Results of Proficiency Test
Biodiesel 100% FAME (B100)
April 2012

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 73 laboratories from 35 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, a mix of different types of Rapeseed Methylester 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 #12053), and separately a 1 litre bottle Biodiesel B100 (labelled #12054) specifically for Total Contamination test and another 0.5 litre bottle Biodiesel B100 (labelled #12055) 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 D6751:11b. 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 ILAC-G13:2007 and ISO/IEC 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 was purchased from a European producer. After fit-for-use testing and homogenisation in a precleaned metal drum, the B100 was transferred to 90 brown glass bottles of 1 litre and 90 brown bottles of 500 ml, both labelled #12053.
The homogeneity of the subsamples #12053 was checked by the determination of Water in accordance with ISO12937:00 and Density in accordance with ISO12185:96 on 7 stratified randomly selected samples:

	Water in mg/kg	Density at 15ºC in kg/m^3
sample 1 #12053-1	500	882.50
sample 2 #12053-2	500	882.51
sample 3 #12053-3	500	882.51
sample 4 #12053-4	510	882.52
sample 5 #12053-5	510	882.52
sample 6 #12053-6	510	882.51
sample 7 #12053-7	530	882.52

table 1: homogeneity test of subsamples #12053

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 #12053)	29.9	0.021
reference test	ISO12937:00	ISO12185:96
0.3*$R_{(reference\ test)}$	46.5	0.15

table 2: repeatabilities of subsamples #12053

Each calculated repeatability was equal or less than 0.3 times the corresponding reproducibility of the respective reference method. Therefore, homogeneity of the subsamples was assumed.

For Total Contamination approx 60 litre of bulk material was used. After homogenization, the material was subsequently divided over 60 amber glass bottles of 1L with inner and outer caps (85% filled) and labelled #12054. Each sample was spiked with 1 ml of a freshly prepared and ultrasonically homogenized, 8.63 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 31 bottles of 0.5 litre with the regular Biodiesel B100 were filled and labelled #12055. For homogeneity of subsamples #12055 see table 1.
Depending on the registration of the participant, two bottles labelled #11053 (1x1 L and 1x0.5 L), and/or one 1 litre bottle labelled #12054, and/or one 0.5 litre bottle labelled #12055, were dispatched to each of the participating laboratories on April 11, 2012.

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 D6751:11b, e.g.:

Parameter	EN14214/:08+A1:09	Parameter	ASTM D6751:11b
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
		Cloud Point	D2500
Total Contamination	EN12662		
Density @ 15°C	ISO12185		
Flash Point (recc)	ISO3679	Flash Point	ASTM D93-C
Flash Point (PMcc)	ISO2719	Flash Point	D93
Iodine Value	EN14111		
Kin. Visc. @ 40°C	ISO3104	Kin. Visc. @ 40°C	ASTM D445
Oxidation Stability	EN14112	Oxidation Stability	EN15751
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
Polyunsaturated esters	EN15779		
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		
Total Contamination	EN12662		
		Cold Soak Filterability	ASTMD7501

table 3: requirements and test methods acc. to specifications EN14214/:08+A1:09 and ASTM D6751:11b
* = not applicable for B100 according to EN14214:08+A1:09

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.

For each assigned value the uncertainty was determined in accordance with ISO13528. Subsequently the calculated uncertainty was evaluated against the respective requirement based on the target reproducibility in accordance with ISO13528. When the uncertainty passed the evaluation no remarks are made in the report. However, when the uncertainty failed the evaluation it is mentioned in the report and it will have consequences for the evaluation of the test results.

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

3.2 GRAPHICS

In order to visualise the data against the reproducibilities from literature, Gauss plots were made, using the sorted data for one determination (see appendix 1). On the Y-axis the reported 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. The target standard deviation was calculated from the literature reproducibility by division with 2.8.

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

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:

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

4 EVALUATION

In this proficiency test some problems with couriers and/or custums clearance were encountered during the execution. Four laboratories had trouble receiving the samples on time. In total 7 laboratories reported after the deadline. All laboratories except 2 reported test results, but not all laboratories were able to perform all analyses requested. From 71 participants, 1079 numerical results were received. Observed were 45 outlying results, which is 4.2% 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: Carbo Residue, Cold Filter Plugging Point, Cloud point, Density, Flashpoint PMcc, Iodine Value, Kinematic Viscosity, Water, Methanol, Total Glycerol, Linolenic Acid Methyl Ester and Poly Unsaturated Methyl Esters. 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 D6751:11b 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.
The specification EN14214:03/:08+A1:09 refers for the determinations on mono-Glycerides, di-Glycerides, tri-Glycerides, Free Glycerol, Total Glycerol, to EN14105:**03** and for Total Ester Content and Linolenic Acid Methyl Ester to EN14103:**03** and not to the latest EN standards of **2011**. Therefore the evaluations on the determinations mentioned in EN14214:03/:08+A1:09 were done by using the reproducibilities from EN14103:**03**.

Acid Value (EN)

This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier is in agreement with the requirements of EN14104:03.
Two laboratories used ASTM D974, a method that is not equivalent to EN14104. Therefore these two test results were excluded prior to the statistical calculations.

Acid Number (ASTM)

This determination was not problematic. No statistical outliers were observed. The calculated reproducibility is in agreement with requirements of ASTM D664B:11. It must be noted that the calculated reproducibility is not in agreement with the previous standard, ASTM D664B:09a (see page 20).
Two laboratories used ASTM D974, a method that is not equivalent to ASTM D664. Therefore these test results were excluded prior to the statistical calculations.

Carbon Residue

This determination was very 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 ISO10370:95. According to the EN14214:08 specifications, it is required to perform the analysis on a sample reduced to 10% of its volume by distillation. According to ASTM6751:11b, the carbon residue has to be performed on a 100% sample. However, this ASTM standard specification refers for the determination on carbon residue to D4530:11. And this standard describes that samples expected to be below 0.10%M/M residue should be distilled to remove 90%V/V of the flask charge. The 10% bottoms remaining is than tested for carbon residue. Only one laboratory reported a result for carbon residue according to ASTM D4530:11.

CFPP	This determination was not problematic. Three statistical outliers were detected. However, the calculated reproducibility after rejection of the statistical outliers 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. Only one statistical outlier was observed. The calculated reproducibility after rejection of the statistical outlier is in full agreement with the requirements of ASTM D2500:11.
Copper Corrosion D130 / ISO2160	No problems have been observed. In this determination all participants agreed on a result of 1 or 1A, except two. These participants reported the copper corrosion result as 1B.
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 (recc) ISO3679	This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of EN14214:08+A1:09 (Annex A)
Flash Point PMcc ISO2719 / D93C	This determination was problematic when performed under EN14214:08+A09 (Annex A) but not problematic when performed under ASTM D6751:11b. No statistical outliers were observed. The calculated reproducibility is not in agreement with the requirements of EN14214:08+A1:09 (Annex A), but it is in full agreement with the requirements of ASTM D93C:11.
Iodine Number	This determination was not problematic. Two statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is in full agreement with the requirements of EN14111:03.
Kin.Visco. @ 40°C ISO3104 / D445	This determination was not problematic when performed under EN14214:08+A1:09 (Annex A). Four 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 (Annex A). This determination may be problematic when performed under D445 as the calculated reproducibility is not at all in agreement with the requirements of ASTM D445:12. However, it must be noted that no specific reproducibility is available for B100 in ASTM D445.

Oxidation Stability	This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is in agreement with the requirements of EN14112:03 and also with the requirements of EN15751:09.
Sulphated Ash	All reported results were near or below the applicable lower limit of ASTM D874:07and ISO3987:94 (0.005% M/M). Therefore no conclusions were drawn.
Sulphur ISO20846	This determination was not problematic. Three statistical were observed. However, the calculated reproducibility after rejection of the statistical outliers, is in good agreement with the requirements of EN14214:08+A09 (Annex A).
Sulphur ASTM D5453	This determination was not problematic. One statistical outlier was observed. 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. Three statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers 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 EN14109:03 (0.5 mg/kg). Therefore no conclusions were drawn.
Sodium	All reported results were near or below the lower application limit of EN14108:03 (1 mg/kg). Therefore no conclusions were drawn.
Methanol	This determination was very problematic. Two statistical outliers were observed. However, the calculated reproducibility after rejection of the statistical outliers is not all in agreement with the requirements of EN14110:03. The results are divided in two groups and this is probably caused by too far rounding of the test results.
mono-Glycerides	This determination was problematic. No statistical outliers were observed. However, the calculated reproducibility is not in agreement with the requirements of EN14105:03. See the beginning of this chapter.

di-Glycerides	This determination was problematic. No statistical outliers were observed However, the calculated reproducibility is not in agreement with the requirements of EN14105:03. See the beginning of this chapter.
tri-Glycerides	This determination was not problematic. Only one statistical outlier was observed. The calculated reproducibility, after rejection of the statistical outlier, is in full agreement with the requirements of EN14105:03. See the beginning of this chapter.
Free Glycerol	This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility is not in agreement with the requirements of EN14105:03. See the beginning of this chapter.
Total Glycerol	This determination was problematic. Only one statistical outlier was observed. However, the calculated reproducibility, after rejection of the statistical outlier, is not in agreement with the requirements of EN14105:03. See the beginning of this chapter.
Total Ester content	This determination was problematic. Two statistical outliers were observed. However, the calculated reproducibility, after rejection of the statistical outliers, is not in agreement with the requirements of EN14103:03. See the beginning of this chapter.
Linolenic Acid Methyl Ester	This determination was not problematic. Only one statistical outlier was observed. However, the calculated reproducibility, after rejection of the statistical outlier, is in good agreement with the requirements EN14103:03. See the beginning of this chapter.
Polyunsaturated Methyl Esters	All reported results were near or below the lower application range of EN15779:09 (0.3 %M/M). Therefore no conclusions were drawn.
Total Contamination	This determination may be problematic. Five statistical outliers were observed and one false negative test result. And the calculated reproducibility, after rejection of the statistical outliers, is not in agreement with the requirements of EN12662:2008. However, the applicability of EN12662 is under discussion as the CEN expert group for Biodiesel test methods, recommanded to use EN12662:1998 in order to generate valid test results. See also the letter on the iis website (news and reports/news/march 2012/ letter CEN/TC 19 explanation on total contamination test). The majority of the laboratories (23) used approx 800 ml ± 25 ml (in agreement with EN12662:2008 and only five participants used 250-500 grams in agreement with EN12662:1998. No significant differences in the quality of the test results of the two versions of the test method were observed.

Cold Soak test	This determination may be very problematic. Four statistical outliers were observed. Two laboratories used IP PM-EA proc B which is equivalent to D7501:09. Two other test results were excluded. One laboratory reported results according to IP387 which differs significantly from D7501:09. Another laboratory reported results according to IP309. This standard describes the determination of the Cold Filter Plugging Point. This test result was also excluded. Even, after rejection of all suspect test results, the calculated reproducibility is still not at all in agreement with the requirements of ASTM D7501:09b.
Filter Blocking Tendency	Only one laboratory reported a result for filter blocking tendency. Therefore no conclusions were drawn.

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, ISO 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	48	0.175	0.043	0.060
Acid Number (D664-B)	mg KOH/g	26	0.163	0.061	0.086
Carbon Residue on 10% res.	%M/M	23	0.111	0.128	0.056
Cold Filter Plugging Point	°C	52	-15.01	2.04	4.12
Cloud Point	°C	53	-6.66	3.15	3.00
Copper Strip Corrosion		52	1,1A	n.a.	n.a.
Density @ 15°C	kg/m^3	59	882.52	0.25	0.50
Flash Point (ISO3679)	°C	25	158.64	15.16	11.10
Flash Point PMcc (EN14214)	°C	41	140.28	15.21	11.40
Iodine Value	g I_2/100g	48	108.35	5.33	5.00
Kin. Viscosity @ 40°C	mm^2/s	55	4.491	0.063	0.081
Oxidation Stability	hours	52	7.96	1.86	2.30
Sulphated Ash	%M/M	20	0.0010	0.0015	(0.0004)
Sulphur (ISO20846)	mg/kg	33	3.60	1.30	2.39
Sulphur (D5453)	mg/kg	23	3.63	0.96	1.52
Water	mg/kg	58	540.6	108.2	159.9
Calcium & Magnesium	mg/kg	42	0.26	0.47	(1.23)
Phosphorus	mg/kg	17	0.35	0.71	(0.09)
Potassium	mg/kg	15	0.16	0.34	(0.60)
Sodium	mg/kg	22	0.51	0.67	(1.49)
Methanol	%M/M	41	0.016	0.016	0.007
mono-Glycerides	%M/M	42	0.557	0.254	0.202
di-Glycerides	%M/M	42	0.124	0.066	0.049
tri-Glycerides	%M/M	41	0.073	0.075	0.079
Free Glycerol	%M/M	35	0.006	0.010	0.007
Total Glycerol	%M/M	41	0.175	0.073	0.068
Total Ester Content	%M/M	46	97.29	3.94	3.10
Linolenic Acid Methyl Ester	%M/M	43	8.19	0.80	2.57
Polyunsat. Methyl esters	%M/M	12	0.22	0.56	(0.27)
Total Contamination	mg/kg	30	22.2	10.8	6.7
Cold Soak Filter Test	s	8	135.4	90.4	48.7
Filter Blocking Tendency		1	n.a	n.a	n.a

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 2012 WITH PREVIOUS PTS

	April 2012	April 2011	October 2010	May 2010
Type of FAME	Mix of FAME	Rapeseed	Rapeseed	Rapeseed
Number of reporting labs	71	53	50	35
Number of results reported	1079	815	744	519
Number of statistical outliers	45	52	38	33
Percentage statistical outliers	4.2%	6.4%	5.1%	6.4%

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 2012	April 2011	October 2010	May 2010
Acid Value (EN14104)	+	++	++	+
Acid Number (D664-B)	+	--	--	--
Carbon Residue	--	--	--	--
Cold Filter Plugging Point	++	+	++	++
Cloud Point	+/-	+/-	+/-	++
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)	++	++	--	++
Water	++	++	++	++
Calcium and Magnesium	(++)	(++)	(++)	++
Phosphorus	(--)	(--)	(--)	(--)
Potassium and Sodium	(++)	(++)	(++)	(++)
Methanol	--	-	--	--
mono-Glycerides	-	++	+/-	++
di-Glycerides	-	--	--	+/-
tri-Glycerides	+/-	--	-	+/-
Free Glycerol	-	--	--	+/-
Total Glycerol	-	--	--	++
Total Ester content	-	++	-	++
Linolenic Acid Methyl Ester	++	+/-	++	-
Polyunsat. Methyl esters	(--)	--	n.e.	n.e.
Total Contamination	--	--	(--)	-
Cold Soak Filter Test	--	--	--	n.e.
Filter Blocking Tendency	n.e.	--	--	n.e.

table 6: 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:

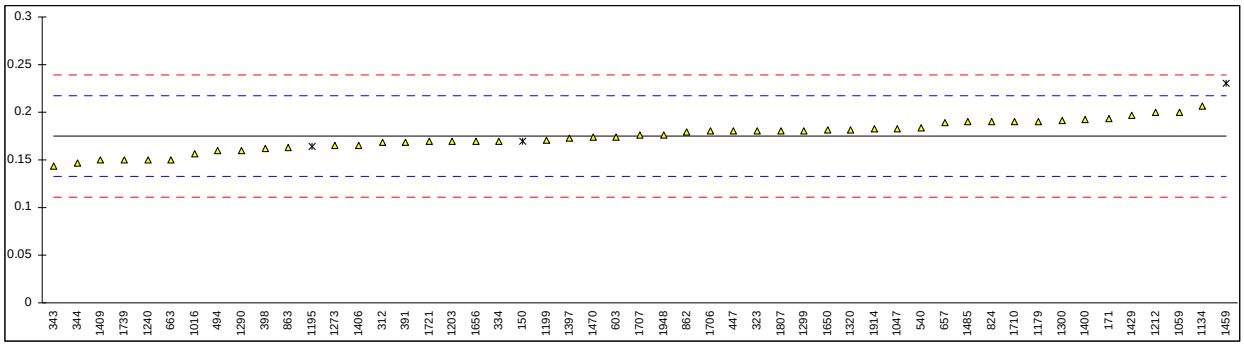
++:	group performed much better than the standard
+ :	group performed better than the standard
+/-:	group performance equals the standard
- :	group performed worse than the standard
-- :	group performed much worse than the standard
n.e.:	not evaluated

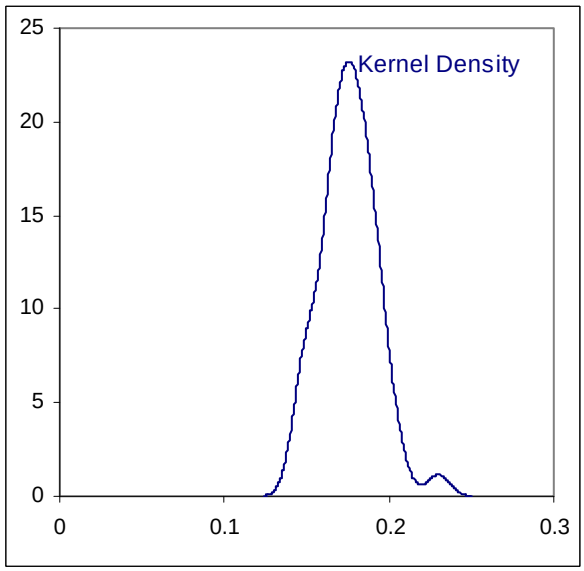
APPENDIX 1

Determination of Acid Value conform EN spec. on sample #12053; results in mg KOH/g

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150	D974	0.17	ex	-0.24	result excluded, D974 is not equal to EN14104, see § 4.1
171	EN14104	0.1932		0.85	
312	EN14104	0.168		-0.33	
323	EN14104	0.18		0.23	
334	EN14104	0.17		-0.24	
343	EN14104	0.144		-1.45	
344	EN14104	0.147		-1.31	
391	EN14104	0.168		-0.33	
398	EN14104	0.162		-0.61	
447	EN14104	0.18		0.23	
494	EN14104	0.16		-0.70	
495		-----		-----	
540	EN14104	0.184		0.42	
603	EN14104	0.174		-0.05	
631		-----		-----	
657	EN14104	0.189		0.65	
663	EN14104	0.15		-1.17	
824	EN14104	0.19		0.70	
862	EN14104	0.179		0.18	
863	EN14104	0.163		-0.56	
1016	EN14104	0.156		-0.89	
1017		-----		-----	
1033		-----		-----	
1047	EN14104	0.183		0.37	
1059	EN14104	0.20		1.16	
1080		-----		-----	
1108		-----		-----	
1134	EN14104	0.207		1.49	
1179	EN14104	0.190		0.70	
1195	D974	0.164	ex	-0.52	result excluded, D974 is not equal to EN14104, see § 4.1
1199	EN14104	0.171		-0.19	
1203	EN14104	0.17		-0.24	
1212	EN14104	0.200		1.16	
1213		-----		-----	
1231		-----		-----	
1240	EN14104	0.150		-1.17	
1268		-----		-----	
1273	EN14104	0.165		-0.47	
1286		-----		-----	
1290	EN14104	0.16		-0.70	
1299	EN14104	0.18		0.23	
1300	EN14104	0.1909		0.74	
1316		-----		-----	
1320	EN14104	0.182		0.32	
1395		-----		-----	
1397	EN14104	0.173		-0.10	
1400	EN14104	0.192		0.79	
1406	EN14104	0.165		-0.47	
1407		-----		-----	
1409	EN14104	0.15		-1.17	
1429	EN14104	0.1971		1.03	
1443		-----		-----	
1459	EN14104	0.23	G(0.05)	2.56	
1462		-----		-----	
1470	EN14104	0.174		-0.05	
1485	EN14104	0.190		0.70	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	EN14104	0.181		0.28	
1654		-----		-----	
1656	EN14104	0.17		-0.24	
1706	EN14104	0.180		0.23	
1707	EN14104	0.176		0.04	
1710	EN14104	0.19		0.70	
1712		-----		-----	
1721	EN14104	0.17		-0.24	
1739	EN14104	0.15		-1.17	
1807	EN14104	0.18		0.23	
1914	EN14104	0.183		0.37	
1948	EN14104	0.1765	C	0.07	first reported: 0.1148

normality	OK
n	48
outliers	1
mean (n)	0.1751
st.dev. (n)	0.01527
R(calc.)	0.0428
R(EN14104:03)	0.0600



