LABQUALITY

External Quality Assessment Scheme

Alcohol determinations
Round 1, 2023

Specimens
Specimens are human whole blood (S001-S003) or animal based serum preparations (S004-S006) according to your order à 3,5mL.

Caution
Quality control specimens derived from human blood must be handled with the same care as patient samples, i.e. as potential transmitters of serious diseases. The specimens are found to be HBsAg, HCVAb and HIVAgAb negative when tested with licensed reagents, but no known test method can offer complete assurance that the specimens will not transmit these or other infectious diseases.

Background information
Specimens S001 and S004 contain ethanol. Specimen S002 contains ethanol, methanol and isopropanol, S005 contains ethanol, methanol, isopropanol and acetone. Specimens S003 and S006 contain ethylene glycol. All samples contain 1% sodium fluoride and the whole blood specimen contains also anticoagulant.

Examinations
Ethanol, Methanol and Isopropanol in whole blood
Ethanol, Methanol, Isopropanol and Acetone in serum
Ethylene glycol in whole blood
Ethylene glycol in serum

Storage and use
The samples should be analysed as soon as possible, preferably within a week after they have arrived at the laboratory. They shall be analysed as patient samples. Meanwhile they should be kept at 2 … 8 °C. The samples are ready for use. Equilibrate at room temperature before analysing. Invert the samples several times and analyse as usual patient samples.

Result reporting
Please enter the results and methods via LabScala (www.labscala.com). If you cannot find your instrument or reagent from the registry, please contact the EQA Coordinator.

S001: LQ750623011
S002: LQ750623012
S003: LQ750623013
S004: LQ750623014
S005: LQ750623015
S006: LQ750623016

2023-03-06

INSTRUCTIONS

Product no.
2510 Alcohol determinations in whole blood
2511 Alcohol determinations in serum
2516 Ethylene glycol in whole blood
2517 Ethylene glycol in serum

LQ750623011 - LQ750623016 /FI

Subcontracting: Sample preparation, Sample pretesting

If the kit is incomplete or contains damaged specimens, please report immediately to info@labquality.fi.

