.

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

Flash Point (ISO3679): This determination was problematic. No statistical outliers were detected. However, the calculated reproducibility is not in agreement with the requirements of EN14214:08+A1:09.

Flash Point (PMcc): This determination was not problematic. No statistical outliers were detected and the calculated reproducibility is in full agreement with the requirements of ASTM D93-C:10a.

Iodine Number: This determination was problematic. Three statistical outliers were detected and the calculated reproducibility, after rejection of the

statistical outliers, is not in agreement with the requirements of EN14111:03.
An estimation of the range, in which the Iodine number is likely to be expected, can be calculated. There is a relation between Iodine number and Fatty Acid composition (EN14214:08 Annex B4). The composition may be assessed by taking the reproducibility according to EN14103:03 (Linolenic Acid Methyl Ester) as a guideline.
For this sample the Iodine Number may be estimated to have a value between 97 and 121 g $I_2$/100 g. Therefore, Iodine Numbers reported above or below these values are not likely to be expected, due to the kind of Biodiesel B100 (Rapeseed Methyl Ester) used for this study.

Kin.Visco. @ 40°C: This determination was not problematic. Three statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in good agreement with the requirements of EN14214:08+A1:09.

Oxidation Stability: This determination was not problematic. Two statistical outliers were detected. However, the calculated reproducibility, after rejection of the statistical outliers, is in full agreement with the requirements of EN14112:03.

Sulphated Ash: All reported results were near or below the applicable lower limit of ASTM D874:07 and ISO3987:94 (0.005% M/M). Therefore no conclusions were drawn.

Sulphur (ISO20846): All reported results (except one) were near or below the application range of ISO20846 (3 – 500 mg/kg). Therefore no conclusions were drawn.

Sulphur (D5453): This determination was not problematic. One statistical outlier was detected. The calculated reproducibility, after rejection of the statistical outlier, is in good agreement with the requirements of ASTM D5453:09.

Water: This determination was not problematic. One statistical outlier was observed. After rejection of the statistical outlier, the calculated reproducibility is in agreement with the requirements of ISO12937:00.

Calcium and Magnesium: All reported results were near or below the application range of EN14538:06 (1 – 10 mg/kg). Therefore no conclusions were drawn.

Phosphorus: All reported results were near or below the application range of EN14107:03 (4 – 20 mg/kg). Therefore no conclusions were drawn.

Potassium: All reported results were near or below the lower application limit of EN14108:03 (0.5 mg/kg). Therefore no conclusions were drawn.

Sodium: All reported results were near or below the lower application limit of EN14109:03 (1 mg/kg). Therefore no conclusions were drawn.

Methanol: This determination may be problematic. One statistical outlier was detected. However, the calculated reproducibility after rejection of the statistical outlier is not in agreement with the requirements of EN14110:03.

mono-Glycerides: This determination was not problematic. Four statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in full agreement with the requirements of EN14105:03 and the new EN14105:11 (since May 2011).

di-Glycerides: This determination was problematic. Two statistical outliers were observed and the calculated reproducibility, after rejection of the statistical outliers, is not in agreement with the requirements of EN14105:03 and the new EN14105:11 (since May 2011).

tri-Glycerides: This determination was problematic. One statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is not in agreement with the requirements of EN14105:03 and the new EN14105:11 (since May 2011).

Free Glycerol: This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of EN14105:03 and the new EN14105:11 (since May 2011).

Total Glycerol: This determination was very problematic. Only one statistical outlier was detected. However, the calculated reproducibility, after rejection of the statistical outlier, is not at all in agreement with the requirements of EN14105:03 and the new EN14105:11 (since May 2011).

Total Ester: This determination was not problematic. Only one statistical outlier was observed and the calculated reproducibility, after rejection of the statistical outlier, is in full agreement with the requirements of EN14103:03 and the new EN14103:11 (since May 2011).

Total Ester corr: After correction of the C17 present in the sample, the average corrected ester content is less (!) than the uncorrected ester content, while the contrary is to be expected.
One statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is in full agreement with the requirements of EN14103:03 and the new EN14103:11 (since May 2011).

Linolenic Acid Methyl Ester: This determination was not problematic. Two statistical outliers were detected. The calculated reproducibility, after rejection of the statistical outliers, is in agreement with the requirements of EN14103:03 and the new EN14103:11 (since May 2011).

Polyunsaturated Methyl Esters: This determination was problematic. One statistical outlier was observed. However, the calculated reproducibility, after rejection of the statistical outlier, is not in agreement with the requirements of EN15779:09.

Total Contamination: Serious analytical problems have been observed. In total 3 laboratories reported 'fail' or 'blockage' or a test result for a sample volume lower than 800 mL.
The samples were spiked with 1 ml of a fresh prepared and well shaken, 25 g/kg particulate quartz material BCR-067 (ø 2.4-32 µm) in oil suspention. Therefore the minimal Total Contamination concentration to be found was known (added amount = 15.1 mg/kg). The laboratories should be able to find at least 9.6 mg/kg [15.1 mg/kg(added amount) – 5.5 mg/kg(R EN12662)]. However, 6 of 32 laboratories reported lower amounts than 9.6 mg/kg and therefore the results were rejected prior to data analysis. The reason for the reported low TC concentrations is possibly insufficient homogenisation of the sample by the respective laboratory prior to sub sampling for analysis. After excluding the questionable data and three statistical outliers, the calculated reproducibility is still not in agreement with the requirements of EN12662:08.

Cold Soak Filter test: This determination may be problematic. No statistical outliers were observed. However, as only five numerical results were reported, it was difficult to draw significant conclusions.

Filter Blocking Tendency: This determination may be very problematic as the range of reported results is very large (1.05 – 4.40). At least three laboratories diluted the sample prior to testing it and at least four laboratories used the sample undiluted. This fact may have a significant influence on the test results. However, as only eight results were reported, it was difficult to draw any further conclusions.

## 4.2 PERFORMANCE EVALUATION FOR THE GROUP OF LABORATORIES

A comparison has been made between the reproducibility as declared by the relevant standard and the reproducibility as found for the group of laboratories that participated. The reproducibilities derived from literature standards (in casu the ASTM, EN and IP standards) and the calculated reproducibilities of the samples (see appendix 1) are compared in the next table.

| Parameter | unit | n | average | R (Calc.) | R (lit) |
|---|---|---|---|---|---|
| Acid Value (EN14104) | mg KOH/g | 37 | 0.117 | 0.045 | 0.060 |
| Acid Number (D664-B) | mg KOH/g | 16 | 0.110 | 0.039 | 0.017 |
| Carbon Residue on 10% | %M/M | 20 | 0.109 | 0.150 | 0.056 |
| Cold Filter Plugging Point | °C | 45 | -21.3 | 4.4 | 4.8 |
| Cloud Point | °C | 41 | -8.20 | 3.93 | 4.00 |
| Density @ 15°C | $kg/m^3$ | 46 | 882.72 | 0.24 | 0.50 |
| Flash Point (ISO3679) | °C | 22 | 163.95 | 13.56 | 11.10 |
| Flash Point PMcc (D93-C) | °C | 31 | 155.66 | 11.01 | 14.70 |
| Iodine Value | g $I_2$/100g | 37 | 111.66 | 6.30 | 5.00 |
| Kin. Viscosity @ 40°C | $mm^2/s$ | 43 | 4.5050 | 0.0588 | 0.0811 |
| Oxidation Stability | hours | 42 | 10.153 | 2.313 | 2.870 |
| Sulphated Ash | %M/M | 13 | 0.0010 | 0.0016 | (0.0004) |
| Sulphur (ISO20846) | mg/kg | 21 | 2.74 | 1.23 | (2.30) |
| Sulphur (D5453) | mg/kg | 15 | 2.69 | 0.98 | 1.22 |
| Water | mg/kg | 46 | 255.9 | 56.4 | 110.0 |
| Calcium & Magnesium | mg/kg | 9 | 0.07 | 0.12 | (1.20) |
| Phosphorus | mg/kg | 10 | 0.37 | 0.94 | (0.10) |
| Potassium | mg/kg | 8 | 0.14 | 0.31 | (2.02) |
| Sodium | mg/kg | 14 | 0.22 | 0.37 | (2.05) |
| Methanol | %M/M | 24 | 0.010 | 0.007 | 0.005 |
| mono-Glycerides | %M/M | 23 | 0.572 | 0.140 | 0.172 |
| di-Glycerides | %M/M | 25 | 0.121 | 0.071 | 0.052 |
| tri-Glycerides | %M/M | 25 | 0.065 | 0.092 | 0.073 |
| Free Glycerol | %M/M | 21 | 0.005 | 0.009 | 0.007 |
| Total Glycerol | %M/M | 28 | 0.179 | 0.079 | 0.023 |
| Total Ester | %M/M | 39 | 97.89 | 2.36 | 4.16 |
| Total Ester (corr. for C17) | %M/M | 14 | 97.77 | 2.74 | 4.16 |
| Linolenic Acid Methyl Ester | %M/M | 38 | 8.79 | 0.67 | 0.64 |
| Polyunsat. Methyl esters | %M/M | 9 | 0.21 | 0.34 | 0.27 |
| Total Contamination | mg/kg | 21 | 18.49 | 7.23 | 5.55 |
| Cold Soak Filter Test | s | 5 | 142.1 | 173.0 | 82.3 |
| Filter Blocking Tendency | | 7 | 2.11 | 3.97 | 0.27 |

table 4: comparison of the observed and target reproducibilities

* Values between brackets were below the application range of the respective reference test method, therefore results should be used with due care

Without further statistical calculations it can be concluded that for many tests there is not a good compliance of the group of participating laboratories with the relevant standards. The problematic tests have been discussed in paragraph 4.1.

### 4.3 COMPARISON OF THE PROFICIENCY TEST OF APRIL 2011 WITH PREVIOUS PTS

| | April 2011 | October 2010 | May 2010 | October 2009 |
|---|---|---|---|---|
| Type of FAME | Rapeseed | Rapeseed | Rapeseed | Rapeseed |
| Number of reporting labs | 53 | 50 | 35 | 67 |
| Number of results reported | 815 | 744 | 519 | 980 |
| Number of statistical outliers | 52 | 38 | 33 | 61 |
| Percentage statistical outliers | 6.4% | 5.1% | 6.4% | 6.2% |

table 5: comparison with previous proficiency tests

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

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

| Determination | April 2011 | October 2010 | May 2010 | October 2009 |
|---|---|---|---|---|
| Acid Value (EN14104) | ++ | ++ | + | - |
| Acid Number (D664-B) | -- | -- | -- | -- |
| Carbon Residue | -- | -- | -- | -- |
| Cold Filter Plugging Point | + | ++ | ++ | ++ |
| Cloud Point | +/- | +/- | ++ | n.e. |
| Density @15°C | ++ | ++ | ++ | ++ |
| Flash Point PMcc (ISO3679) | -- | ++ | +/- | + |
| Flash Point PMcc (D93-C) | -- | ++ | -- | -- |
| Iodine Value | -- | ++ | - | -- |
| Kin. Viscosity @ 40°C | ++ | - | ++ | + |
| Oxidation Stability | ++ | ++ | ++ | ++ |
| Sulphated Ash | (--) | (--) | (--) | (--) |
| Sulphur (ISO20846) | (+) | (+) | (++) | (+/-) |
| Sulphur (D5453) | ++ | -- | ++ | n.e. |
| Water | ++ | ++ | ++ | ++ |
| Calcium and Marnesium | (++) | (++) | ++ | -- |
| Phosphorus | (--) | (--) | (--) | (--) |
| Potassium and Sodium | (++) | (++) | (++) | ++ |
| Methanol | - | -- | -- | + |
| mono-Glycerides | ++ | +/- | ++ | -- |
| di-Glycerides | -- | -- | +/- | -- |
| tri-Glycerides | -- | - | +/- | -- |
| Free Glycerol | -- | -- | +/- | -- |
| Total Glycerol | -- | -- | ++ | + |
| Total Ester content | ++ | - | ++ | ++ |
| Total Ester content corrected | ++ | +/- | n.e. | n.e. |
| Linolenic Acid Methyl Ester | +/- | ++ | - | ++ |
| Polyunsat. Methyl esters | -- | n.e. | n.e. | n.e. |
| Total Contamination | -- | (--) | - | (--) |
| Cold Soak Filter Test | -- | -- | n.e. | n.e. |
| Filter Blocking Tendency | -- | -- | n.e. | n.e. |

table 8: comparison of group performances against the standard requirements

* Signs between brackets are for assigned values below the application range of the respective reference test method and therefore should be used with due care

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

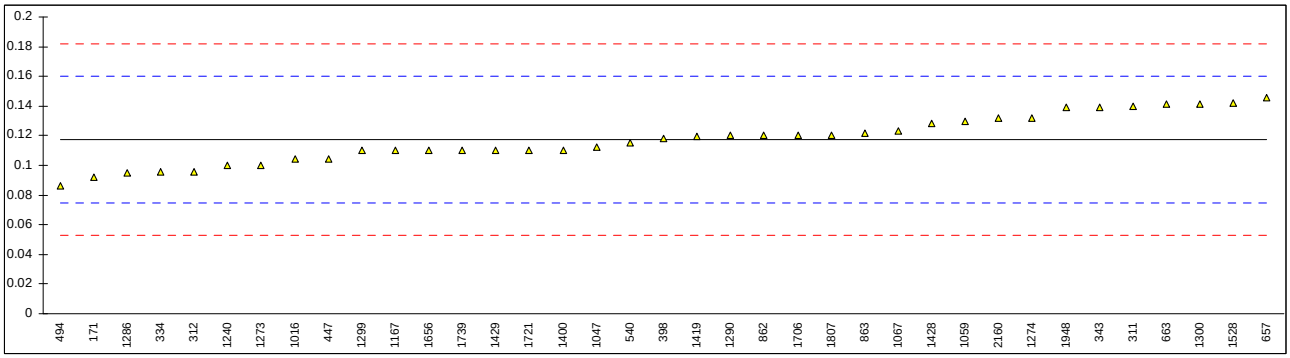
++: group performed much better than the standard
+ : group performed better than the standard
+/-: group performance equals the standard
- : group performed worse than the standard
-- : group performed much worse than the standard
n.e.: not evaluated

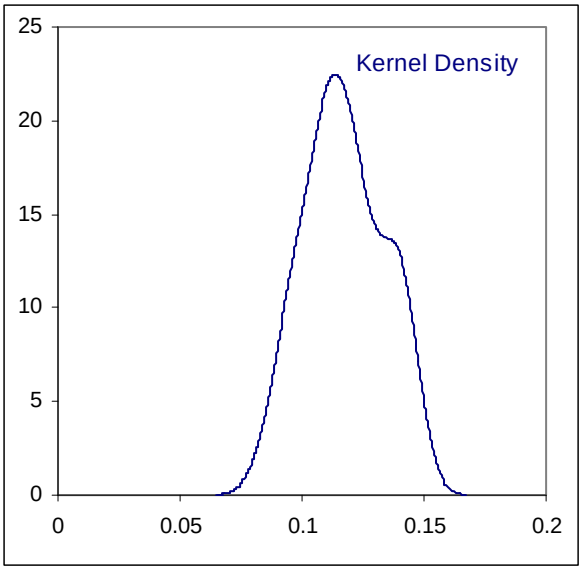
## APPENDIX 1

Determination of Acid Value conform EN spec. on sample #11036; results in mg KOH/g

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14104 | 0.092 | | -1.18 | |
| 311 | EN14104 | 0.14 | | 1.06 | |
| 312 | EN14104 | 0.096 | | -1.00 | |
| 334 | EN14104 | 0.096 | | -1.00 | |
| 343 | EN14104 | 0.139 | | 1.01 | |
| 398 | EN14104 | 0.118 | | 0.03 | |
| 447 | EN14104 | 0.104 | | -0.62 | |
| 494 | EN14104 | 0.086 | | -1.46 | |
| 540 | EN14104 | 0.115 | | -0.11 | |
| 657 | EN14104 | 0.146 | | 1.34 | |
| 663 | EN14104 | 0.141 | | 1.10 | |
| 862 | EN14104 | 0.120 | | 0.12 | |
| 863 | EN14104 | 0.122 | | 0.22 | |
| 1016 | EN14104 | 0.104 | | -0.62 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14104 | 0.112 | | -0.25 | |
| 1059 | EN14104 | 0.13 | | 0.59 | |
| 1067 | EN14104 | 0.123 | | 0.26 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14104 | 0.11 | | -0.34 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | | ----- | | ----- | |
| 1240 | EN14104 | 0.100 | | -0.81 | |
| 1273 | EN14104 | 0.10 | | -0.81 | |
| 1274 | EN14104 | 0.132 | | 0.68 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14104 | 0.095 | | -1.04 | |
| 1290 | EN14104 | 0.12 | | 0.12 | |
| 1299 | EN14104 | 0.11 | | -0.34 | |
| 1300 | EN14104 | 0.1415 | | 1.13 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14104 | 0.110 | | -0.34 | |
| 1407 | | ----- | | ----- | |
| 1419 | EN14104 | 0.1198 | | 0.11 | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14104 | 0.128 | | 0.50 | |
| 1429 | EN14104 | 0.11 | | -0.34 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14104 | 0.142 | | 1.15 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14104 | 0.11 | | -0.34 | |
| 1706 | EN14104 | 0.12 | | 0.12 | |
| 1721 | EN14104 | 0.11 | C | -0.34 | First reported 0.18 |
| 1739 | EN14104 | 0.11 | | -0.34 | |
| 1807 | EN14104 | 0.12 | C | 0.12 | First reported 0.20 |
| 1948 | EN14104 | 0.139 | | 1.01 | |
| 2160 | EN14104 | 0.132 | | 0.68 | |

| | |
|---|---|
| normality | OK |
| n | 37 |
| outliers | 0 |
| mean (n) | 0.1174 |
| st.dev. (n) | 0.01600 |
| R(calc.) | 0.0448 |
| R(EN14104:03) | 0.0600 |

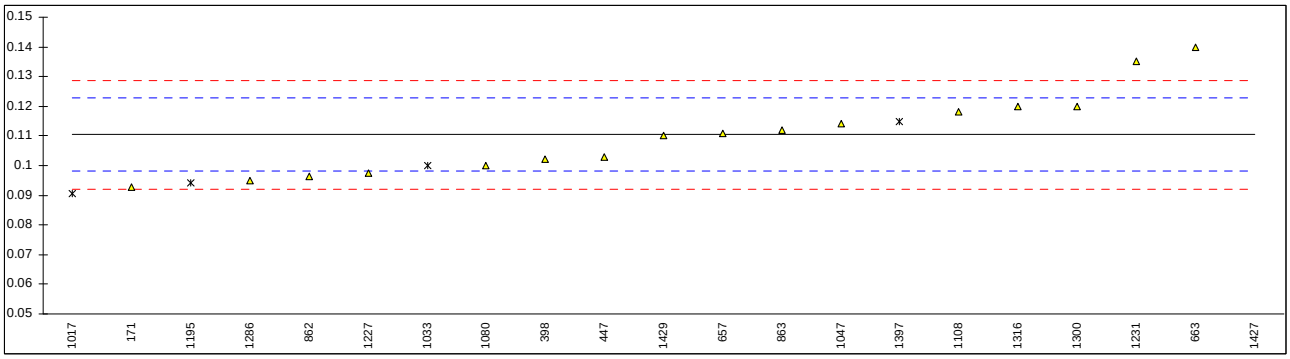

0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
494 171 1286 334 312 1240 1273 1016 447 1299 1167 1656 1739 1429 1721 1400 1047 540 398 1419 1290 862 1706 1807 863 1067 1428 1059 2160 1274 1948 343 311 663 1300 1528 657

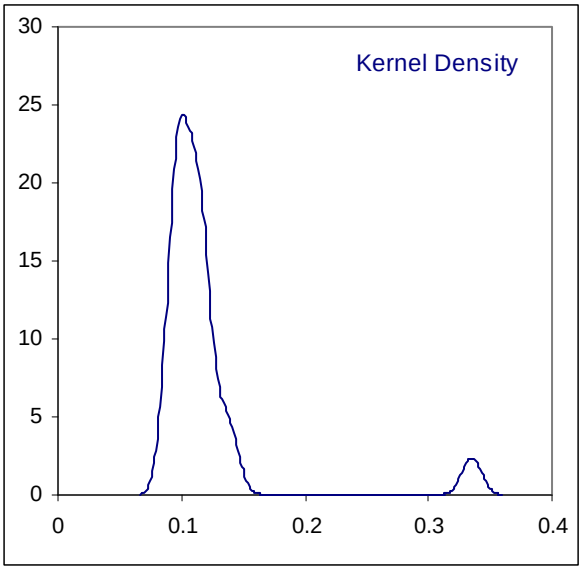

Kernel Density
25
20
15
10
5
0
0
0.05
0.1
0.15
0.2

## Determination of Acid Number conform ASTM spec. on sample #11036; results in mg KOH/g

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | D664B | 0.0928 | | -2.89 | |
| 311 | | ----- | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | | ----- | | ----- | |
| 398 | D664B | 0.102 | | -1.38 | |
| 447 | D664B | 0.103 | | -1.22 | |
| 494 | | ----- | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | D664B | 0.111 | | 0.09 | |
| 663 | D664 | 0.140 | | 4.84 | |
| 862 | D664B | 0.0965 | | -2.28 | |
| 863 | D664B | 0.112 | | 0.26 | |
| 1016 | | ----- | | ----- | |
| 1017 | D974 | 0.09056 | ex | -3.25 | result excluded, different test method, see § 4.1 |
| 1033 | D974 | 0.10 | ex | -1.71 | result excluded, different test method, see § 4.1 |
| 1047 | D664B | 0.114 | | 0.58 | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | D664 | 0.10 | | -1.71 | |
| 1108 | D664 | 0.118 | | 1.24 | |
| 1167 | | ----- | | ----- | |
| 1195 | D974 | 0.0943 | ex | -2.64 | result excluded, different test method, see § 4.1 |
| 1199 | | ----- | | ----- | |
| 1227 | D664 | 0.0976 | | -2.10 | |
| 1231 | D664 | 0.135 | | 4.02 | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | D664 | 0.095 | | -2.53 | |
| 1290 | | ----- | | ----- | |
| 1299 | | ----- | | ----- | |
| 1300 | D664B | 0.1201 | | 1.58 | |
| 1316 | D664B | 0.12 | | 1.56 | |
| 1397 | D974 | 0.115 | ex | 0.75 | result excluded, different test method, see § 4.1 |
| 1400 | | ----- | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | D664B | 0.335 | G(0.01) | 36.73 | |
| 1428 | | ----- | | ----- | |
| 1429 | D664B | 0.11 | | -0.07 | |
| 1441 | | ----- | | ----- | |
| 1528 | | ----- | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | | ----- | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | | ----- | | ----- | |
| 1739 | | ----- | | ----- | |
| 1807 | | ----- | | ----- | |
| 1948 | | ----- | | ----- | |
| 2160 | | ----- | | ----- | |