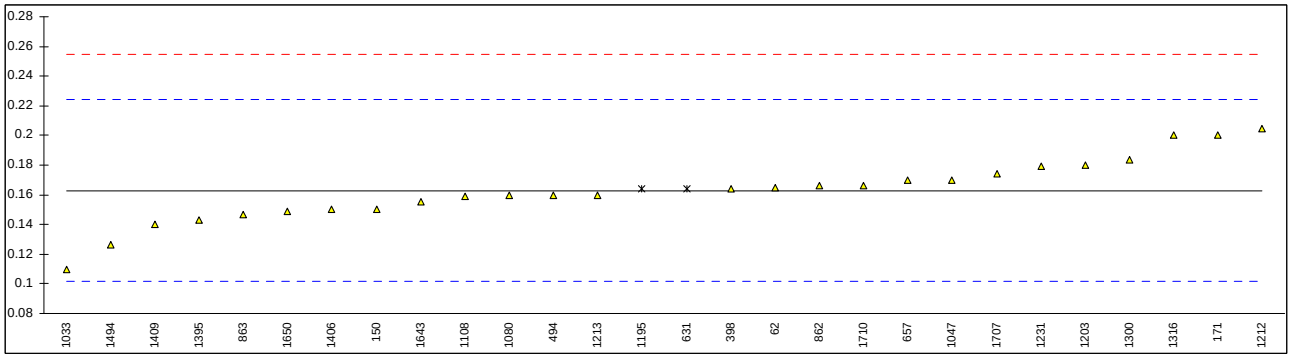


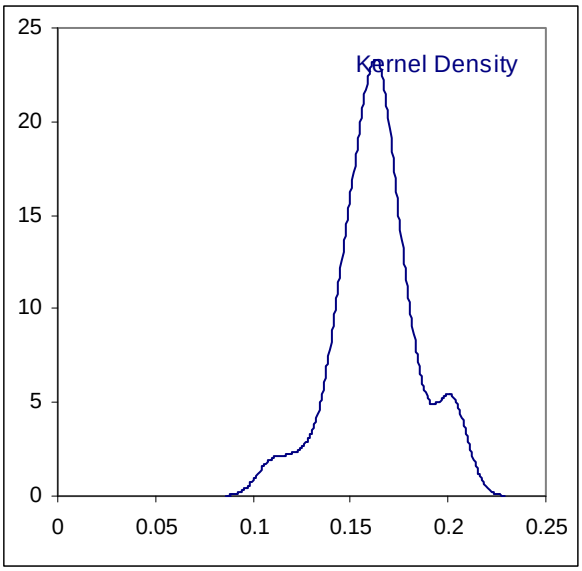
Determination of Acid Number conform ASTM spec. on sample #12053; results in mg KOH/g

lab	method	value	mark	z(targ)	remarks
62	D664-B	0.165		0.07	
150	D664-	0.15	C	-0.42	first reported: 0.22
171	D664-B	0.200		1.21	
312		-----		-----	
323		-----		-----	
334		-----		-----	
343		-----		-----	
344		-----		-----	
391		-----		-----	
398	D664-B	0.164		0.04	
447		-----		-----	
494	D664-B	0.16		-0.09	
495		-----		-----	
540		-----		-----	
603		-----		-----	
631	D974	0.164	ex	0.04	result excluded, D974 is not equal to D664, see § 4.1
657	D664-B	0.170	C	0.23	first reported: 0.209
663		-----		-----	
824		-----		-----	
862	D664-B	0.166		0.10	
863	D664-B	0.147		-0.52	
1016		-----		-----	
1017		-----		-----	
1033	D664-	0.11		-1.73	
1047	D664-B	0.170		0.23	
1059		-----		-----	
1080	D664-B	0.16		-0.09	
1108	D664-B	0.159		-0.13	
1134		-----		-----	
1179		-----		-----	
1195	D974-	0.164	ex	0.04	result excluded, D974 is not equal to D664, see § 4.1
1199		-----		-----	
1203	D664-B	0.18		0.56	
1212	D664-B	0.205		1.38	
1213	D664-	0.16		-0.09	
1231	D664-B	0.179		0.53	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290		-----		-----	
1299		-----		-----	
1300	D664-B	0.1834		0.67	
1316	D664-B	0.20		1.21	
1320		-----		-----	
1395	D664-B	0.1432		-0.64	
1397		-----		-----	
1400		-----		-----	
1406	D664-B	0.150		-0.42	
1407		-----		-----	
1409	D664-B	0.14		-0.75	
1429		-----		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494	D664-B	0.12605		-1.20	
1634		-----		-----	
1643	D664-	0.155		-0.26	
1650	D664-B	0.149		-0.45	
1654		-----		-----	
1656		-----		-----	
1706		-----		-----	
1707	D664-B	0.174		0.36	
1710	D664-B	0.1664		0.12	
1712		-----		-----	
1721		-----		-----	
1739		-----		-----	
1807		-----		-----	
1914		-----		-----	
1948		-----		-----	

normality	OK
n	26
outliers	0
mean (n)	0.1628
st.dev. (n)	0.02163
R(calc.)	0.0606
R(D664B:11)	0.0856

Compare R664B:09a = 0.0252



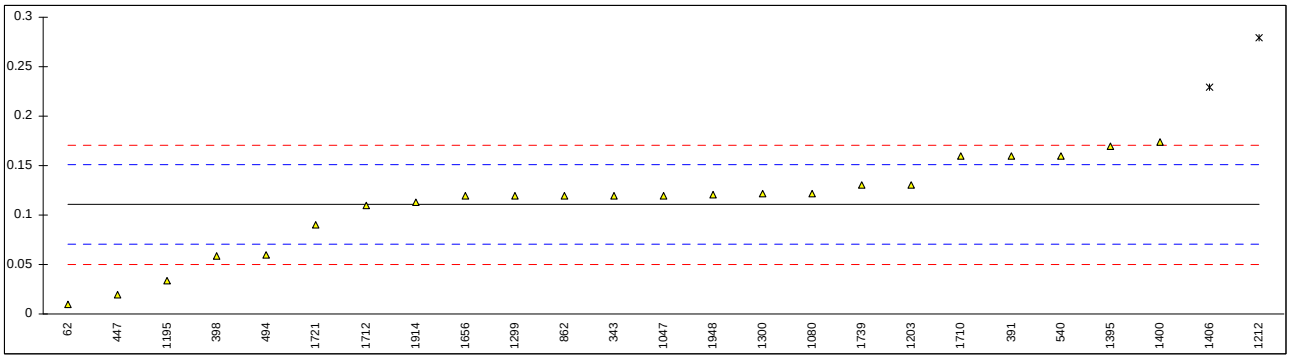


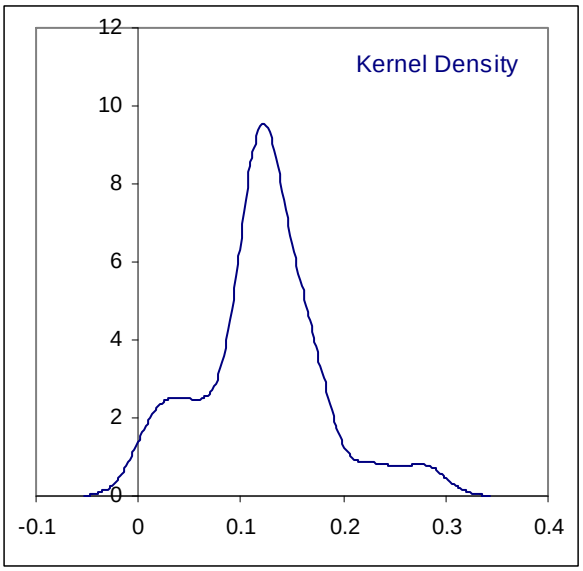
Determination of Carbon Residue on 10% distillation residue on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62	D4530	0.01		-4.99	
150		-----		-----	
171		-----		-----	
312		-----		-----	
323	ISO10370	<0.10		-----	
334		-----		-----	
343	ISO10370	0.12		0.47	
344		-----		-----	
391	ISO10370	0.16		2.45	
398	ISO10370	0.059		-2.56	
447	ISO10370	0.02		-4.49	
494	ISO10370	0.06		-2.51	
495		-----		-----	
540	ISO10370	0.16		2.45	
603		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
824		-----		-----	
862	ISO10370	0.12		0.47	
863		-----		-----	
1016		-----		-----	
1017		-----		-----	
1033		-----		-----	
1047	ISO10370	0.12	C	0.47	first reported: 0.19
1059		-----		-----	
1080	ISO10370	0.122		0.56	
1108		-----		-----	
1134		-----		-----	
1179		-----		-----	
1195	ISO10370	0.03330		-3.83	
1199		-----		-----	
1203	ISO10370	0.13		0.96	
1212	ISO10370	0.279	DG(0.05)	8.35	
1213		-----		-----	
1231		-----		-----	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290		-----		-----	
1299	ISO10370	0.12		0.47	
1300	ISO10370	0.1217		0.55	
1316		-----		-----	
1320		-----		-----	
1395	ISO10370	0.17	C	2.94	first reported: 0.23
1397	ISO10370	<0.01	C	-----	first reported: 0
1400	ISO10370	0.174		3.14	
1406	ISO10370	0.229	DG(0.05)	5.87	
1407		-----		-----	
1409		-----		-----	
1429		-----		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650		-----		-----	
1654		-----		-----	
1656	ISO10370	0.12		0.47	
1706		-----		-----	
1707		-----		-----	
1710	ISO10370	0.16		2.45	
1712	ISO10370	0.11		-0.03	
1721	ISO10370	0.09		-1.02	
1739	ISO10370	0.13		0.96	
1807		-----		-----	
1914	ISO10370	0.113		0.12	
1948	ISO10370	0.1211		0.52	

normality	not OK
n	23
outliers	2
mean (n)	0.111
st.dev. (n)	0.0459
R(calc.)	0.128
R(ISO10370:95)	0.056

Application range ISO10370:95 >0.1 %MM



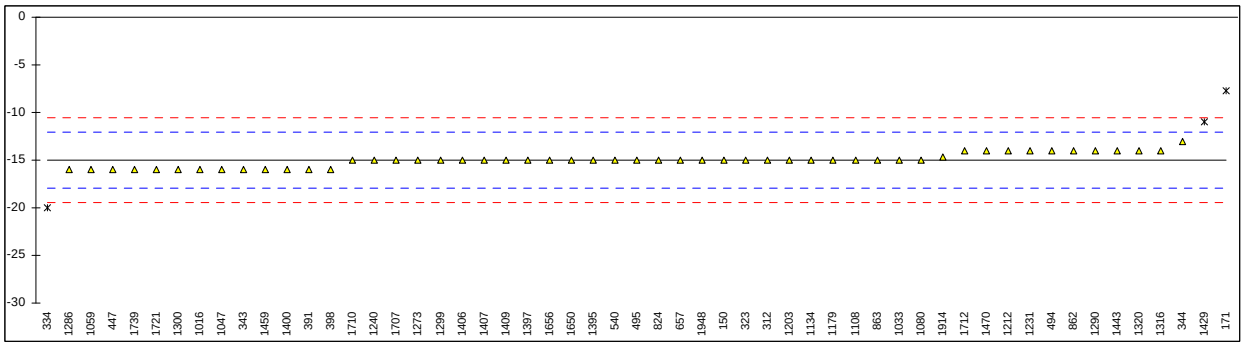


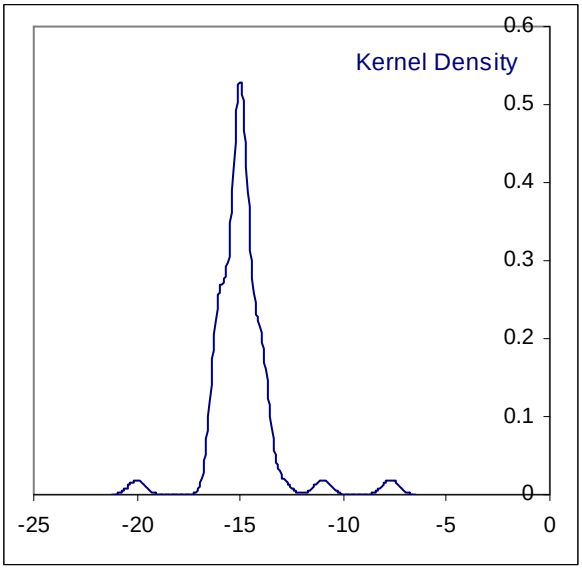
Determination of Cold Filter Plugging Point on sample #12053; results in °C

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150	EN116	-15.0		0.01	
171	EN116	-7.7	G(0.01)	4.97	
312	EN116	-15		0.01	
323	EN116	-15		0.01	
334	EN116	-20	G(0.05)	-3.39	
343	EN116	-16		-0.67	
344	EN116	-13		1.37	
391	EN116	-16		-0.67	
398	EN116	-16		-0.67	
447	EN116	-16		-0.67	
494	EN116	-14		0.69	
495	EN116	-15		0.01	
540	EN116	-15		0.01	
603		-----		-----	
631		-----		-----	
657	EN116	-15		0.01	
663		-----		-----	
824	EN116	-15		0.01	
862	EN116	-14		0.69	
863	IP309	-15		0.01	
1016	EN116	-16		-0.67	
1017		-----		-----	
1033	IP309	-15		0.01	
1047	EN116	-16		-0.67	
1059	EN116	-16		-0.67	
1080	EN116	-15		0.01	
1108	EN116	-15		0.01	
1134	EN116	-15		0.01	
1179	EN116	-15		0.01	
1195		-----		-----	
1199		-----		-----	
1203	EN116	-15		0.01	
1212	EN116	-14.0		0.69	
1213		-----		-----	
1231	D6371	-14		0.69	
1240	EN116	-15.0		0.01	
1268		-----		-----	
1273	EN116	-15		0.01	
1286	EN116	-16.0		-0.67	
1290	EN116	-14		0.69	
1299	EN116	-15		0.01	
1300	EN116	-16.0		-0.67	
1316	EN116	-14.0		0.69	
1320	EN116	-14		0.69	
1395	EN116	-15		0.01	
1397	EN116	-15		0.01	
1400	EN116	-16		-0.67	
1406	EN116	-15		0.01	
1407	EN116	-15		0.01	
1409	EN116	-15		0.01	
1429	EN116	-11	G(0.01)	2.73	
1443	EN116	-14		0.69	
1459	EN116	-16		-0.67	
1462		-----		-----	
1470	EN116	-14		0.69	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	EN116	-15		0.01	
1654		-----		-----	
1656	EN116	-15		0.01	
1706		-----		-----	
1707	EN116	-15		0.01	
1710	EN116	-15		0.01	
1712	EN116	-14		0.69	
1721	EN116	-16		-0.67	
1739	EN116	-16		-0.67	
1807		-----		-----	
1914	EN116	-14.7		0.21	
1948	EN116	-15		0.01	

normality	not OK
n	52
outliers	3
mean (n)	-15.01
st.dev. (n)	0.729
R(calc.)	2.04
R(EN116:97)	4.12

*reproducibility not available for B100 according to EN14214:08+A1:09

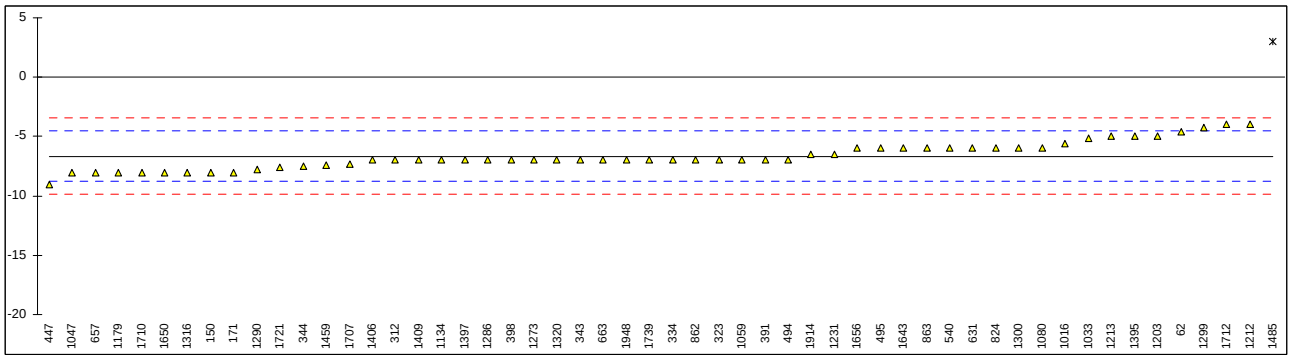


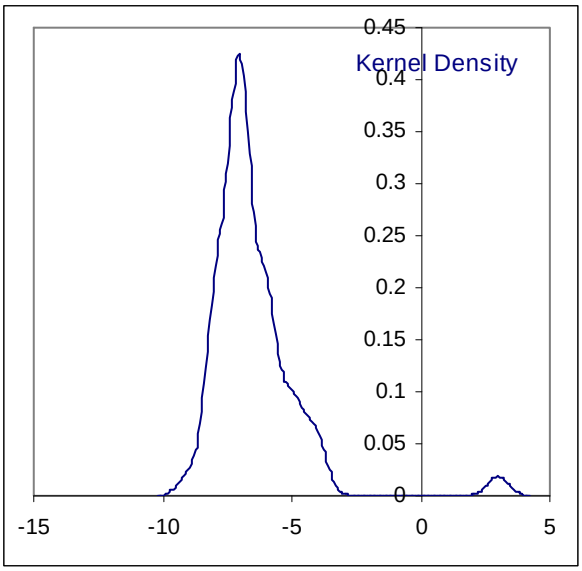


Determination of Cloud Point on sample #12053; results in °C

lab	method	value	mark	z(targ)	remarks
62	D5773-A	-4.6		1.92	
150	D5771-A	-8.0		-1.25	
171	D2500-M	-8		-1.25	
312	D2500-A	-7		-0.32	
323	D2500-A	-7		-0.32	
334	EN23015-A	-7.0		-0.32	
343	D2500-A	-7		-0.32	
344	D2500-A	-7.5		-0.78	
391	EN23015-M	-7		-0.32	
398	D2500-M	-7		-0.32	
447	D2500-M	-9		-2.18	
494	EN23015-A	-7		-0.32	
495	D2500-A	-6		0.62	
540	D2500-M	-6		0.62	
603		-----		-----	
631	D2500-M	-6		0.62	
657	D2500-A	-8		-1.25	
663	D2500-M	-7		-0.32	
824	D2500-M	-6		0.62	
862	D2500-A	-7		-0.32	
863	D2500-M	-6		0.62	
1016	D2500-A	-5.6		0.99	
1017		-----		-----	
1033	D5772-A	-5.1		1.46	
1047	ISO3015-M	-8		-1.25	
1059	EN23015-A	-7		-0.32	
1080	EN23015-A	-6		0.62	
1108		-----		-----	
1134	IP219-M	-7		-0.32	
1179	D2500-A	-8		-1.25	
1195		-----		-----	
1199		-----		-----	
1203	D2500-M	-5		1.55	
1212	D2500-A	-4.0		2.48	
1213	D2500-M	-5		1.55	
1231	D2500	-6.5		0.15	
1240		-----		-----	
1268		-----		-----	
1273	D2500-M	-7		-0.32	
1286	EN23015-M	-7.0		-0.32	
1290	D2500-A	-7.75		-1.02	
1299	D2500-A	-4.2		2.30	
1300	D2500-M	-6.0		0.62	
1316	D2500-A	-8.0		-1.25	
1320	EN23015-A	-7		-0.32	
1395	D2500-A	-5		1.55	
1397	D2500-A	-7		-0.32	
1400		-----		-----	
1406	ISO3015-M	-7		-0.32	
1407		-----		-----	
1409	D2500-A	-7		-0.32	
1429		-----		-----	
1443		-----		-----	
1459	EN23015-A	-7.4		-0.69	
1462		-----		-----	
1470		-----		-----	
1485	D2500-M	3.0	G(0.01)	9.02	
1494		-----		-----	
1634		-----		-----	
1643	D2500-M	-6		0.62	
1650	D5771-A	-8		-1.25	
1654		-----		-----	
1656	D2500-A	-6		0.62	
1706		-----		-----	
1707	D2500-A	-7.3		-0.60	
1710	EN23015-A	-8		-1.25	
1712	ISO3015-M	-4		2.48	
1721	D2500-A	-7.6		-0.88	
1739	EN23015-A	-7		-0.32	
1807		-----		-----	
1914	D2500-M	-6.5		0.15	
1948	D2500-A	-7		-0.32	

normality	not OK
n	53
outliers	1
mean (n)	-6.66
st.dev. (n)	1.127
R(calc.)	3.15
R(D2500:11)	3.00





Determination of Copper Strip Corrosion 3 hrs/50°C on sample #12053

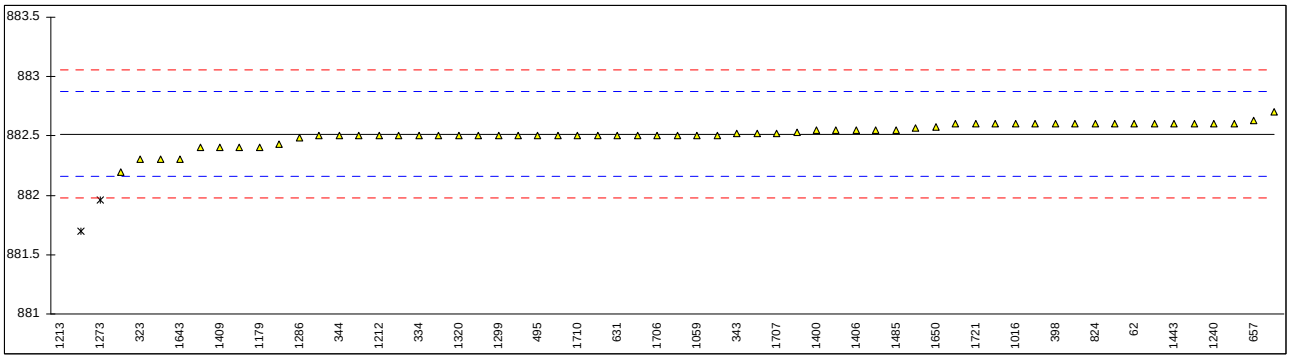
lab	method	value	mark	z(targ)	remarks
62	D130	1A		-----	
150	D130	1A		-----	
171	D130	1A		-----	
312	D130	1A		-----	
323	ISO2160	1A		-----	
334		-----		-----	
343	ISO2160	1A		-----	
344	D130	1A		-----	
391	ISO2160	1A		-----	
398	D130	1A		-----	
447	D130	1A		-----	
494	ISO2160	1		-----	
495	D130	1A		-----	
540	ISO2160	1A		-----	
603	D130	1A		-----	
631	D130	1A		-----	
657	D130	1		-----	
663	D130	1A		-----	
824	D130	1A		-----	
862	D130	1A		-----	
863	D130	1A		-----	
1016	D130	1A		-----	
1017		-----		-----	
1033	IP154	1B		-----	
1047	D130	1		-----	
1059	ISO2160	1A		-----	
1080	ISO2160	1A		-----	
1108	ISO2160	1A		-----	
1134	ISO2160	1A		-----	
1179	D130	1A		-----	
1195		-----		-----	
1199		-----		-----	
1203	D130	1		-----	
1212	D130	1A		-----	
1213	D130	1A		-----	
1231	D130	1A		-----	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290		-----		-----	
1299	D130	1A		-----	
1300	D130	1A		-----	
1316	D130	1B		-----	
1320	ISO2160	1A		-----	
1395	D130	1A		-----	
1397	D130	1		-----	
1400		-----		-----	
1406	ISO2160	1A		-----	
1407		-----		-----	
1409	D130	1A		-----	
1429	D130	1A		-----	
1443	ISO2160	1A		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634	D130	1A		-----	
1643		-----		-----	
1650	D130	1A		-----	
1654		-----		-----	
1656	D130	1		-----	
1706		-----		-----	
1707	D130	1A		-----	
1710	ISO2160	1A		-----	
1712	ISO2160	1A		-----	
1721	D130	1		-----	
1739	ISO2160	1A		-----	
1807		-----		-----	
1914	D130	1A		-----	
1948	D130	1A		-----	