The results should be reported no later than **March 27, 2023.**

Inquiries
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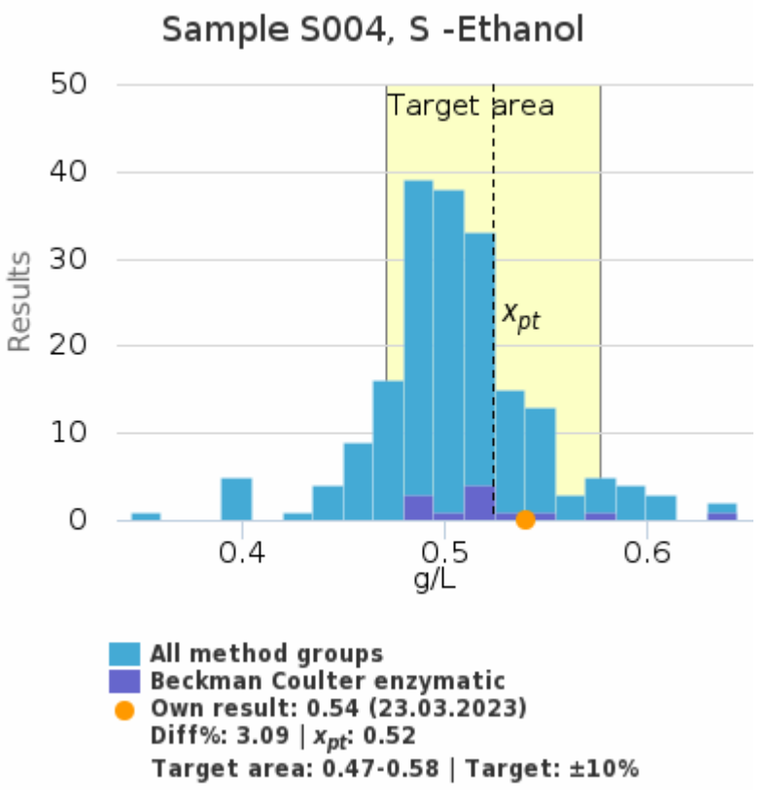
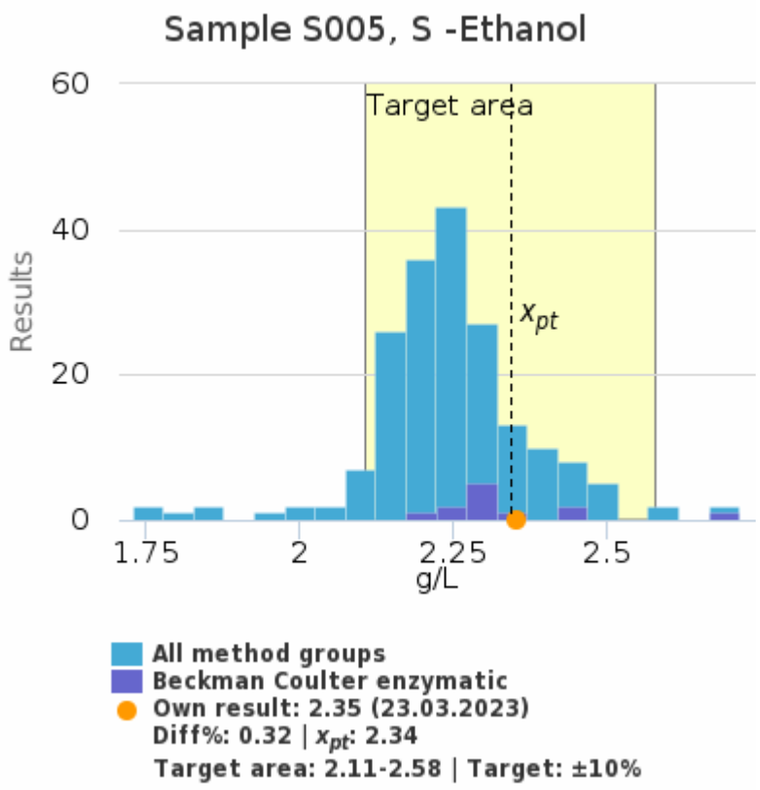
FINAS Finnish Accreditation Service PT02 (EN ISO/IEC 17043)

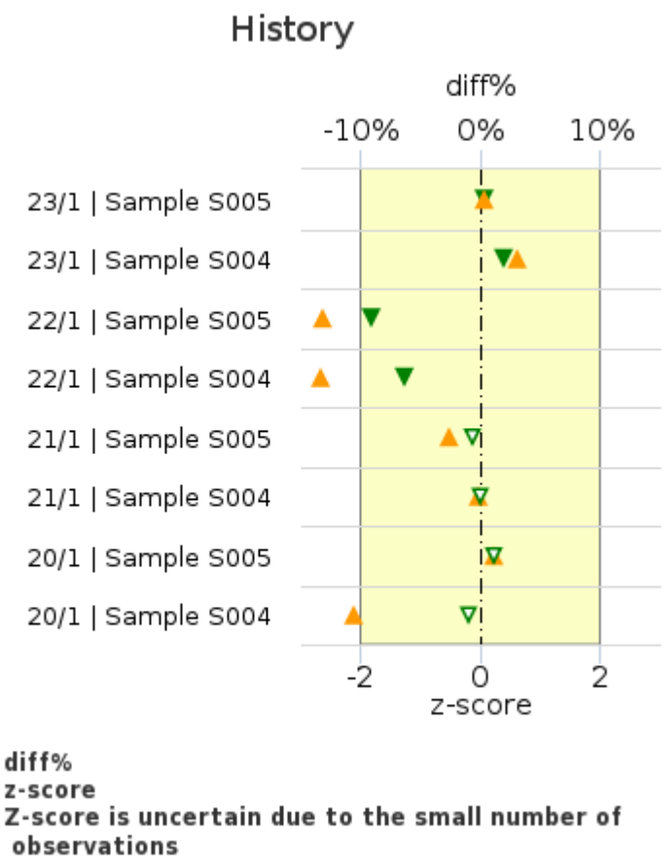
Analysis of S-acetone is not accredited

Quality Management ISO 9001:2015

S -Ethanol







	x_{pt}	sd	SEM	CV%	n
Beckman Coulter enzymatic	0.52 g/L	0.04	0.01	8.2	12
All methods	0.50 g/L	0.04	<0.01	7.4	191

	x_{pt}	sd	SEM	CV%	n
Beckman Coulter enzymatic	2.34 g/L	0.13	0.04	5.5	12
All methods	2.25 g/L	0.11	<0.01	4.9	189