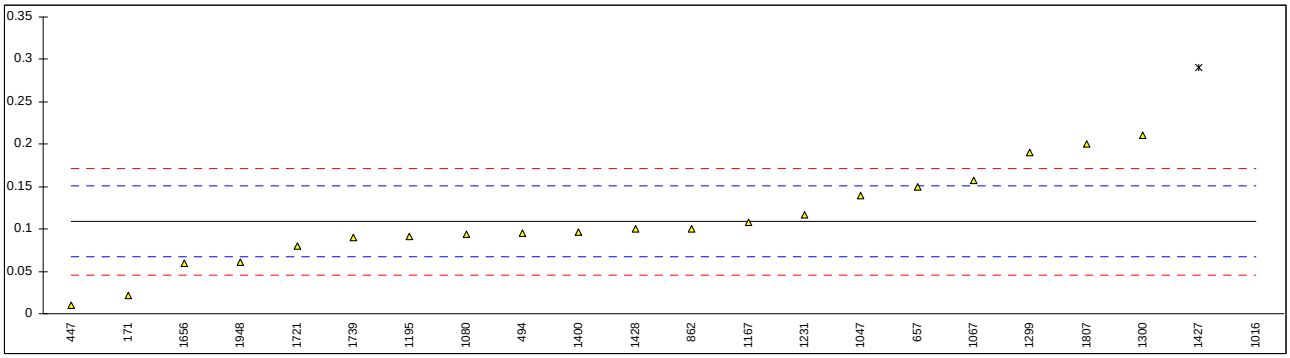
| | |
|---|---|
| normality | OK |
| n | 16 |
| outliers | 1 |
| mean (n) | 0.1104 |
| st.dev. (n) | 0.01385 |
| R(calc.) | 0.0388 |
| R(D664-B:09a) | 0.0171 |

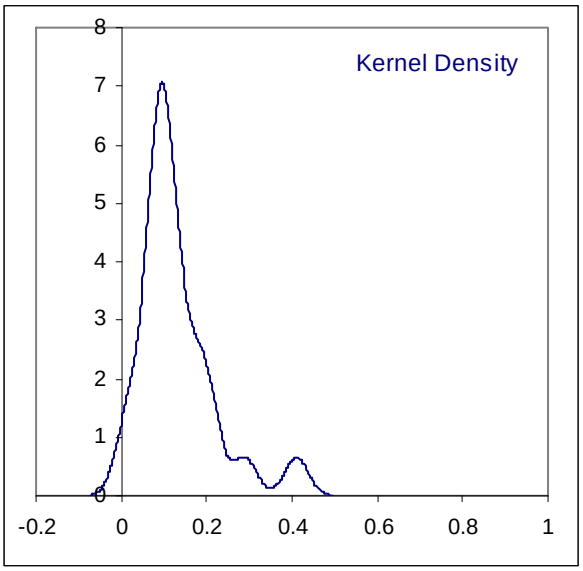

0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
1017
171
1195
1286
862
1227
1033
1080
398
447
1429
657
863
1047
1397
1108
1316
1300
1231
663
1427


Kernel Density
30
25
20
15
10
5
0
0
0.1
0.2
0.3
0.4

## Determination of Carbon Residue on 10% distillation residue on sample #11036; results in %M/M

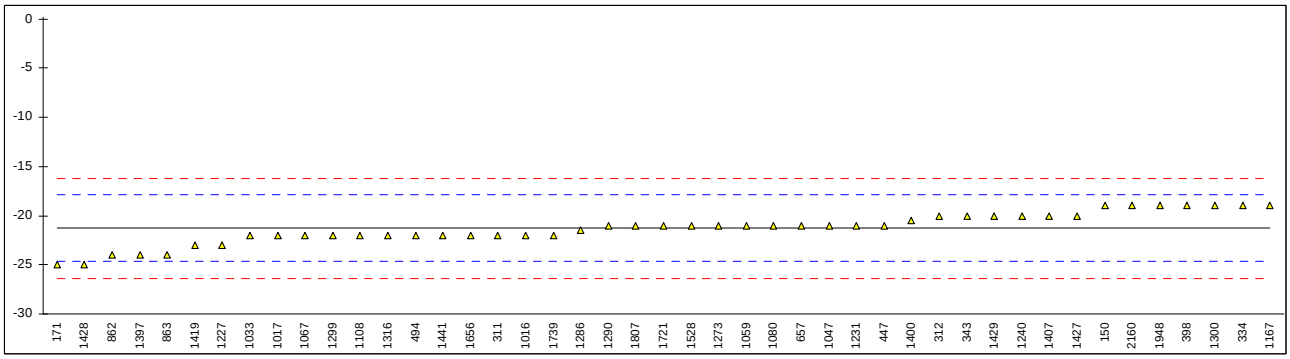
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | ISO10370 | 0.0219 | | -4.35 | |
| 311 | | ----- | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | ISO10370 | <0.1 | | ----- | |
| 398 | | ----- | | ----- | |
| 447 | ISO10370 | 0.01 | | -4.95 | |
| 494 | ISO10370 | 0.095 | | -0.68 | |
| 540 | | ----- | | ----- | |
| 657 | ISO10370 | 0.15 | | 2.08 | |
| 663 | | ----- | | ----- | |
| 862 | ISO10370 | 0.1 | C | -0.43 | First reported 0.37 |
| 863 | | ----- | | ----- | |
| 1016 | ISO10370 | 0.411 | G(0.01) | 15.17 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | ISO10370 | 0.14 | | 1.57 | |
| 1059 | | ----- | | ----- | |
| 1067 | ISO10370 | 0.157 | | 2.43 | |
| 1080 | ISO10370 | 0.094 | | -0.73 | |
| 1108 | | ----- | | ----- | |
| 1167 | ISO10370 | 0.108 | | -0.03 | |
| 1195 | ISO10370 | 0.0914 | | -0.86 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | D4530 | 0.117 | | 0.42 | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | ISO10370 | 0.19 | | 4.08 | |
| 1300 | ISO10370 | 0.2111 | | 5.14 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | ISO10370 | 0.096 | | -0.63 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | ISO10370 | 0.29 | G(0.05) | 9.10 | |
| 1428 | ISO10370 | 0.100 | | -0.43 | |
| 1429 | | ----- | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | | ----- | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO10370 | 0.06 | | -2.44 | |
| 1706 | | ----- | | ----- | |
| 1721 | ISO10370 | 0.08 | | -1.44 | |
| 1739 | ISO10370 | 0.09 | | -0.94 | |
| 1807 | ISO10370 | 0.2 | | 4.58 | |
| 1948 | ISO10370 | 0.0613 | | -2.38 | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 20 | | | |
| | outliers | 2 | | | |
| | mean (n) | 0.1086 | | | |
| | st.dev. (n) | 0.05361 | | | |
| | R(calc.) | 0.1501 | | | |
| | R(ISO10370:95) | 0.0558 | | | Application range >0.1 %M/M |

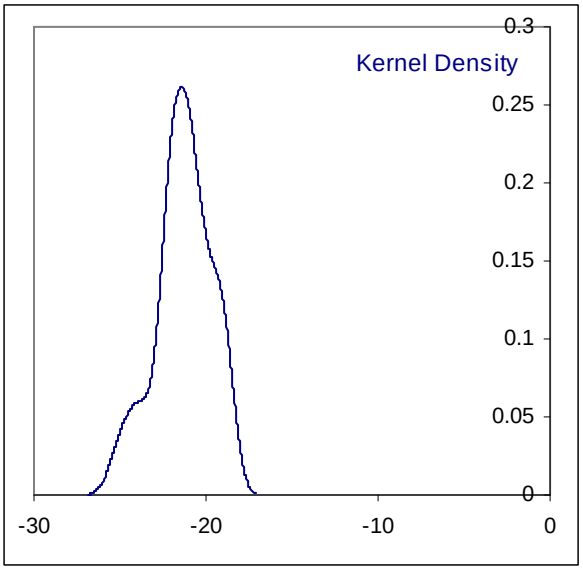

0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
447
171
1656
1948
1721
1739
1195
1080
494
1400
1428
862
1167
1231
1047
657
1067
1299
1807
1300
1427
1016


Kernel Density
8
7
6
5
4
3
2
1
0
-0.2
0
0.2
0.4
0.6
0.8
1

## Determination of Cold Filter Plugging Point on sample #11036; results in °C

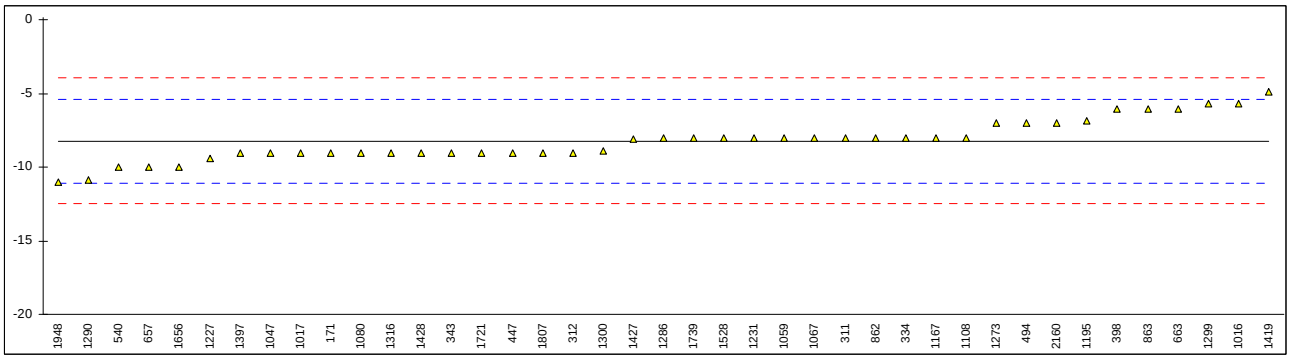
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | EN116 | -19 | | 1.34 | |
| 171 | EN116 | -25 | C | -2.18 | first reported -35.0 |
| 311 | EN116 | -22 | | -0.42 | |
| 312 | EN116 | -20 | | 0.76 | |
| 334 | EN116 | -19 | | 1.34 | |
| 343 | EN116 | -20 | | 0.76 | |
| 398 | EN116 | -19 | | 1.34 | |
| 447 | EN116 | -21 | | 0.17 | |
| 494 | EN116 | -22 | | -0.42 | |
| 540 | | ----- | | ----- | |
| 657 | EN116 | -21 | | 0.17 | |
| 663 | | ----- | | ----- | |
| 862 | EN116 | -24 | | -1.59 | |
| 863 | IP309 | -24 | | -1.59 | |
| 1016 | EN116 | -22 | | -0.42 | |
| 1017 | EN116 | -22 | | -0.42 | |
| 1033 | IP309 | -22 | C | -0.42 | first reported -9.0 |
| 1047 | EN116 | -21 | | 0.17 | |
| 1059 | EN116 | -21 | | 0.17 | |
| 1067 | EN116 | -22 | | -0.42 | |
| 1080 | EN116 | -21 | | 0.17 | |
| 1108 | EN116 | -22 | | -0.42 | |
| 1167 | EN116 | -19 | | 1.34 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | EN116 | -23 | C | -1.00 | first reported -5 |
| 1231 | D6371 | -21 | | 0.17 | |
| 1240 | EN116 | -20.0 | | 0.76 | |
| 1273 | EN116 | -21 | | 0.17 | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | EN116 | -21.5 | | -0.12 | |
| 1290 | EN116 | -21 | | 0.17 | |
| 1299 | EN116 | -22 | | -0.42 | |
| 1300 | EN116 | -19 | | 1.34 | |
| 1316 | EN116 | -22 | | -0.42 | |
| 1397 | EN116 | -24 | | -1.59 | |
| 1400 | EN116 | -20.5 | | 0.46 | |
| 1407 | EN116 | -20 | | 0.76 | |
| 1419 | EN116 | -23 | | -1.00 | |
| 1427 | EN116 | -20.00 | | 0.76 | |
| 1428 | EN116 | -25 | | -2.18 | |
| 1429 | EN116 | -20 | | 0.76 | |
| 1441 | D6371 | -22.0 | | -0.42 | |
| 1528 | EN116 | -21 | | 0.17 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN116 | -22 | | -0.42 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN116 | -21 | | 0.17 | |
| 1739 | EN116 | -22 | | -0.42 | |
| 1807 | EN116 | -21 | | 0.17 | |
| 1948 | EN116 | -19 | C | 1.34 | first reported -14 |
| 2160 | EN116 | -19.0 | | 1.34 | |
| | normality | not OK | | | |
| | n | 45 | | | |
| | outliers | 0 | | | |
| | mean (n) | -21.29 | | | |
| | st.dev. (n) | 1.579 | | | |
| | R(calc.) | 4.42 | | | |
| | R(EN116:97*) | 4.77 | | | * not applicable for B100 according to EN14214:08+A1:09 |

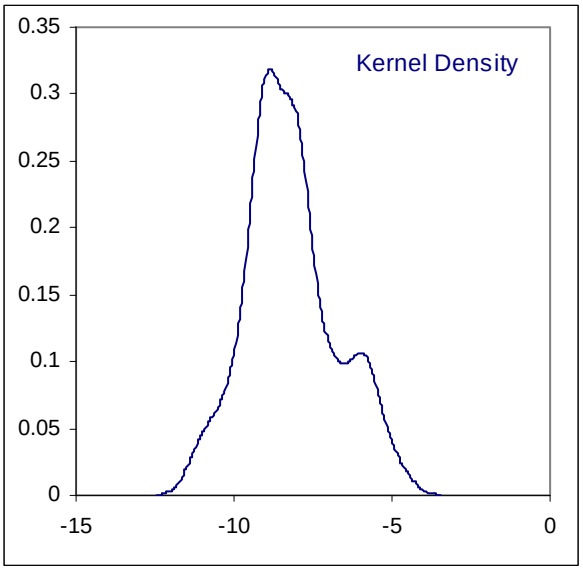

0
-5
-10
-15
-20
-25
-30
171
1428
862
1397
863
1419
1227
1033
1017
1067
1299
1108
1316
494
1441
1656
311
1016
1739
1286
1290
1807
1721
1528
1273
1059
1080
657
1047
1231
447
1400
312
343
1429
1240
1407
1427
150
2160
1948
398
1300
334
1167


Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
-30
-20
-10
0

## Determination of Cloud Point on sample #11036; results in °C

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | D2500-M | -9 | | -0.56 | |
| 311 | D2500-A | -8 | | 0.14 | |
| 312 | D2500-A | -9 | | -0.56 | |
| 334 | EN23015-A | -8 | | 0.14 | |
| 343 | D2500-A | -9 | | -0.56 | |
| 398 | D2500-M | -6 | | 1.54 | |
| 447 | D2500-M | -9 | | -0.56 | |
| 494 | EN23015-A | -7 | | 0.84 | |
| 540 | EN23015-M | -10 | | -1.26 | |
| 657 | D2500-A | -10 | | -1.26 | |
| 663 | D2500-M | -6 | | 1.54 | |
| 862 | D2500-A | -8 | | 0.14 | |
| 863 | D2500-M | -6 | | 1.54 | |
| 1016 | ISO3015-A | -5.7 | | 1.75 | |
| 1017 | D2500-A | -9 | | -0.56 | |
| 1033 | | ----- | | ----- | |
| 1047 | ISO3015-M | -9 | | -0.56 | |
| 1059 | EN23015-A | -8 | | 0.14 | |
| 1067 | D5771 | -8 | | 0.14 | |
| 1080 | EN23015-A | -9 | | -0.56 | |
| 1108 | D2500-M | -8 | | 0.14 | |
| 1167 | EN23015-A | -8 | | 0.14 | |
| 1195 | D2500-M | -6.85 | | 0.95 | |
| 1199 | | ----- | | ----- | |
| 1227 | D2500-A | -9.4 | | -0.84 | |
| 1231 | D2500-M | -8 | | 0.14 | |
| 1240 | | ----- | | ----- | |
| 1273 | D2500-M | -7 | | 0.84 | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | D2500-M | -8 | | 0.14 | |
| 1290 | D2500-A | -10.84 | | -1.84 | |
| 1299 | D7397-A | -5.7 | | 1.75 | |
| 1300 | EN23015-M | -8.89 | | -0.48 | |
| 1316 | EN23015-A | -9.0 | | -0.56 | |
| 1397 | D2500-A | -9 | | -0.56 | |
| 1400 | | ----- | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | EN23015-A | -4.9 | | 2.31 | |
| 1427 | D5773-A | -8.10 | | 0.07 | |
| 1428 | D2500-A | -9 | | -0.56 | |
| 1429 | | ----- | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | D2500-A | -8 | | 0.14 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | IP444-A | -10 | | -1.26 | |
| 1706 | | ----- | | ----- | |
| 1721 | D2500-A | -9 | | -0.56 | |
| 1739 | EN23015-A | -8 | | 0.14 | |
| 1807 | D2500-M | -9 | C | -0.56 | first reported -2 |
| 1948 | D2500-A | -11 | | -1.96 | |
| 2160 | D2500-A | -7.0 | | 0.84 | |
| | | | | | |
| | normality | not OK | | | |
| | n | 41 | | | |
| | outliers | 0 | | | |
| | mean (n) | -8.20 | | | |
| | st.dev. (n) | 1.402 | | | |
| | R(calc.) | 3.93 | | | |
| | R(D2500:09) | 4.00 | | | Compare R(EN23015/ISO3015) = 4.00 |


0
-5
-10
-15
-20
1948
1290
540
657
1656
1227
1397
1047
1017
171
1080
1316
1428
343
1721
447
1807
312
1300
1427
1286
1739
1528
1231
1059
1067
311
862
334
1167
1108
1273
494
2160
1195
398
863
663
1299
1016
1419


Kernel Density
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-15
-10
-5
0

--- empty page ---

## Determination of Copper Strip Corrosion 3 hrs/50°C on sample #11036

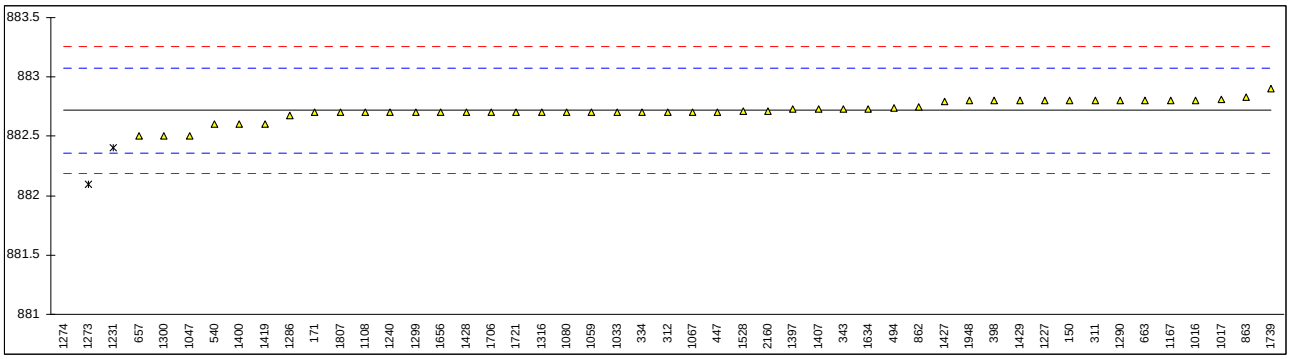
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | D130 | 1A | | ----- | |
| 171 | D130 | 1A | | ----- | |
| 311 | ISO2160 | 1 | | ----- | |
| 312 | D130 | 1A | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | ISO2160 | 1A | | ----- | |
| 398 | D130 | 1A | | ----- | |
| 447 | D130 | 1A | | ----- | |
| 494 | ISO2160 | 1 | | ----- | |
| 540 | ISO2160 | 1 | | ----- | |
| 657 | D130 | 1 | | ----- | |
| 663 | D130 | 1A | | ----- | |
| 862 | D130 | 1A | | ----- | |
| 863 | D130 | 1A | | ----- | |
| 1016 | ISO2160 | 1A | | ----- | |
| 1017 | D130 | 1A | | ----- | |
| 1033 | IP154 | 1B | | ----- | |
| 1047 | D130 | 1 | | ----- | |
| 1059 | ISO2160 | 1A | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | ISO2160 | 1A | | ----- | |
| 1108 | D130 | 1A | | ----- | |
| 1167 | ISO2160 | 1A | | ----- | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | D130 | 1A | | ----- | |
| 1231 | D130 | 1A | | ----- | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | D130 | 1A | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | D130 | 1A | | ----- | |
| 1300 | D130 | 1A | | ----- | |
| 1316 | D130 | 1B | | ----- | |
| 1397 | D130 | 1 | | ----- | |
| 1400 | | ----- | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | D130 | 1A | | ----- | |
| 1428 | D130 | 1 | | ----- | |
| 1429 | D130 | 1A | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | D130 | 1A | | ----- | |
| 1634 | ISO2160 | 1A | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO2160 | 1 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | D130 | 1 | | ----- | |
| 1739 | ISO2160 | 1A | | ----- | |
| 1807 | D130 | 1A | | ----- | |
| 1948 | D130 | 1A | | ----- | |
| 2160 | ISO2160 | 1A | | ----- | |

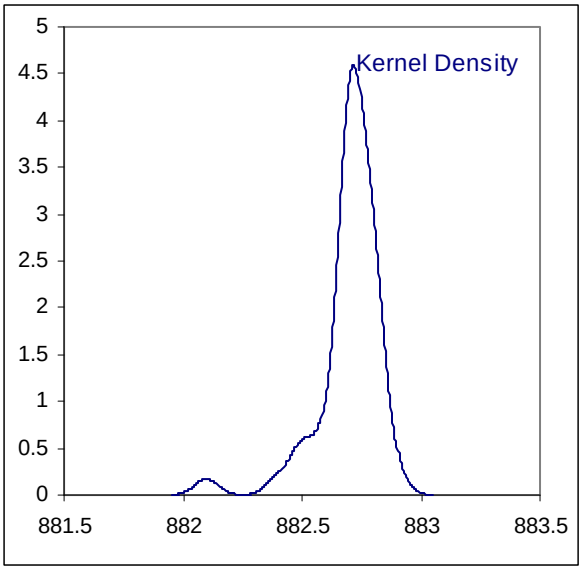
| | |
|---|---|
| normality | n.a |
| n | 37 |
| outliers | n.a |
| mean (n) | 1 |
| st.dev. (n) | n.a |
| R(calc.) | n.a |
| R(D130:04e1) | n.a |

Determination of Density @ 15°C conform EN spec. on sample #11036; results in kg/m$^3$