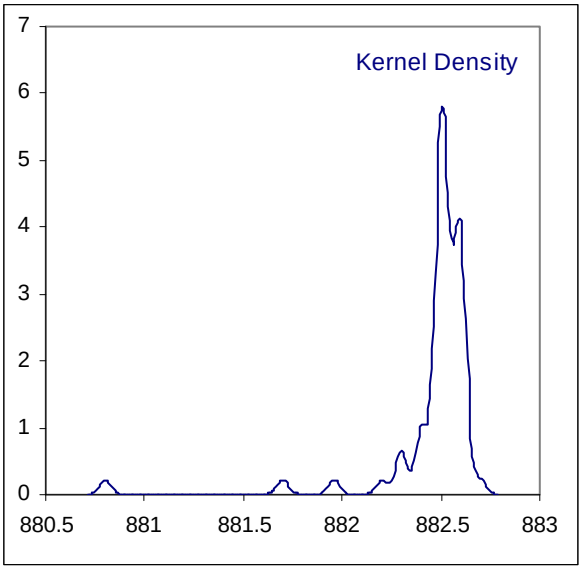
normality	n.a
n	52
outliers	n.a
mean (n)	1, 1A
st.dev. (n)	n.a
R(calc.)	n.a
R(D130:10/ISO2160)	n.a

Determination of Density @ 15°C conform EN spec. on sample #12053; results in kg/m^3

lab	method	value	mark	z(targ)	remarks
62	D4052	882.6		0.47	
150	ISO12185	882.7		1.03	
171	ISO12185	882.57		0.30	
312		-----		-----	
323	ISO12185	882.3		-1.21	
334	ISO12185	882.5		-0.09	
343	ISO12185	882.52		0.02	
344	ISO12185	882.5		-0.09	
391	ISO12185	882.5		-0.09	
398	ISO12185	882.6		0.47	
447	ISO12185	882.5		-0.09	
494	ISO12185	882.5		-0.09	
495	ISO12185	882.5		-0.09	
540	ISO3675	882.3		-1.21	
603		-----		-----	
631	D4052	882.5		-0.09	
657	D4052	882.63		0.64	
663	ISO12185	882.6		0.47	
824	ISO12185	882.6		0.47	
862	ISO12185	882.6		0.47	
863	ISO12185	882.52		0.02	
1016	ISO12185	882.6		0.47	
1017		-----		-----	
1033	IP365	882.6		0.47	
1047	ISO12185	882.50		-0.09	
1059	ISO12185	882.5		-0.09	
1080	ISO12185	882.5		-0.09	
1108	ISO12185	882.5		-0.09	
1134	IP365	882.6	U	0.47	probably unit error, reported: 0.8826
1179	ISO12185	882.4		-0.65	
1195		-----		-----	
1199		-----		-----	
1203	ISO12185	882.6		0.47	
1212	ISO12185	882.50		-0.09	
1213	D1298	880.8	C,G(0.01)	-9.61	first reported: 0.8808
1231	D4052	882.2		-1.77	
1240	ISO12185	882.6		0.47	
1268		-----		-----	
1273	ISO3675	881.96	G(0.01)	-3.12	
1286	ISO12185	882.484		-0.18	
1290	ISO12185	882.5		-0.09	
1299	ISO12185	882.5		-0.09	
1300	ISO12185	882.43		-0.48	
1316	ISO12185	882.55		0.19	
1320	ISO12185	882.5		-0.09	
1395	ISO12185	882.4		-0.65	
1397	ISO3675	881.7	G(0.01)	-4.57	
1400	ISO12185	882.55		0.19	
1406	ISO12185	882.55		0.19	
1407	ISO12185	882.55		0.19	
1409	ISO12185	882.4		-0.65	
1429	ISO12185	882.6		0.47	
1443	ISO12185	882.6		0.47	
1459	ISO12185	882.5		-0.09	
1462		-----		-----	
1470	ISO12185	882.6		0.47	
1485	ISO12185	882.55		0.19	
1494		-----		-----	
1634	ISO12185	882.506		-0.06	
1643	D4052	882.3		-1.21	
1650	ISO12185	882.58		0.36	
1654		-----		-----	
1656	ISO12185	882.4		-0.65	
1706	ISO12185	882.5		-0.09	
1707	ISO12185	882.523		0.04	
1710	ISO12185	882.5		-0.09	
1712	ISO12185	882.5		-0.09	
1721	ISO12185	882.6		0.47	
1739	ISO3675	882.5		-0.09	
1807		-----		-----	
1914	ISO12185	882.53		0.08	
1948	ISO12185	882.6		0.47	

normality	not OK
n	59
outliers	3
mean (n)	882.52
st.dev. (n)	0.090
R(calc.)	0.25
R(ISO12185:96)	0.50

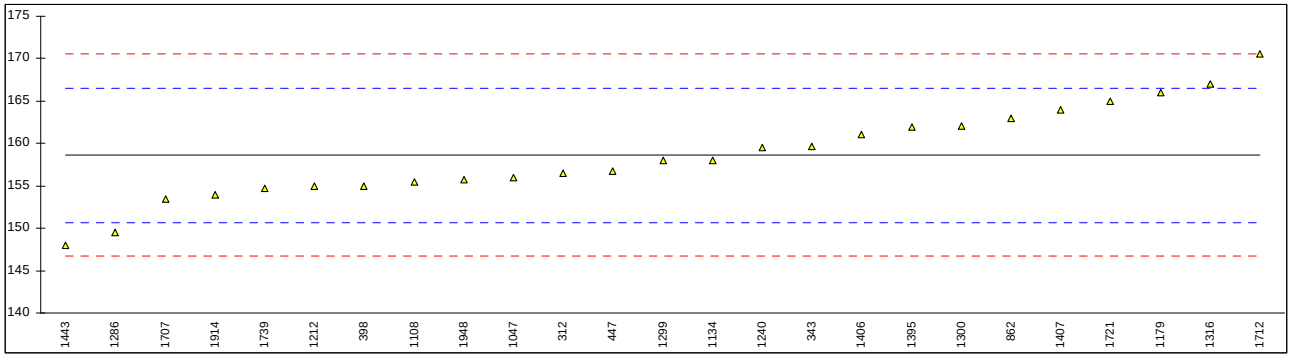


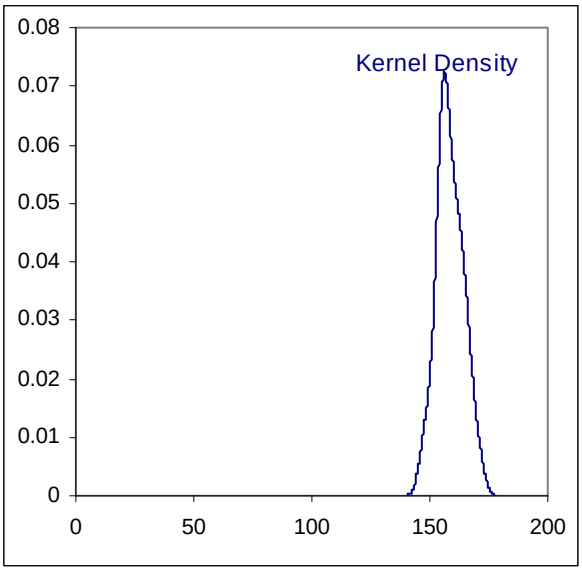


Determination of Flash Point (recc) conform EN spec. on sample #12053; results in °C

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171		-----		-----	
312	ISO3679	156.5		-0.54	
323		-----		-----	
334		-----		-----	
343	ISO3679	159.7		0.27	
344		-----		-----	
391		-----		-----	
398	ISO3679	155.0		-0.92	
447	ISO3679	156.8		-0.46	
494		-----		-----	
495		-----		-----	
540		-----		-----	
603		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
824		-----		-----	
862	ISO3679	163.0		1.10	
863		-----		-----	
1016		-----		-----	
1017		-----		-----	
1033		-----		-----	
1047	ISO3679	156		-0.67	
1059		-----		-----	
1080		-----		-----	
1108	ISO3679	155.5		-0.79	
1134	ISO3679	158.0		-0.16	
1179	ISO3679	166		1.86	
1195		-----		-----	
1199		-----		-----	
1203		-----		-----	
1212	ISO3679	155.0		-0.92	
1213		-----		-----	
1231		-----		-----	
1240	ISO3679	159.5		0.22	
1268		-----		-----	
1273		-----		-----	
1286	ISO3679	149.5		-2.31	
1290		-----		-----	
1299	ISO3679	158.0		-0.16	
1300	ISO3679	162.035		0.86	
1316	ISO3679	167		2.11	
1320		-----		-----	
1395	ISO3679	162.0		0.85	
1397		-----		-----	
1400		-----		-----	
1406	ISO3679	161.0		0.60	
1407	ISO3679	164.0		1.35	
1409		-----		-----	
1429	ISO3679	>155		-----	
1443	ISO3679	148		-2.68	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650		-----		-----	
1654		-----		-----	
1656		-----		-----	
1706		-----		-----	
1707	ISO3679	153.5		-1.30	
1710		-----		-----	
1712	ISO3679	170.5		2.99	
1721	ISO3679	165		1.60	
1739	ISO3679	154.7		-0.99	
1807		-----		-----	
1914	ISO3679	154.0		-1.17	
1948	ISO3679	155.725		-0.73	

normality	OK
n	25
outliers	0
mean (n)	158.64
st.dev. (n)	5.416
R(calc.)	15.16
R(EN14214:08+A09)	11.10



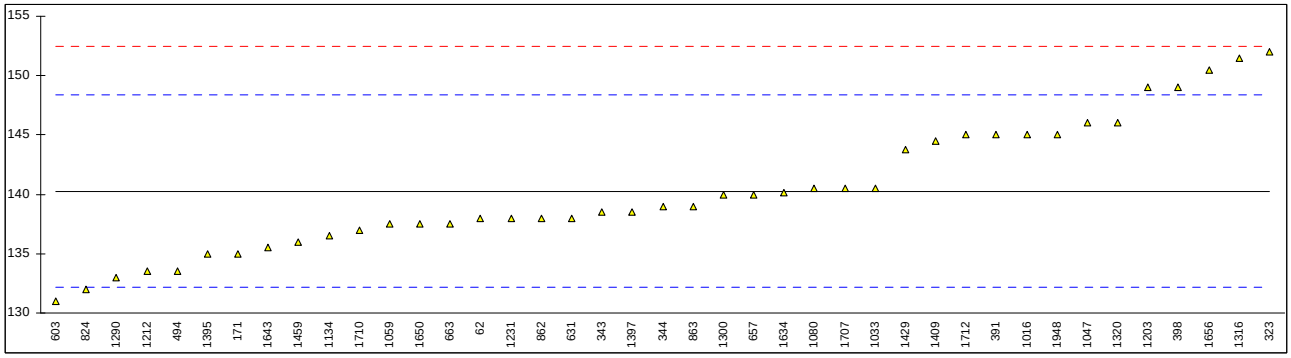


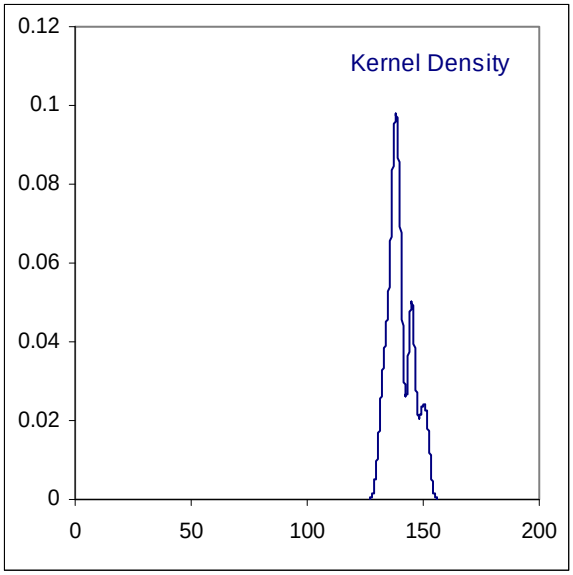
Determination of Flash Point (PMcc) conform ISO/ASTM spec. on sample #12053; results in °C

lab	method	value	mark	z(targ)	remarks
62	D93	138		-0.56	
150	D93	>130		-----	
171	D93	135		-1.30	
312		-----		-----	
323	D93	152.0		2.88	
334		-----		-----	
343	ISO2719	138.5		-0.44	
344	D93	139.0		-0.31	
391	ISO2719	145		1.16	
398	D93	149.0		2.14	
447		-----		-----	
494	ISO2719	133.5		-1.66	
495		-----		-----	
540		-----		-----	
603	D93	131		-2.28	
631	D93	138.0		-0.56	
657	D93	140.0		-0.07	
663	D93	137.5		-0.68	
824	D93	132.0		-2.03	
862	D93	138.0		-0.56	
863	D93	139.0		-0.31	
1016	D93	145		1.16	
1017		-----		-----	
1033	IP34	140.5		0.05	
1047	ISO2719	146		1.41	
1059	ISO2719	137.5		-0.68	
1080	ISO2719	140.5		0.05	
1108		-----		-----	
1134	D93	136.5		-0.93	
1179		-----		-----	
1195		-----		-----	
1199		-----		-----	
1203	D93	149		2.14	
1212	D93	133.50		-1.66	
1213		-----		-----	
1231	D93	138.0		-0.56	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290	ISO2719	133		-1.79	
1299		-----		-----	
1300	D93	140.0		-0.07	
1316	D93	151.5		2.76	
1320	ISO2719	146		1.41	
1395	D93	135.0		-1.30	
1397	D93	138.5		-0.44	
1400		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409	D93	144.5		1.04	
1429	D93	143.8		0.87	
1443		-----		-----	
1459	ISO2719	136.0		-1.05	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634	D93	140.1		-0.04	
1643	D93	135.5		-1.17	
1650	D93	137.5		-0.68	
1654		-----		-----	
1656	D93	150.5		2.51	
1706		-----		-----	
1707	D93	140.5		0.05	
1710	D93	137.0		-0.81	
1712	D93	145.0		1.16	
1721		-----		-----	
1739		-----		-----	
1807		-----		-----	
1914		-----		-----	
1948	D93	145.0		1.16	

normality	not OK
n	41
outliers	0
mean (n)	140.28
st.dev. (n)	5.431
R(calc.)	15.21
R(EN14214:08+A09)	11.40

Compare R (D93C:11) = 14.70

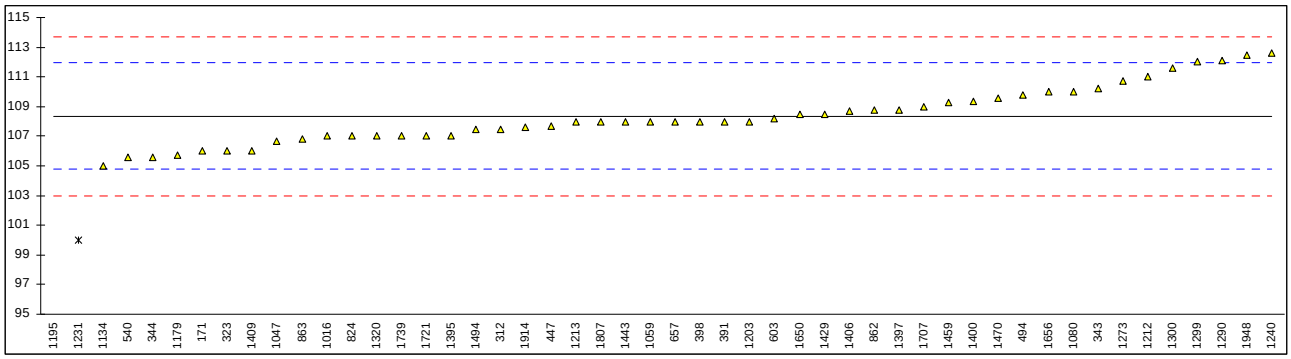


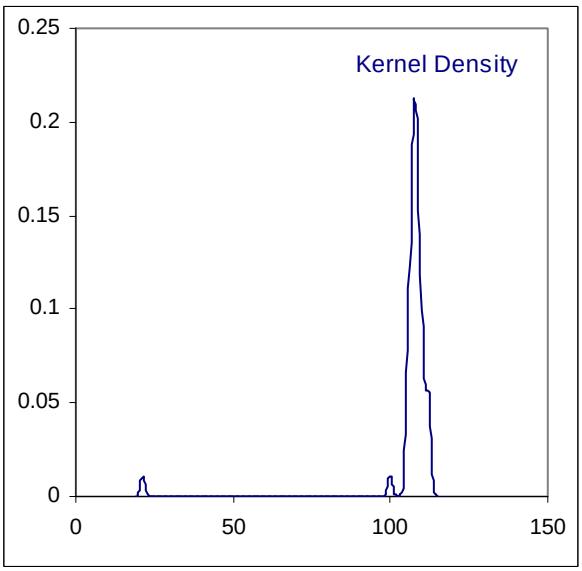


Determination of Iodine Value conform EN spec. on sample #12053; results in g I_2/100g

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14111	106		-1.32	
312	EN14111	107.5		-0.48	
323	EN14111	106		-1.32	
334		-----		-----	
343	EN14111	110.2		1.04	
344	EN14111	105.59		-1.55	
391	EN14111	108		-0.20	
398	EN14111	108.0		-0.20	
447	EN14111	107.7		-0.36	
494	EN14111	109.8		0.81	
495		-----		-----	
540	EN14111	105.59		-1.55	
603	EN14111	108.17		-0.10	
631		-----		-----	
657	EN14111	108.0		-0.20	
663		-----		-----	
824	EN14111	107		-0.76	
862	EN14111	108.8		0.25	
863	EN14111	106.8		-0.87	
1016	EN14111	107.0		-0.76	
1017		-----		-----	
1033		-----		-----	
1047	EN14111	106.7		-0.92	
1059	EN14111	108		-0.20	
1080	EN14111	110		0.92	
1108		-----		-----	
1134	EN14111	105		-1.88	
1179	EN14111	105.7		-1.48	
1195	INH-004	21.32	G(0.01)	-48.74	
1199		-----		-----	
1203	EN14111	108		-0.20	
1212	EN14111	111.0		1.48	
1213	EN14111	108		-0.20	
1231	EN14111	100	G(0.01)	-4.68	
1240	EN14111	112.6		2.38	
1268		-----		-----	
1273	EN14111	110.69		1.31	
1286		-----		-----	
1290	EN14214	112.08		2.09	
1299	EN14111	112		2.04	
1300	EN14111	111.608		1.82	
1316		-----		-----	
1320	EN14111	107		-0.76	
1395	EN14111	107.018	C	-0.75	first reported: 103.3067
1397	EN14111	108.8		0.25	
1400	EN14111	109.37		0.57	
1406	EN14111	108.7		0.20	
1407		-----		-----	
1409	EN14111	106		-1.32	
1429	EN14111	108.51		0.09	average of two reported results
1443	EN14111	108		-0.20	
1459	EN14214	109.3		0.53	
1462		-----		-----	
1470	EN14214	109.6		0.70	
1485		-----		-----	
1494	EN14111	107.4985		-0.48	
1634		-----		-----	
1643		-----		-----	
1650	EN14111	108.5		0.08	
1654		-----		-----	
1656	EN14111	110		0.92	
1706		-----		-----	
1707	EN14111	109		0.36	
1710		-----		-----	
1712		-----		-----	
1721	EN14111	107		-0.76	
1739	EN14111	107		-0.76	
1807	EN14111	108		-0.20	
1914	EN14111	107.58		-0.43	
1948	EN14111	112.46	C	2.30	first reported: 116.5955

normality	not OK
n	48
outliers	2
mean (n)	108.35
st.dev. (n)	1.904
R(calc.)	5.33
R(EN14111:03)	5.00