Round	Sample	x_{pt}	Result	diff%	z-score
23/1	Sample S005	2.34	2.35	0.32%	0.06
23/1	Sample S004	0.52	0.54	3.09%	0.38
22/1	Sample S005	1.96	1.70	-13.07%	-1.82
22/1	Sample S004	0.68	0.59	-13.27%	-1.25
21/1	Sample S005	0.33	0.33	-2.60%	-0.14
21/1	Sample S004	0.53	0.53	-0.15%	-0.01
20/1	Sample S005	0.51	0.52	1.08%	0.23
20/1	Sample S004	0.15	0.13	-10.60%	-0.20

Report info

Participants

193 participants from 19 countries.

Report info

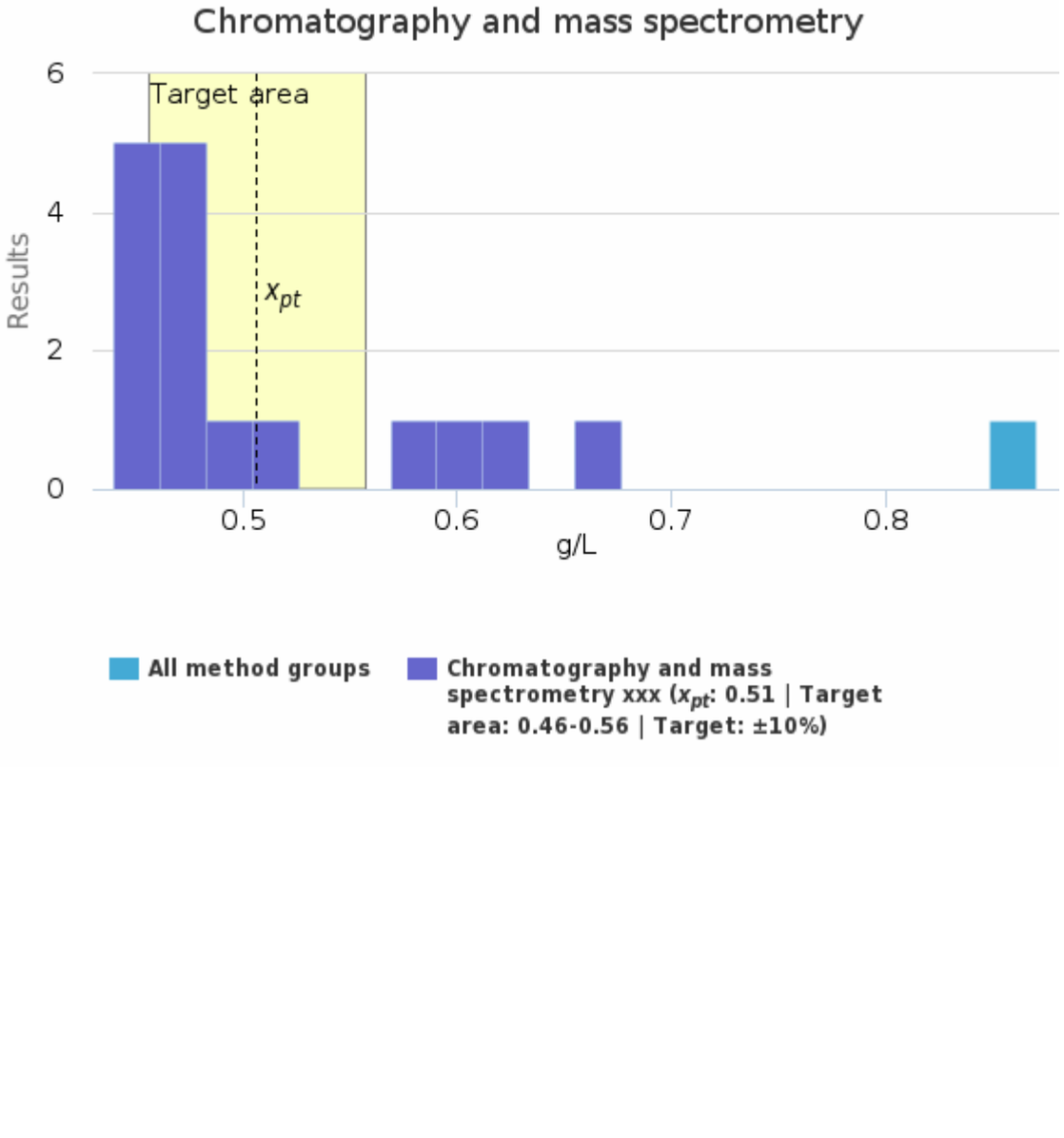
Your own result should be compared to others using the same method.
Assigned values (x_{pt}, target values) are means of the results where results deviating more than +/- 3*standard deviation from the median are removed. The standard uncertainty (u) of the assigned value is reported as standard error of the mean (SEM). Additionally, if the measurement uncertainty of the target value is large an automatic text is printed on the report: “The uncertainty of the assigned value is not negligible, and evaluations could be affected.”
In case the client’s result is the only one in the method group, no assigned value will be calculated, no target area shown, and no statistics calculated. In case there are only a few results in the client’s own method group, the result can be compared to all method mean or to a group that is similar to the own method.
Results reported with < or > -signs cannot be included in the statistics.