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | ISO12185 | 882.8 | C | 0.46 | First repoted 883.1 |
| 171 | ISO12185 | 882.7 | | -0.10 | |
| 311 | ISO12185 | 882.8 | | 0.46 | |
| 312 | ISO12185 | 882.7 | | -0.10 | |
| 334 | ISO12185 | 882.7 | | -0.10 | |
| 343 | ISO12185 | 882.73 | | 0.07 | |
| 398 | ISO12185 | 882.8 | | 0.46 | |
| 447 | ISO12185 | 882.7 | | -0.10 | |
| 494 | ISO12185 | 882.74 | | 0.12 | |
| 540 | ISO12185 | 882.6 | | -0.66 | |
| 657 | ISO12185 | 882.5 | | -1.22 | |
| 663 | ISO12185 | 882.8 | | 0.46 | |
| 862 | D4052 | 882.75 | | 0.18 | |
| 863 | D4052 | 882.83 | | 0.63 | |
| 1016 | ISO12185 | 882.8 | C | 0.46 | |
| 1017 | ISO12185 | 882.81 | | 0.51 | |
| 1033 | IP365 | 882.7 | | -0.10 | |
| 1047 | ISO12185 | 882.5 | | -1.22 | |
| 1059 | ISO12185 | 882.7 | | -0.10 | |
| 1067 | ISO12185 | 882.7 | | -0.10 | |
| 1080 | ISO12185 | 882.7 | C | -0.10 | |
| 1108 | ISO12185 | 882.7 | | -0.10 | |
| 1167 | ISO12185 | 882.8 | | 0.46 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | D4052 | 882.8 | | 0.46 | |
| 1231 | D4052 | 882.4 | G(0.05) | -1.78 | |
| 1240 | ISO12185 | 882.7 | | -0.10 | |
| 1273 | ISO3675 | 882.1 | G(0.01) | -3.46 | |
| 1274 | ISO12185 | 4.7004 | G(0.01) | 4916.90 | |
| 1278 | | ----- | | ----- | |
| 1286 | ISO12185 | 882.675 | | -0.24 | |
| 1290 | ISO12185 | 882.8 | | 0.46 | |
| 1299 | ISO12185 | 882.7 | | -0.10 | |
| 1300 | ISO12185 | 882.5 | | -1.22 | |
| 1316 | ISO12185 | 882.7 | | -0.10 | |
| 1397 | ISO12185 | 882.73 | C | 0.07 | First reported 0.88273 kg/L |
| 1400 | ISO12185 | 882.6 | | -0.66 | |
| 1407 | ISO12185 | 882.73 | | 0.07 | |
| 1419 | ISO12185 | 882.60 | | -0.66 | |
| 1427 | ISO12185 | 882.79 | | 0.40 | |
| 1428 | ISO12185 | 882.7 | | -0.10 | |
| 1429 | ISO12185 | 882.8 | C | 0.46 | First reported 0.8828 kg/L |
| 1441 | | ----- | | ----- | |
| 1528 | ISO12185 | 882.71 | | -0.05 | |
| 1634 | ISO12185 | 882.733 | | 0.08 | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO12185 | 882.7 | | -0.10 | |
| 1706 | ISO12185 | 882.7 | | -0.10 | |
| 1721 | ISO12185 | 882.7 | | -0.10 | |
| 1739 | ISO3675 | 882.9 | | 1.02 | |
| 1807 | ISO12185 | 882.7 | | -0.10 | |
| 1948 | ISO12185 | 882.8 | | 0.46 | |
| 2160 | ISO12185 | 882.71 | | -0.05 | |

| | |
|---|---|
| normality | not OK |
| n | 46 |
| outliers | 3 |
| mean (n) | 882.72 |
| st.dev. (n) | 0.084 |
| R(calc.) | 0.24 |
| R(ISO12185:96) | 0.50 |

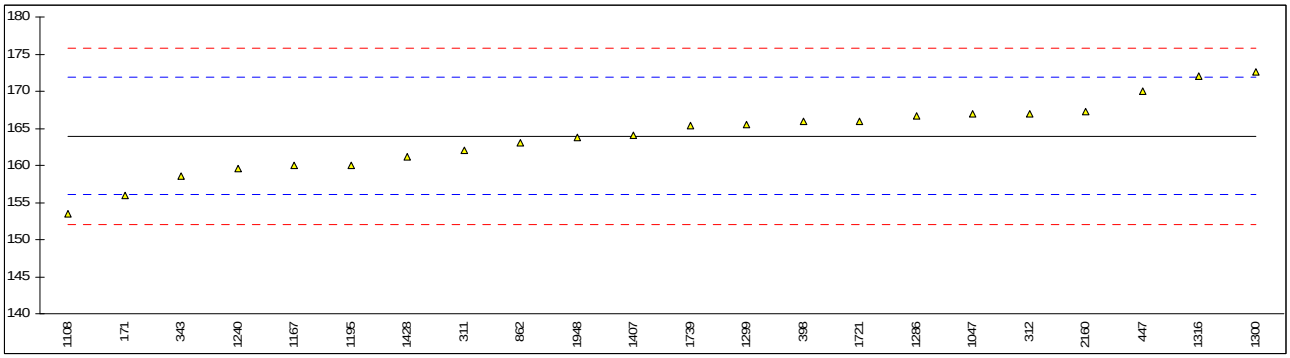

883.5
883
882.5
882
881.5
881
1274
1273
1231
657
1300
1047
540
1400
1419
1286
171
1807
1108
1240
1299
1656
1428
1706
1721
1316
1080
1059
1033
334
312
1067
447
1528
2160
1397
1407
343
1634
494
862
1427
1948
398
1429
1227
150
311
1290
663
1167
1016
1017
863
1739

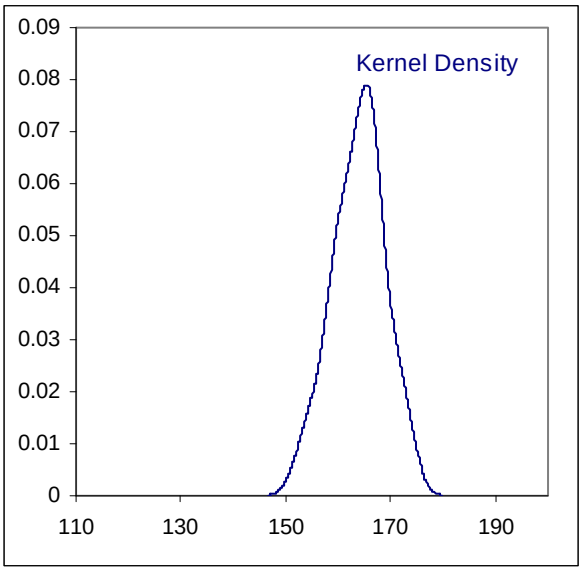

Kernel Density
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
881.5
882
882.5
883
883.5

Determination of Flash Point conform EN spec. on sample #11036; results in °C

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | ISO3679 | 156.0 | | -2.00 | |
| 311 | ISO3679 | 162 | | -0.49 | |
| 312 | ISO3679 | 167.0 | | 0.77 | |
| 334 | | ----- | | ----- | |
| 343 | ISO3679 | 158.5 | | -1.37 | |
| 398 | ISO3679 | 166.0 | | 0.52 | |
| 447 | ISO3679 | 170.0 | | 1.53 | |
| 494 | | ----- | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | ISO3679 | 163.0 | | -0.24 | |
| 863 | | ----- | | ----- | |
| 1016 | | ----- | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | ISO3679 | 167 | | 0.77 | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | | ----- | | ----- | |
| 1108 | ISO3679 | 153.5 | | -2.64 | |
| 1167 | ISO3679 | 160.0 | | -1.00 | |
| 1195 | D1360 | 160.0 | | -1.00 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | | ----- | | ----- | |
| 1240 | ISO3679 | 159.5 | | -1.12 | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | ISO3679 | 166.7 | | 0.69 | |
| 1290 | | ----- | | ----- | |
| 1299 | ISO3679 | 165.5 | | 0.39 | |
| 1300 | ISO3679 | 172.66 | | 2.20 | |
| 1316 | ISO3679 | 172 | | 2.03 | |
| 1397 | | ----- | | ----- | |
| 1400 | | ----- | | ----- | |
| 1407 | ISO3679 | 164.0 | | 0.01 | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | ISO3679 | 161.2 | | -0.69 | |
| 1429 | ISO3679 | >101 | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | | ----- | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | | ----- | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | ISO3679 | 166 | | 0.52 | |
| 1739 | ISO3679 | 165.3 | | 0.34 | |
| 1807 | | ----- | | ----- | |
| 1948 | ISO3679 | 163.7 | | -0.06 | |
| 2160 | ISO3679 | 167.25 | | 0.83 | |

| | |
|---|---|
| normality | OK |
| n | 22 |
| outliers | 0 |
| mean (n) | 163.95 |
| st.dev. (n) | 4.842 |
| R(calc.) | 13.56 |
| R(EN14214:08) | 11.10 |

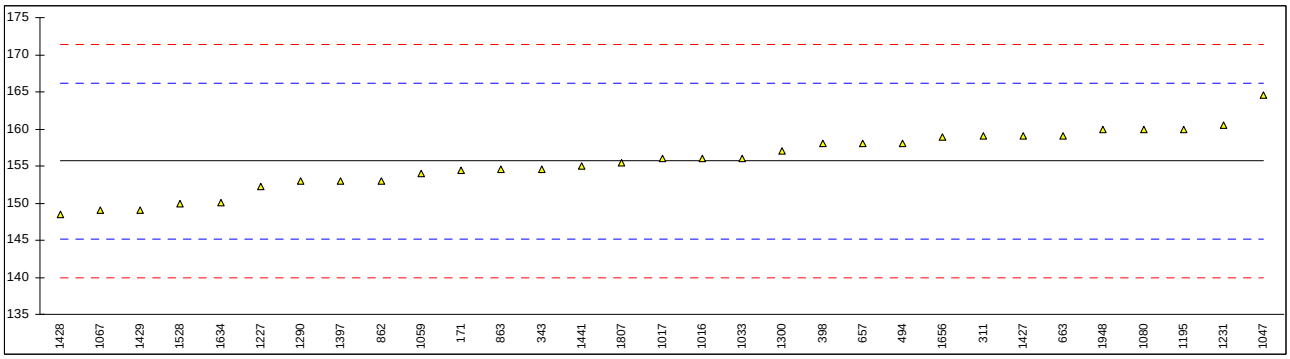

180
175
170
165
160
155
150
145
140
1108
171
343
1240
1167
1195
1428
311
862
1948
1407
1739
1299
398
1721
1286
1047
312
2160
447
1316
1300

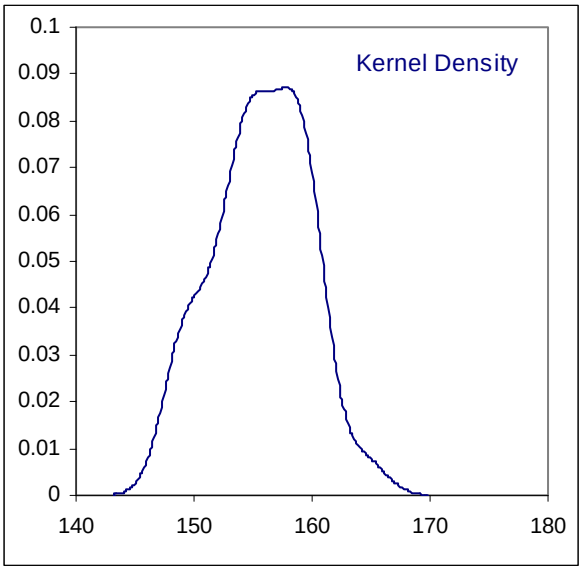

Kernel Density
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
110
130
150
170
190

Determination of Flash Point (PMcc) conform ASTM spec. on sample #11036; results in °C

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | D93C | 154.4 | | -0.24 | |
| 311 | D93C | 159.0 | | 0.64 | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | ISO2719 | 154.5 | | -0.22 | |
| 398 | D93 | 158.0 | | 0.45 | |
| 447 | | ----- | | ----- | |
| 494 | ISO2719 | 158.0 | | 0.45 | |
| 540 | | ----- | | ----- | |
| 657 | D93 | 158.0 | | 0.45 | |
| 663 | D93 | 159.0 | | 0.64 | |
| 862 | D93 | 153.0 | | -0.51 | |
| 863 | D93 | 154.5 | | -0.22 | |
| 1016 | ISO3679 | 156.0 | | 0.06 | |
| 1017 | D93-C | 156.0 | | 0.06 | |
| 1033 | IP34 | 156.0 | | 0.06 | |
| 1047 | ISO2719 | 164.5 | | 1.68 | |
| 1059 | ISO2719 | 154.0 | | -0.32 | |
| 1067 | D93C | 149.0 | | -1.27 | |
| 1080 | ISO2719 | 160.0 | | 0.83 | |
| 1108 | | ----- | | ----- | |
| 1167 | | ----- | | ----- | |
| 1195 | D1360-80 | 160.0 | | 0.83 | |
| 1199 | | ----- | | ----- | |
| 1227 | D93 | 152.2 | | -0.66 | |
| 1231 | D93 | 160.5 | | 0.92 | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | ISO2719 | 152.94 | | -0.52 | |
| 1299 | | ----- | | ----- | |
| 1300 | D93 | 157 | | 0.25 | |
| 1316 | | ----- | | ----- | |
| 1397 | D93 | 153 | | -0.51 | |
| 1400 | | ----- | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | D93 | 159.0 | | 0.64 | |
| 1428 | D93 | 148.5 | | -1.36 | |
| 1429 | D93 | 149 | C | -1.27 | First reported 242 |
| 1441 | D93 | 155.0 | | -0.13 | |
| 1528 | D93 | 150 | | -1.08 | |
| 1634 | D93 | 150.1 | | -1.06 | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO2719 | 158.9 | | 0.62 | |
| 1706 | | ----- | | ----- | |
| 1721 | | ----- | | ----- | |
| 1739 | | ----- | | ----- | |
| 1807 | D93 | 155.5 | | -0.03 | |
| 1948 | D93 | 160.0 | | 0.83 | |
| 2160 | | ----- | | ----- | |

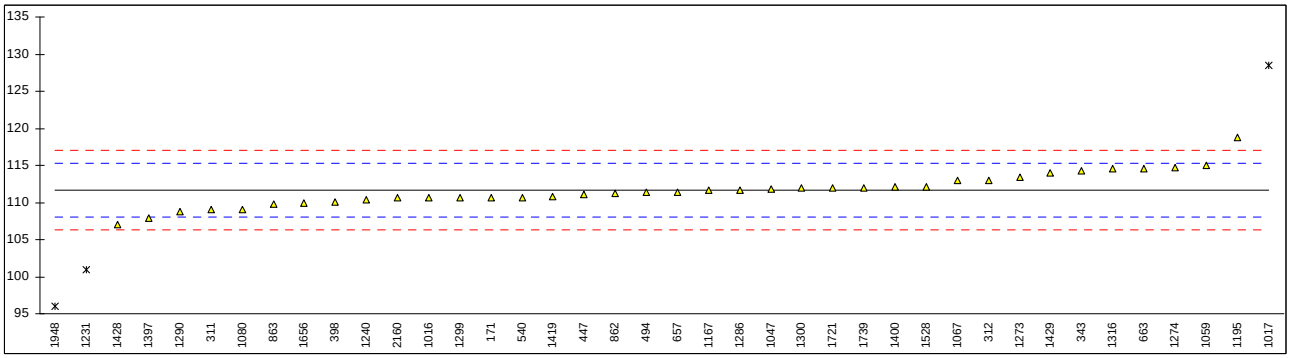
| | |
|---|---|
| normality | OK |
| n | 31 |
| outliers | 0 |
| mean (n) | 155.66 |
| st.dev. (n) | 3.935 |
| R(calc.) | 11.01 |
| R(D93-C:10a) | 14.70 |

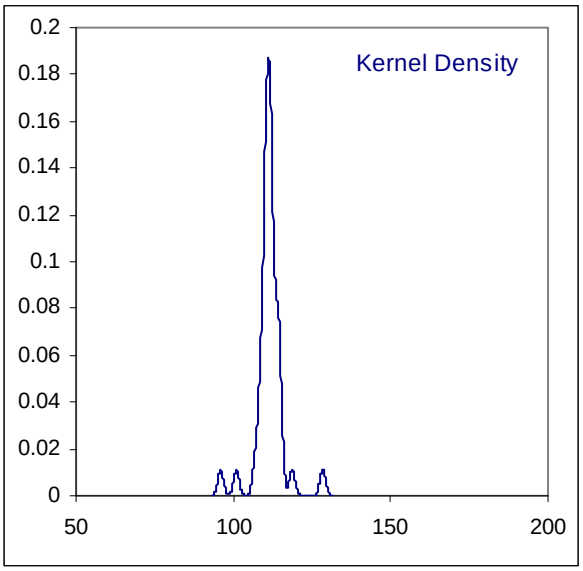

175
170
165
160
155
150
145
140
135
1428
1067
1429
1528
1634
1227
1290
1397
862
1059
171
863
343
1441
1807
1017
1016
1033
1300
398
657
494
1656
311
1427
663
1948
1080
1195
1231
1047


Kernel Density
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
140
150
160
170
180

Determination of Iodine Value conform EN spec. on sample #11036; results in g $I_2$/100g

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14111 | 110.65 | | -0.57 | |
| 311 | EN14111 | 109 | | -1.49 | |
| 312 | EN14111 | 113 | | 0.75 | |
| 334 | | ----- | | ----- | |
| 343 | EN14111 | 114.3 | | 1.48 | |
| 398 | EN14111 | 110.1 | | -0.87 | |
| 447 | EN14111 | 111.1 | | -0.31 | |
| 494 | EN14111 | 111.4 | | -0.15 | |
| 540 | EN14111 | 110.72 | | -0.53 | |
| 657 | EN14111 | 111.4 | | -0.15 | |
| 663 | EN14111 | 114.52 | | 1.60 | |
| 862 | EN14111 | 111.2 | | -0.26 | |
| 863 | EN14111 | 109.8 | | -1.04 | |
| 1016 | EN14111 | 110.6 | | -0.59 | |
| 1017 | EN14111 | 128.47 | G(0.01) | 9.41 | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14111 | 111.8 | | 0.08 | |
| 1059 | EN14111 | 115 | | 1.87 | |
| 1067 | EN14111 | 112.9 | | 0.69 | |
| 1080 | ISO3961 | 109 | C | -1.49 | First reported 100 |
| 1108 | | ----- | | ----- | |
| 1167 | EN14111 | 111.7 | | 0.02 | |
| 1195 | INH-001 | 118.76 | U | 3.98 | Probably reported in deviating unit 1.1876 g $I_2$/g |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14111 | 101 | G(0.01) | -5.97 | |
| 1240 | EN14111 | 110.3 | | -0.76 | |
| 1273 | EN14111 | 113.44 | | 1.00 | |
| 1274 | EN14214 | 114.7 | | 1.70 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14111 | 111.72 | | 0.03 | |
| 1290 | EN14111 | 108.76 | | -1.62 | |
| 1299 | EN14111 | 110.6 | | -0.59 | |
| 1300 | EN14111 | 112 | | 0.19 | |
| 1316 | EN14111 | 114.5 | | 1.59 | |
| 1397 | EN14214 | 107.9 | | -2.11 | |
| 1400 | EN14103 | 112.1 | | 0.25 | |
| 1407 | | ----- | | ----- | |
| 1419 | EN14111 | 110.75 | | -0.51 | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14111 | 107 | | -2.61 | |
| 1429 | EN14111 | 114.0 | | 1.31 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14111 | 112.1 | | 0.25 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14111 | 110 | | -0.93 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14111 | 112 | | 0.19 | |
| 1739 | EN14111 | 112 | | 0.19 | |
| 1807 | | ----- | | ----- | |
| 1948 | EN14111 | 95.97 | C,G(0.05) | -8.79 | First reported 101.81 |
| 2160 | EN14111 | 110.6 | | -0.59 | |
| | | | | | |
| | normality | not OK | | | |
| | n | 37 | | | |
| | outliers | 3 | | | |
| | mean (n) | 111.66 | | | |
| | st.dev. (n) | 2.251 | | | |
| | R(calc.) | 6.30 | | | |
| | R(EN14111:03) | 5.00 | | | |

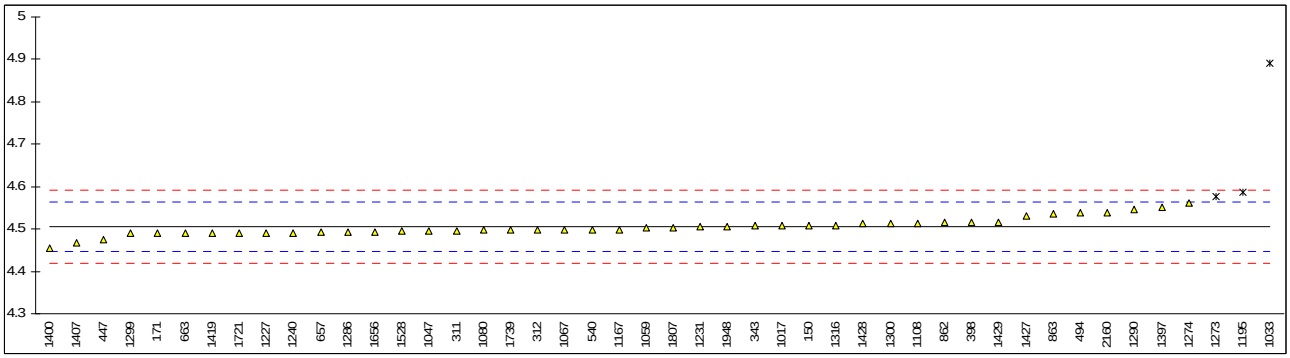

135
130
125
120
115
110
105
100
95
1948
1231
1428
1397
1290
311
1080
863
1656
398
1240
2160
1016
1299
171
540
1419
447
862
494
657
1167
1286
1047
1300
1721
1739
1400
1528
1067
312
1273
1429
343
1316
663
1274
1059
1195
1017

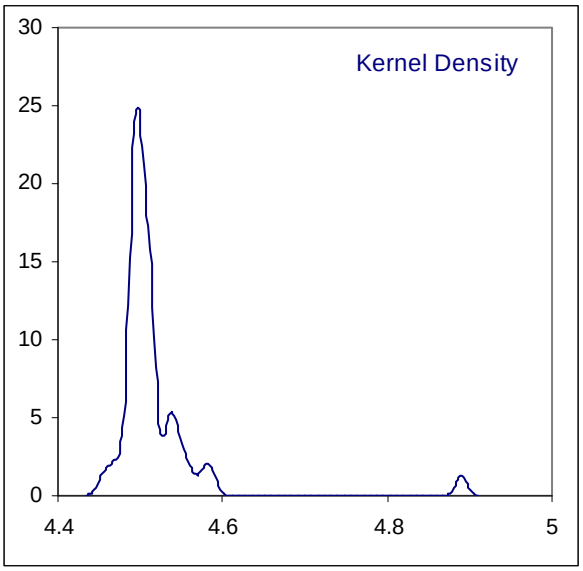

Kernel Density
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
50
100
150
200