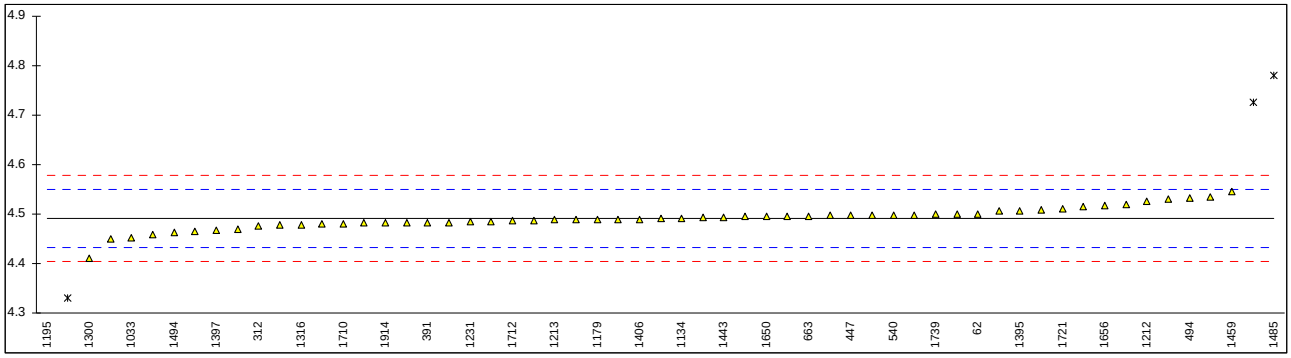


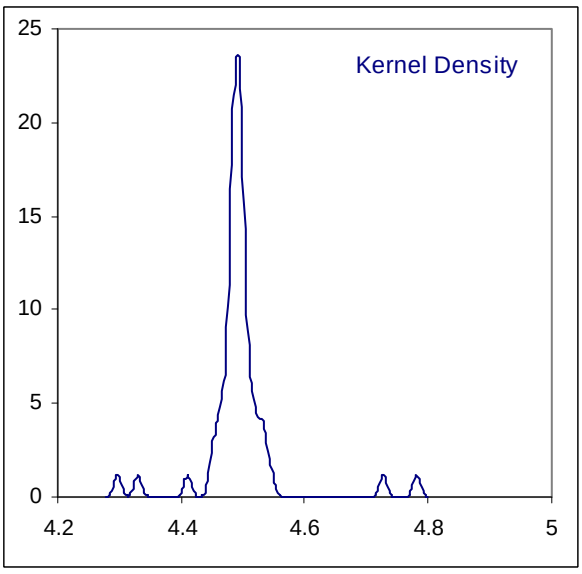
Determination of Kinematic Viscosity @ 40°C on sample #12053; results in mm^2/s

lab	method	value	mark	z(targ)	remarks
62	D445	4.501		0.33	
150	D445	4.489		-0.08	
171	D445	4.496		0.16	
312	D445	4.476		-0.53	
323		-----		-----	
334		-----		-----	
343	ISO3104	4.500		0.30	
344		-----		-----	
391	ISO3104	4.483		-0.29	
398	D445	4.449		-1.47	
447	D445	4.497		0.19	
494	ISO3104	4.533		1.44	
495	D445	4.506		0.50	
540	ISO3104	4.4973		0.20	
603	D445	4.727	G(0.01)	8.16	
631	D445	4.5148		0.81	
657	D445	4.495		0.12	
663	D445	4.496		0.16	
824	D445	4.490		-0.05	
862	D445	4.5080		0.57	
863	ISO3104	4.4970		0.19	
1016	D445	4.4831		-0.29	
1017		-----		-----	
1033	IP71	4.453		-1.33	
1047	ISO3104	4.466		-0.88	
1059	ISO3104	4.470		-0.74	
1080	ISO3104	4.494		0.09	
1108	ISO3104	4.497		0.19	
1134	ISO3104	4.491		-0.02	
1179	ISO3104	4.4897		-0.06	
1195	D445	4.297	G(0.01)	-6.73	
1199		-----		-----	
1203	D445	4.481		-0.36	
1212	D445	4.5254		1.18	
1213	D445	4.489		-0.08	
1231	D445	4.484		-0.26	
1240	ISO3104	4.330	G(0.01)	-5.59	
1268		-----		-----	
1273	D445	4.458		-1.16	
1286	ISO3104	4.491		-0.02	
1290	D7042	4.5357		1.53	
1299	D445	4.479		-0.43	
1300	D445	4.4106		-2.80	
1316	D445	4.479		-0.43	
1320	ISO3104	4.483		-0.29	
1395	D445	4.506		0.50	
1397	D445	4.4678		-0.82	
1400	ISO3104	4.4818		-0.33	
1406	ISO3104	4.490		-0.05	
1407	ISO3104	4.4840		-0.26	
1409	D445	4.519		0.95	
1429	D445	4.5306		1.36	
1443	ISO3104	4.4941		0.09	
1459	D7042	4.5462		1.90	
1462		-----		-----	
1470		-----		-----	
1485	D445	4.78145	G(0.01)	10.04	
1494	D445	4.4637		-0.96	
1634		-----		-----	
1643	D445	4.488		-0.12	
1650	D445	4.495		0.12	
1654		-----		-----	
1656	D445	4.518		0.92	
1706		-----		-----	
1707		-----		-----	
1710	ISO3104	4.481		-0.36	
1712	ISO3104	4.486		-0.19	
1721	D445	4.511		0.68	
1739	ISO3104	4.499		0.26	
1807		-----		-----	
1914	D445	4.4823		-0.32	
1948	D445	4.498		0.23	

normality	not OK
n	55
outliers	4
mean (n)	4.4914
st.dev. (n)	0.02262
R(calc.)	0.0633
R(EN14214:08+A1:09)	0.0808

Compare R(D445:12) = 0.0341



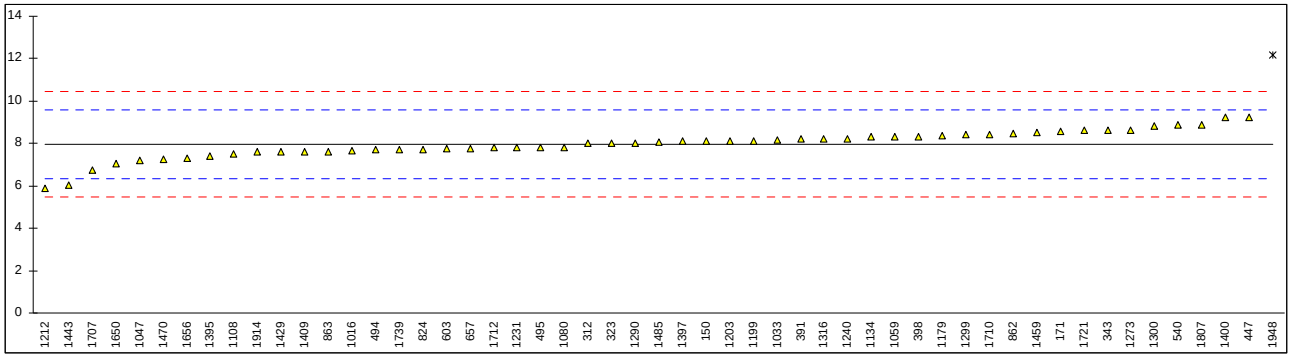


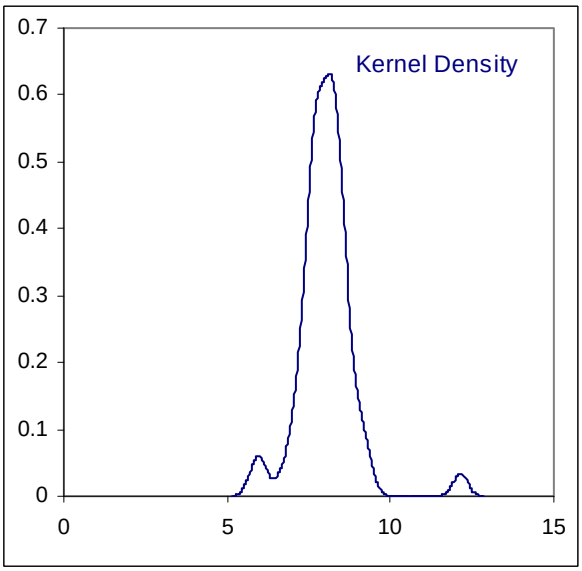
Determination of Oxidation Stability on sample #12053; results in hours

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150	EN14112	8.1		0.17	
171	EN14112	8.55		0.71	
312	EN14112	8.0		0.04	
323	EN14112	8.0		0.04	
334		-----		-----	
343	EN14112	8.6		0.77	
344		-----		-----	
391	EN14112	8.2		0.29	
398	EN14112	8.31		0.42	
447	EN15751	9.24		1.55	
494	EN14112	7.7		-0.32	
495	EN14112	7.8		-0.20	
540	EN14112	8.89		1.13	
603	EN14112	7.755		-0.25	
631		-----		-----	
657	EN14112	7.77		-0.24	
663		-----		-----	
824	EN14112	7.7		-0.32	
862	EN14112	8.46		0.60	
863	EN14112	7.62		-0.42	
1016	EN14112	7.64		-0.39	
1017		-----		-----	
1033	EN14112	8.19		0.27	
1047	EN14112	7.2		-0.93	
1059	EN14112	8.3		0.41	
1080	EN14112	7.8		-0.20	
1108	EN14112	7.5		-0.56	
1134	EN14112	8.3		0.41	
1179	EN14112	8.36		0.48	
1195		-----		-----	
1199	EN14112	8.14		0.21	
1203	EN14112	8.13		0.20	
1212	EN14112	5.87		-2.55	
1213		-----		-----	
1231	EN14112	7.8		-0.20	
1240	EN15751	8.22		0.31	
1268		-----		-----	
1273	EN14112	8.61		0.79	
1286		-----		-----	
1290	EN14112	8.02		0.07	
1299	EN14112	8.4		0.53	
1300	EN14112	8.813		1.03	
1316	EN14112	8.205		0.29	
1320	EN14112	>6		-----	
1395	EN14112	7.42		-0.66	
1397	EN14112	8.1		0.17	
1400	EN15751	9.24		1.55	
1406		-----		-----	
1407		-----		-----	
1409	EN14112	7.61		-0.43	
1429	EN14112	7.6		-0.44	
1443	EN14112	6.06	C	-2.32	first reported: 6.0
1459	EN15751	8.5	C	0.65	first reported: 16.5
1462		-----		-----	
1470	EN14112	7.24		-0.88	
1485	EN14112	8.08		0.14	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	EN14112	7.075		-1.08	
1654		-----		-----	
1656	EN14112	7.3		-0.81	
1706		-----		-----	
1707	EN14112	6.73		-1.50	
1710	EN14112	8.4		0.53	
1712	EN14112	7.8		-0.20	
1721	EN14112	8.6		0.77	
1739	EN14112	7.70		-0.32	
1807	EN15751	8.9		1.14	
1914	EN14112	7.59		-0.46	
1948	EN14112	12.15	C,G(0.01)	5.09	first reported: 12.5

normality	OK
n	52
outliers	1
mean (n)	7.964
st.dev. (n)	0.6634
R(calc.)	1.857
R(EN14112:03)	2.301

Compare R(EN15751:09)=1.889



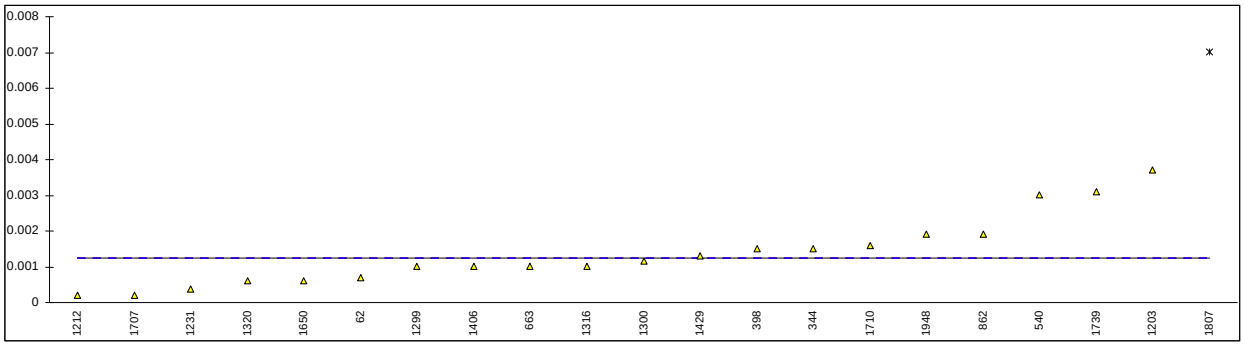


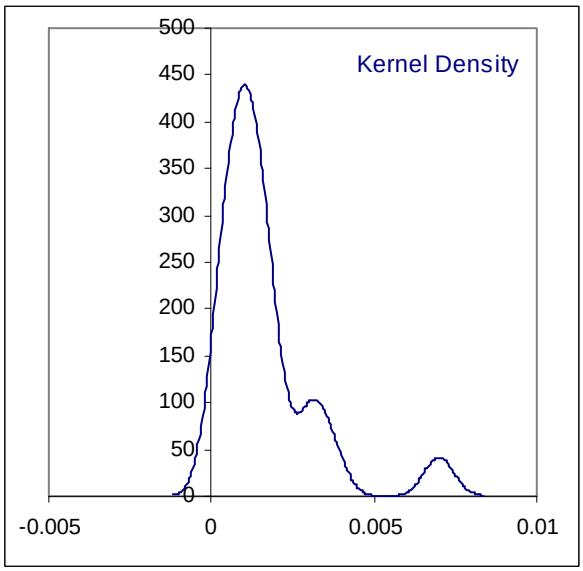
Determination of Sulphated Ash on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62	D874	0.0007		-----	
150	D874	<0.001		-----	
171	D874	<0.001		-----	
312		-----		-----	
323	ISO3987	<0.005		-----	
334		-----		-----	
343	ISO3987	<0.005		-----	
344	ISO3987	0.0015		-----	
391	D874	<0.005		-----	
398	D874	0.0015		-----	
447	D874	<0.001		-----	
494	ISO3987	<0.005		-----	
495		-----		-----	
540	ISO3987	0.003		-----	
603	D874	<0.005		-----	
631		-----		-----	
657		-----		-----	
663	D874	0.001		-----	
824		-----		-----	
862	D874	0.0019		-----	
863	D874	<0.001		-----	
1016	D874	<0.001		-----	
1017		-----		-----	
1033		-----		-----	
1047	ISO3987	<0.005		-----	
1059	ISO3987	<0.005		-----	
1080		-----		-----	
1108		-----		-----	
1134		-----		-----	
1179	ISO3987	<0.001		-----	
1195		-----		-----	
1199		-----		-----	
1203	D874	0.0037		-----	
1212	D874	0.0002		-----	
1213	D874	<0.001		-----	
1231	D874	0.00039		-----	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290		-----		-----	
1299	D874	0.001		-----	
1300	D874	0.001168		-----	
1316	D874	0.001	C	-----	first reported: 0.0007
1320	ISO3987	0.0006		-----	
1395		-----		-----	
1397		-----		-----	
1400	ISO3987	<0.005		-----	
1406	D874	0.0010		-----	
1407		-----		-----	
1409		-----		-----	
1429	D874	0.0013		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	D874	0.0006		-----	
1654		-----		-----	
1656	D874	<0.01		-----	
1706		-----		-----	
1707	D874	0.0002		-----	
1710	ISO3987	0.0016		-----	
1712	ISO3987	<0.005		-----	
1721	D874	<0.005		-----	
1739	ISO3987	0.0031		-----	
1807	ISO3987	0.007	G(0.01)	-----	
1914	D874	<0.005		-----	
1948	D874	0.0019		-----	

normality	OK
n	20
outliers	1
mean (n)	0.00103
st.dev. (n)	0.000539
R(calc.)	0.00151
R(ISO3987:94)	(0.00039)

Compare R(D874:07) = 0.00055
Applicable lower limit of 0.005%



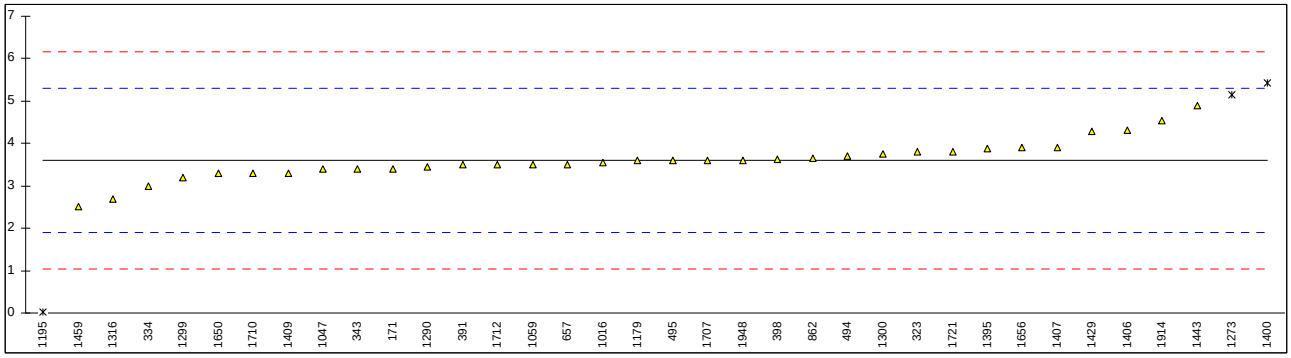


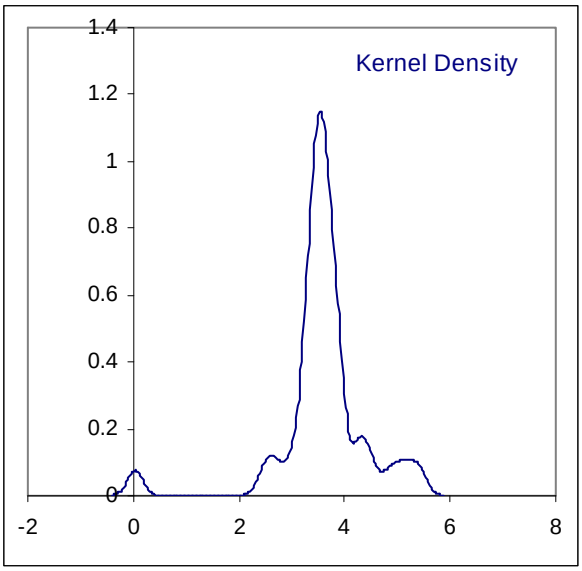
Determination of Sulphur (ISO20846) on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	ISO20846	3.41		-0.23	
312		-----		-----	
323	ISO20846	3.8		0.23	
334	ISO20846	3.0		-0.71	
343	ISO20846	3.41		-0.23	
344		-----		-----	
391	ISO20846	3.5		-0.12	
398	ISO20846	3.619		0.02	
447		-----		-----	
494	ISO20846	3.70		0.11	
495	ISO20846	3.6		0.00	
540		-----		-----	
603		-----		-----	
631		-----		-----	
657	ISO20846	3.5		-0.12	
663		-----		-----	
824		-----		-----	
862	ISO20846	3.66		0.07	
863		-----		-----	
1016	ISO20846	3.54		-0.07	
1017		-----		-----	
1033		-----		-----	
1047	ISO20846	3.4		-0.24	
1059	ISO20846	3.5		-0.12	
1080		-----		-----	
1108		-----		-----	
1134		-----		-----	
1179	ISO20846	3.59		-0.02	
1195	ISO20846	350	C,G(0.01)	405.48	first reported: 0.035
1199		-----		-----	
1203		-----		-----	
1212		-----		-----	
1213		-----		-----	
1231		-----		-----	
1240		-----		-----	
1268		-----		-----	
1273	in house	5.16	DG(0.05)	1.82	
1286		-----		-----	
1290	EN14538	3.45		-0.18	
1299	ISO20846	3.2		-0.47	
1300	ISO20846	3.746		0.17	
1316	ISO13032	2.7		-1.06	
1320		-----		-----	
1395	ISO20846	3.87		0.31	
1397		-----		-----	
1400	INH-16294	5.42	DG(0.05)	2.13	
1406	ISO20846	4.3		0.82	
1407	ISO20846	3.9		0.35	
1409	ISO20846	3.3		-0.35	
1429	ISO20846	4.28		0.79	
1443	ISO20846	4.9		1.52	
1459	in house	2.5		-1.29	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	ISO20846	3.29		-0.37	
1654		-----		-----	
1656	ISO20846	3.9		0.35	
1706		-----	W	-----	result withdrawn; first reported: 1.65
1707	ISO20846	3.6		0.00	
1710	ISO20846	3.3		-0.35	
1712	ISO20846	3.5		-0.12	
1721	ISO20846	3.8		0.23	
1739		-----		-----	
1807		-----		-----	
1914	ISO20846	4.53		1.08	
1948	ISO20846	3.61		0.01	

normality	OK
n	33
outliers	3
mean (n)	3.603
st.dev. (n)	0.4633
R(calc.)	1.297
R(EN14214:08+A09)	2.392