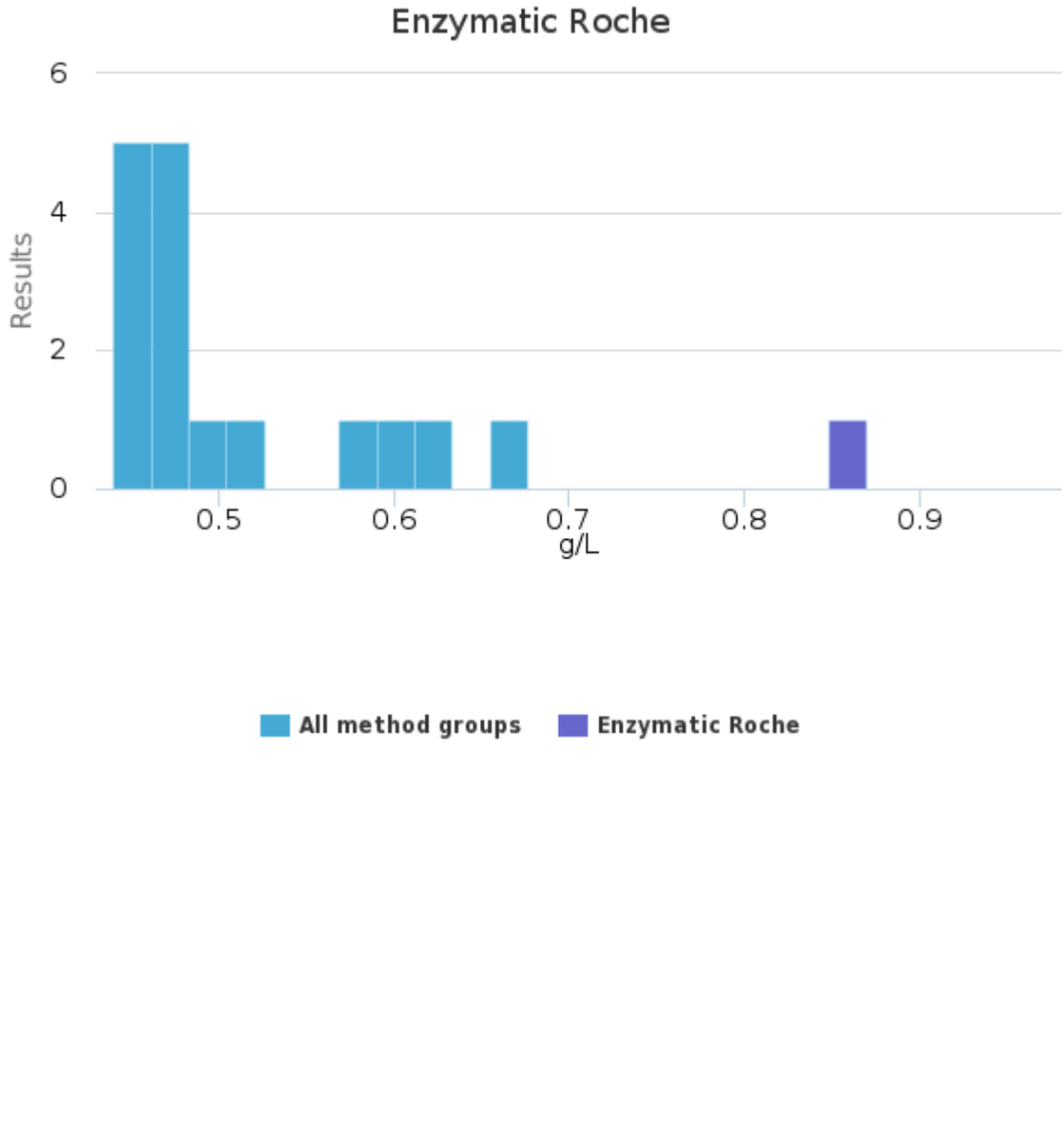
For information on report interpretation and performance evaluation, please see the " EQAS Interpretation guidelines" LabScala User instructions (top right corner ?Help link).