## Determination of Kinematic Viscosity @ 40°C on sample #11036; results in $mm^2/s$

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | ISO3104 | 4.508 | | 0.10 | |
| 171 | D445 | 4.489 | | -0.55 | |
| 311 | D445 | 4.496 | | -0.31 | |
| 312 | D445 | 4.497 | | -0.28 | |
| 334 | | ----- | | ----- | |
| 343 | ISO3104 | 4.5069 | | 0.07 | |
| 398 | D445 | 4.5152 | | 0.35 | |
| 447 | ISO3104 | 4.4755 | | -1.02 | |
| 494 | ISO3104 | 4.538 | | 1.14 | |
| 540 | ISO3104 | 4.499 | | -0.21 | |
| 657 | D445 | 4.493 | | -0.41 | |
| 663 | D445 | 4.490 | | -0.52 | |
| 862 | D445 | 4.5149 | | 0.34 | |
| 863 | D445 | 4.5350 | | 1.04 | |
| 1016 | | ----- | | ----- | |
| 1017 | D445 | 4.5071 | | 0.07 | |
| 1033 | IP71 | 4.89 | CG(0.01) | 13.29 | First reported 7.43 |
| 1047 | ISO3104 | 4.496 | C | -0.31 | First reported 4.560 |
| 1059 | ISO3104 | 4.502 | | -0.10 | |
| 1067 | D445 | 4.498 | | -0.24 | |
| 1080 | ISO3104 | 4.497 | | -0.28 | |
| 1108 | D445 | 4.514 | | 0.31 | |
| 1167 | ISO3104 | 4.499 | | -0.21 | |
| 1195 | D445 | 4.5865 | DG(0.05) | 2.82 | |
| 1199 | | ----- | | ----- | |
| 1227 | D445 | 4.4906 | | -0.50 | |
| 1231 | D445 | 4.505 | | 0.00 | |
| 1240 | ISO3104 | 4.491 | | -0.48 | |
| 1273 | D445 | 4.577 | DG(0.05) | 2.49 | |
| 1274 | D445 | 4.5609 | | 1.93 | |
| 1278 | | ----- | | ----- | |
| 1286 | D445 | 4.494 | | -0.38 | |
| 1290 | D7842 | 4.5460 | | 1.42 | |
| 1299 | D445 | 4.489 | | -0.55 | |
| 1300 | ISO3104 | 4.5121 | | 0.25 | |
| 1316 | D445 | 4.509 | | 0.14 | |
| 1397 | D445 | 4.55 | | 1.55 | |
| 1400 | ISO3104 | 4.4553 | C | -1.72 | First reported 4.3134 |
| 1407 | ISO3104 | 4.4670 | | -1.31 | |
| 1419 | ISO3104 | 4.490 | | -0.52 | |
| 1427 | D445 | 4.531 | | 0.90 | |
| 1428 | D445 | 4.512 | | 0.24 | |
| 1429 | D445 | 4.516 | | 0.38 | |
| 1441 | | ----- | | ----- | |
| 1528 | D445 | 4.4954 | | -0.33 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO3104 | 4.494 | | -0.38 | |
| 1706 | | ----- | | ----- | |
| 1721 | D445 | 4.490 | | -0.52 | |
| 1739 | ISO3104 | 4.497 | | -0.28 | |
| 1807 | ISO3104 | 4.503 | | -0.07 | |
| 1948 | D445 | 4.506 | | 0.04 | |
| 2160 | D445 | 4.539 | | 1.17 | |

| | |
|---|---|
| normality | not OK |
| n | 43 |
| outliers | 3 |
| mean (n) | 4.5050 |
| st.dev. (n) | 0.02101 |
| R(calc.) | 0.0588 |
| R(EN14214:08+A1:09) | 0.0811 |

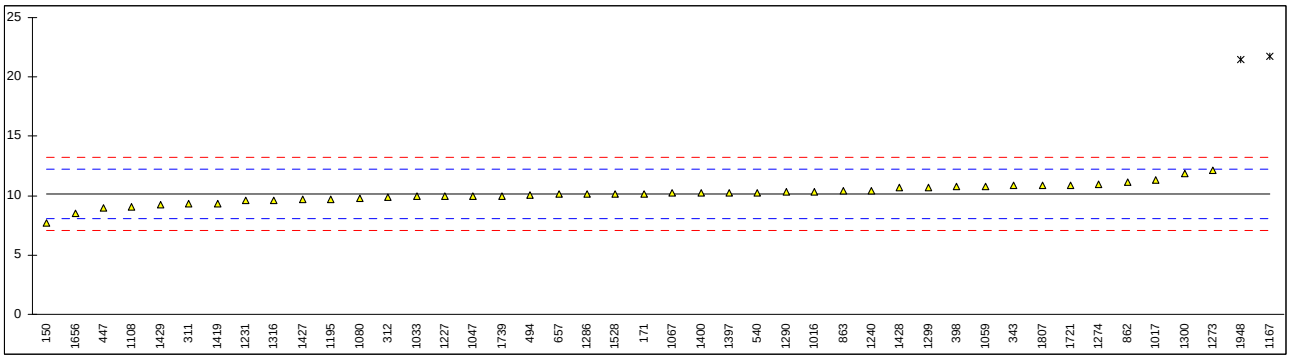

5
4.9
4.8
4.7
4.6
4.5
4.4
4.3
1400 1407 447 1299 171 663 1419 1721 1227 1240 657 1286 1656 1528 1047 311 1080 1739 312 1067 540 1167 1059 1807 1231 1948 343 1017 150 1316 1428 1300 1108 862 398 1429 1427 863 494 2160 1290 1397 1274 1273 1195 1033

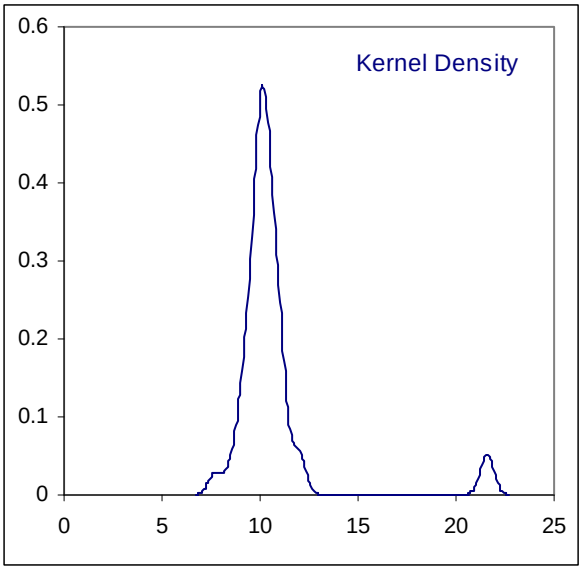

Kernel Density
30
25
20
15
10
5
0
4.4
4.6
4.8
5

## Determination of Oxidation Stability on sample #11036; results in hours

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | EN15751 | 7.7 | | -2.39 | |
| 171 | EN14112 | 10.175 | | 0.02 | |
| 311 | EN14112 | 9.3 | | -0.83 | |
| 312 | EN14112 | 9.89 | | -0.26 | |
| 334 | | ----- | | ----- | |
| 343 | EN14112 | 10.89 | | 0.72 | |
| 398 | EN14112 | 10.74 | | 0.57 | |
| 447 | EN14112 | 8.97 | | -1.15 | |
| 494 | EN14112 | 10.07 | | -0.08 | |
| 540 | EN14112 | 10.28 | | 0.12 | |
| 657 | EN14112 | 10.12 | | -0.03 | |
| 663 | | ----- | | ----- | |
| 862 | EN14112 | 11.18 | | 1.00 | |
| 863 | EN14112 | 10.4 | | 0.24 | |
| 1016 | EN14112 | 10.37 | | 0.21 | |
| 1017 | EN14112 | 11.33 | | 1.15 | |
| 1033 | EN14112 | 9.93 | | -0.22 | |
| 1047 | EN14112 | 10.0 | | -0.15 | |
| 1059 | EN14112 | 10.8 | | 0.63 | |
| 1067 | EN14112 | 10.2 | | 0.05 | |
| 1080 | EN14112 | 9.8 | | -0.34 | |
| 1108 | EN14112 | 9.06 | | -1.07 | |
| 1167 | EN14112 | 21.7 | G(0.01) | 11.27 | |
| 1195 | EN14112 | 9.70 | | -0.44 | |
| 1199 | | ----- | | ----- | |
| 1227 | EN14112 | 9.95 | | -0.20 | |
| 1231 | EN14112 | 9.6 | | -0.54 | |
| 1240 | EN15751 | 10.42 | | 0.26 | |
| 1273 | EN14112 | 12.1 | | 1.90 | |
| 1274 | EN14112 | 10.924 | | 0.75 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14112 | 10.13 | | -0.02 | |
| 1290 | EN14112 | 10.33 | | 0.17 | |
| 1299 | EN14112 | 10.7 | | 0.53 | |
| 1300 | EN14112 | 11.88 | C | 1.68 | First reported 13.47 |
| 1316 | EN14112 | 9.60 | | -0.54 | |
| 1397 | EN14112 | 10.25 | | 0.09 | |
| 1400 | EN14112 | 10.23 | | 0.08 | |
| 1407 | | ----- | | ----- | |
| 1419 | EN14112 | 9.35 | | -0.78 | |
| 1427 | EN14112 | 9.67 | | -0.47 | |
| 1428 | EN14112 | 10.68 | | 0.51 | |
| 1429 | EN14112 | 9.25 | | -0.88 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14112 | 10.16 | | 0.01 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14112 | 8.5 | | -1.61 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14112 | 10.9 | | 0.73 | |
| 1739 | EN14112 | 10.0 | | -0.15 | |
| 1807 | EN14112 | 10.9 | | 0.73 | |
| 1948 | EN14112 | 21.5 | C,G(0.01) | 11.07 | First reported 15.7 |
| 2160 | | ----- | | ----- | |

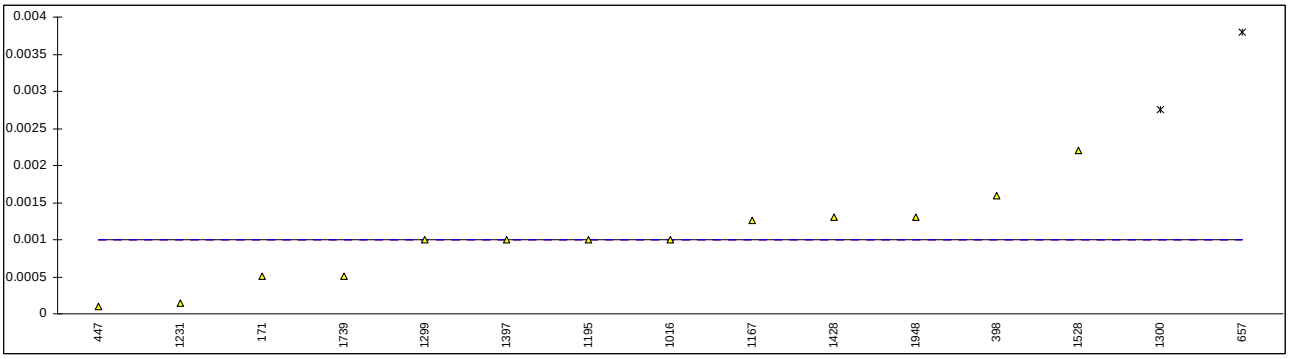
| | |
|---|---|
| normality | OK |
| n | 42 |
| outliers | 2 |
| mean (n) | 10.153 |
| st.dev. (n) | 0.8260 |
| R(calc.) | 2.313 |
| R(EN14112:03) | 2.870 |

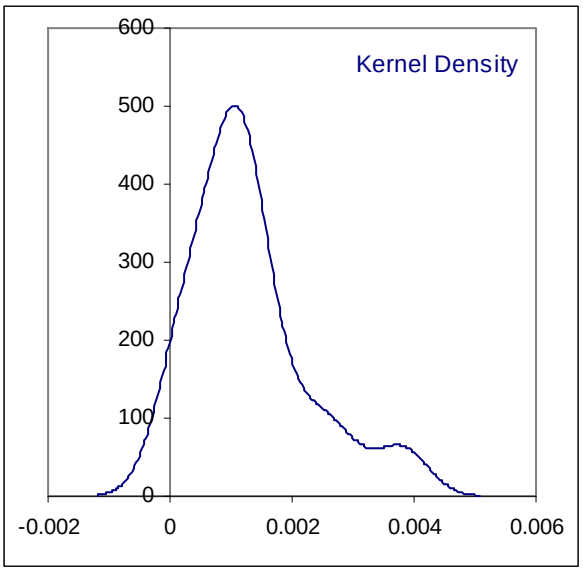

25
20
15
10
5
0
150
1656
447
1108
1429
311
1419
1231
1316
1427
1195
1080
312
1033
1227
1047
1739
494
657
1286
1528
171
1067
1400
1397
540
1290
1016
863
1240
1428
1299
398
1059
343
1807
1721
1274
862
1017
1300
1273
1948
1167


Kernel Density
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
25

## Determination of Sulphated Ash on sample #11036; results in %M/M

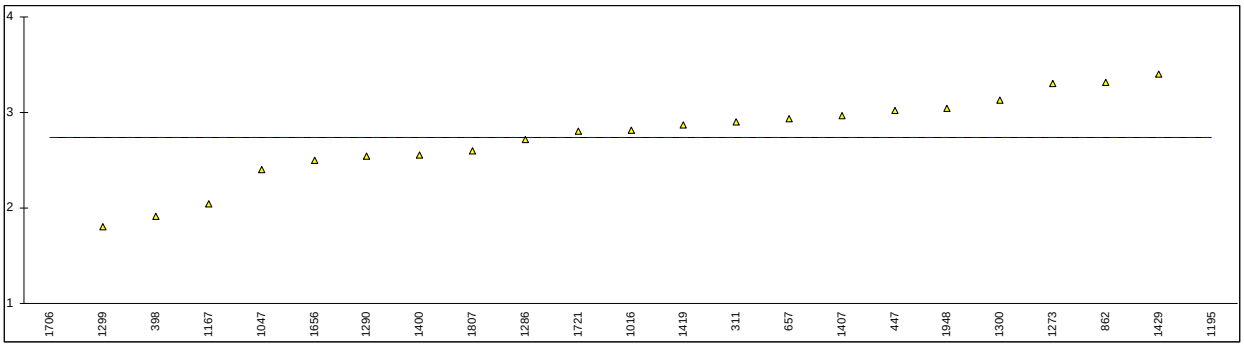
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | ISO3987 | 0.0005 | | ----- | |
| 311 | D874 | <0.001 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | ISO3987 | <0.005 | | ----- | |
| 398 | D874 | 0.0016 | | ----- | |
| 447 | D874 | 0.0001 | | ----- | |
| 494 | ISO3987 | <0.005 | | ----- | |
| 540 | ISO3987 | <0.02 | | ----- | |
| 657 | D874 | 0.0038 | DG(0.05) | ----- | |
| 663 | D874 | <0.005 | | ----- | |
| 862 | D874 | <0.001 | | ----- | |
| 863 | D874 | <0.001 | | ----- | |
| 1016 | ISO3987 | 0.001 | | ----- | |
| 1017 | D874 | <0.001 | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | ISO3987 | <0.005 | | ----- | |
| 1059 | ISO3987 | <0.005 | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | ISO3987 | 0.00126 | | ----- | |
| 1195 | D874 | 0.001 | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | D874 | 0.00015 | | ----- | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | D874 | 0.001 | | ----- | |
| 1300 | D874 | 0.002748 | DG(0.05) | ----- | |
| 1316 | D874 | <0.005 | | ----- | |
| 1397 | D874 | 0.001 | | ----- | |
| 1400 | ISO3987 | <0.005 | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | D874 | <0.001 | | ----- | |
| 1428 | D874 | 0.0013 | | ----- | |
| 1429 | ISO3987 | <0.001 | C | ----- | First reported 0.0109 |
| 1441 | | ----- | | ----- | |
| 1528 | D874 | 0.0022 | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO3987 | <0.01 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | D874 | <0.005 | | ----- | |
| 1739 | ISO3987 | 0.0005 | | ----- | |
| 1807 | ISO3987 | <0.005 | | ----- | |
| 1948 | D874 | 0.0013 | | ----- | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 13 | | | |
| | outliers | 2 | | | |
| | mean (n) | 0.00099 | | | |
| | st.dev. (n) | 0.000583 | | | |
| | R(calc.) | 0.00163 | | | Compared with R(D874:07) = 0.00053 |
| | R(EN14214:08+A1:09) | (0.00040) | | | * applicable lower limit of 0.005% |

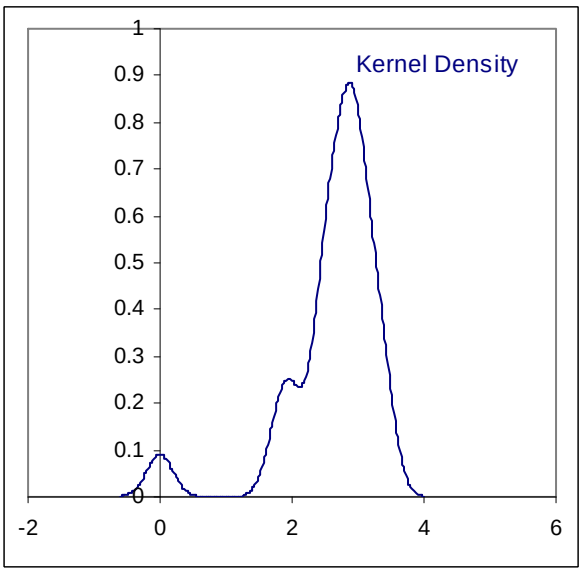

0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
447
1231
171
1739
1299
1397
1195
1016
1167
1428
1948
398
1528
1300
657


Kernel Density
600
500
400
300
200
100
0
-0.002
0
0.002
0.004
0.006

## Determination of Sulphur conform EN spec on sample #11036; results in mg/kg

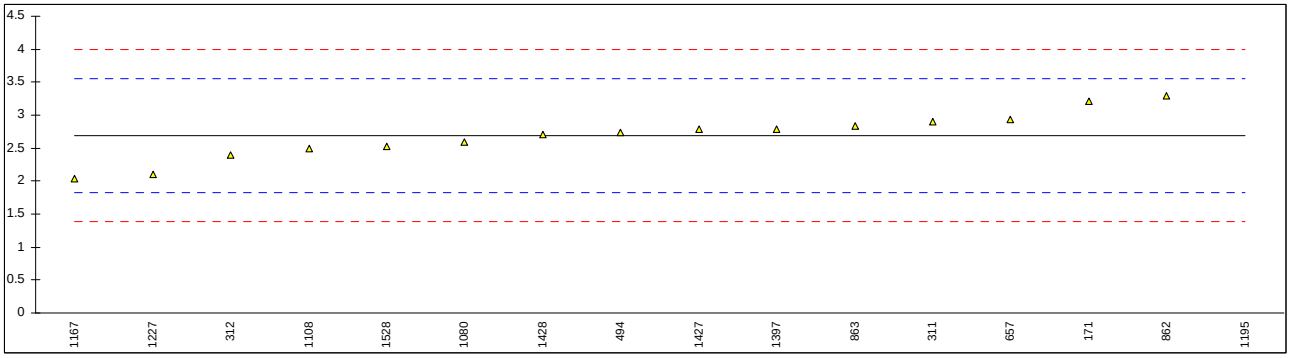
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | | ----- | | ----- | |
| 311 | ISO20846 | 2.9 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | ISO20846 | <3 | | ----- | |
| 398 | ISO20846 | 1.91 | | ----- | |
| 447 | ISO20846 | 3.02 | | ----- | |
| 494 | | ----- | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | ISO20846 | 2.94 | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | ISO20846 | 3.32 | | ----- | |
| 863 | | ----- | | ----- | |
| 1016 | ISO20846 | 2.819 | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | ISO20846 | 2.4 | | ----- | |
| 1059 | ISO20846 | <3.0 | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | ISO20846 | 2.04 | | ----- | |
| 1195 | ISO20846 | 98.947 | G(0.01) | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | | ----- | | ----- | |
| 1240 | | ----- | | ----- | |
| 1273 | in house | 3.30 | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | ISO20846 | 2.713 | | ----- | |
| 1290 | EN14538 | 2.543 | | ----- | |
| 1299 | ISO20846 | 1.8 | | ----- | |
| 1300 | ISO20846 | 3.133 | | ----- | |
| 1316 | in house | <1.0 | | ----- | False negative? |
| 1397 | | ----- | | ----- | |
| 1400 | INH-376 | 2.55 | | ----- | |
| 1407 | ISO20846 | 2.97 | | ----- | |
| 1419 | ISO20846 | 2.87 | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | ISO20846 | <3 | | ----- | |
| 1429 | ISO20846 | 3.4 | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | | ----- | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO20846 | 2.5 | | ----- | |
| 1706 | ISO20846 | 0.0 | ex | ----- | Result excluded, zero is not real value |
| 1721 | ISO20846 | 2.8 | | ----- | |
| 1739 | | ----- | | ----- | |
| 1807 | ISO20846 | 2.6 | | ----- | |
| 1948 | ISO20846 | 3.04 | | ----- | |
| 2160 | in house | <3 | | ----- | |
| | | | | | |
| | normality | OK | | | |
| | n | 21 | | | |
| | outliers | 1 | | | |
| | mean (n) | 2.741 | | | |
| | st.dev. (n) | 0.4407 | | | |
| | R(calc.) | 1.234 | | | |
| | R(EN14214:08+A1:09) | (2.298) | | | Application range 3 - 500 mg/kg |

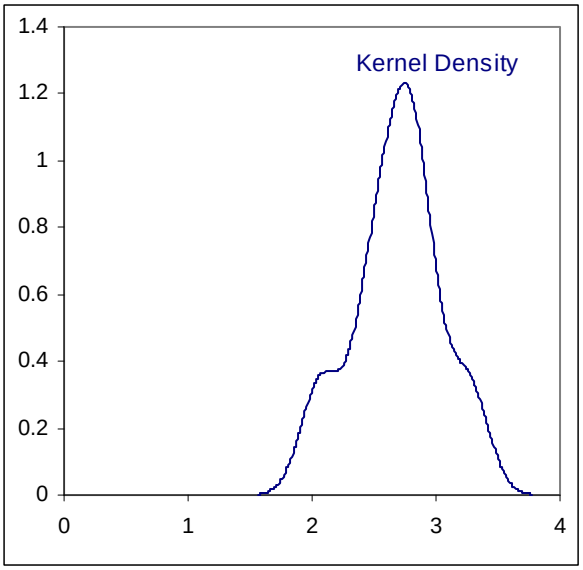

4
3
2
1
1706
1299
398
1167
1047
1656
1290
1400
1807
1286
1721
1016
1419
311
657
1407
447
1948
1300
1273
862
1429
1195