Application range 3 – 500 mg/kg



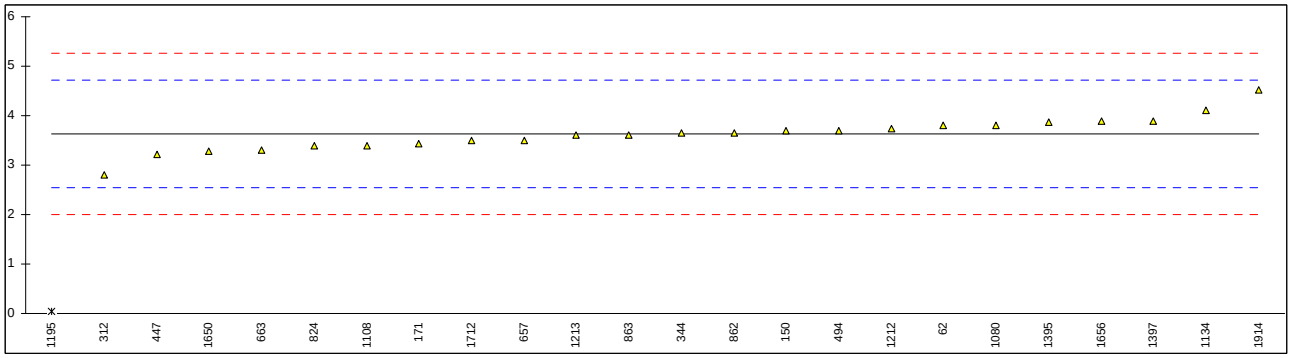


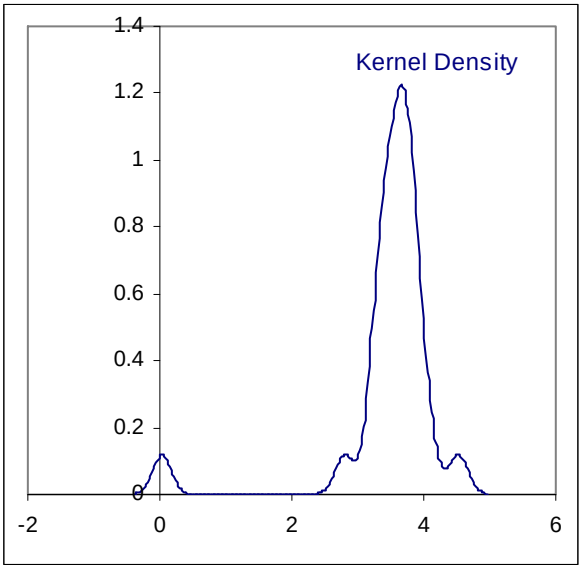
Determination of Sulphur (ASTM D5453) on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	D5453	3.8		0.32	
150	D5453	3.7		0.14	
171	D5453	3.44		-0.34	
312	D5453	2.8		-1.52	
323		-----		-----	
334		-----		-----	
343		-----		-----	
344	D5453	3.643		0.03	
391		-----		-----	
398		-----		-----	
447	D5453	3.22		-0.75	
494	D5453	3.70		0.14	
495		-----		-----	
540		-----		-----	
603		-----		-----	
631		-----		-----	
657	D5453	3.5		-0.23	
663	D5453	3.3		-0.60	
824	D5453	3.4		-0.42	
862	D5453	3.66		0.06	
863	D5453	3.60	C	-0.05	first reported: 5.54
1016		-----		-----	
1017		-----		-----	
1033		-----		-----	
1047		-----		-----	
1059		-----		-----	
1080	D5453	3.8		0.32	
1108	D5453	3.4		-0.42	
1134	D5453	4.1		0.87	
1179		-----		-----	
1195	D5453	350	C,G(0.01)	636.72	first reported:0.035
1199		-----		-----	
1203		-----		-----	
1212	D5453	3.74		0.21	
1213	D5453	3.6		-0.05	
1231		-----		-----	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290		-----		-----	
1299		-----		-----	
1300		-----		-----	
1316		-----		-----	
1320		-----		-----	
1395	D5453	3.87		0.45	
1397	D5453	3.9		0.50	
1400		-----		-----	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429		-----		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	D5453	3.29		-0.62	
1654		-----		-----	
1656	D5453	3.9		0.50	
1706		-----		-----	
1707		-----		-----	
1710		-----		-----	
1712	D5453	3.5		-0.23	
1721		-----		-----	
1739		-----		-----	
1807		-----		-----	
1914	D5453	4.53		1.66	
1948		-----		-----	

normality	OK
n	23
outliers	1
mean (n)	3.626
st.dev. (n)	0.3420
R(calc.)	0.958
R(D5453:09)	1.523

Application range 1 - 8000 mg/kg

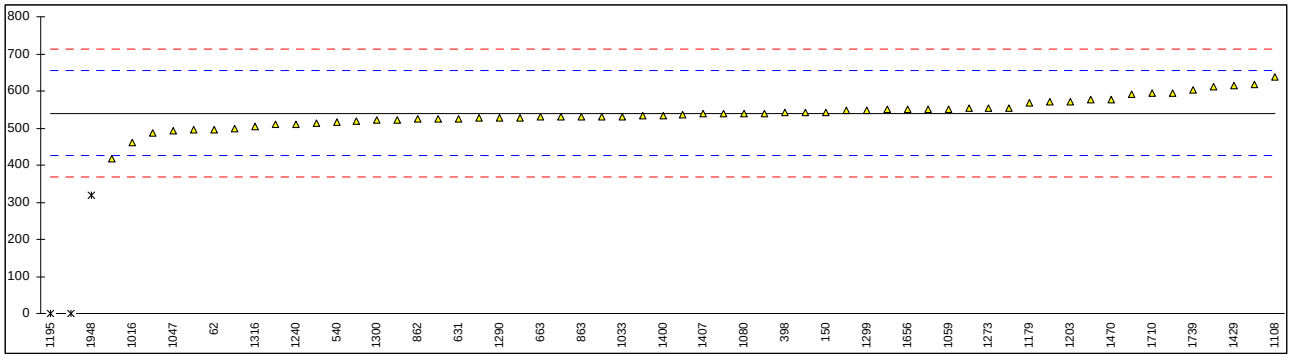


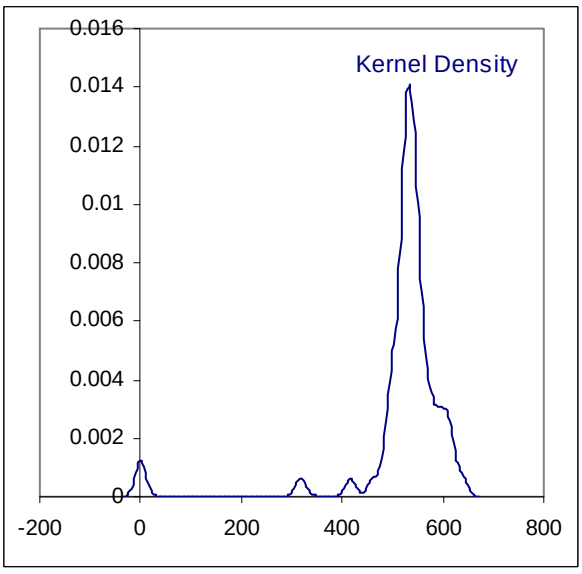


Determination of Water on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	D6304	497		-0.76	
150	ISO12937	542		0.02	
171	ISO12937	416.2		-2.18	
312	ISO12937	595		0.95	
323	ISO12937	550		0.17	
334	ISO12937	520		-0.36	
343	ISO12937	539		-0.03	
344	ISO12937	486.2		-0.95	
391	ISO12937	550		0.17	
398	ISO12937	541		0.01	
447	ISO12937	576.9		0.64	
494	ISO12937	536		-0.08	
495		-----		-----	
540	ISO12937	516.56		-0.42	
603	ISO12937	514.4		-0.46	
631	D6304	525.5		-0.26	
657	ISO12937	528		-0.22	
663	ISO12937	530		-0.19	
824	ISO12937	532		-0.15	
862	ISO12937	523.8		-0.29	
863	D6304	530		-0.19	
1016	ISO12937	460.7		-1.40	
1017		-----		-----	
1033	IP438	531.35		-0.16	
1047	ISO12937	492		-0.85	
1059	ISO12937	550		0.17	
1080	ISO12937	539		-0.03	
1108	ISO12937	639		1.72	
1134	IP438	497		-0.76	
1179	ISO12937	567.8		0.48	
1195	D6304	0.077	G(0.01)	-9.47	
1199	ISO12937	541.2		0.01	
1203	ISO12937	572		0.55	
1212		-----		-----	
1213	D6504	612		1.25	
1231	ISO12937	0.0825	G(0.01)	-9.46	
1240	ISO12937	511.4		-0.51	
1268		-----		-----	
1273	ISO12937	555		0.25	
1286		-----		-----	
1290	ISO12937	527.06		-0.24	
1299	ISO12937	548.5		0.14	
1300	ISO12937	522.0		-0.33	
1316	ISO12937	505		-0.62	
1320	ISO12937	548.14	C	0.13	first reported: 644.2
1395	ISO12937	526.9		-0.24	
1397	ISO12937	523		-0.31	
1400	ISO12937	532.9		-0.13	
1406	ISO12937	530		-0.19	
1407	ISO12937	538		-0.05	
1409	ISO12937	554		0.24	
1429	ISO12937	614.12		1.29	average of two reported results
1443	ISO12937	510.06		-0.53	
1459	ISO12937	498.5		-0.74	
1462		-----		-----	
1470	INH-13	578		0.66	
1485	ISO12937	592.7		0.91	
1494		-----		-----	
1634		-----		-----	
1643	D1744	540		-0.01	
1650	ISO12937	617.15		1.34	
1654		-----		-----	
1656	ISO12937	550		0.17	
1706		-----		-----	
1707	ISO12937	525.3		-0.27	
1710	ISO12937	594		0.94	
1712	ISO12937	555		0.25	
1721	ISO12937	531		-0.17	
1739	ISO3987	604		1.11	
1807		-----		-----	
1914	ISO12937	569.95		0.51	
1948	ISO12937	317.56	C,G(0.01)	-3.91	first reported: 336.435

normality	not OK
n	58
outliers	3
mean (n)	540.57
st.dev. (n)	38.633
R(calc.)	108.17
R(ISO12937:00)	159.89



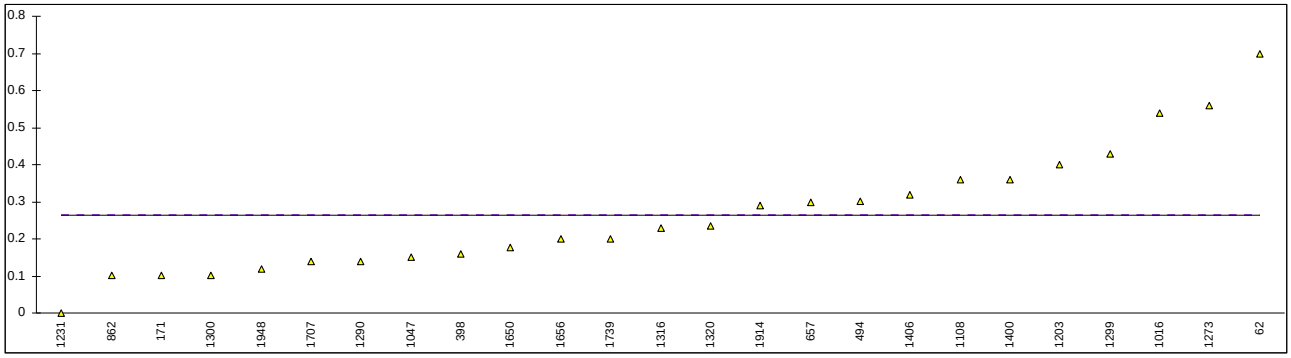


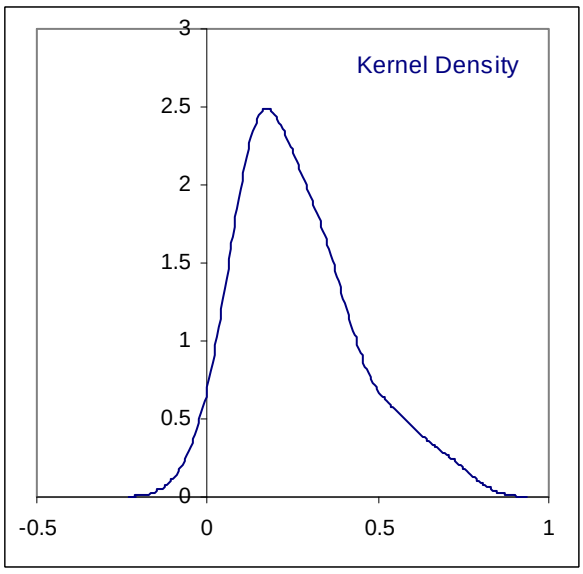
Determination of sum of Calcium and Magnesium on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	EN14538	0.7		-----	reported as Calcium
150	EN14538	<1.0		-----	
171	EN14538	0.1		-----	
312		-----		-----	
323	EN14538	<2		-----	
334		-----		-----	
343	EN14538	<2		-----	
344		-----		-----	
391	EN14538	<1		-----	
398	EN14538	0.16		-----	
447		-----		-----	
494	EN14538	0.3		-----	
495		-----		-----	
540	EN14538	<1		-----	
603		-----		-----	
631		-----		-----	
657	EN14538	0.299	C	-----	first reported: 1.80
663		-----		-----	
824	EN14538	<1		-----	
862	EN14538	0.1		-----	
863	INH 018	<1		-----	
1016	EN14538	0.54		-----	
1017		-----		-----	
1033		-----		-----	
1047	EN14538	0.15		-----	
1059		-----		-----	
1080	EN14538	<1		-----	
1108	in house	0.36		-----	
1134	EN14538	<2		-----	
1179	EN14538	<1		-----	
1195		-----		-----	
1199		-----		-----	
1203	EN14538	0.40		-----	
1212		-----		-----	
1213	D3605	<1		-----	
1231	D5185	0		-----	
1240	EN14538	<1.0		-----	
1268	EN14538	<1		-----	
1273	EN14538	0.56		-----	
1286		-----		-----	
1290	EN14538	0.14		-----	
1299	EN14538	0.43		-----	
1300	EN14538	0.1012		-----	
1316	EN14538	0.23		-----	
1320	EN14538	0.235		-----	
1395		-----		-----	
1397		-----		-----	
1400	EN14538	0.36		-----	
1406	EN14109	0.32		-----	
1407		-----		-----	
1409	EN14538	<1		-----	
1429	EN14538	<1		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	EN14538	0.177		-----	
1654		-----		-----	
1656	EN14538	0.2		-----	
1706		-----		-----	
1707	EN14538	0.14		-----	
1710	EN14538	<0.4		-----	
1712		-----		-----	
1721	EN14538	<1		-----	
1739	EN14538	0.2		-----	
1807		-----		-----	
1914	EN14538	0.29		-----	
1948	EN14538	0.12		-----	

normality	OK
n	42
outliers	0
mean (n)	0.264
st.dev. (n)	0.1668
R(calc.)	0.467
R(EN14538:06)	(1.225)

Application range: 1 -10 mg/kg



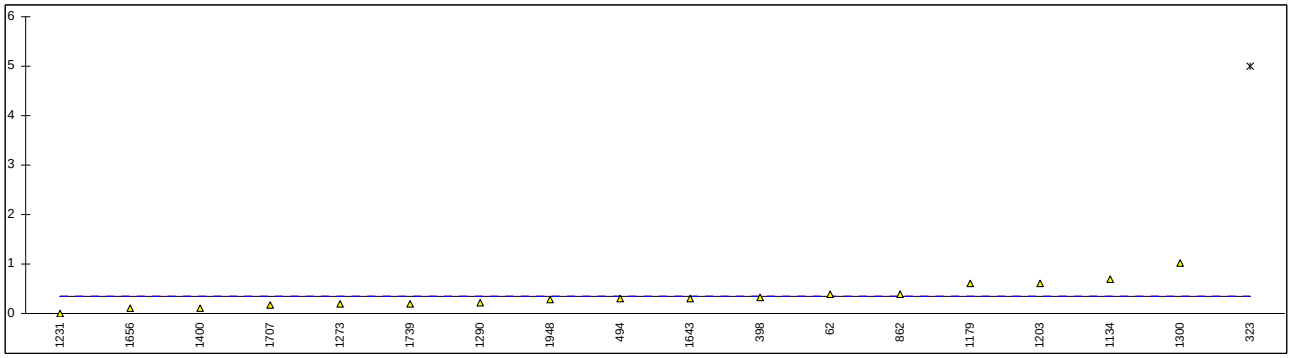


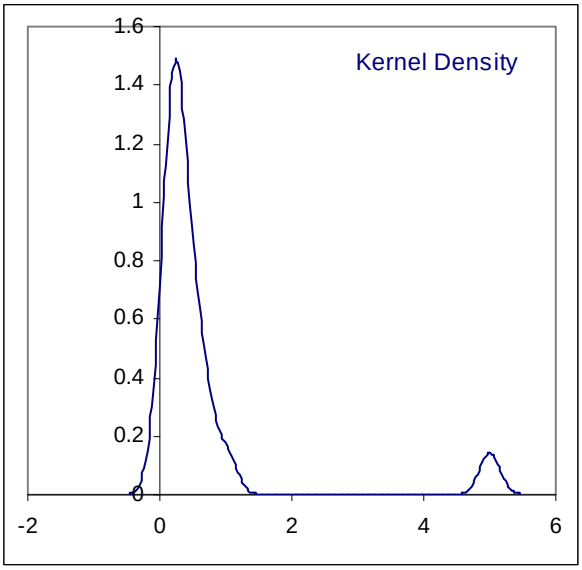
Determination of Phosphorus on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP500	0.4		-----	
150	EN14107	<1.0		-----	
171	EN14107	<0.1		-----	
312		-----		-----	
323	EN14107	5	G(0.01)	-----	false positve?
334		-----		-----	
343	EN14107	<4		-----	
344		-----		-----	
391	EN14107	<4		-----	
398	EN14107	0.318		-----	
447		-----		-----	
494	EN14107	0.3		-----	
495		-----		-----	
540	EN14107	<4		-----	
603		-----		-----	
631		-----		-----	
657	EN14107	<4		-----	
663		-----		-----	
824	EN14107	<1		-----	
862	EN14107	0.4		-----	
863	INH-018	<1		-----	
1016	EN14107	<0.10		-----	
1017		-----		-----	
1033		-----		-----	
1047	EN14107	<0.5		-----	
1059		-----		-----	
1080	EN14107	<1		-----	
1108		-----		-----	
1134	EN14107	0.7		-----	
1179	EN14107	0.6		-----	
1195		-----		-----	
1199		-----		-----	
1203	EN14107	0.60		-----	
1212		-----		-----	
1213	D4951	<1		-----	
1231	D4951	0		-----	
1240	EN14107	<1.0		-----	
1268	EN14107	<4		-----	
1273	EN14107	0.19		-----	
1286		-----		-----	
1290	EN14107	0.22		-----	
1299	EN14107	<4		-----	
1300	EN14107	1.011		-----	
1316	EN14107	<0.05		-----	
1320	D3231	<2		-----	
1395		-----		-----	
1397		-----		-----	
1400	EN14107	0.11		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN14107	<1		-----	
1429	EN14107	<1		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643	D5185	0.313		-----	
1650	EN14107	<4.0		-----	
1654		-----		-----	
1656	EN14107	0.1		-----	
1706		-----		-----	
1707	EN14107	0.17		-----	
1710	EN14107	<0.5		-----	
1712		-----		-----	
1721	EN14107	<1		-----	
1739	EN14107	0.2		-----	
1807		-----		-----	
1914	EN14107	<4		-----	
1948	EN14107	0.28		-----	

normality	OK
n	17
outliers	1
mean (n)	0.348
st.dev. (n)	0.2548
R(calc.)	0.714
R(EN14107:03)	(0.092)

Application range (EN14107:03) : 4 - 20 mg/kg
Compare R(D4951) = 0.0101



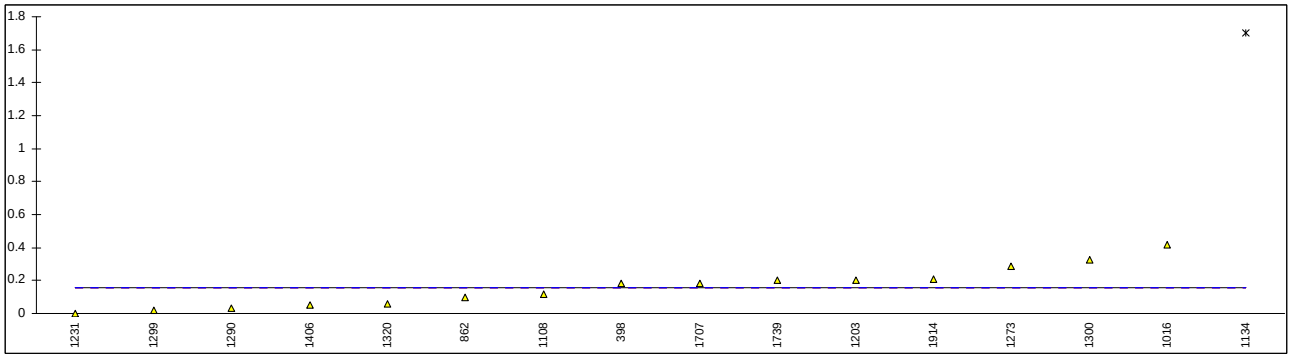


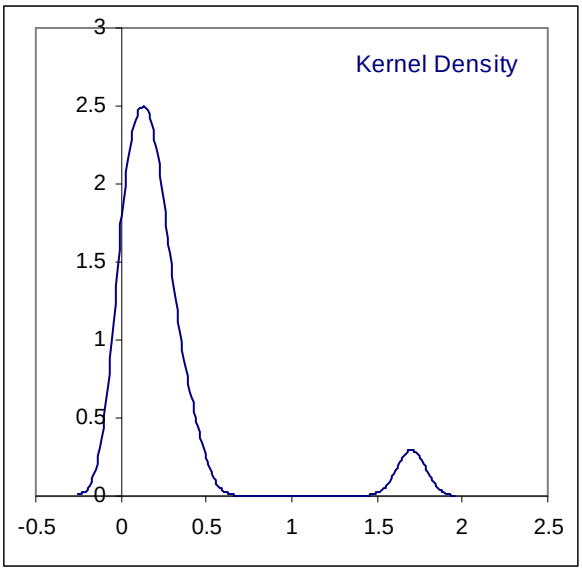
Determination of Potassium on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150	EN14109	<1.0		-----	
171	EN14538	<0.1		-----	
312		-----		-----	
323		-----		-----	
334		-----		-----	
343	EN14109	<0.5		-----	
344		-----		-----	
391	EN14109	<1		-----	
398	EN14109	0.18		-----	
447		-----		-----	
494	EN14109	<0.1		-----	
495		-----		-----	
540	EN14109	<1		-----	
603		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
824	EN14109	<1		-----	
862	EN14538	0.1		-----	
863	INH-018	<1		-----	
1016	EN14109	0.42		-----	
1017		-----		-----	
1033		-----		-----	
1047	EN14109	<0.5		-----	
1059		-----		-----	
1080	EN14538	<1		-----	
1108	EN14109	0.12		-----	
1134	EN14109	1.7	G(0.01)	-----	false positive?
1179	EN14109	<1		-----	
1195		-----		-----	
1199		-----		-----	
1203	EN14109	0.2	C	-----	first reported: 1.50
1212		-----		-----	
1213	D3605	<1		-----	
1231	D5185	0		-----	
1240	EN14538	<1.0		-----	
1268	EN14538	<1		-----	
1273	EN14538	0.29		-----	
1286		-----		-----	
1290	EN14538	0.03		-----	
1299	EN14109	0.02		-----	
1300	EN14109	0.327		-----	
1316		-----		-----	
1320	EN14109	0.056		-----	
1395		-----		-----	
1397		-----		-----	
1400	EN14538	<0.5		-----	
1406	EN14109	0.05		-----	
1407		-----		-----	
1409	EN14109	<1		-----	
1429	EN14109	<1		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650	EN14109	<0.5		-----	
1654		-----		-----	
1656	EN14109	<0.1		-----	
1706		-----		-----	
1707	EN14109	0.18		-----	
1710	EN14538	<1.5		-----	
1712		-----		-----	
1721	EN14109	<1		-----	
1739	EN14538	0.2		-----	
1807		-----		-----	
1914	EN14538	0.21		-----	
1948	EN14109	<0.5		-----	

normality	OK
n	15
outliers	1
mean (n)	0.159
st.dev. (n)	0.1222
R(calc.)	0.342
R(EN14109:03)	(0.602)