Sample S001 | B -Ethanol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	0.51	0.48	0.07	13.5	0.02	0.44	0.66	-	16
Enzymatic Roche	-	-	-	-	-	0.87	0.87	-	1
All	**0.51**	**0.48**	**0.07**	**13.5**	**0.02**	**0.44**	**0.66**	**1**	**17**

Sample S001 | B -Ethanol, g/L| histogram summaries in LabScala

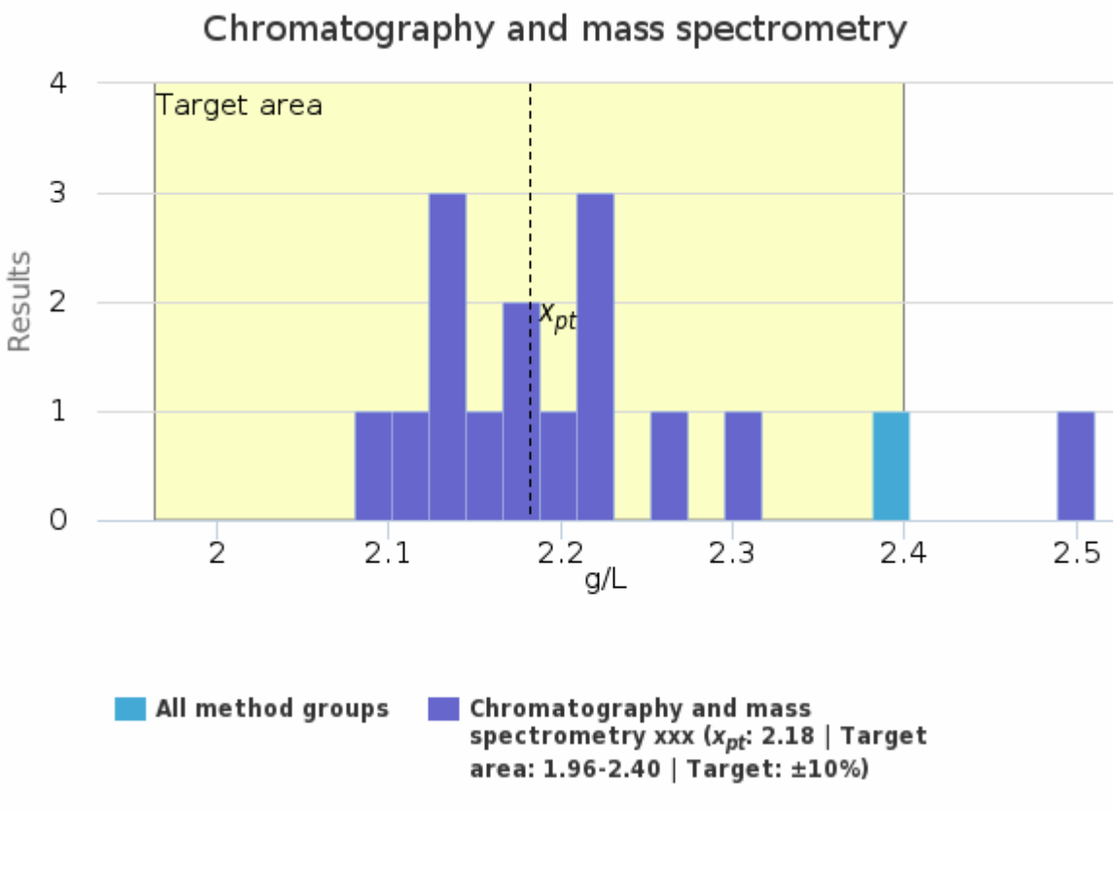


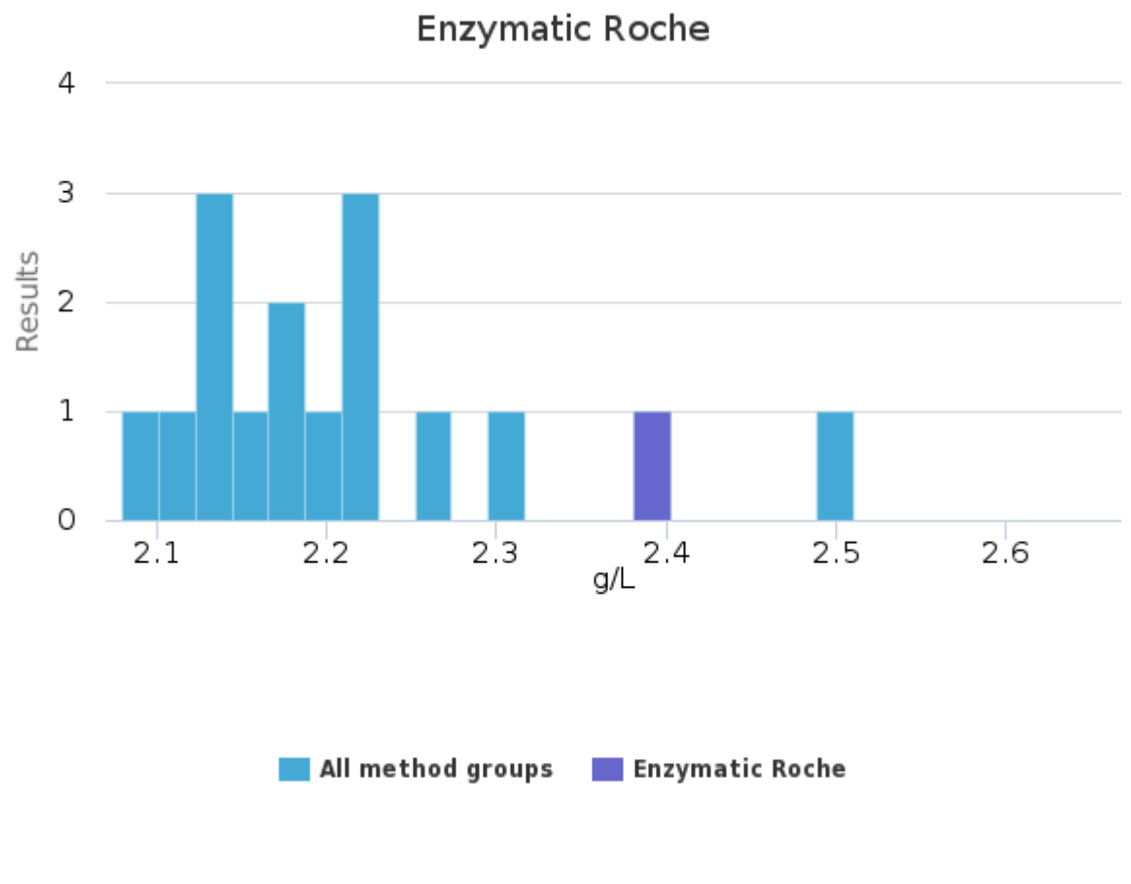


Sample S002 | B -Ethanol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	2.18	2.18	0.06	2.8	0.02	2.08	2.30	1	15
Enzymatic Roche	-	-	-	-	-	2.39	2.39	-	1
All	**2.22**	**2.19**	**0.11**	**5.0**	**0.03**	**2.08**	**2.51**	**-**	**16**