Kernel Density
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-2
0
2
4
6

## Determination of Sulphur conform ASTM spec. on sample #11036; results in mg/kg

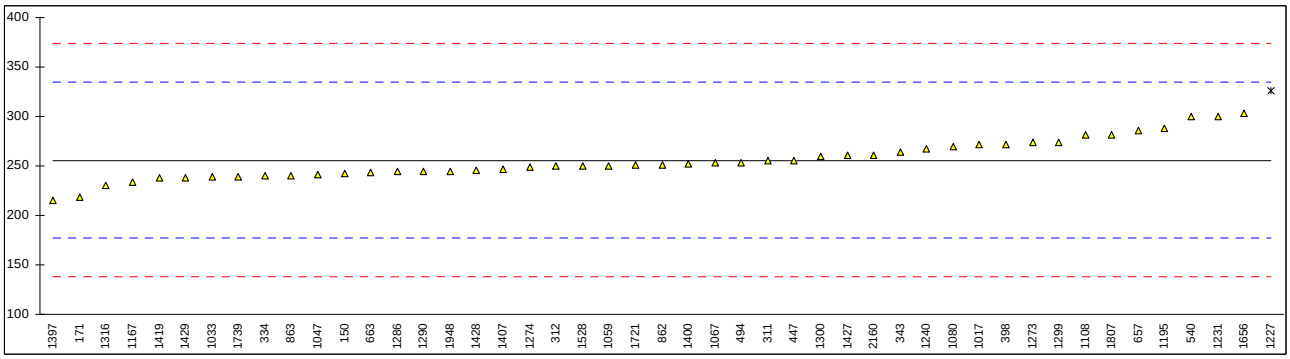
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | D5453 | 3.22 | | 1.22 | |
| 311 | D5453 | 2.9 | | 0.48 | |
| 312 | D5453 | 2.4 | | -0.67 | |
| 334 | | ----- | | ----- | |
| 343 | | ----- | | ----- | |
| 398 | | ----- | | ----- | |
| 447 | | ----- | | ----- | |
| 494 | D5453 | 2.74 | | 0.11 | |
| 540 | | ----- | | ----- | |
| 657 | D5453 | 2.94 | | 0.57 | |
| 663 | | ----- | | ----- | |
| 862 | D5453 | 3.3 | | 1.40 | |
| 863 | D5453 | 2.83 | | 0.32 | |
| 1016 | | ----- | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | | ----- | | ----- | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | D5453 | 2.6 | | -0.21 | |
| 1108 | D5453 | 2.5 | | -0.44 | |
| 1167 | D5453 | 2.04 | | -1.49 | |
| 1195 | D5453 | 98.947 | G(0.01) | 221.35 | |
| 1199 | | ----- | | ----- | |
| 1227 | D5453 | 2.1 | C | -1.36 | First reported 10.1 |
| 1231 | | ----- | | ----- | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | | ----- | | ----- | |
| 1300 | | ----- | | ----- | |
| 1316 | | ----- | | ----- | |
| 1397 | D5453 | 2.78 | | 0.21 | |
| 1400 | | ----- | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | D5453 | 2.78 | | 0.21 | |
| 1428 | D5453 | 2.7 | | 0.02 | |
| 1429 | | ----- | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | D5453 | 2.52 | | -0.39 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | | ----- | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | | ----- | | ----- | |
| 1739 | | ----- | | ----- | |
| 1807 | | ----- | | ----- | |
| 1948 | | ----- | | ----- | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 15 | | | |
| | outliers | 1 | | | |
| | mean (n) | 2.690 | | | |
| | st.dev. (n) | 0.3511 | | | |
| | R(calc.) | 0.983 | | | |
| | R(D5453:09) | 1.218 | | | Application range: 1 – 8000 mg/kg |

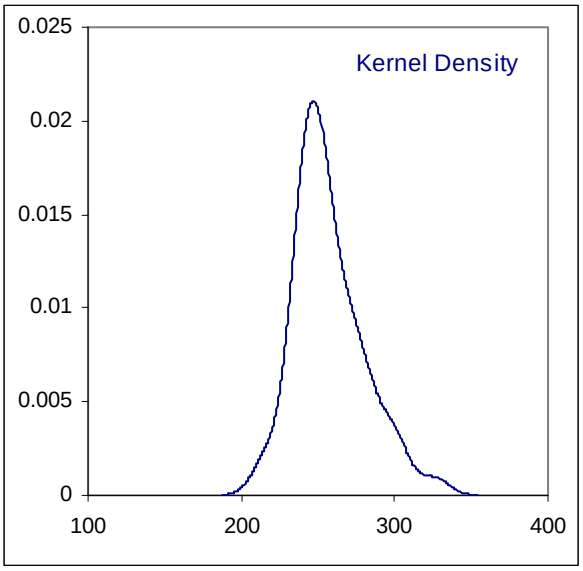

4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1167
1227
312
1108
1528
1080
1428
494
1427
1397
863
311
657
171
862
1195


Kernel Density
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1
2
3
4

## Determination of Water on sample #11036; results in mg/kg

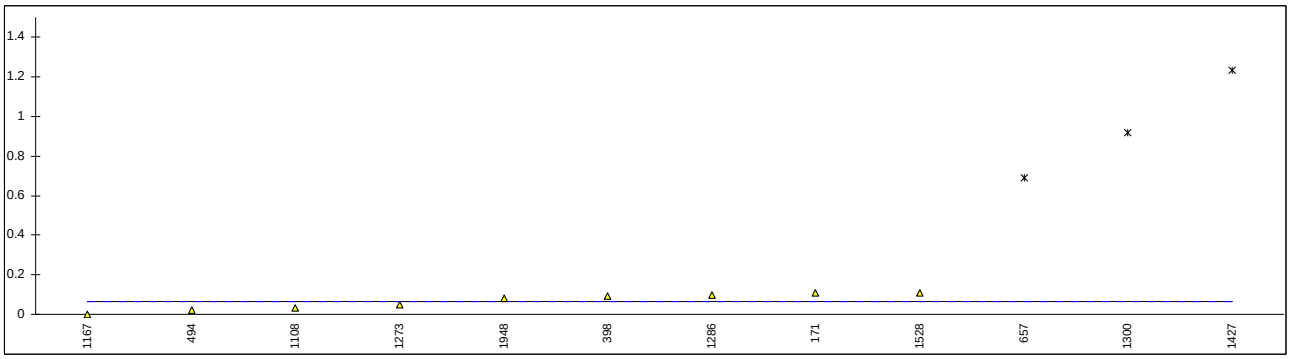
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | ISO12937 | 242 | | -0.35 | |
| 171 | ISO12937 | 217.97 | | -0.96 | |
| 311 | ISO12937 | 255 | | -0.02 | |
| 312 | ISO12937 | 250 | | -0.15 | |
| 334 | ISO12937 | 240 | | -0.40 | |
| 343 | ISO12937 | 264.4 | | 0.22 | |
| 398 | ISO12937 | 272 | | 0.41 | |
| 447 | ISO12937 | 255.5 | | -0.01 | |
| 494 | ISO12937 | 253 | | -0.07 | |
| 540 | ISO12937 | 299.76 | | 1.12 | |
| 657 | ISO12937 | 286 | | 0.77 | |
| 663 | ISO12937 | 243.05 | | -0.33 | |
| 862 | D6304 | 251 | | -0.12 | |
| 863 | D6304 | 240 | | -0.40 | |
| 1016 | | ----- | | ----- | |
| 1017 | ISO12937 | 272 | | 0.41 | |
| 1033 | IP438 | 239 | C | -0.43 | First reported 0.024 |
| 1047 | ISO12937 | 241 | | -0.38 | |
| 1059 | ISO12937 | 250 | | -0.15 | |
| 1067 | ISO12937 | 253 | | -0.07 | |
| 1080 | ISO12937 | 270 | | 0.36 | |
| 1108 | ISO12937 | 281 | | 0.64 | |
| 1167 | ISO12937 | 234.1 | | -0.55 | |
| 1195 | D6304 | 288 | | 0.82 | |
| 1199 | | ----- | | ----- | |
| 1227 | ISO12937 | 326.3 | G(0.05) | 1.79 | |
| 1231 | ISO12937 | 300 | U | 1.12 | Probably reported in deviating unit 0.300 g/kg |
| 1240 | ISO12937 | 267.8 | | 0.30 | |
| 1273 | ISO12937 | 274 | | 0.46 | |
| 1274 | ISO12937 | 249.05 | | -0.17 | |
| 1278 | | ----- | | ----- | |
| 1286 | ISO12937 | 244.40 | | -0.29 | |
| 1290 | ISO12937 | 244.46 | | -0.29 | |
| 1299 | ISO12937 | 274 | | 0.46 | |
| 1300 | ISO12937 | 259.554 | | 0.09 | |
| 1316 | D6304 | 230.9 | | -0.64 | |
| 1397 | ISO12937 | 215 | | -1.04 | |
| 1400 | ISO12937 | 252.7 | | -0.08 | |
| 1407 | ISO12937 | 247.2 | | -0.22 | |
| 1419 | ISO12937 | 238 | | -0.46 | |
| 1427 | ISO12937 | 260.96 | | 0.13 | |
| 1428 | ISO12937 | 246 | | -0.25 | |
| 1429 | ISO12937 | 238 | | -0.46 | |
| 1441 | | ----- | | ----- | |
| 1528 | ISO12937 | 250 | | -0.15 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | ISO12937 | 303 | | 1.20 | |
| 1706 | | ----- | | ----- | |
| 1721 | ISO12937 | 251 | | -0.12 | |
| 1739 | ISO12937 | 239 | | -0.43 | |
| 1807 | ISO12937 | 282 | C | 0.66 | First reported 357 |
| 1948 | ISO12937 | 244.77 | | -0.28 | |
| 2160 | ISO12937 | 261 | | 0.13 | |
| | | | | | |
| | normality | not OK | | | |
| | n | 46 | | | |
| | outliers | 1 | | | |
| | mean (n) | 255.88 | | | |
| | st.dev. (n) | 20.157 | | | |
| | R(calc.) | 56.44 | | | |
| | R(ISO12937:00) | 110.01 | | | |

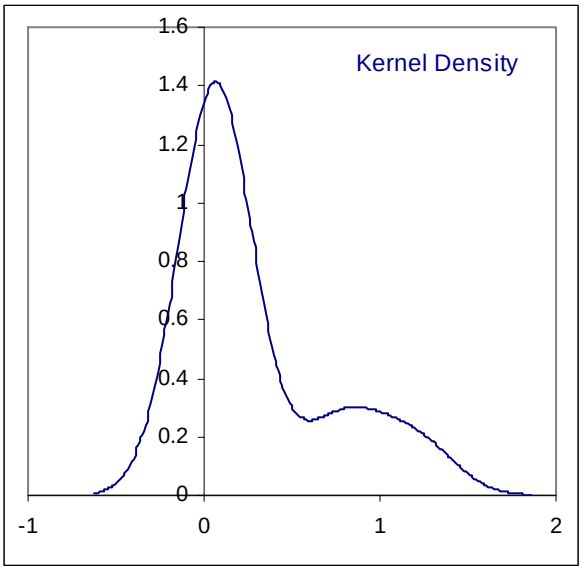

400
350
300
250
200
150
100
1397 171 1316 1167 1419 1429 1033 1739 334 863 1047 150 663 1286 1290 1948 1428 1407 1274 312 1528 1059 1721 862 1400 1067 494 311 447 1300 1427 2160 343 1240 1080 1017 398 1273 1299 1108 1807 657 1195 540 1231 1656 1227


Kernel Density
0.025
0.02
0.015
0.01
0.005
0
100
200
300
400

## Determination of sum of Calcium and Magnesium on sample #11036; results in mg/kg

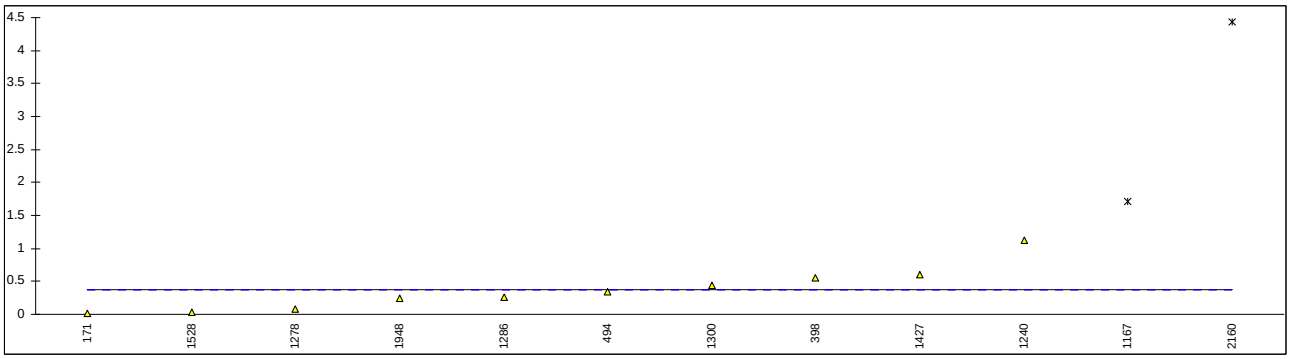
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14538 | 0.108 | | ----- | |
| 311 | EN14538 | <1 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN14538 | <2 | | ----- | |
| 398 | EN14538 | 0.09 | | ----- | |
| 447 | | ----- | | ----- | |
| 494 | EN14538 | 0.02 | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | EN14538 | 0.69 | G(0.01) | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14538 | <1 | | ----- | |
| 863 | INH-018 | <1 | | ----- | |
| 1016 | EN14107 | <2 | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14538 | <0.2 | | ----- | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | EN14538 | <1 | | ----- | |
| 1108 | in house | 0.03 | | ----- | |
| 1167 | EN14538 | 0.0 | | ----- | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | D5185 | nil | | ----- | |
| 1240 | EN14538 | <1.0 | | ----- | |
| 1273 | EN14538 | 0.05 | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | EN14538 | <1 | | ----- | |
| 1286 | EN14538 | 0.10 | | ----- | |
| 1290 | EN14538 | <0.1 | | ----- | |
| 1299 | EN14538 | <0.1 | | ----- | |
| 1300 | EN14538 | 0.9163 | DG(0.05) | ----- | |
| 1316 | in house | <0.25 | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14538 | <1 | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | in house | <0.1 | | ----- | |
| 1427 | EN14538 | 1.234 | DG(0.05) | ----- | |
| 1428 | EN14538 | <1.0 | | ----- | |
| 1429 | EN14538 | <0.1 | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | D4628 | 0.11 | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14538 | <1 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14538 | <0.5 | | ----- | |
| 1739 | EN14538 | <1 | | ----- | |
| 1807 | | ----- | | ----- | |
| 1948 | EN14538 | 0.08 | | ----- | |
| 2160 | EN14538 | <1 | | ----- | |
| | | | | | |
| | normality | OK | | | |
| | n | 9 | | | |
| | outliers | 3 | | | |
| | mean (n) | 0.065 | | | |
| | st.dev. (n) | 0.0413 | | | |
| | R(calc.) | 0.116 | | | |
| | R(EN14538:06) | (1.196) | | | Application range 1 - 10 mg/kg |

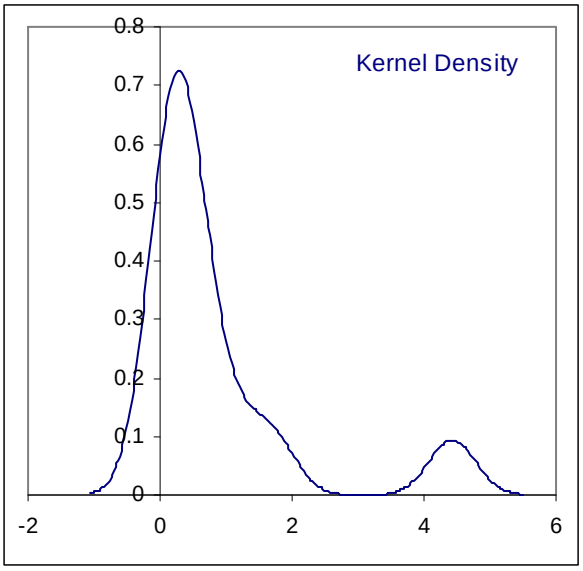

1.4
1.2
1
0.8
0.6
0.4
0.2
0
1167
494
1108
1273
1948
398
1286
171
1528
657
1300
1427


Kernel Density
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-1
0
1
2

## Determination of Phosphorus on sample #11036; results in mg/kg

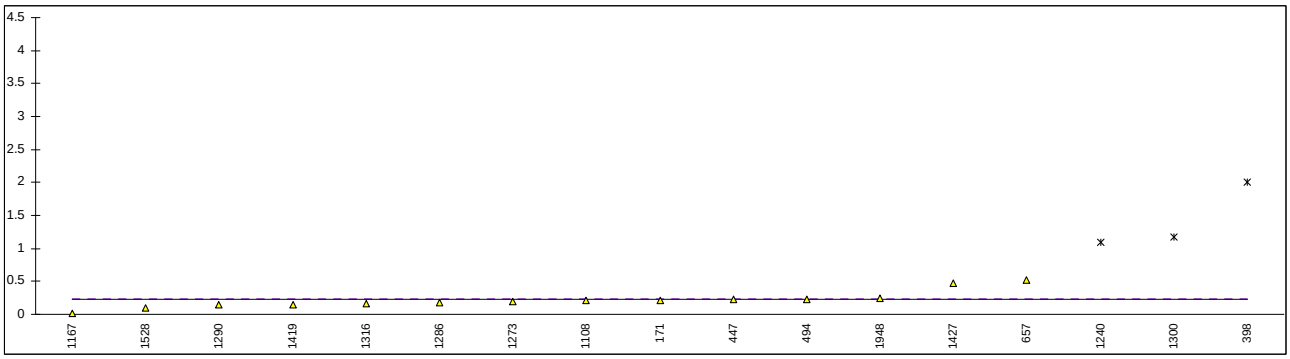
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14107 | 0.017 | | ----- | |
| 311 | EN14107 | <4 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN14107 | <4 | | ----- | |
| 398 | EN14107 | 0.55 | | ----- | |
| 447 | | ----- | | ----- | |
| 494 | EN14107 | 0.34 | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | EN14107 | <4 | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14107 | <4 | | ----- | |
| 863 | INH-018 | <4 | | ----- | |
| 1016 | EN14107 | <4 | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14107 | <0.5 | | ----- | |
| 1059 | in house | <3 | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | EN14107 | <4 | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14107 | 1.71 | G(0.05) | ----- | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | D5185 | nil | | ----- | |
| 1240 | EN14107 | 1.12 | | ----- | |
| 1273 | EN14107 | <1 | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | EN14107 | 0.08 | | ----- | |
| 1286 | EN14107 | 0.26 | | ----- | |
| 1290 | EN14107 | <0.1 | | ----- | |
| 1299 | EN14107 | <0.1 | | ----- | |
| 1300 | EN14107 | 0.4334 | | ----- | |
| 1316 | in house | <10 | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14107 | <4 | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | EN14107 | 0.602 | | ----- | |
| 1428 | EN14107 | <4.0 | | ----- | |
| 1429 | EN14107 | <1 | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | D3231 | 0.0358 | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14107 | <1 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14107 | <1 | | ----- | |
| 1739 | EN14107 | <4 | | ----- | |
| 1807 | | ----- | | ----- | |
| 1948 | EN14107 | 0.24 | | ----- | |
| 2160 | EN14107 | 4.43 | G(0.01) | ----- | |
| | | | | | |
| | normality | OK | | | |
| | n | 10 | | | |
| | outliers | 2 | | | |
| | mean (n) | 0.368 | | | |
| | st.dev. (n) | 0.3338 | | | |
| | R(calc.) | 0.935 | | | |
| | R(EN14107:03) | (0.096) | | | Application range 4 - 20 mg/kg |

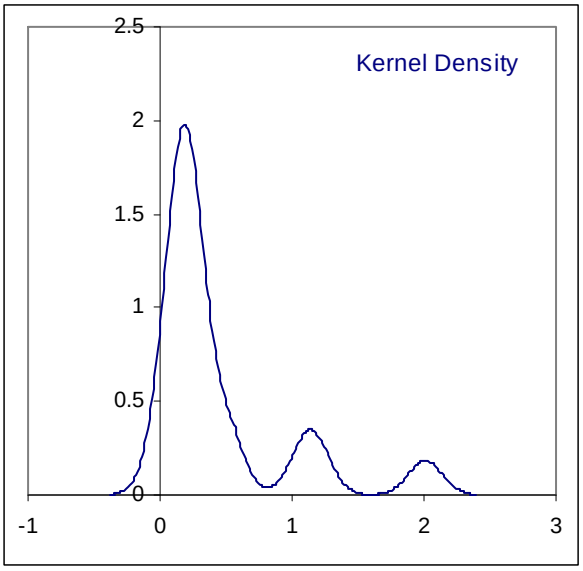

4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
171
1528
1278
1948
1286
494
1300
398
1427
1240
1167
2160


Kernel Density
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-2
0
2
4
6

## Determination of Sodium on sample #11036; results in mg/kg

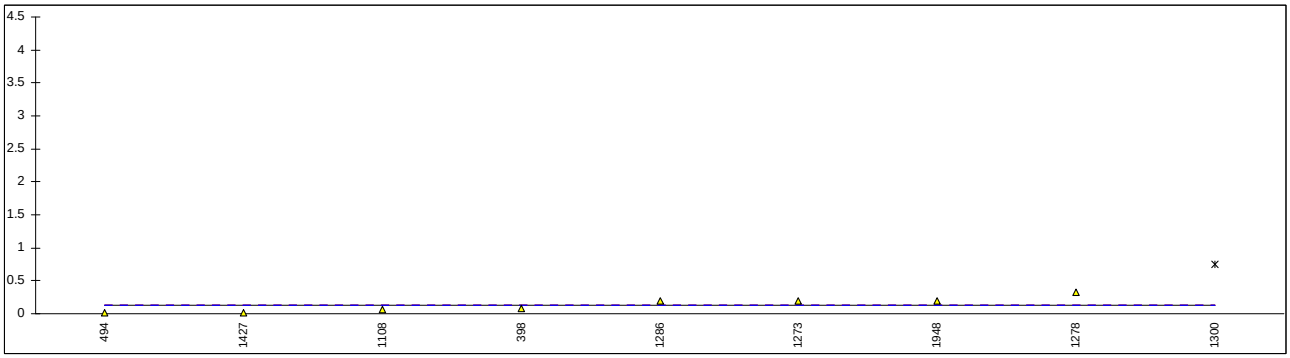
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14108 | 0.22 | | ----- | |
| 311 | EN14108 | <1 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN14108 | <1 | | ----- | |
| 398 | EN14108 | 2.01 | G(0.01) | ----- | |
| 447 | EN14108 | 0.23 | | ----- | |
| 494 | EN14108 | 0.23 | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | EN14108 | 0.517 | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14108 | <1 | | ----- | |
| 863 | INH-018 | <1 | | ----- | |
| 1016 | EN14108 | <1 | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14108 | <0.5 | | ----- | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | EN14538 | <1 | | ----- | |
| 1108 | EN14108 | 0.22 | | ----- | |
| 1167 | EN14108 | 0.01 | | ----- | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | D5185 | nil | | ----- | |
| 1240 | EN14538 | 1.10 | DG(0.01) | ----- | |
| 1273 | EN14538 | 0.20 | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | EN14538 | <1 | | ----- | |
| 1286 | EN14538 | 0.18 | | ----- | |
| 1290 | EN14538 | 0.1441 | | ----- | |
| 1299 | EN14538 | <0.1 | | ----- | |
| 1300 | EN14108 | 1.1795 | DG(0.01) | ----- | |
| 1316 | in house | 0.17 | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14538 | <1 | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | in house | 0.15 | | ----- | |
| 1427 | EN14108 | 0.4786 | | ----- | |
| 1428 | EN14108 | <1 | | ----- | |
| 1429 | | ----- | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14108 | 0.09 | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14108 | <1 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14108 | <1 | | ----- | |
| 1739 | EN14538 | <1 | | ----- | |
| 1807 | | ----- | | ----- | |
| 1948 | EN14108 | 0.25 | | ----- | |
| 2160 | EN14108 | <1 | | ----- | |
| | normality | not OK | | | |
| | n | 14 | | | |
| | outliers | 3 | | | |
| | mean (n) | 0.221 | | | |
| | st.dev. (n) | 0.1337 | | | |
| | R(calc.) | 0.374 | | | |
| | R(EN14214:08+A1:09) | (2.047) | | | Application range > 1 mg/kg; R(EN14214:08) is for sum (Na+K) |