Application range > 0.5 mg/kg; R(EN14214) is for sum (Na+K)



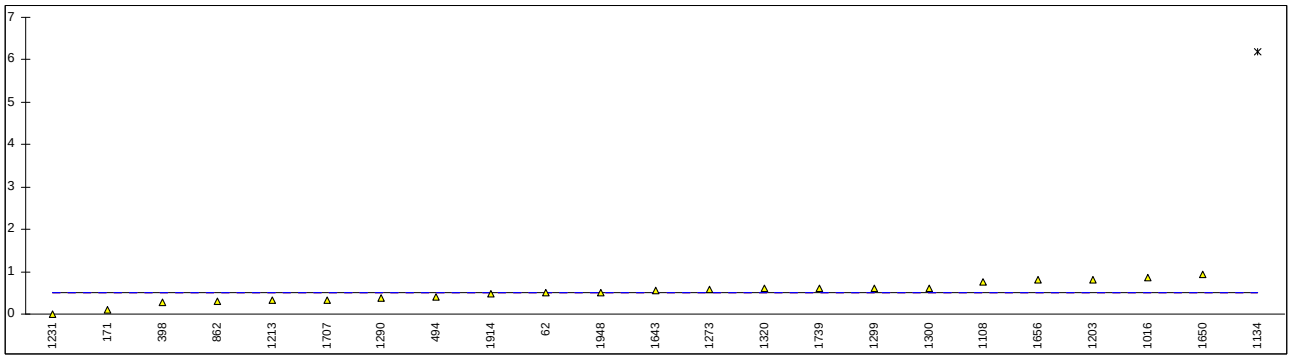


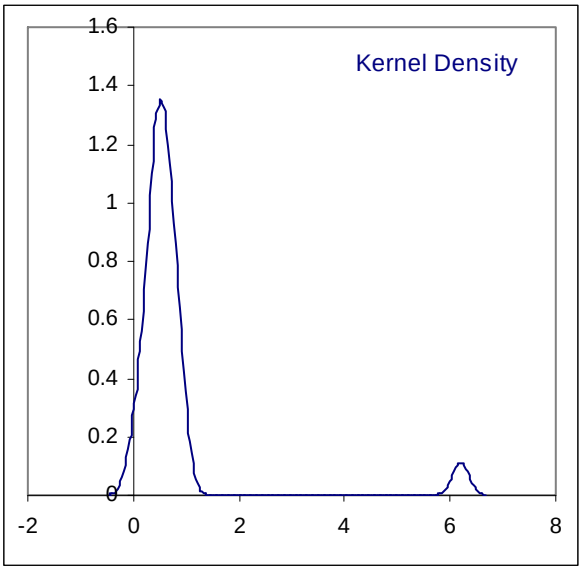
Determination of Sodium on sample #12053; results in mg/kg

lab	method	value	mark	z(targ)	remarks
62	IP470	0.5		-----	
150	EN14108	<1.0		-----	
171	EN14538	0.1		-----	
312		-----		-----	
323	EN14108	<1.0		-----	
334		-----		-----	
343	EN14108	<1		-----	
344		-----		-----	
391	EN14108	<1		-----	
398	EN14108	0.27		-----	
447		-----		-----	
494	EN14108	0.4		-----	
495		-----		-----	
540	EN14108	<1		-----	
603		-----		-----	
631		-----		-----	
657		-----		-----	
663		-----		-----	
824	EN14108	<1		-----	
862	EN14538	0.3		-----	
863	INH-018	<1		-----	
1016	EN14108	0.87		-----	
1017		-----		-----	
1033		-----		-----	
1047	EN14108	<0.5		-----	
1059		-----		-----	
1080	EN14538	<1		-----	
1108	EN14108	0.76		-----	
1134	EN14108	6.2	G(0.01)	-----	false positive?
1179	EN14108	<1		-----	
1195		-----		-----	
1199		-----		-----	
1203	EN14108	0.80		-----	
1212		-----		-----	
1213	D3605	0.33		-----	
1231	D5185	0		-----	
1240	EN14538	<1.0		-----	
1268	EN14538	<1		-----	
1273	EN14538	0.59		-----	
1286		-----		-----	
1290	EN14538	0.38		-----	
1299	EN14108	0.6		-----	
1300	EN14108	0.617		-----	
1316	EN14108	<0.10		-----	
1320	EN14108	0.597		-----	
1395		-----		-----	
1397		-----		-----	
1400	EN14538	<0.5		-----	
1406		-----		-----	
1407		-----		-----	
1409	EN14108	<1		-----	
1429	EN14108	<1		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643	D5185	0.557		-----	
1650	EN14108	0.93		-----	
1654		-----		-----	
1656	EN14108	0.8		-----	
1706		-----		-----	
1707	EN14108	0.33		-----	
1710	EN14538	<0.5		-----	
1712		-----		-----	
1721	EN14108	<1		-----	
1739	EN14538	0.6		-----	
1807		-----		-----	
1914	EN14538	0.47		-----	
1948	EN14108	0.5		-----	

normality	OK
n	22
outliers	1
mean (n)	0.514
st.dev. (n)	0.2396
R(calc.)	0.671
R(EN14108:03)	(1.490)

Application range > 1 mg/k; R(EN14214:08) is for sum (Na+K)

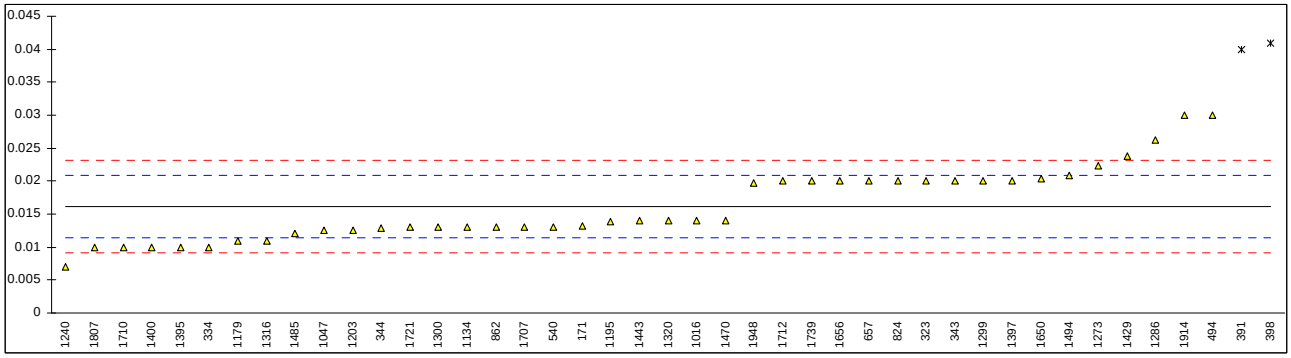


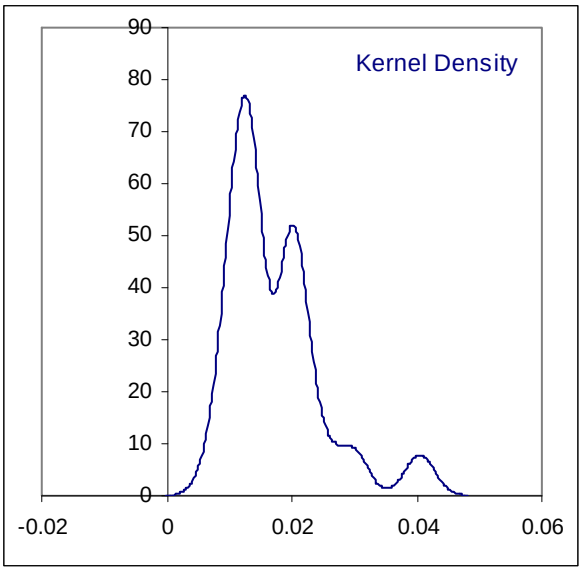


Determination of Methanol on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14110-A	0.0132		-1.27	
312		-----		-----	
323	EN14110-B	0.02		1.63	
334	EN14110	0.01		-2.63	
343	EN14110-A	0.02		1.63	
344	EN14110-A	0.01295		-1.38	
391	EN14110-B	0.04	G(0.01)	10.14	
398	EN14110-A	0.041	G(0.05)	10.57	
447		-----		-----	
494	EN14110-	0.03		5.89	
495		-----		-----	
540	EN14110-A	0.013		-1.35	
603		-----		-----	
631		-----		-----	
657	EN14110-A	0.02		1.63	
663		-----		-----	
824	EN14110-B	0.02		1.63	
862	EN14110-A	0.013		-1.35	
863		-----		-----	
1016	EN14110-B	0.014		-0.93	
1017		-----		-----	
1033		-----		-----	
1047	EN14110-A	0.0125		-1.57	
1059	EN14110-B	<0.01		-----	
1080		-----		-----	
1108		-----		-----	
1134	EN14110-A	0.013		-1.35	
1179	EN14110-B	0.011		-2.21	
1195	EN14110-	0.0139		-0.97	
1199		-----		-----	
1203	EN14110-A	0.0126		-1.52	
1212		-----		-----	
1213		-----		-----	
1231		-----		-----	
1240	EN14110-A	0.007		-3.91	
1268		-----		-----	
1273	EN14110-B	0.0223		2.61	
1286	EN14110-B	0.0262		4.27	
1290		-----		-----	
1299	EN14110-B	0.02		1.63	
1300	EN14110-A	0.013		-1.35	
1316	EN14110-	0.011		-2.21	
1320	EN14110-A	0.014		-0.93	
1395	EN14110-	0.010		-2.63	
1397	EN14110-A	0.02		1.63	
1400	EN14110-B	0.01		-2.63	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429	EN14110-	0.0238		3.25	
1443	EN14110-B	0.014		-0.93	
1459		-----		-----	
1462		-----		-----	
1470	EN14110-B	0.014		-0.93	
1485	EN14110-A	0.012		-1.78	
1494	EN14110-B	0.0208		1.97	
1634		-----		-----	
1643		-----		-----	
1650	EN14110Mod.	0.0204		1.80	
1654		-----		-----	
1656	EN14110-A	0.02		1.63	
1706		-----		-----	
1707	EN14110-A	0.013		-1.35	
1710	EN14110-B	0.01		-2.63	
1712	EN14110-B	0.02		1.63	
1721	EN14110-B	0.013		-1.35	
1739	EN14110-B	0.02		1.63	
1807	EN14110-B	0.01		-2.63	
1914	EN14110-A	0.03		5.89	
1948	EN14110-B	0.0197		1.50	

normality	not OK
n	41
outliers	2
mean (n)	0.0162
st.dev. (n)	0.00556
R(calc.)	0.0156
R(EN14110:03)	0.0066



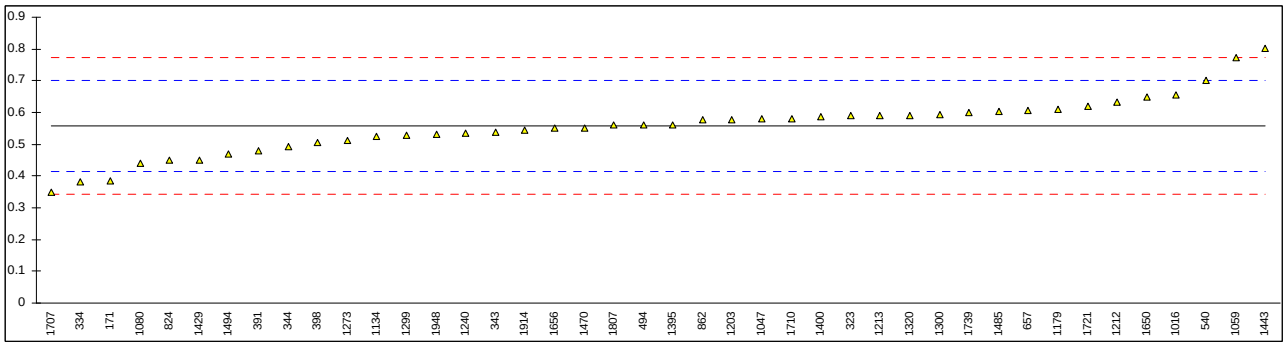


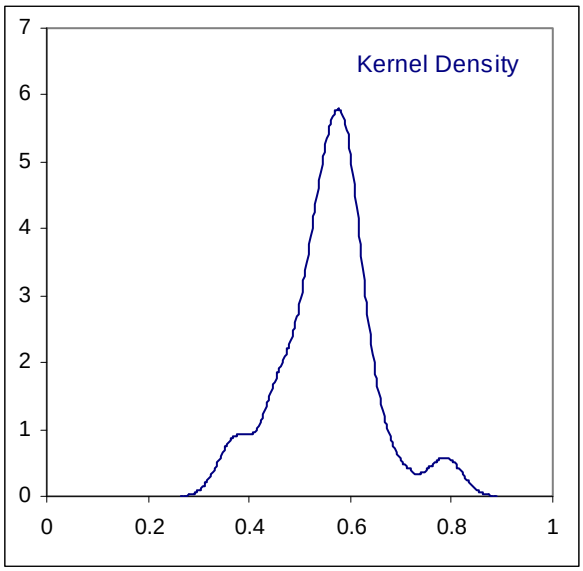
Determination of mono-Glycerides on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14105	0.385		-2.39	
312		-----		-----	
323	EN14105	0.59		0.45	
334	EN14105	0.38		-2.46	
343	EN14105	0.537		-0.28	
344	EN14105	0.4925		-0.90	
391	EN14105	0.48		-1.07	
398	EN14105	0.504		-0.74	
447		-----		-----	
494	EN14105	0.56		0.04	
495		-----		-----	
540	EN14105	0.70		1.97	
603		-----		-----	
631		-----		-----	
657	EN14105	0.606		0.67	
663		-----		-----	
824	EN14105	0.45		-1.49	
862	EN14105	0.576		0.26	
863		-----		-----	
1016	EN14105	0.656		1.36	
1017		-----		-----	
1033		-----		-----	
1047	EN14105	0.58		0.31	
1059	EN14105	0.772		2.97	
1080	in house	0.44		-1.63	
1108		-----		-----	
1134	EN14105	0.526		-0.44	
1179	EN14105	0.609		0.71	
1195		-----		-----	
1199		-----		-----	
1203	EN14105	0.577		0.27	
1212	EN14105	0.632		1.03	
1213	D6584	0.591		0.46	
1231		-----		-----	
1240	EN14105	0.534		-0.33	
1268		-----		-----	
1273	EN14105	0.513		-0.62	
1286		-----		-----	
1290		-----		-----	
1299	EN14105	0.527		-0.42	
1300	EN14105	0.5927		0.49	
1316		-----		-----	
1320	EN14105	0.591		0.46	
1395	EN14105	0.562		0.06	
1397		-----		-----	
1400	EN14105	0.588		0.42	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429	EN14105	0.45		-1.49	
1443	EN14105	0.8033	C	3.41	first reported: 0.80
1459		-----		-----	
1462		-----		-----	
1470	EN14105	0.551		-0.09	
1485	D6584	0.6033		0.63	
1494	D6584	0.4690		-1.23	
1634		-----		-----	
1643		-----		-----	
1650	EN14105	0.649		1.27	
1654		-----		-----	
1656	EN14105	0.55		-0.10	
1706		-----		-----	
1707	EN14105	0.35	C	-2.87	first reported: 1.01
1710	EN14105	0.58		0.31	
1712		-----		-----	
1721	EN14105	0.62		0.87	
1739	EN14105	0.60		0.59	
1807	EN14105	0.56		0.04	
1914	EN14105	0.545		-0.17	
1948	EN14105	0.532		-0.35	

normality	OK
n	42
outliers	0
mean (n)	0.557
st.dev. (n)	0.0908
R(calc.)	0.254
R(EN14105:03)	0.202

Compare R(EN14105:11) = 0.169, see §4.1



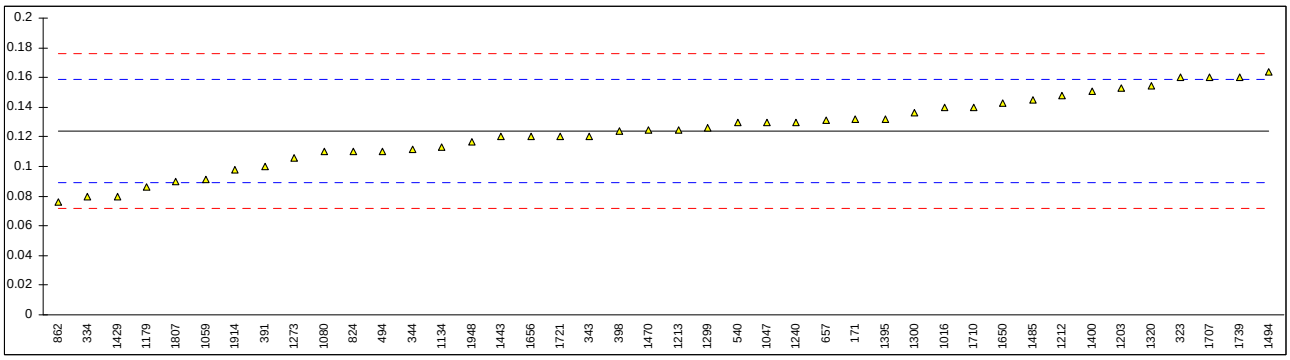


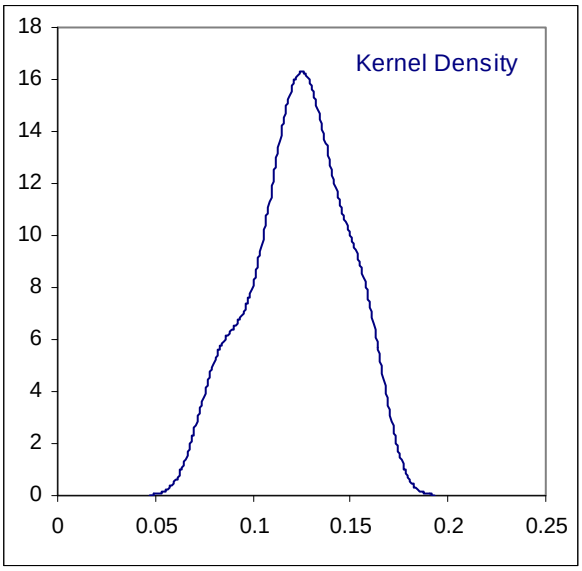
Determination of di-Glycerides on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14105	0.132		0.47	
312		-----		-----	
323	EN14105	0.16		2.08	
334	EN14105	0.08		-2.51	
343	EN14105	0.120		-0.21	
344	EN14105	0.1114		-0.71	
391	EN14105	0.10		-1.36	
398	EN14105	0.124		0.01	
447		-----		-----	
494	EN14105	0.11		-0.79	
495		-----		-----	
540	EN14105	0.13		0.36	
603		-----		-----	
631		-----		-----	
657	EN14105	0.131		0.42	
663		-----		-----	
824	EN14105	0.11		-0.79	
862	EN14105	0.076		-2.74	
863		-----		-----	
1016	EN14105	0.140		0.93	
1017		-----		-----	
1033		-----		-----	
1047	EN14105	0.13		0.36	
1059	EN14105	0.091		-1.88	
1080	in house	0.11		-0.79	
1108		-----		-----	
1134	EN14105	0.113		-0.62	
1179	EN14105	0.086		-2.17	
1195		-----		-----	
1199		-----		-----	
1203	EN14105	0.153		1.68	
1212	EN14105	0.148		1.39	
1213	D6584	0.125		0.07	
1231		-----		-----	
1240	EN14105	0.130		0.36	
1268		-----		-----	
1273	EN14105	0.106		-1.02	
1286		-----		-----	
1290		-----		-----	
1299	EN14105	0.126		0.13	
1300	EN14105	0.1364		0.73	
1316		-----		-----	
1320	EN14105	0.154		1.74	
1395	EN14105	0.132		0.47	
1397		-----		-----	
1400	EN14105	0.151		1.57	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429	EN14105	0.08		-2.51	
1443	EN14105	0.12		-0.21	
1459		-----		-----	
1462		-----		-----	
1470	EN14105	0.125		0.07	
1485	D6584	0.1448		1.21	
1494	D6584	0.1635		2.28	
1634		-----		-----	
1643		-----		-----	
1650	EN14105	0.143		1.11	
1654		-----		-----	
1656	EN14105	0.12		-0.21	
1706		-----		-----	
1707	EN14105	0.16		2.08	
1710	EN14105	0.14		0.93	
1712		-----		-----	
1721	EN14105	0.12		-0.21	
1739	EN14105	0.16		2.08	
1807	EN14105	0.09		-1.94	
1914	EN14105	0.098		-1.48	
1948	EN14105	0.117		-0.39	

normality	OK
n	42
outliers	0
mean (n)	0.124
st.dev. (n)	0.0235
R(calc.)	0.066
R(EN14105:03)	0.049