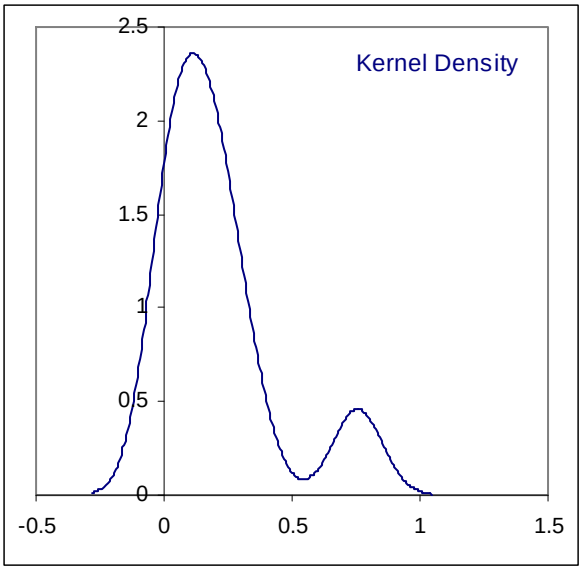

4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1167
1528
1290
1419
1316
1286
1273
1108
171
447
494
1948
1427
657
1240
1300
398


Kernel Density
2.5
2
1.5
1
0.5
0
-1
0
1
2
3

## Determination of Potassium on sample #11036; results in mg/kg

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14109 | <0.1 | | ----- | |
| 311 | EN14109 | <1 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN14109 | <0.5 | | ----- | |
| 398 | EN14109 | 0.08 | | ----- | |
| 447 | EN14109 | <0.1 | | ----- | |
| 494 | EN14109 | 0.01 | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | EN14109 | <0.5 | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14109 | <0.5 | | ----- | |
| 863 | INH-018 | <1 | | ----- | |
| 1016 | EN14109 | <1 | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14109 | <0.5 | | ----- | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | EN14538 | <1 | | ----- | |
| 1108 | EN14109 | 0.07 | | ----- | |
| 1167 | EN14109 | <0.5 | | ----- | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | D5185 | nil | | ----- | |
| 1240 | EN14538 | <1.0 | | ----- | |
| 1273 | EN14538 | 0.20 | | ----- | |
| 1274 | | ----- | | ----- | |
| 1278 | EN14538 | 0.33 | | ----- | |
| 1286 | EN14538 | 0.19 | | ----- | |
| 1290 | EN14538 | <0.1 | | ----- | |
| 1299 | EN14538 | <0.1 | | ----- | |
| 1300 | EN14109 | 0.7557 | G(0.05) | ----- | |
| 1316 | in house | <0.1 | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14109 | <1 | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | In house | <0.1 | | ----- | |
| 1427 | EN14109 | 0.013 | | ----- | |
| 1428 | EN14109 | <0.5 | | ----- | |
| 1429 | | ----- | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14109 | <0.1 | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14109 | <1 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14109 | <1 | | ----- | |
| 1739 | EN14538 | <1 | | ----- | |
| 1807 | | ----- | | ----- | |
| 1948 | EN14109 | 0.20 | | ----- | |
| 2160 | EN14109 | <0.5 | | ----- | |
| | normality | OK | | | |
| | n | 8 | | | |
| | outliers | 1 | | | |
| | mean (n) | 0.137 | | | |
| | st.dev. (n) | 0.1116 | | | |
| | R(calc.) | 0.313 | | | |
| | R(EN14214:08) | (2.023) | | | Application range > 0.5 mg/kg; R(EN14214:08) is for sum (Na+K) |

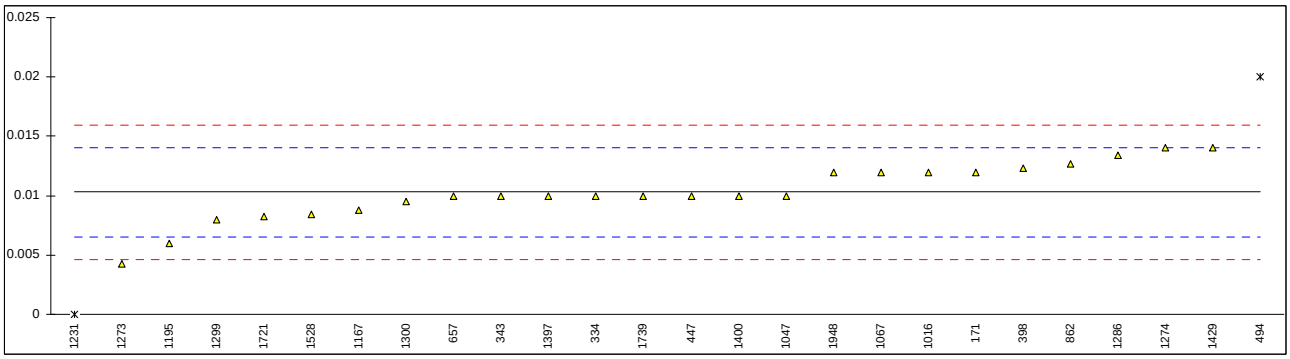

4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
494
1427
1108
398
1286
1273
1948
1278
1300

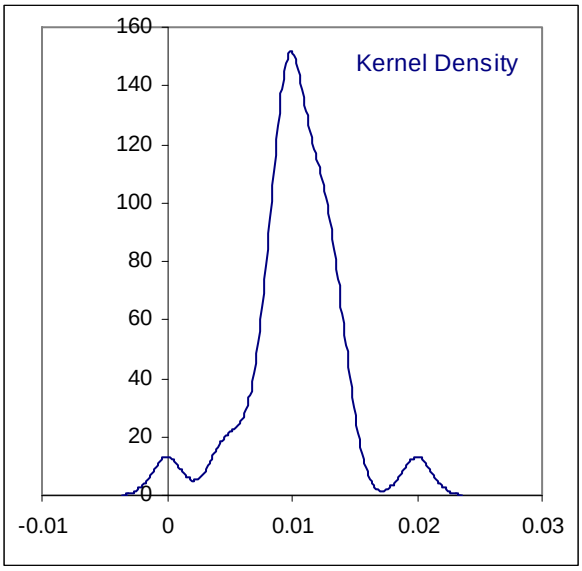

Kernel Density
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5

## Determination of Methanol on sample #11036; results in %M/M

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14110A | 0.012 | | 0.89 | |
| 311 | EN14110 | <0.01 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | EN14110 | 0.01 | | -0.17 | |
| 343 | EN14110 | 0.01 | | -0.17 | |
| 398 | EN14110 | 0.0123 | | 1.05 | |
| 447 | EN14110 | 0.010 | | -0.17 | |
| 494 | EN14110 | 0.02 | G(0.05) | 5.14 | |
| 540 | | ----- | | ----- | |
| 657 | EN14110 | 0.00997 | | -0.18 | |
| 663 | | ----- | | ----- | |
| 862 | EN14110A | 0.0127 | | 1.27 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14110-B | 0.012 | | 0.89 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN1411A | 0.01 | | -0.17 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN14110-B | 0.012 | | 0.89 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14110-A | 0.0088 | | -0.80 | |
| 1195 | EN14110-B | 0.00596 | | -2.31 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14110-B | 0.0 | ex | -5.47 | Result excluded, zero is not a real value. |
| 1240 | EN14110-A | <0.01 | | ----- | |
| 1273 | EN14110-B | 0.0043 | | -3.19 | |
| 1274 | EN14110 | 0.014 | | 1.96 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14110-B | 0.0134 | | 1.64 | |
| 1290 | | ----- | | ----- | |
| 1299 | EN14110-B | 0.008 | C | -1.23 | First reported 0.028 |
| 1300 | EN14110-A | 0.0095 | | -0.43 | |
| 1316 | | ----- | | ----- | |
| 1397 | EN14110-A | 0.01 | | -0.17 | |
| 1400 | EN14110-B | 0.01 | | -0.17 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | | ----- | | ----- | |
| 1429 | EN14110 | 0.014 | | 1.96 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14110-A | 0.0084 | | -1.01 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14110-A | <0.01 | | ----- | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14110-B | 0.0082 | | -1.12 | |
| 1739 | EN14110-B | 0.01 | | -0.17 | |
| 1807 | EN14110 | <0.01 | | ----- | |
| 1948 | EN14110 | 0.012 | | 0.89 | |
| 2160 | | ----- | | ----- | |

| | |
|---|---|
| normality | OK |
| n | 24 |
| outliers | 1 |
| mean (n) | 0.0103 |
| st.dev. (n) | 0.00238 |
| R(calc.) | 0.0067 |
| R(EN14110:03) | 0.0053 |


0.025
0.02
0.015
0.01
0.005
0
1231
1273
1195
1299
1721
1528
1167
1300
657
343
1397
334
1739
447
1400
1047
1948
1067
1016
171
398
862
1286
1274
1429
494

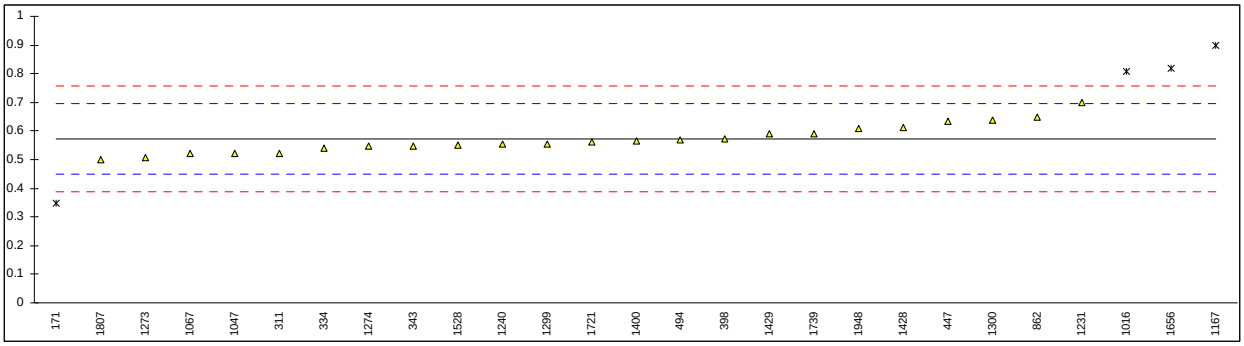

Kernel Density
160
140
120
100
80
60
40
20
0
-0.01
0
0.01
0.02
0.03

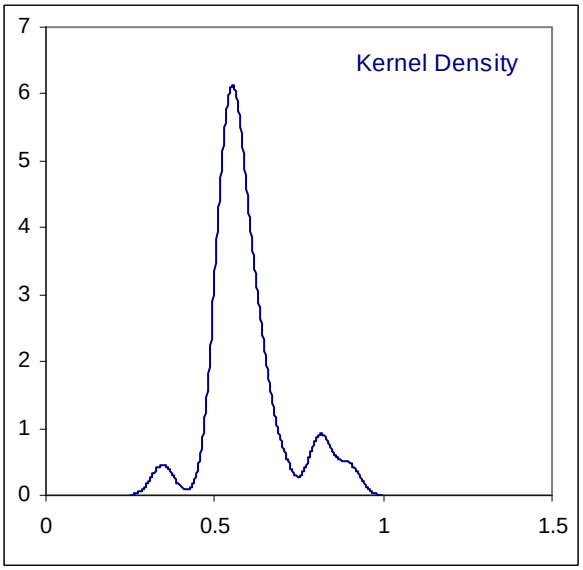
## Determination of mono-Glycerides on sample #11036; results in %M/M

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14105 | 0.3468 | G(0.05) | -3.66 | |
| 311 | EN14105 | 0.52 | | -0.84 | |
| 312 | | ----- | | ----- | |
| 334 | EN14105 | 0.54 | | -0.52 | |
| 343 | EN14105 | 0.547 | | -0.40 | |
| 398 | EN14105 | 0.571 | | -0.01 | |
| 447 | EN14105 | 0.6337 | | 1.01 | |
| 494 | EN14105 | 0.57 | | -0.03 | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14105 | 0.650 | | 1.27 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14105 | 0.809 | G(0.05) | 3.86 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14105 | 0.52 | | -0.84 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN14105 | 0.52 | | -0.84 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14105 | 0.898 | DG(0.05) | 5.31 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14105 | 0.70 | | 2.09 | |
| 1240 | EN14105 | 0.555 | | -0.27 | |
| 1273 | EN14105 | 0.507 | | -1.05 | |
| 1274 | EN14105 | 0.546 | | -0.42 | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | EN14105 | 0.556 | | -0.26 | |
| 1300 | EN14105 | 0.6373 | | 1.07 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14105 | 0.565 | | -0.11 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14105 | 0.611 | | 0.64 | |
| 1429 | EN14105 | 0.59 | | 0.30 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14105 | 0.551 | | -0.34 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14105 | 0.82 | DG(0.05) | 4.04 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14105 | 0.56 | | -0.19 | |
| 1739 | EN14105 | 0.59 | | 0.30 | |
| 1807 | EN14105 | 0.5 | | -1.17 | |
| 1948 | EN14105 | 0.610 | | 0.62 | |
| 2160 | | ----- | | ----- | |

| | |
|---|---|
| normality | OK |
| n | 23 |
| outliers | 4 |
| mean (n) | 0.572 |
| st.dev. (n) | 0.0501 |
| R(calc.) | 0.140 |
| R(EN14105:11) | 0.172 |

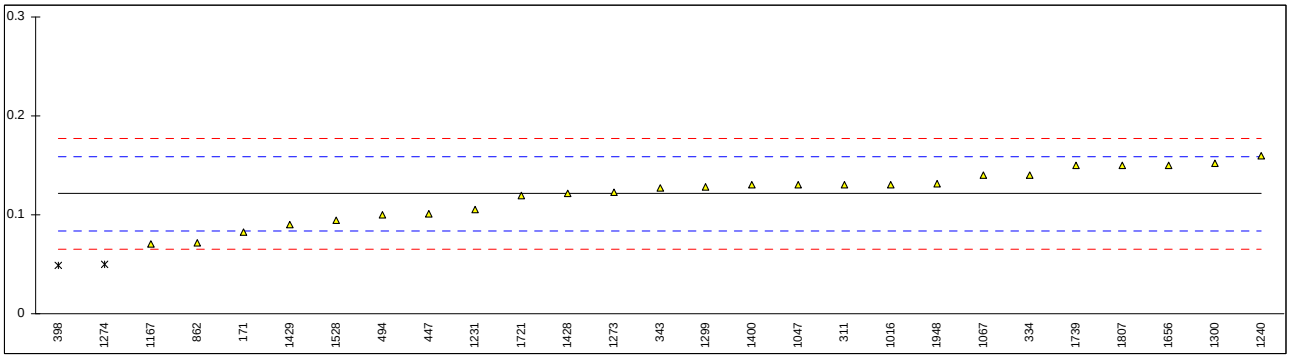
Compare R( EN14103:03)=2.039

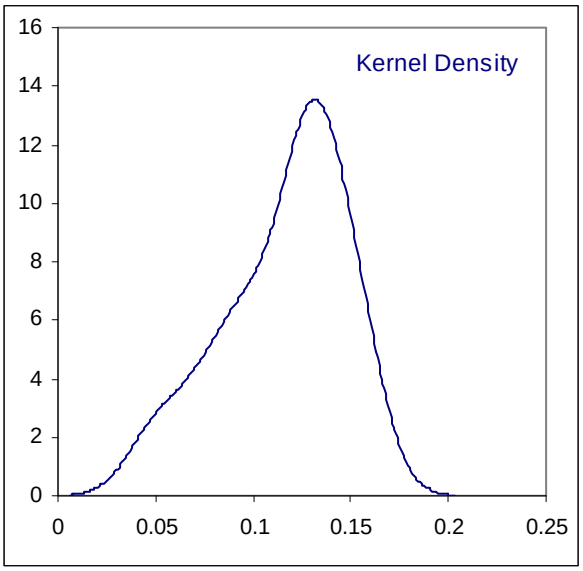

1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
171
1807
1273
1067
1047
311
334
1274
343
1528
1240
1299
1721
1400
494
398
1429
1739
1948
1428
447
1300
862
1231
1016
1656
1167


Kernel Density
7
6
5
4
3
2
1
0
0
0.5
1
1.5

## Determination of di-Glycerides on sample #11036; results in %M/M

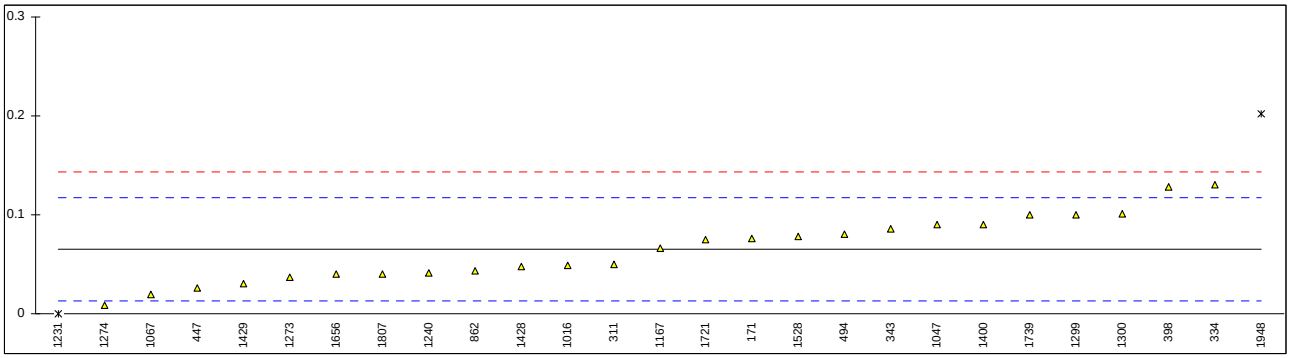
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14105 | 0.0831 | | -2.06 | |
| 311 | EN14105 | 0.13 | | 0.48 | |
| 312 | | ----- | | ----- | |
| 334 | EN14105 | 0.14 | | 1.02 | |
| 343 | EN14105 | 0.127 | | 0.31 | |
| 398 | EN14105 | 0.049 | DG(0.05) | -3.91 | |
| 447 | EN14105 | 0.1007 | | -1.11 | |
| 494 | EN14105 | 0.10 | | -1.15 | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14105 | 0.072 | | -2.66 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14105 | 0.130 | | 0.48 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14105 | 0.13 | | 0.48 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN14105 | 0.14 | | 1.02 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14105 | 0.071 | | -2.72 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14105 | 0.105 | | -0.88 | |
| 1240 | EN14105 | 0.160 | | 2.10 | |
| 1273 | EN14105 | 0.123 | | 0.10 | |
| 1274 | EN14105 | 0.0495 | DG(0.05) | -3.88 | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | EN14105 | 0.128 | | 0.37 | |
| 1300 | EN14105 | 0.1521 | | 1.67 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14105 | 0.13 | | 0.48 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14105 | 0.122 | | 0.04 | |
| 1429 | EN14105 | 0.09 | | -1.69 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14105 | 0.095 | | -1.42 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14105 | 0.15 | | 1.56 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14105 | 0.12 | | -0.06 | |
| 1739 | EN14105 | 0.15 | | 1.56 | |
| 1807 | EN14105 | 0.15 | | 1.56 | |
| 1948 | EN14105 | 0.131 | | 0.53 | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 25 | | | |
| | outliers | 2 | | | |
| | mean (n) | 0.121 | | | |
| | st.dev. (n) | 0.0253 | | | |
| | R(calc.) | 0.071 | | | |
| | R(EN14105:11) | 0.052 | | | Compare R( EN14103:03)=0.048 |

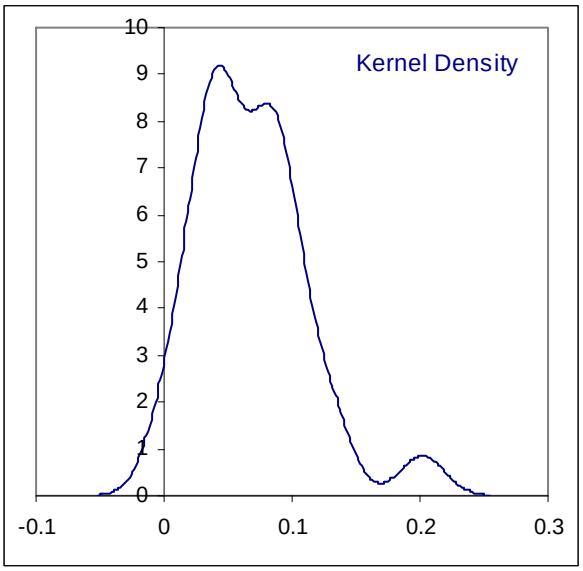

0.3
0.2
0.1
0
398
1274
1167
862
171
1429
1528
494
447
1231
1721
1428
1273
343
1299
1400
1047
311
1016
1948
1067
334
1739
1807
1656
1300
1240


Kernel Density
16
14
12
10
8
6
4
2
0
0
0.05
0.1
0.15
0.2
0.25

## Determination of tri-Glycerides on sample #11036; results in %M/M

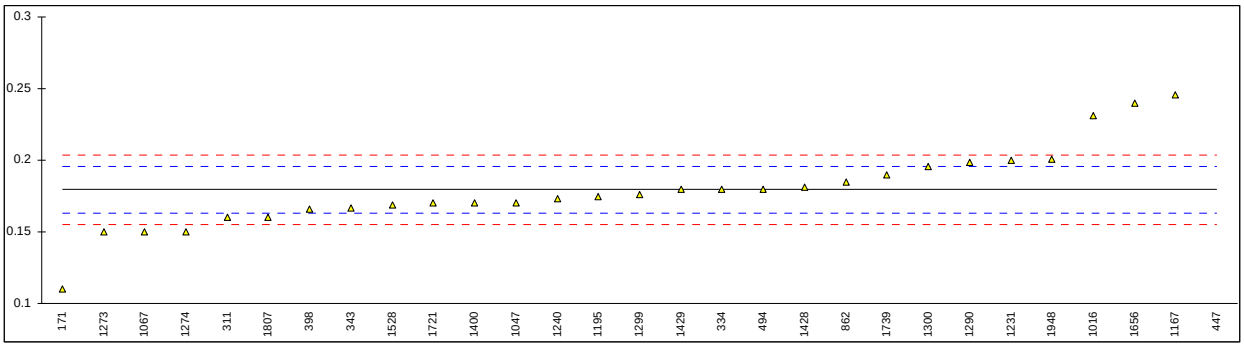
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14105 | 0.0766 | | 0.43 | |
| 311 | EN14105 | 0.05 | | -0.59 | |
| 312 | | ----- | | ----- | |
| 334 | EN14105 | 0.13 | | 2.49 | |
| 343 | EN14105 | 0.0863 | | 0.81 | |
| 398 | EN14105 | 0.128 | | 2.41 | |
| 447 | EN14105 | 0.0265 | | -1.49 | |
| 494 | EN14105 | 0.08 | | 0.56 | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14105 | 0.043 | | -0.86 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14105 | 0.049 | | -0.63 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14105 | 0.09 | | 0.95 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN14105 | 0.02 | | -1.74 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14105 | 0.066 | | 0.03 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14105 | 0.0 | ex | -2.51 | Result excluded, zero is not a real value |
| 1240 | EN14105 | 0.041 | | -0.94 | |
| 1273 | EN14105 | 0.037 | | -1.09 | |
| 1274 | EN14105 | 0.0083 | | -2.19 | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | EN14105 | 0.100 | | 1.33 | |
| 1300 | EN14105 | 0.1010 | | 1.37 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14105 | 0.09 | | 0.95 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14105 | 0.048 | | -0.67 | |
| 1429 | EN14105 | 0.03 | | -1.36 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14105 | 0.078 | | 0.49 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14105 | 0.04 | | -0.98 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14105 | 0.075 | | 0.37 | |
| 1739 | EN14105 | 0.10 | | 1.33 | |
| 1807 | EN14105 | 0.04 | | -0.98 | |
| 1948 | EN14105 | 0.202 | G(0.05) | 5.26 | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 25 | | | |
| | outliers | 1 | | | |
| | mean (n) | 0.065 | | | |
| | st.dev. (n) | 0.0330 | | | |
| | R(calc.) | 0.092 | | | |
| | R(EN14105:11) | 0.073 | | | Compare R( EN14103:03)=0.078 |

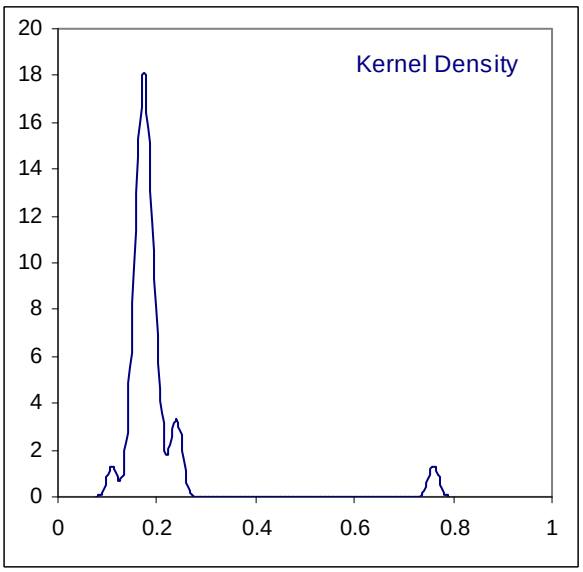

0.3
0.2
0.1
0
1231
1274
1067
447
1429
1273
1656
1807
1240
862
1428
1016
311
1167
1721
171
1528
494
343
1047
1400
1739
1299
1300
398
334
1948


Kernel Density
10
9
8
7
6
5
4
3
2
1
0
-0.1
0
0.1
0.2
0.3

## Determination of Free Glycerol on sample #11036; results in %M/M

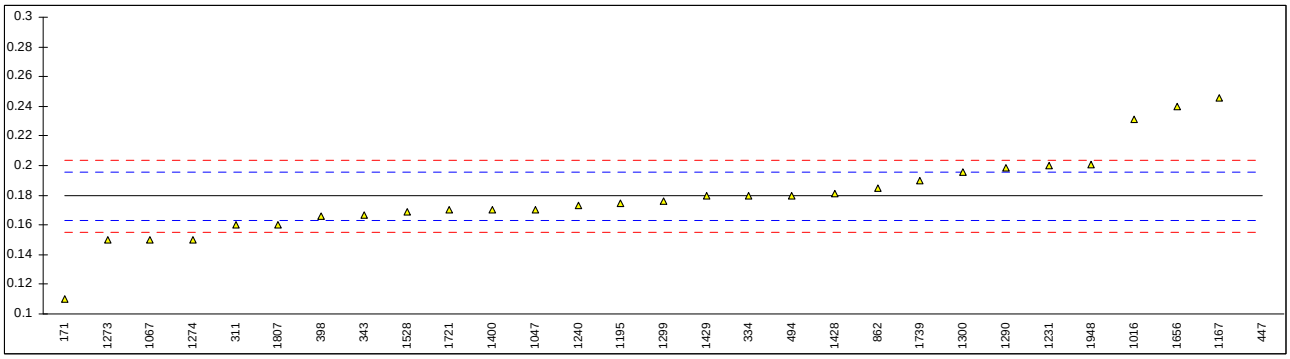
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14105 | 0.0039 | | -0.34 | |
| 311 | EN14105 | <0.01 | | ----- | |
| 312 | | ----- | | ----- | |
| 334 | EN14105 | 0.01 | | 2.11 | |
| 343 | EN14105 | <0.01 | | ----- | |
| 398 | EN14105 | 0.004 | | -0.30 | |
| 447 | EN14105 | 0.0013 | | -1.39 | |
| 494 | EN14105 | 0.01 | | 2.11 | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14105 | 0.004 | | -0.30 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14105 | <0.01 | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14105 | 0.006 | | 0.50 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN14105 | <0.01 | | ----- | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14105 | 0.00 | ex | -1.91 | Excluded, zero is not a real value |
| 1195 | Ea 6-51 | 0.001079 | | -1.48 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14105 | 0.0 | ex | -1.91 | Excluded, zero is not a real value |
| 1240 | EN14105 | 0.004 | | -0.30 | |
| 1273 | EN14105 | 0.00137 | | -1.36 | |
| 1274 | EN14105 | 0.0047 | | -0.02 | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | in house | 0.002 | | -1.11 | |
| 1299 | EN14105 | 0.005 | | 0.10 | |
| 1300 | EN14105 | 0.0006 | | -1.67 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14105 | 0.01 | | 2.11 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14105 | 0.0023 | | -0.99 | |
| 1429 | EN14105 | 0.009 | | 1.71 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14105 | 0.006 | | 0.50 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14105 | 0.002 | | -1.11 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14105 | <0.1 | | ----- | |
| 1739 | EN14105 | 0.007 | | 0.90 | |
| 1807 | EN14105 | <0.01 | | ----- | |
| 1948 | EN14105 | 0.0056 | | 0.34 | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 21 | | | |
| | outliers | 0 | | | |
| | mean (n) | 0.0048 | | | |
| | st.dev. (n) | 0.00306 | | | |
| | R(calc.) | 0.0086 | | | |
| | R(EN14105:11) | 0.0070 | | | Compare R( EN14103:03)=0.0058 |

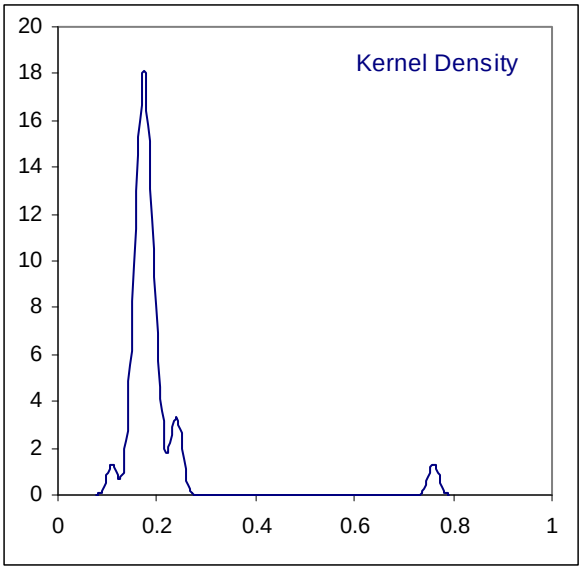

0.3
0.25
0.2
0.15
0.1
171
1273
1067
1274
311
1807
398
343
1528
1721
1400
1047
1240
1195
1299
1429
334
494
1428
862
1739
1300
1290
1231
1948
1016
1656
1167
447


Kernel Density
20
18
16
14
12
10
8
6
4
2
0
0
0.2
0.4
0.6
0.8
1

## Determination of Total Glycerol on sample #11036; results in %M/M

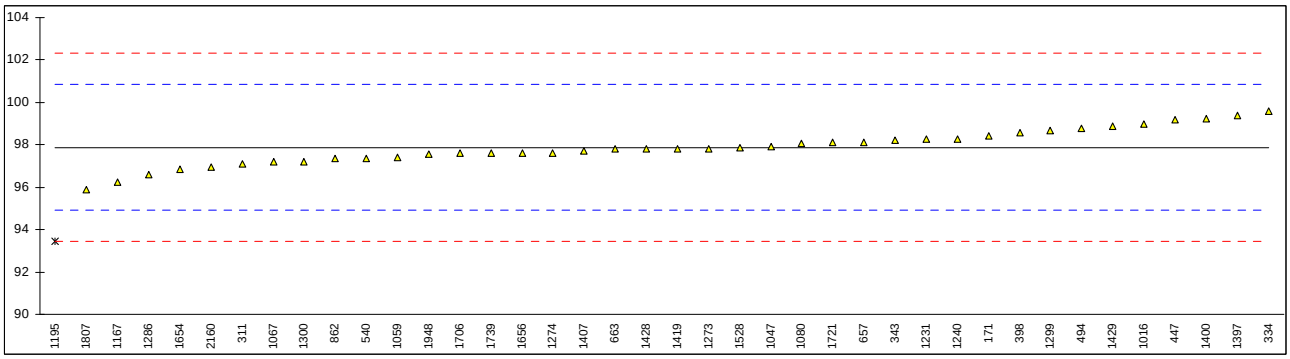
| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14105 | 0.11 | | -8.59 | |
| 311 | EN14105 | 0.16 | | -2.40 | |
| 312 | | ----- | | ----- | |
| 334 | EN14105 | 0.18 | | 0.07 | |
| 343 | EN14105 | 0.167 | | -1.54 | |
| 398 | EN14105 | 0.166 | | -1.66 | |
| 447 | EN14105 | 0.76 | G(0.01) | 71.86 | |
| 494 | EN14105 | 0.18 | | 0.07 | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | EN14105 | 0.185 | | 0.69 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14105 | 0.231 | | 6.39 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14105 | 0.17 | | -1.16 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN14105 | 0.15 | | -3.64 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14105 | 0.246 | | 8.24 | |
| 1195 | INH-1456 | 0.1744 | | -0.62 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14105 | 0.20 | | 2.55 | |
| 1240 | EN14105 | 0.173 | | -0.79 | |
| 1273 | EN14105 | 0.15 | | -3.64 | |
| 1274 | EN14105 | 0.15 | | -3.64 | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | in house | 0.1983 | | 2.34 | |
| 1299 | EN14105 | 0.176 | | -0.42 | |
| 1300 | EN14105 | 0.1957 | | 2.02 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN14105 | 0.17 | | -1.16 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14105 | 0.181 | | 0.20 | |
| 1429 | EN14105 | 0.18 | | 0.07 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14105 | 0.169 | | -1.29 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN14105 | 0.24 | | 7.50 | |
| 1706 | | ----- | | ----- | |
| 1721 | EN14105 | 0.17 | | -1.16 | |
| 1739 | EN14105 | 0.19 | | 1.31 | |
| 1807 | EN14105 | 0.16 | | -2.40 | |
| 1948 | EN14105 | 0.201 | | 2.67 | |
| 2160 | | ----- | | ----- | |
| | normality | OK | | | |
| | n | 28 | | | |
| | outliers | 1 | | | |
| | mean (n) | 0.179 | | | |
| | st.dev. (n) | 0.0281 | | | |
| | R(calc.) | 0.079 | | | |
| | R(EN14105:11) | 0.023 | | | Compare R( EN14103:03)=0.070 |

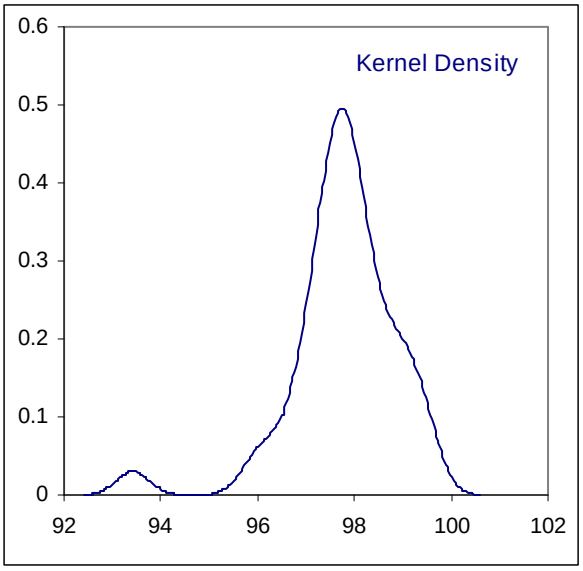

0.3
0.28
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
171
1273
1067
1274
311
1807
398
343
1528
1721
1400
1047
1240
1195
1299
1429
334
494
1428
862
1739
1300
1290
1231
1948
1016
1656
1167
447


Kernel Density
20
18
16
14
12
10
8
6
4
2
0
0
0.2
0.4
0.6
0.8
1

Determination of Total Ester content (uncorrected) on sample #11036; results in %M/M

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14103 | 98.4 | | 0.35 | |
| 311 | EN14103 | 97.1 | | -0.53 | |
| 312 | | ----- | | ----- | |
| 334 | EN14103 | 99.6 | | 1.15 | |
| 343 | EN14103 | 98.2 | | 0.21 | |
| 398 | EN14103 | 98.58 | | 0.47 | |
| 447 | EN14103 | 99.2 | | 0.88 | |
| 494 | EN14103 | 98.8 | | 0.62 | |
| 540 | EN14103 | 97.354 | | -0.36 | |
| 657 | EN14103 | 98.1 | | 0.14 | |
| 663 | EN14103 | 97.8 | | -0.06 | |
| 862 | EN14103 | 97.33 | | -0.37 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14103 | 98.98 | | 0.74 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14103 | 97.9 | | 0.01 | |
| 1059 | EN14103 | 97.4 | | -0.33 | |
| 1067 | EN14103 | 97.2 | | -0.46 | |
| 1080 | in house | 98.08 | | 0.13 | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14103 | 96.22 | | -1.12 | |
| 1195 | EN14103 | 93.4247 | G(0.01) | -3.00 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14103 | 98.25 | | 0.25 | |
| 1240 | EN14103 | 98.27 | | 0.26 | |
| 1273 | EN14103 | 97.83 | | -0.04 | |
| 1274 | EN14103 | 97.6 | | -0.19 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14103 | 96.577 | | -0.88 | |
| 1290 | | ----- | | ----- | |
| 1299 | EN14103 | 98.68 | | 0.53 | |
| 1300 | EN14103 | 97.205 | | -0.46 | |
| 1316 | | ----- | | ----- | |
| 1397 | EN14103 | 99.4 | | 1.02 | |
| 1400 | EN14103 | 99.23 | | 0.91 | |
| 1407 | EN14103 | 97.7 | | -0.12 | |
| 1419 | EN14103 | 97.83 | | -0.04 | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14103 | 97.8 | | -0.06 | |
| 1429 | EN14103 | 98.9 | | 0.68 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14103 | 97.86 | | -0.02 | |
| 1634 | | ----- | | ----- | |
| 1654 | EN14103 | 96.83 | | -0.71 | |
| 1656 | EN14103 | 97.6 | | -0.19 | |
| 1706 | EN14103 | 97.59 | | -0.20 | |
| 1721 | EN14103 | 98.1 | | 0.14 | |
| 1739 | EN14103 | 97.6 | | -0.19 | |
| 1807 | EN14103 | 95.9 | | -1.34 | |
| 1948 | EN14103 | 97.57 | | -0.21 | |
| 2160 | EN14103 | 96.96 | | -0.62 | |
| | | | | | |
| | normality | OK | | | |
| | n | 39 | | | |
| | outliers | 1 | | | |
| | mean (n) | 97.885 | | | |
| | st.dev. (n) | 0.8427 | | | |
| | R(calc.) | 2.360 | | | |
| | R(EN14103:11) | 4.160 | | | Compare R( EN14103:03)=3.1 |

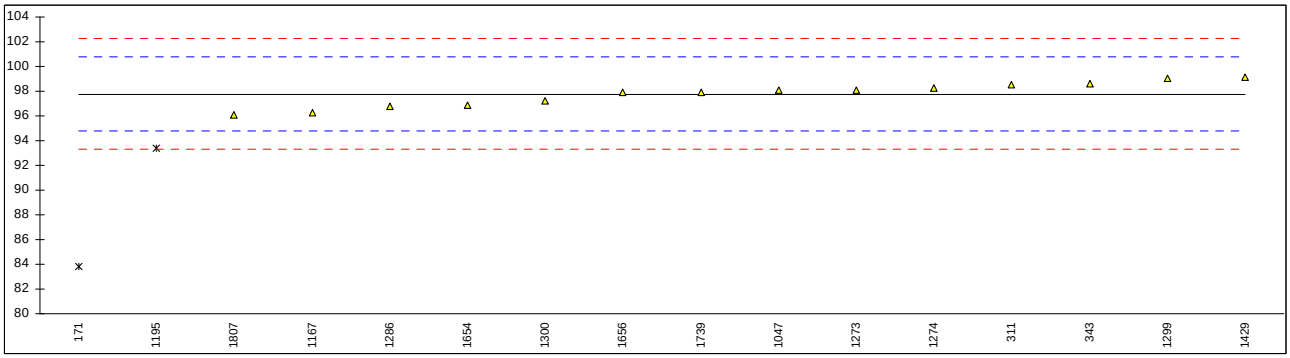

104
102
100
98
96
94
92
90
1195
1807
1167
1286
1654
2160
311
1067
1300
862
540
1059
1948
1706
1739
1656
1274
1407
663
1428
1419
1273
1528
1047
1080
1721
657
343
1231
1240
171
398
1299
494
1429
1016
447
1400
1397
334

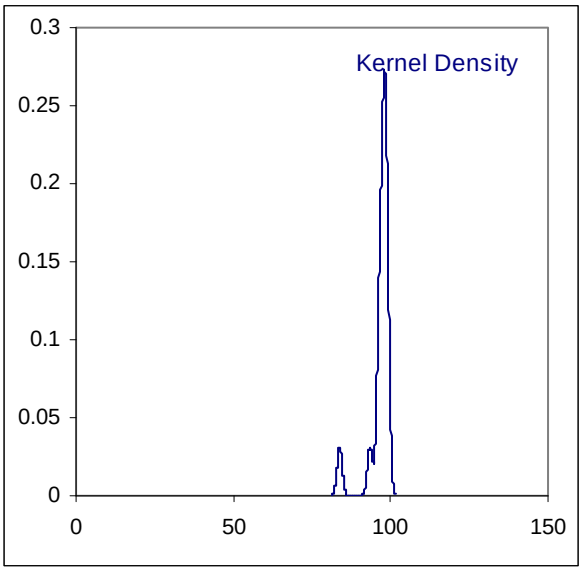

Kernel Density
0.6
0.5
0.4
0.3
0.2
0.1
0
92
94
96
98
100
102

## Determination of Total Ester content (corr. Acc. CEN rev. TF/N39) on sample #11036; results in %M/M

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14103 | 83.8 | ex | -9.40 | Excluded, corrected value is lower than uncorrected value |
| 311 | EN14103 | 98.5 | | 0.49 | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN14103 | 98.6 | | 0.56 | |
| 398 | | ----- | | ----- | |
| 447 | | ----- | | ----- | |
| 494 | | ----- | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 663 | | ----- | | ----- | |
| 862 | | ----- | | ----- | |
| 863 | | ----- | | ----- | |
| 1016 | | ----- | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14103 | 98.1 | | 0.22 | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14103 | 96.22 | | -1.04 | |
| 1195 | EN14103 | 93.4247 | G(0.05) | -2.92 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | | ----- | | ----- | |
| 1240 | | ----- | | ----- | |
| 1273 | EN14103 | 98.1 | | 0.22 | |
| 1274 | EN14103 | 98.3 | | 0.36 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14103 | 96.823 | | -0.64 | |
| 1290 | | ----- | | ----- | |
| 1299 | EN14103 | 99.07 | | 0.88 | |
| 1300 | EN14103 | 97.230 | | -0.36 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | | ----- | | ----- | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | | ----- | | ----- | |
| 1429 | EN14103 | 99.1 | | 0.90 | |
| 1441 | | ----- | | ----- | |
| 1528 | | ----- | | ----- | |
| 1634 | | ----- | | ----- | |
| 1654 | EN14103 | 96.83 | | -0.63 | |
| 1656 | EN14103 | 97.9 | | 0.09 | |
| 1706 | | ----- | | ----- | |
| 1721 | | ----- | | ----- | |
| 1739 | EN14103 | 97.9 | | 0.09 | |
| 1807 | EN14103 | 96.1 | | -1.12 | |
| 1948 | | ----- | | ----- | |
| 2160 | | ----- | | ----- | |

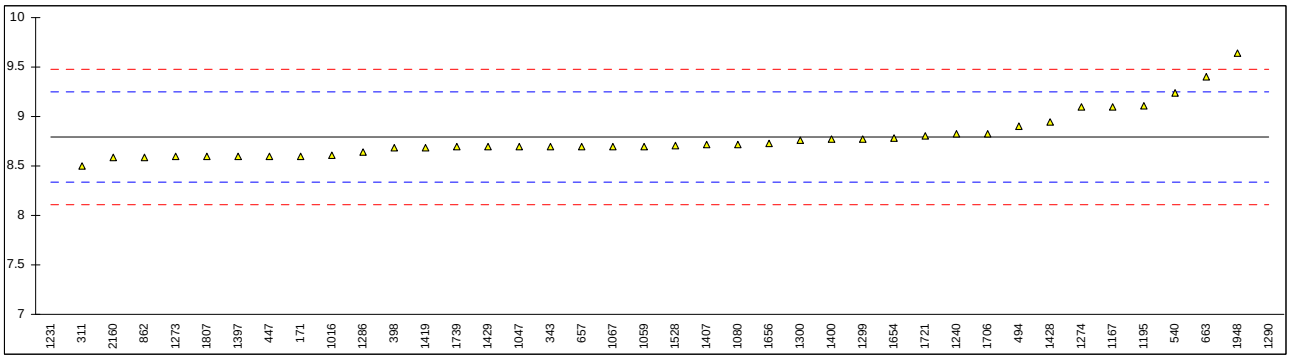
| | | | |
|---|---|---|---|
| | normality | OK | |
| | n | 14 | |
| | outliers | 1 | |
| | mean (n) | 97.769 | |
| | st.dev. (n) | 0.9797 | |
| | R(calc.) | 2.743 | |
| | R(EN14103:11) | 4.160 | Compare R( EN14103:03)=3.1 |