Compare R(EN14105:11) = 0.052, see §4.1



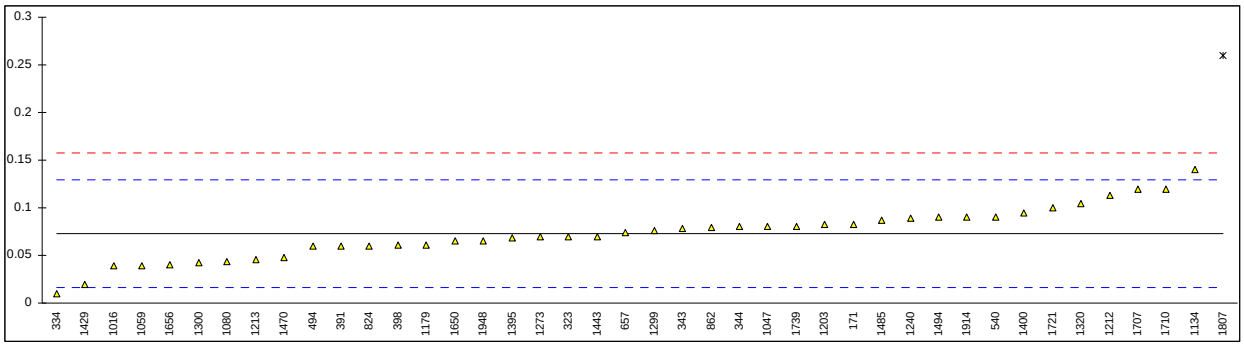


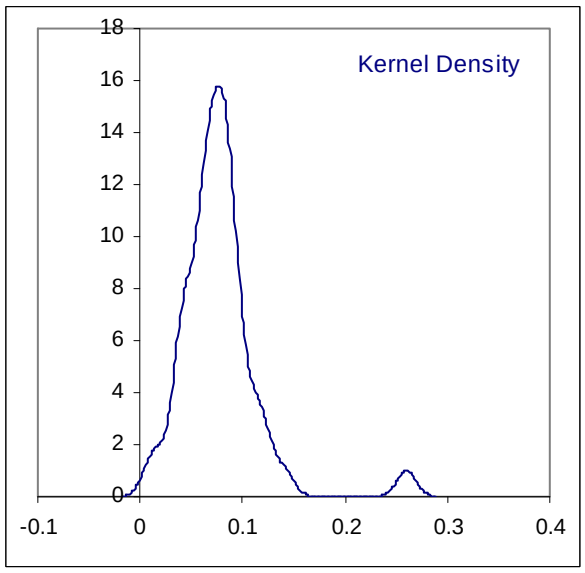
Determination of tri-Glycerides on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14105	0.083		0.36	
312		-----		-----	
323	EN14105	0.07		-0.10	
334	EN14105	0.01		-2.22	
343	EN14105	0.0788		0.21	
344	EN14105	0.0799		0.25	
391	EN14105	0.06		-0.46	
398	EN14105	0.061		-0.42	
447		-----		-----	
494	EN14105	0.06		-0.46	
495		-----		-----	
540	EN14105	0.09		0.60	
603		-----		-----	
631		-----		-----	
657	EN14105	0.074		0.04	
663		-----		-----	
824	EN14105	0.06		-0.46	
862	EN14105	0.079		0.21	
863		-----		-----	
1016	EN14105	0.039		-1.20	
1017		-----		-----	
1033		-----		-----	
1047	EN14105	0.08		0.25	
1059	EN14105	0.039		-1.20	
1080	in house	0.044		-1.02	
1108		-----		-----	
1134	EN14105	0.140		2.37	
1179	EN14105	0.061		-0.42	
1195		-----		-----	
1199		-----		-----	
1203	EN14105	0.083		0.36	
1212	EN14105	0.113		1.41	
1213	D6584	0.046		-0.95	
1231		-----		-----	
1240	EN14105	0.089		0.57	
1268		-----		-----	
1273	EN14105	0.07		-0.10	
1286		-----		-----	
1290		-----		-----	
1299	EN14105	0.076		0.11	
1300	EN14105	0.0425		-1.07	
1316		-----		-----	
1320	EN14105	0.104		1.10	
1395	EN14105	0.068		-0.17	
1397		-----		-----	
1400	EN14105	0.095		0.78	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429	EN14105	0.02		-1.87	
1443	EN14105	0.07		-0.10	
1459		-----		-----	
1462		-----		-----	
1470	EN14105	0.048		-0.88	
1485	D6584	0.0871		0.50	
1494	D6584	0.0897		0.59	
1634		-----		-----	
1643		-----		-----	
1650	EN14105	0.065		-0.28	
1654		-----		-----	
1656	EN14105	0.04		-1.16	
1706		-----		-----	
1707	EN14105	0.12		1.66	
1710	EN14105	0.12		1.66	
1712		-----		-----	
1721	EN14105	0.10		0.95	
1739	EN14105	0.08		0.25	
1807	EN14105	0.26	G(0.01)	6.60	
1914	EN14105	0.09		0.60	
1948	EN14105	0.065		-0.28	

normality	OK
n	41
outliers	1
mean (n)	0.073
st.dev. (n)	0.0268
R(calc.)	0.075
R(EN14105:03)	0.079

Compare R(EN14105:11) = 0.075, see §4.1



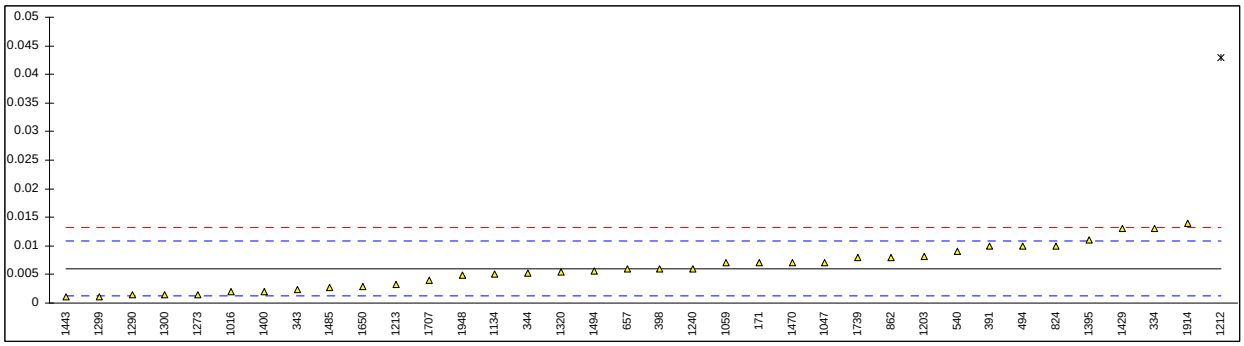


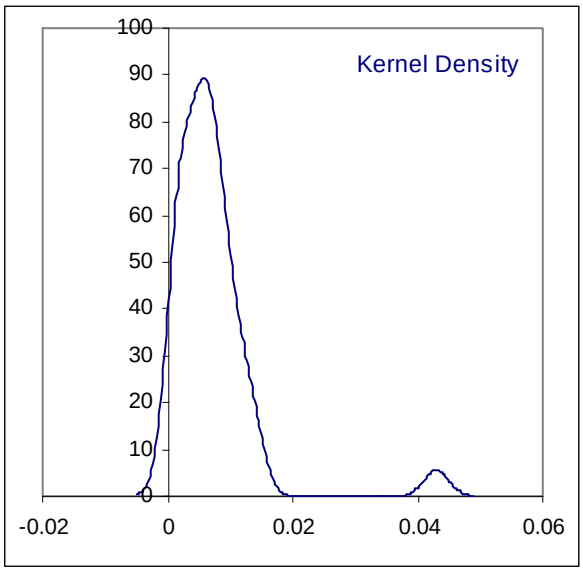
Determination of Free Glycerol on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14105	0.007		0.40	
312		-----		-----	
323		-----		-----	
334	EN14105	0.013		2.94	
343	EN14105	0.0023		-1.59	
344	EN14105	0.0053		-0.32	
391	EN14105	0.01		1.67	
398	EN14105	0.006		-0.02	
447		-----		-----	
494	EN14105	0.01		1.67	
495		-----		-----	
540	EN14105	0.009		1.25	
603		-----		-----	
631		-----		-----	
657	EN14105	0.006		-0.02	
663		-----		-----	
824	EN14105	0.01		1.67	
862	EN14105	0.008		0.82	
863		-----		-----	
1016	EN14105	0.002		-1.71	
1017		-----		-----	
1033		-----		-----	
1047	EN14105	0.007		0.40	
1059	EN14105	0.007		0.40	
1080		-----		-----	
1108		-----		-----	
1134	EN14105	0.005		-0.45	
1179	EN14105	<0.01		-----	
1195		-----		-----	
1199		-----		-----	
1203	EN14105	0.0081		0.87	
1212	EN14105	0.043	G(0.01)	15.62	
1213	D6584	0.0033		-1.16	
1231		-----		-----	
1240	EN14105	0.006		-0.02	
1268		-----		-----	
1273	EN14105	0.0015		-1.93	
1286		-----		-----	
1290	in house	0.0014		-1.97	
1299	EN14105	0.001		-2.14	
1300	EN14105	0.0014		-1.97	
1316		-----		-----	
1320	EN14105	0.0054		-0.28	
1395	EN14105	0.011		2.09	
1397		-----		-----	
1400	EN14105	0.002		-1.71	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429	EN14105	0.013		2.94	
1443	EN14105	0.001		-2.14	
1459		-----		-----	
1462		-----		-----	
1470	EN14105	0.007		0.40	
1485	D6584	0.0027		-1.42	
1494	D6584	0.0056		-0.19	
1634		-----		-----	
1643		-----		-----	
1650	EN14105	0.00297		-1.30	
1654		-----		-----	
1656	EN14105	<0.01		-----	
1706		-----		-----	
1707	EN14105	0.004		-0.87	
1710		-----		-----	
1712		-----		-----	
1721	EN14105	<0.1		-----	
1739	EN14105	0.008		0.82	
1807	EN14105	<0.001		-----	
1914	EN14105	0.014		3.36	
1948	EN14105	0.0049		-0.49	

normality	OK
n	35
outliers	1
mean (n)	0.0060
st.dev. (n)	0.00365
R(calc.)	0.0102
R(EN14105:03)	0.0066

Compare R(EN14105:11) = 0.0072, see §4.1



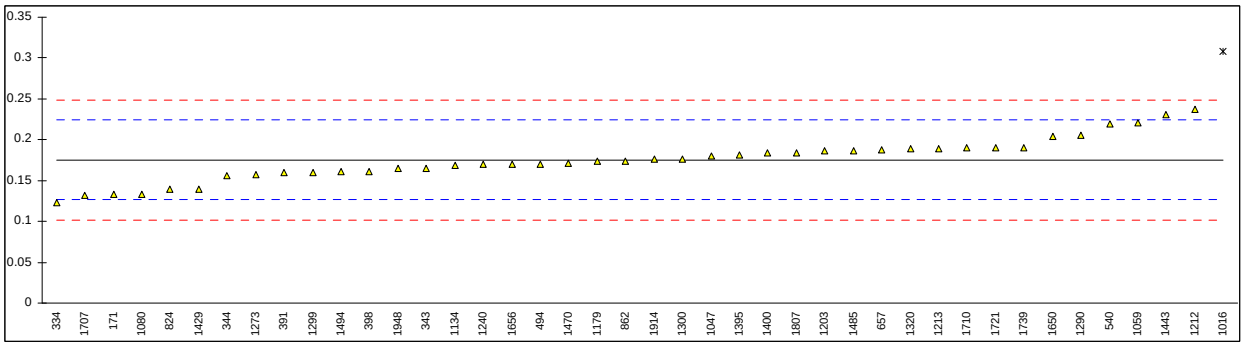


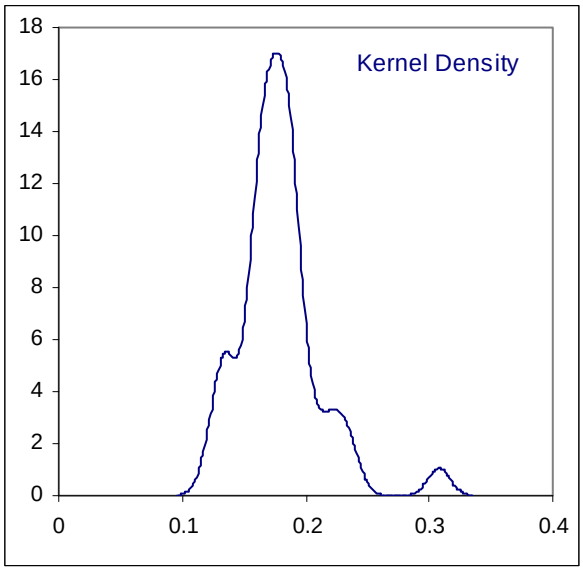
Determination of Total Glycerol on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14105	0.133		-1.74	
312		-----		-----	
323		-----		-----	
334	EN14105	0.123		-2.14	
343	EN14105	0.165		-0.43	
344	EN14105	0.1554		-0.82	
391	EN14105	0.16		-0.63	
398	EN14105	0.161		-0.59	
447		-----		-----	
494	EN14105	0.17		-0.22	
495		-----		-----	
540	EN14105	0.22		1.82	
603		-----		-----	
631		-----		-----	
657	EN14105	0.188		0.51	
663		-----		-----	
824	EN14105	0.14		-1.45	
862	EN14105	0.174		-0.06	
863		-----		-----	
1016	EN14105	0.308	G(0.01)	5.42	
1017		-----		-----	
1033		-----		-----	
1047	EN14105	0.18		0.19	
1059	EN14105	0.221		1.86	
1080	in house	0.133		-1.74	
1108		-----		-----	
1134	EN14105	0.169		-0.26	
1179	EN14105	0.174		-0.06	
1195		-----		-----	
1199		-----		-----	
1203	EN14105	0.186		0.43	
1212	EN14105	0.237		2.52	
1213	D6584	0.189		0.56	
1231		-----		-----	
1240	EN14105	0.170		-0.22	
1268		-----		-----	
1273	EN14105	0.157		-0.75	
1286		-----		-----	
1290	in house	0.2052		1.22	
1299	EN14105	0.16		-0.63	
1300	EN14105	0.1768		0.06	
1316		-----		-----	
1320	EN14105	0.189		0.56	
1395	EN14105	0.181		0.23	
1397		-----		-----	
1400	EN14105	0.184		0.35	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429	EN14105	0.14		-1.45	
1443	EN14105	0.231		2.27	
1459		-----		-----	
1462		-----		-----	
1470	EN14105	0.171		-0.18	
1485	D6584	0.1867		0.46	
1494	D6584	0.1609		-0.59	
1634		-----		-----	
1643		-----		-----	
1650	EN14105	0.204		1.17	
1654		-----		-----	
1656	EN14105	0.17		-0.22	
1706		-----		-----	
1707	EN14105	0.132	C	-1.78	first reported: 0.307
1710	EN14105	0.190		0.60	
1712		-----		-----	
1721	EN14105	0.19		0.60	
1739	EN14105	0.19		0.60	
1807	EN14105	0.184		0.35	
1914	EN14105	0.176		0.02	
1948	EN14105	0.165		-0.43	

normality	not OK
n	41
outliers	1
mean (n)	0.175
st.dev. (n)	0.0260
R(calc.)	0.073
R(EN14105:03)	0.068

Compare R(EN14105:11) = 0.022, see §4.1



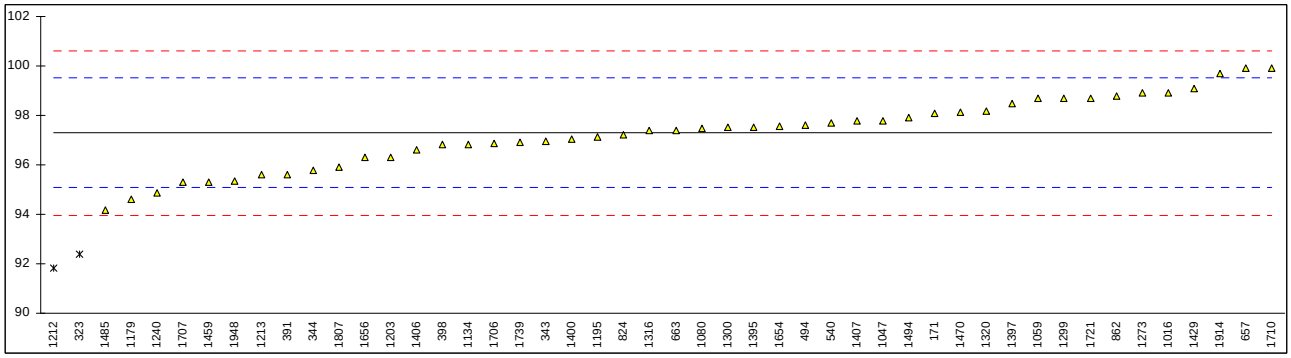


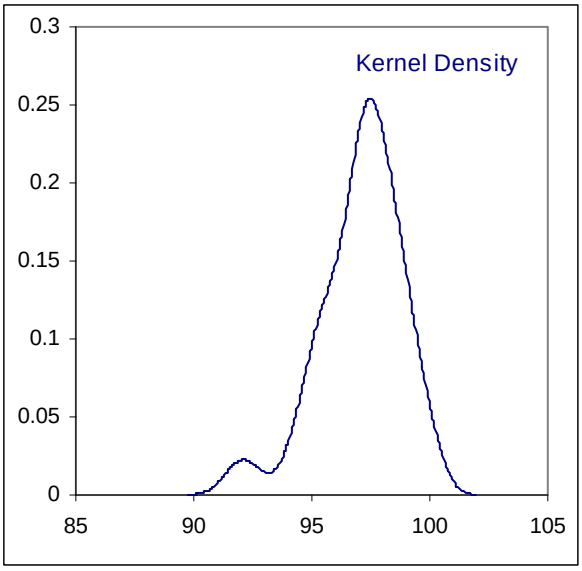
Determination of Total Ester content on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14103	98.1		0.73	
312		-----		-----	
323	EN14103:11	92.4	DG(0.01)	-4.42	
334		-----		-----	
343	EN14103:11	96.95		-0.31	
344	EN14103:03	95.787		-1.36	
391	EN14103:prev	95.6		-1.53	
398	EN14103	96.83		-0.42	
447		-----		-----	
494	EN14103	97.6		0.28	
495		-----		-----	
540	EN14103:03	97.68		0.35	
603		-----		-----	
631		-----		-----	
657	EN14103:03	99.9		2.35	
663	EN14103	97.4		0.10	
824	EN14103:prev	97.2		-0.08	
862	EN14103	98.80		1.36	
863		-----		-----	
1016	EN14103:03	98.93		1.48	
1017		-----		-----	
1033		-----		-----	
1047	EN14103:11	97.8		0.46	
1059	EN14103:11	98.7		1.27	
1080	in house	97.5		0.19	
1108		-----		-----	
1134	EN14103:11	96.83		-0.42	
1179	EN14103	94.63		-2.41	
1195	EN14103	97.12		-0.16	
1199		-----		-----	
1203	EN14103:04	96.30		-0.90	
1212	EN14103	91.81	DG(0.01)	-4.95	
1213	EN14103:03	95.6		-1.53	
1231		-----		-----	
1240	EN14103:03	94.87		-2.19	
1268		-----		-----	
1273	EN14103	98.93		1.48	
1286		-----		-----	
1290		-----		-----	
1299	EN14103:03	98.7		1.27	
1300	EN14103:prev	97.52		0.21	
1316	EN14103	97.4		0.10	
1320	EN14103:11	98.19		0.81	
1395	EN14103:03	97.54		0.22	
1397	EN14103	98.5		1.09	
1400	EN14103:prev	97.03		-0.24	
1406	EN14078	96.6		-0.63	
1407	EN14103:03	97.8		0.46	
1409		-----		-----	
1429	EN14103	99.1		1.63	
1443		-----		-----	
1459	EN14103:11	95.3		-1.80	
1462		-----		-----	
1470	EN14103:11	98.15		0.77	
1485	EN14103:11	94.17		-2.82	
1494	EN14103:03	97.9170		0.56	
1634		-----		-----	
1643		-----		-----	
1650		-----		-----	
1654	EN14103:prev	97.58		0.26	
1656	EN14103:03	96.3		-0.90	
1706	EN14103	96.869		-0.38	
1707	EN14103:11	95.3		-1.80	
1710	EN14103:prev	99.9		2.35	
1712		-----		-----	
1721	EN14103:11	98.7		1.27	
1739	EN14103:03	96.9		-0.35	
1807	EN14103	95.9		-1.26	
1914	EN14103	99.7		2.17	
1948	EN14103:prev	95.35		-1.75	

normality	OK
n	46
outliers	2
mean (n)	97.293
st.dev. (n)	1.4071
R(calc.)	3.940
R(EN14103:03)	3.100

Compare R(EN1403:11) = 4.160, see §4.1



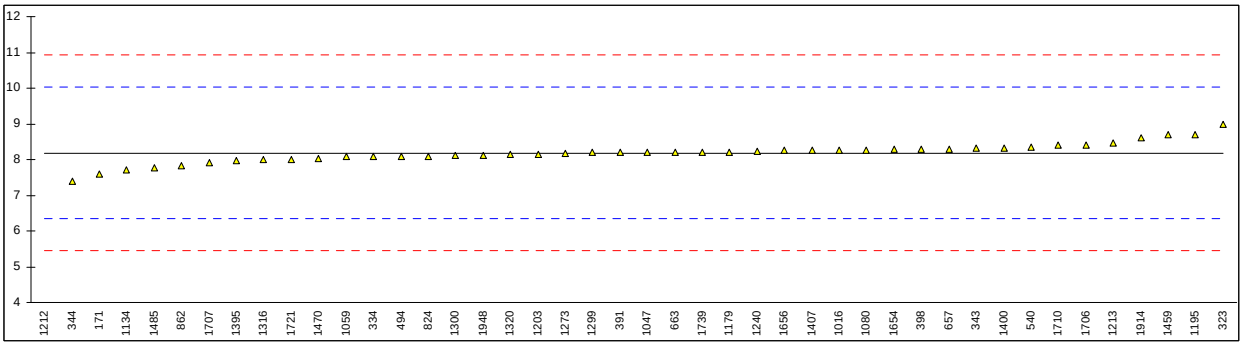


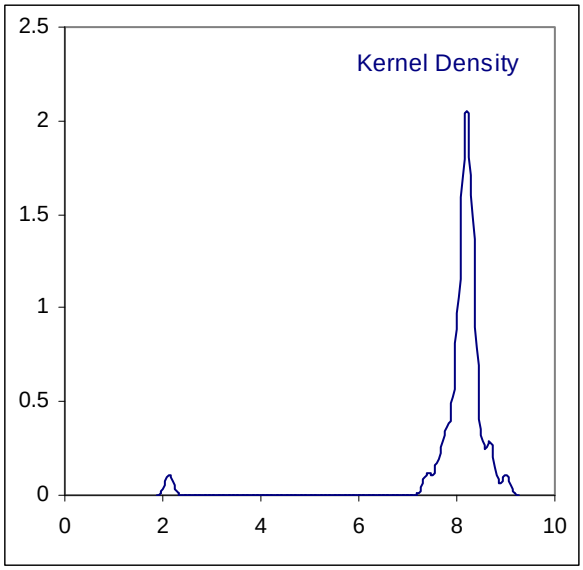
Determination of Linolenic Acid Methyl Ester content on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171	EN14103	7.6		-0.64	
312		-----		-----	
323	EN14103:11	9.0		0.89	
334	EN14103:11	8.1		-0.09	
343	EN14103:11	8.33		0.16	
344	EN14103:03	7.392		-0.87	
391	EN14103:prev	8.2		0.02	
398	EN14103	8.30		0.12	
447		-----		-----	
494	EN14103	8.1		-0.09	
495		-----		-----	
540	EN14103:03	8.35		0.18	
603		-----		-----	
631		-----		-----	
657	EN14103:03	8.3		0.12	
663	EN14103	8.2		0.02	
824	EN14103:prev	8.1		-0.09	
862	EN14103	7.83		-0.39	
863		-----		-----	
1016	EN14103:03	8.26		0.08	
1017		-----		-----	
1033		-----		-----	
1047	EN14103:11	8.2		0.02	
1059	EN14103:11	8.1		-0.09	
1080	in house	8.26		0.08	
1108		-----		-----	
1134	EN14103:11	7.72		-0.51	
1179	EN14103	8.21		0.03	
1195	EN14103	8.71		0.57	
1199		-----		-----	
1203	EN14103:04	8.15		-0.04	
1212	EN14103	2.13	G(0.01)	-6.61	
1213	EN14103:03	8.47		0.31	
1231		-----		-----	
1240	EN14103:03	8.23		0.05	
1268		-----		-----	
1273	EN14103	8.18		-0.01	
1286		-----		-----	
1290		-----		-----	
1299	EN14103:03	8.2		0.02	
1300	EN14103:prev	8.13		-0.06	
1316	EN14103	8.0		-0.20	
1320	EN14103:11	8.15		-0.04	
1395	EN14103:03	7.97		-0.24	
1397		-----		-----	
1400	EN14103:prev	8.33		0.16	
1406		-----		-----	
1407	EN14103:03	8.25		0.07	
1409		-----		-----	
1429		-----		-----	
1443		-----		-----	
1459	EN14103:11	8.7		0.56	
1462		-----		-----	
1470	EN14103:11	8.02		-0.18	
1485	EN14103:11	7.77		-0.45	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650		-----		-----	
1654	EN14103:prev	8.30		0.12	
1656	EN14103:03	8.25		0.07	
1706	EN14103	8.403		0.24	
1707	EN14103:11	7.9		-0.31	
1710	EN14103:prev	8.4		0.23	
1712		-----		-----	
1721	EN14103:11	8.0		-0.20	
1739	EN14103:03	8.2		0.02	
1807		-----		-----	
1914	EN14103	8.6		0.45	
1948	EN14103:prev	8.13		-0.06	

normality	not OK
n	43
outliers	1
mean (n)	8.186
st.dev. (n)	0.2858
R(calc.)	0.800
R(EN14103:03)	2.566

Compare R(EN14103:11) = 0.620, see §4.1



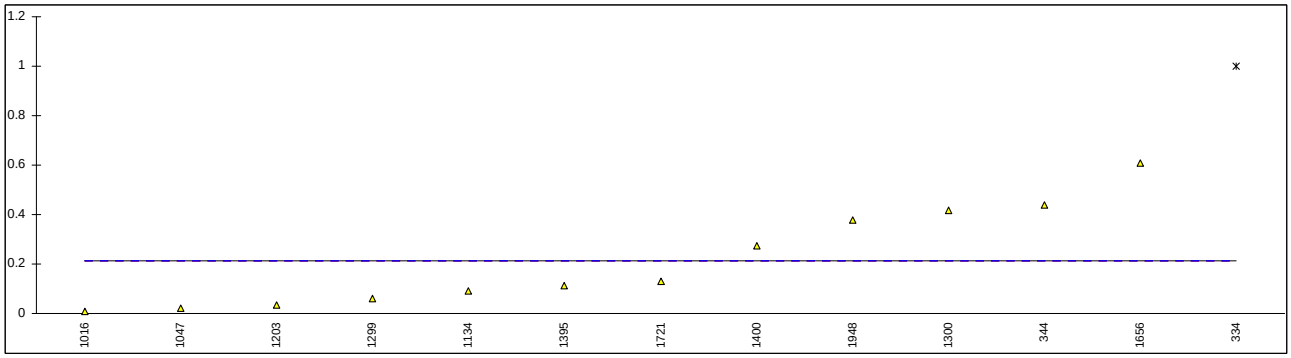


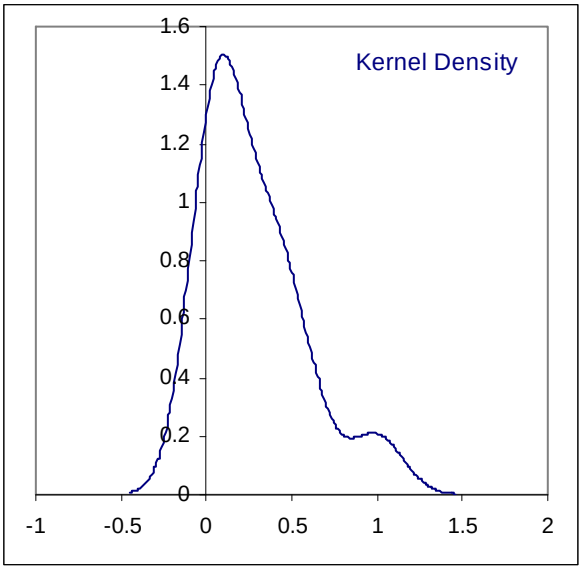
Determination of Polyunsaturated Methyl Esters content on sample #12053; results in %M/M

lab	method	value	mark	z(targ)	remarks
62		-----		-----	
150		-----		-----	
171		-----		-----	
312		-----		-----	
323		-----		-----	
334	EN15779	1	G(0.05)	-----	
343	EN15779	<0.3		-----	
344	EN15779	0.439		-----	
391	EN15779	<0.30		-----	
398	EN15779	<0.1		-----	
447		-----		-----	
494	INH-10	<1		-----	
495		-----		-----	
540		-----		-----	
603		-----		-----	
631		-----		-----	
657	EN14103	<0.1		-----	
663		-----		-----	
824		-----		-----	
862		-----		-----	
863		-----		-----	
1016	EN15779	0.010		-----	
1017		-----		-----	
1033		-----		-----	
1047	EN15779	0.02		-----	
1059		-----		-----	
1080		-----		-----	
1108		-----		-----	
1134	EN15779	0.09		-----	
1179	EN15779	<0.5		-----	
1195		-----		-----	
1199		-----		-----	
1203	EN15779	0.036		-----	
1212		-----		-----	
1213		-----		-----	
1231		-----		-----	
1240		-----		-----	
1268		-----		-----	
1273		-----		-----	
1286		-----		-----	
1290		-----		-----	
1299	EN15779	0.06		-----	
1300	EN15779	0.418		-----	
1316		-----		-----	
1320	EN15779	<0.1		-----	
1395	EN15779	0.113		-----	
1397		-----		-----	
1400	EN15779	0.272		-----	
1406		-----		-----	
1407		-----		-----	
1409		-----		-----	
1429		-----		-----	
1443		-----		-----	
1459		-----		-----	
1462		-----		-----	
1470		-----		-----	
1485		-----		-----	
1494		-----		-----	
1634		-----		-----	
1643		-----		-----	
1650		-----		-----	
1654		-----		-----	
1656	EN15779	0.61		-----	
1706		-----		-----	
1707		-----		-----	
1710		-----		-----	
1712		-----		-----	
1721	EN15779	0.13		-----	
1739	EN15779	<0.6		-----	
1807		-----		-----	
1914	EN14103	<1		-----	
1948	EN15779	0.38		-----	

normality	not OK
n	12
outliers	1
mean (n)	0.215
st.dev. (n)	0.2016
R(calc.)	0.565
R(EN15779:09)	(0.270)

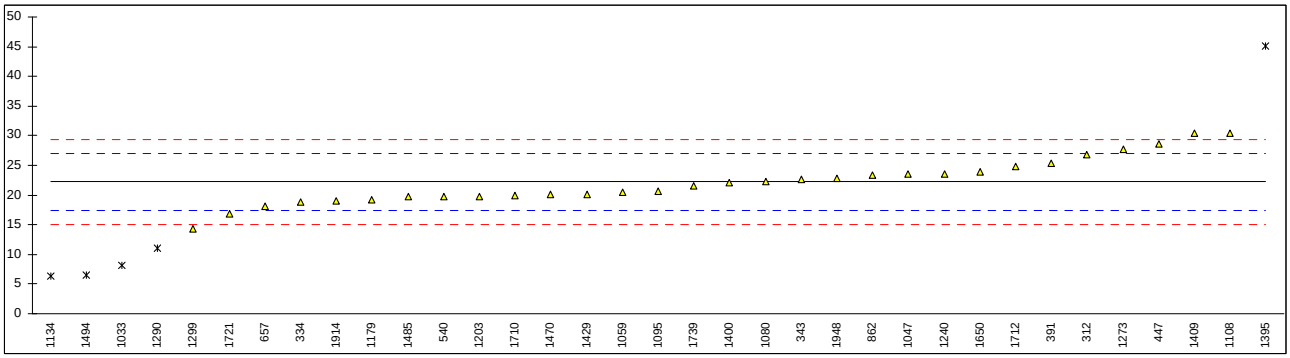
Application range 0.3%M/M – 3.0%M/M

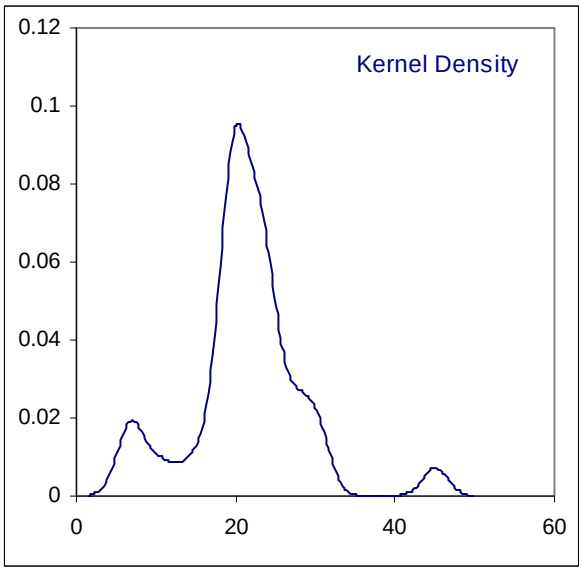




Determination of Total Contamination on sample #12054; results in mg/kg

lab	method	value	mark	z(targ)	remarks
171	EN12662:08	<6		<-6.82	false negative?
312	EN12662:08	26.90		1.96	
323		-----		-----	
334	EN12662:08	18.9		-1.40	
343	EN12662:98	22.63		0.16	
391	EN12662:08	25.3		1.28	
447	EN12662:98	28.62		2.68	
540	EN12662:08	19.75		-1.04	
657	EN12662	18.1		-1.74	
862	EN12662:08	23.43		0.50	
1016		-----		-----	
1017		-----		-----	
1033	IP440	8.12	DG(0.05)	-5.93	
1047	EN12662:08	23.5		0.53	
1059	EN12662:08	20.4		-0.77	
1080	EN12662:08	22.3		0.03	
1095	EN12662:08	20.57		-0.70	
1108	EN12662:08	30.5		3.47	
1134	EN12662	6.4	DG(0.05)	-6.65	
1179	EN12662:08	19.25		-1.25	
1199		-----		-----	
1203	EN12662:08	19.8		-1.02	
1240	EN12662:08	23.6		0.57	
1273	EN12662:08	27.76		2.32	
1290	EN12662:98	11.02	DG(0.05)	-4.71	
1299	EN12662:08	14.4		-3.29	
1395	EN12662:08	45.04	G(0.01)	9.57	
1400	EN12662	22.14		-0.04	
1409	EN12662:08	30.4		3.42	
1429	EN12662:08	20.1		-0.90	
1462		-----		-----	
1470	EN12662:08	20.1		-0.90	
1485	EN12662	19.70		-1.07	
1494	EN12662:08	6.464	DG(0.05)	-6.62	
1650	EN12662:08	23.88		0.69	
1710	EN12662:08	20.0		-0.94	
1712	EN12662:09/A2010	24.8		1.07	
1721	EN12662	16.9		-2.24	
1739	EN12662:98	21.5		-0.31	
1807		-----		-----	
1914	EN12662:98	19.05		-1.34	
1948	EN12662	22.91		0.28	
	normality	OK			
	n	30			
	outliers	5		spike:	
	mean (n)	22.240		9.10	
	st.dev. (n)	3.8447			
	R(calc.)	10.765			
	R(EN12662:2008)	6.672			

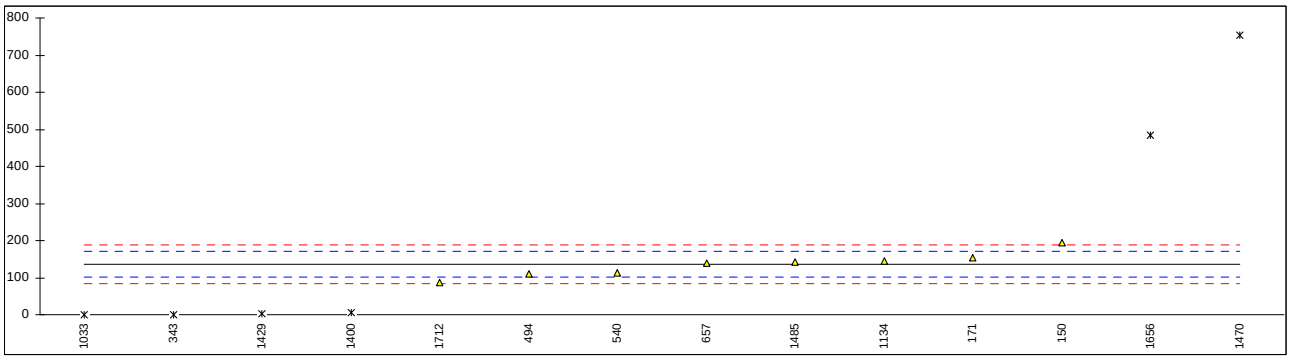

50
45
40
35
30
25
20
15
10
5
0
1134
1494
1033
1290
1299
1721
657
334
1914
1179
1485
540
1203
1710
1470
1429
1059
1095
1739
1400
1080
343
1948
862
1047
1240
1650
1712
391
312
1273
447
1409
1108
1395

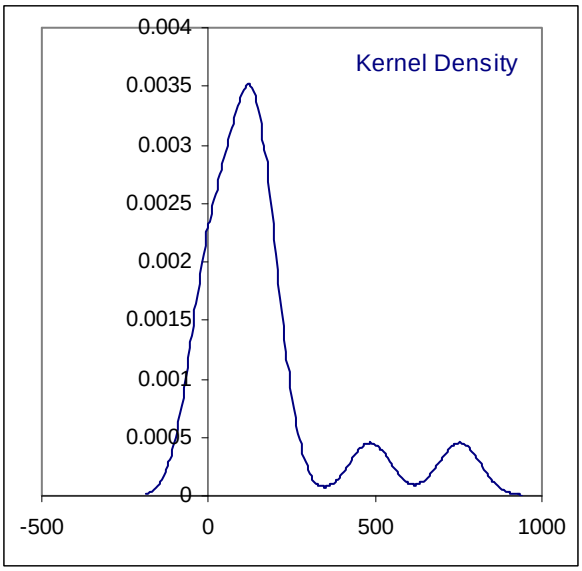

Kernel Density
0.12
0.1
0.08
0.06
0.04
0.02
0
0
20
40
60

Determination of Cold Soak Filter Test on sample #12055; results in s

lab	method	value	mark	z(targ)	remarks
150	D7501	193		3.31	
171	D7501	154		1.07	
323		-----		-----	
334		-----		-----	
343	IP387	1.20	ex	-7.72	result excluded, see § 4.1
444		-----		-----	
447		-----		-----	
494	D7501	109		-1.52	
540	D7501	114.25		-1.22	
657	D7501	139		0.21	
1033	IP PM-EA proc B	1.00	DG(0.05)	-7.73	
1059		-----		-----	
1134	D7501	144		0.49	
1395		-----		-----	
1400	IP PM-EA	6.08	DG(0.05)	-7.44	
1429	IP309 proc B	2.69	ex	-7.63	result excluded, see § 4.1
1470	INH-663	753	G(0.05)	35.51	
1485	D7501	143.0		0.44	
1656	D7501	485	G(0.01)	20.10	
1712	D7501	87		-2.78	
1807		-----		-----	

normality	OK
n	8
outliers	4
mean (n)	135.41
st.dev. (n)	32.283
R(calc.)	90.39
R(D7501:09b)	48.70





Determination of Filter Blocking Tendency on sample #12055

lab	method	value	mark	z(targ)	remarks
150		-----		-----	
171		-----		-----	
323		-----		-----	
334		-----		-----	
343		-----		-----	
444		-----		-----	
447		-----		-----	
494		-----		-----	
540		-----		-----	
657		-----		-----	
1033		-----		-----	
1059		-----		-----	
1134		300		-----	
1395		-----		-----	
1400		-----		-----	
1429		-----		-----	
1470		-----		-----	
1485		-----		-----	
1656		-----		-----	
1712		-----		-----	
1807		-----		-----	

normality	n.a
n	0
outliers	n.a
mean (n)	n.a
st.dev. (n)	n.a
R(calc.)	n.a
R(lit)	n.a

APPENDIX 2

Number of participants per country

2 labs in ARGENTINA
2 labs in AUSTRIA
3 labs in BELGIUM
1 lab in BULGARIA
1 lab in CANADA
1 lab in COLOMBIA
1 lab in CROATIA
1 lab in CZECH REPUBLIC
1 lab in ESTONIA
2 labs in FRANCE
3 labs in GERMANY
3 labs in GREECE
2 labs in HONG KONG
3 labs in HUNGARY
2 labs in ITALY
1 lab in KOREA
2 labs in LATVIA
1 lab in MALAYSIA
2 labs in P.R. of CHINA
1 lab in PERU
2 labs in PHILIPPINES
3 labs in POLAND
2 labs in PORTUGAL
1 lab in REPUBLIC OF MACEDONIA
1 lab in SINGAPORE
1 lab in SLOVAKIA
1 lab in SLOVENIA
8 labs in SPAIN
3 labs in SWEDEN
2 labs in THAILAND
3 labs in THE NETHERLANDS
3 labs in TURKEY
2 labs in U.S.A.
5 labs in UNITED KINGDOM
1 lab in VIETNAM

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
n.e.	= not evaluated
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 A