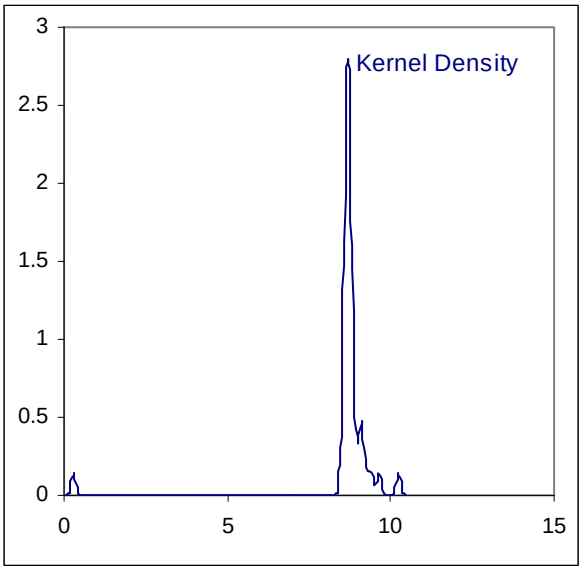

104
102
100
98
96
94
92
90
88
86
84
82
80
171
1195
1807
1167
1286
1654
1300
1656
1739
1047
1273
1274
311
343
1299
1429


Kernel Density
0.3
0.25
0.2
0.15
0.1
0.05
0
0
50
100
150

Determination of Linolenic Acid Methyl Ester content on sample #11036; results in %M/M

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14103 | 8.6 | | -0.84 | |
| 311 | EN14103 | 8.5 | | -1.27 | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN14103 | 8.7 | | -0.40 | |
| 398 | EN14103 | 8.68 | | -0.49 | |
| 447 | EN14103 | 8.6 | | -0.84 | |
| 494 | EN14103 | 8.9 | | 0.48 | |
| 540 | EN14103 | 9.243 | | 1.98 | |
| 657 | EN14103 | 8.7 | | -0.40 | |
| 663 | EN14103 | 9.4 | | 2.67 | |
| 862 | EN14103 | 8.59 | | -0.88 | |
| 863 | | ----- | | ----- | |
| 1016 | EN14103 | 8.61 | | -0.79 | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN14103 | 8.7 | | -0.40 | |
| 1059 | EN14103 | 8.7 | | -0.40 | |
| 1067 | EN14103 | 8.7 | | -0.40 | |
| 1080 | in house | 8.72 | | -0.31 | |
| 1108 | | ----- | | ----- | |
| 1167 | EN14103 | 9.10 | | 1.36 | |
| 1195 | EN14103 | 9.1049 | | 1.38 | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | EN14103 | 0.285 | G(0.01) | -37.28 | |
| 1240 | EN14103 | 8.83 | | 0.17 | |
| 1273 | EN14103 | 8.60 | | -0.84 | |
| 1274 | EN14103 | 9.1 | | 1.36 | |
| 1278 | | ----- | | ----- | |
| 1286 | EN14103 | 8.64 | | -0.66 | |
| 1290 | in house | 10.24 | G(0.01) | 6.35 | |
| 1299 | EN14103 | 8.77 | | -0.09 | |
| 1300 | EN14103 | 8.761 | | -0.13 | |
| 1316 | | ----- | | ----- | |
| 1397 | EN14103 | 8.6 | | -0.84 | |
| 1400 | EN14103 | 8.77 | | -0.09 | |
| 1407 | EN14103 | 8.72 | | -0.31 | |
| 1419 | EN14103 | 8.68 | | -0.49 | |
| 1427 | | ----- | | ----- | |
| 1428 | EN14103 | 8.95 | | 0.70 | |
| 1429 | EN14103 | 8.7 | | -0.40 | |
| 1441 | | ----- | | ----- | |
| 1528 | EN14103 | 8.71 | | -0.35 | |
| 1634 | | ----- | | ----- | |
| 1654 | EN14103 | 8.78 | | -0.05 | |
| 1656 | EN14103 | 8.73 | | -0.27 | |
| 1706 | EN14103 | 8.83 | | 0.17 | |
| 1721 | EN14103 | 8.8 | | 0.04 | |
| 1739 | EN14103 | 8.7 | | -0.40 | |
| 1807 | EN14103 | 8.6 | | -0.84 | |
| 1948 | EN14103 | 9.64 | | 3.72 | |
| 2160 | EN14103 | 8.59 | | -0.88 | |
| | normality | not OK | | | |
| | n | 38 | | | |
| | outliers | 2 | | | |
| | mean (n) | 8.791 | | | |
| | st.dev. (n) | 0.2402 | | | |
| | R(calc.) | 0.672 | | | |
| | R(EN14103:11) | 0.639 | | | Compare R( EN14103:03)=2.754 |

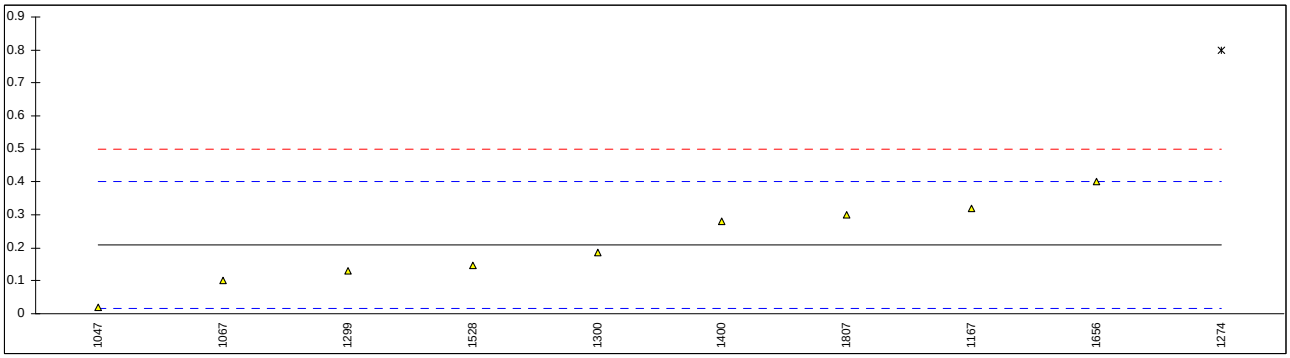

10
9.5
9
8.5
8
7.5
7
1231
311
2160
862
1273
1807
1397
447
171
1016
1286
398
1419
1739
1429
1047
343
657
1067
1059
1528
1407
1080
1656
1300
1400
1299
1654
1721
1240
1706
494
1428
1274
1167
1195
540
663
1948
1290

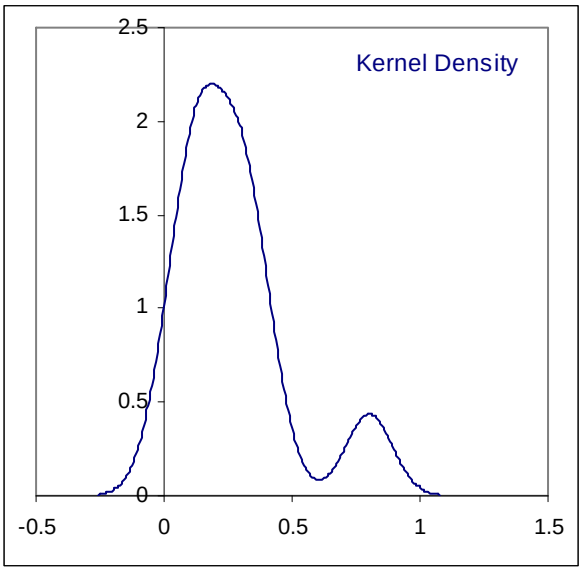

Kernel Density
3
2.5
2
1.5
1
0.5
0
0
5
10
15

## Determination of Polyunsaturated Methyl Esters content on sample #11036; results in %M/M

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | EN14103Mod | <0.1 | | <-1.13 | |
| 311 | EN15779 | <0.7 | | <5.09 | |
| 312 | | ----- | | ----- | |
| 334 | | ----- | | ----- | |
| 343 | EN15779 | <0.3 | | <0.94 | |
| 398 | EN15779 | <0.1 | | <-1.13 | |
| 447 | | ----- | | ----- | |
| 494 | INH-VI | <0.01 | | <-2.06 | False negative? |
| 540 | | ----- | | ----- | |
| 657 | EN14103 | <0.1 | | <-1.13 | |
| 663 | | ----- | | ----- | |
| 862 | | ----- | | ----- | |
| 863 | | ----- | | ----- | |
| 1016 | | ----- | | ----- | |
| 1017 | | ----- | | ----- | |
| 1033 | | ----- | | ----- | |
| 1047 | EN15779 | 0.02 | | -1.96 | |
| 1059 | | ----- | | ----- | |
| 1067 | EN15779 | 0.1 | | -1.13 | |
| 1080 | | ----- | | ----- | |
| 1108 | | ----- | | ----- | |
| 1167 | EN15779 | 0.318 | | 1.13 | |
| 1195 | | ----- | | ----- | |
| 1199 | | ----- | | ----- | |
| 1227 | | ----- | | ----- | |
| 1231 | | ----- | | ----- | |
| 1240 | | ----- | | ----- | |
| 1273 | | ----- | | ----- | |
| 1274 | EN15779 | 0.80 | D(0.05) | 6.13 | |
| 1278 | | ----- | | ----- | |
| 1286 | | ----- | | ----- | |
| 1290 | | ----- | | ----- | |
| 1299 | in house | 0.13 | | -0.82 | |
| 1300 | EN15779 | 0.187 | | -0.23 | |
| 1316 | | ----- | | ----- | |
| 1397 | | ----- | | ----- | |
| 1400 | EN15779 | 0.28 | | 0.74 | |
| 1407 | | ----- | | ----- | |
| 1419 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1428 | | ----- | | ----- | |
| 1429 | | ----- | | ----- | |
| 1441 | | ----- | | ----- | |
| 1528 | in house | 0.147 | | -0.64 | |
| 1634 | | ----- | | ----- | |
| 1654 | | ----- | | ----- | |
| 1656 | EN15779 | 0.40 | | 1.98 | |
| 1706 | | ----- | | ----- | |
| 1721 | | ----- | | ----- | |
| 1739 | | ----- | | ----- | |
| 1807 | EN15779 | 0.3 | C | 0.94 | First reported 6.7 |
| 1948 | | ----- | | ----- | |
| 2160 | | ----- | | ----- | |

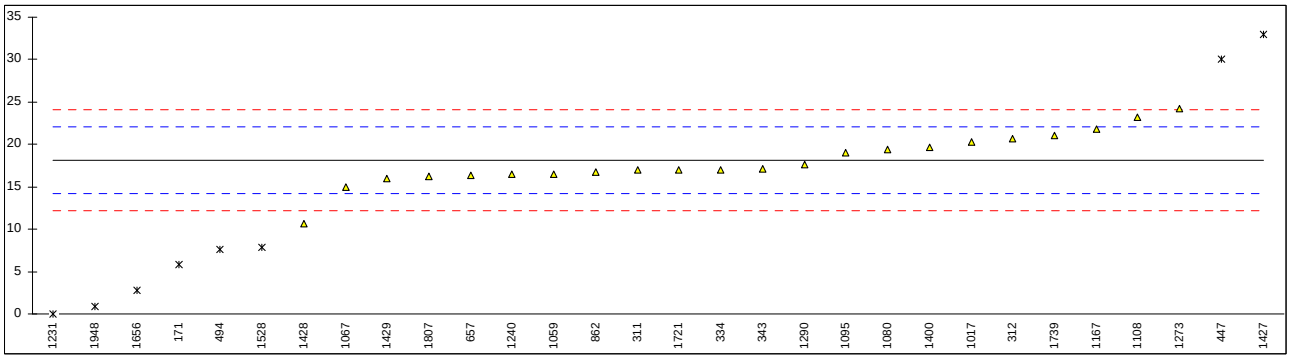
| | |
|---|---|
| normality | OK |
| n | 9 |
| outliers | 1 |
| mean (n) | 0.209 |
| st.dev. (n) | 0.1224 |
| R(calc.) | 0.343 |
| R(EN15779:09) | 0.270 |

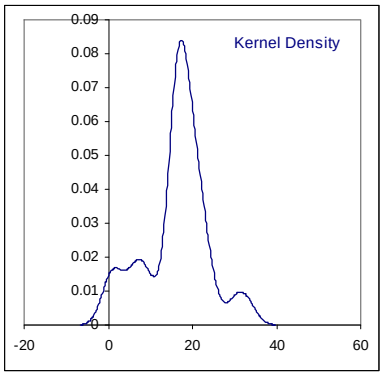

0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1047
1067
1299
1528
1300
1400
1807
1167
1656
1274


Kernel Density
2.5
2
1.5
1
0.5
0
-0.5
0
0.5
1
1.5

## Determination of Total Contamination on sample #11037; results in mg/kg

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 171 | EN12662 | 5.7792 | ex | -6.42 | Result excluded see paragraph 4.1 |
| 311 | EN12662 | 17 | | -0.75 | |
| 312 | EN12662 | 20.7 | | 1.12 | |
| 334 | EN12662 | 17.0 | | -0.75 | filter blocked after 700 mL |
| 343 | EN12662 | 17.08 | | -0.71 | |
| 447 | EN12662 | 30.1 | DG(0.05) | 5.86 | |
| 494 | EN12662 | 7.59 | ex | -5.50 | Result excluded see paragraph 4.1 |
| 540 | EN12662 | n.a. | | ----- | filter blocked after 535 mL |
| 657 | EN12662 | 16.3 | | -1.10 | |
| 862 | EN12662 | 16.69 | | -0.91 | |
| 1017 | EN12662 | 20.33 | | 0.93 | |
| 1033 | IP440 | n.a. | | ----- | filter blocked after 380 mL |
| 1059 | EN12662 | 16.5 | | -1.00 | |
| 1067 | EN12662 | 14.96 | | -1.78 | |
| 1080 | EN12662 | 19.4 | | 0.46 | |
| 1095 | EN12662 | 19.0 | | 0.26 | |
| 1108 | EN12662 | 23.2 | | 2.38 | |
| 1167 | EN12662 | 21.8 | | 1.67 | |
| 1199 | | ----- | | ----- | |
| 1231 | EN12662 | 0.0008 | U | -9.33 | Result excluded see paragraph 4.1, probably reported in other unit |
| 1240 | EN12662 | 16.44 | | -1.03 | |
| 1273 | EN12662 | 24.25 | | 2.91 | |
| 1290 | EN12662 | 17.57 | | -0.46 | |
| 1400 | EN12662 | 19.66 | | 0.59 | |
| 1427 | EN12662 | 33 | DG(0.05) | 7.33 | |
| 1428 | EN12662 | 10.6 | G(0.05) | -3.98 | |
| 1429 | EN12662 | 16 | | -1.25 | |
| 1528 | EN12662 | 7.81 | ex | -5.39 | Result excluded see paragraph 4.1 |
| 1656 | EN12662 | 2.8 | ex | -7.92 | Result excluded see paragraph 4.1 |
| 1721 | EN12662 | 17.0 | | -0.75 | |
| 1739 | EN12662 | 21.1 | | 1.32 | |
| 1807 | EN12662 | 16.2 | | -1.15 | |
| 1948 | EN12662 | 0.91 | C, ex | -8.87 | Result excluded see paragraph 4.1, first reported 2.58 |
| | normality | not OK | | | |
| | n | 21 | | | |
| | outliers | 3 | Spike | | |
| | mean (n) | 18.485 | 15.1 | | recovery <122% |
| | st.dev. (n) | 2.5832 | | | |
| | R(calc.) | 7.233 | | | |
| | R(EN12662:08) | 5.545 | | | |

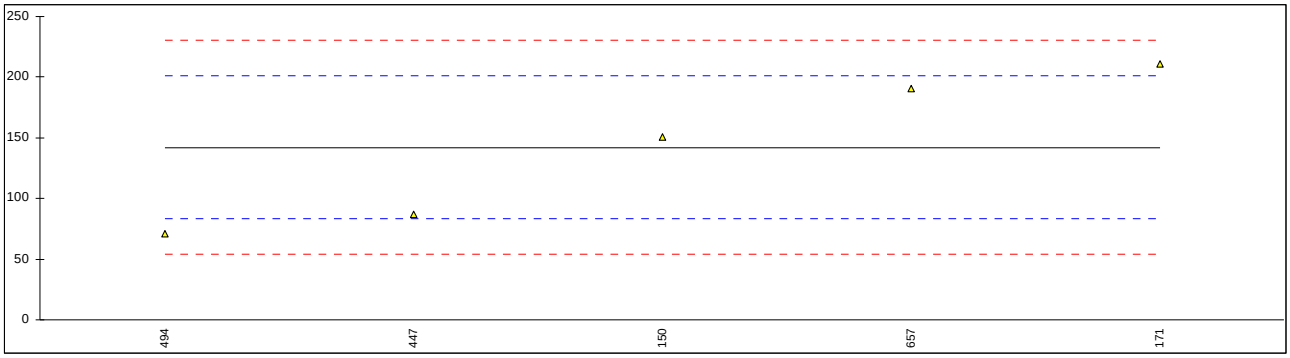


## Determination of Cold Soak Filter Test on sample #11038; results in s

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | D7501 | 151 | | 0.30 | undiluted |
| 171 | D7501 | 210.55 | | 2.33 | undiluted |
| 311 | D6751A1 | >720 | | ----- | 20mL, undiluted |
| 343 | IP387B | >720 | | ----- | undiluted |
| 447 | D7501 | 86.9 | | -1.88 | undiluted |
| 494 | D6751A1 | 70.9 | | -2.42 | undiluted |
| 540 | | ----- | | ----- | |
| 657 | D6751A1 | 191 | | 1.67 | undiluted |
| 1033 | | ----- | | ----- | |
| 1059 | | ----- | | ----- | |
| 1067 | | ----- | | ----- | |
| 1167 | | ----- | | ----- | |
| 1400 | | ----- | | ----- | |
| 1427 | | ----- | | ----- | |
| 1429 | | ----- | | ----- | |
| 1656 | | ----- | | ----- | |
| 1807 | | ----- | | ----- | |

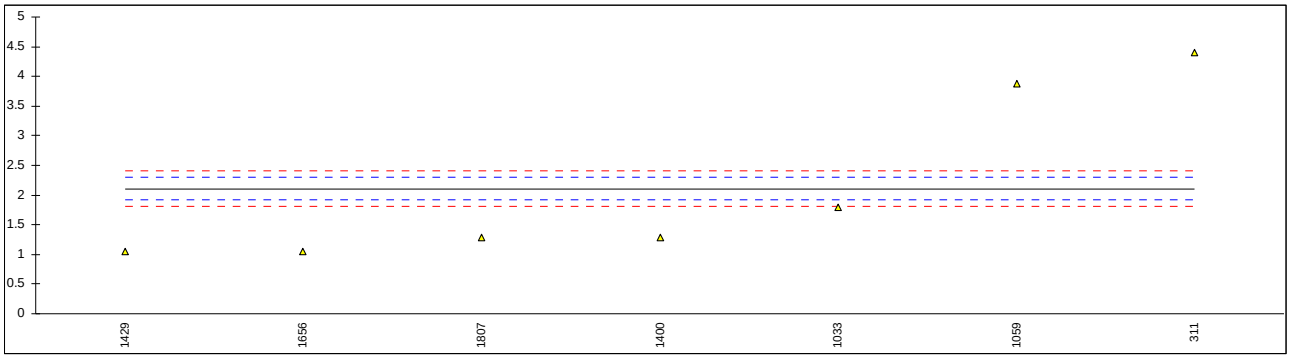
| | |
|---|---|
| normality | OK |
| n | 5 |
| outliers | 0 |
| mean (n) | 142.07 |
| st.dev. (n) | 61.791 |
| R(calc.) | 173.01 |
| R(D6751A1:09) | 82.28 |



## Determination of Filter Blocking Tendency on sample #11038;

| lab | method | value | mark | z(targ) | remarks |
|---|---|---|---|---|---|
| 150 | | ----- | | ----- | |
| 171 | | ----- | | ----- | |
| 311 | IP387B | 4.40 | | 23.43 | 20mL, undiluted |
| 343 | IP387B | >720 | | ----- | undiluted |
| 447 | | ----- | | ----- | |
| 494 | | ----- | | ----- | |
| 540 | | ----- | | ----- | |
| 657 | | ----- | | ----- | |
| 1033 | IP PM-EA | 1.8 | | -3.15 | 10:1 diluted |
| 1059 | D2068/IP387 | 3.88 | | 18.11 | 80mL, undiluted |
| 1067 | | ----- | | ----- | |
| 1167 | | ----- | | ----- | |
| 1400 | IP PM-EA | 1.29 | | -8.37 | 10:1 diluted |
| 1427 | | ----- | | ----- | |
| 1429 | IP PM-EA | 1.05 | | -10.82 | 10:1 diluted |
| 1656 | IP PM-EA | 1.05 | | -10.82 | unknown whether diluted or undiluted sample was used |
| 1807 | D2068 | 1.29 | | -8.37 | undiluted |

| | |
|---|---|
| normality | not OK |
| n | 7 |
| outliers | 0 |
| mean (n) | 2.109 |
| st.dev. (n) | 1.4180 |
| R(calc.) | 3.971 |
| R(IP387B:08) | 0.272 |



## APPENDIX 2

## Number of participants per country

1 lab in FRANCE
1 lab in ITALY
1 lab in GERMANY
1 lab in ARGENTINA
1 lab in SINGAPORE
1 lab in BELGIUM
1 lab in POLAND
1 lab in SLOVENIA
1 lab in HUNGARY
1 lab in PHILIPPINES
1 lab in HONG KONG
1 lab in CZECH REPUBLIC
1 lab in ESTONIA
1 lab in SWEDEN
1 lab in CROATIA
1 lab in SLOVAK REPUBLIC
1 lab in ROMANIA
1 lab in LATVIA
2 labs in U.S.A.
2 labs in THAILAND
2 labs in AUSTRIA
3 labs in P.R. of CHINA
3 labs in GREECE
3 labs in PORTUGAL
4 labs in THE NETHERLANDS
4 labs in UNITED KINGDOM
5 labs in TURKEY
8 labs in SPAIN

## APPENDIX 3

**Abbreviations**:

| | |
|---|---|
| C | = final result after checking of first reported suspect 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 |
| ex | = excluded from calculations |
| S | = scope of the reported method is not applicable |
| U | = reported in different unit |
| n.a. | = not applicable |
| SDS | = Safety Data Sheet |

**Literature**:


1 iis Interlaboratory Studies, Protocol for the Organisation, Statistics & Evaluation, January 2010

2 ASTM E178-02

3 ASTM E1301-03

4 ISO13528-05

5 ISO 5725-86

6 ISO 5725, parts 1-6, 1994

7 M. Thompson and R. Wood, J. AOAC Int, 76, 926, (1993)

8 W.J. Youden and E.H. Steiner, Statistical Manual of the AOAC, (1975)

9 IP 367/84

10 DIN 38402 T41/42

11 P.L. Davies, Fr. Z. Anal. Chem, 331, 513, (1988)

12 J.N. Miller, Analyst, 118, 455, (1993)

13 Analytical Methods Committee Technical Brief, No4 January 2001

14 The Royal Society of Chemistry 2002, Analyst 2002, 127 page1359-1364, P.J. Lowthian and M. Thompson. (see http://www.rsc.org/suppdata/an/b2/b205600n/)

15 EN14214:2003 Annex B