Sample S002 | B -Ethanol, g/L| histogram summaries in LabScala

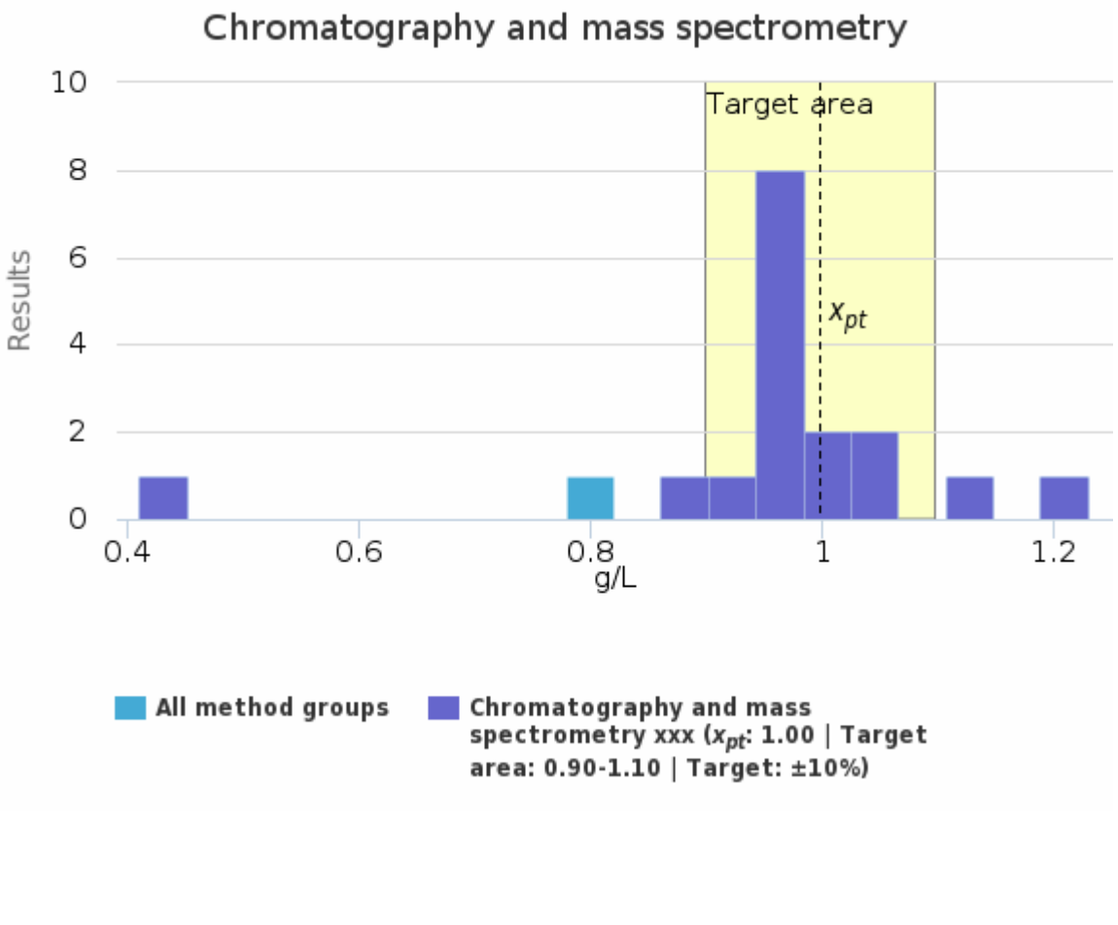


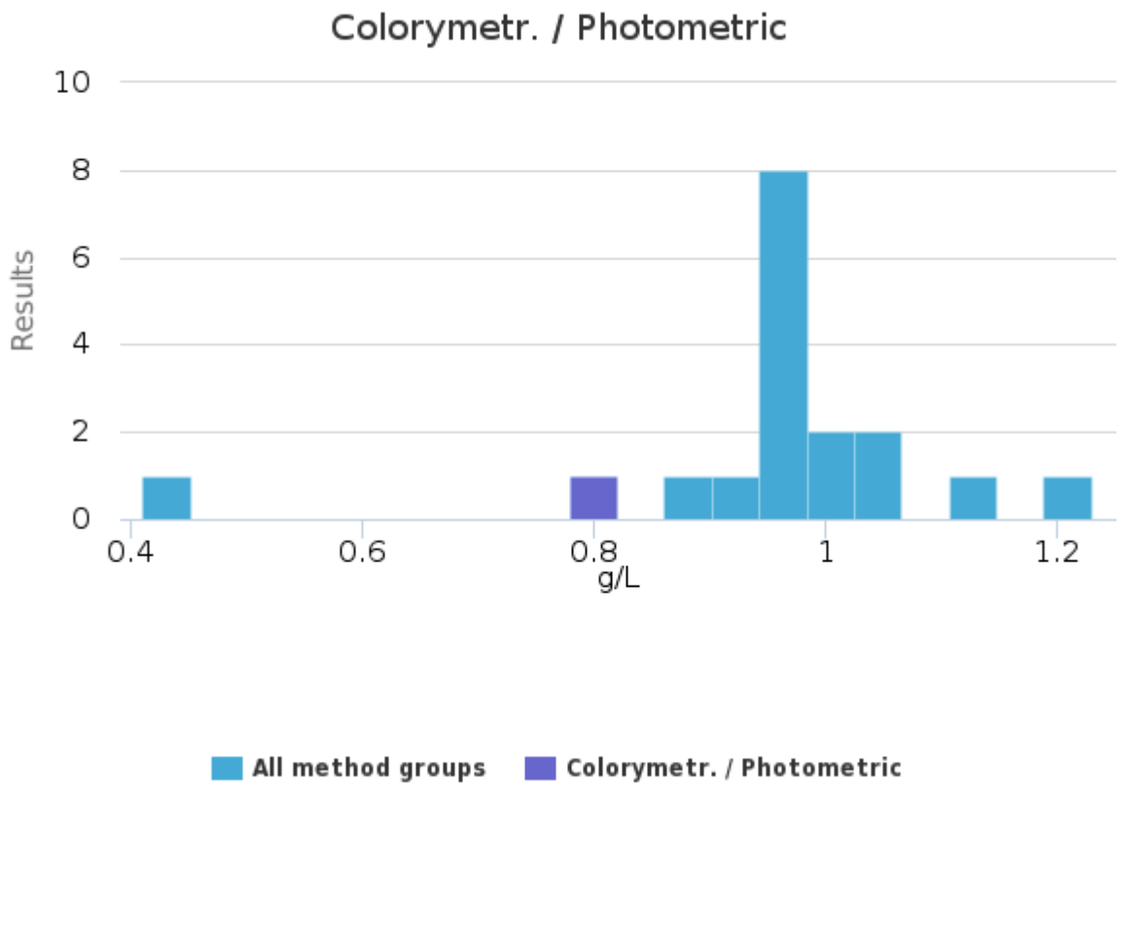


Sample S002 | B -Methanol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	1.00	0.98	0.08	8.4	0.02	0.89	1.23	1	17
Colorymetr. / Photometric	-	-	-	-	-	0.80	0.80	-	1
All	**0.99**	**0.97**	**0.09**	**9.5**	**0.02**	**0.80**	**1.23**	**1**	**18**

Sample S002 | B -Methanol, g/L| histogram summaries in LabScala

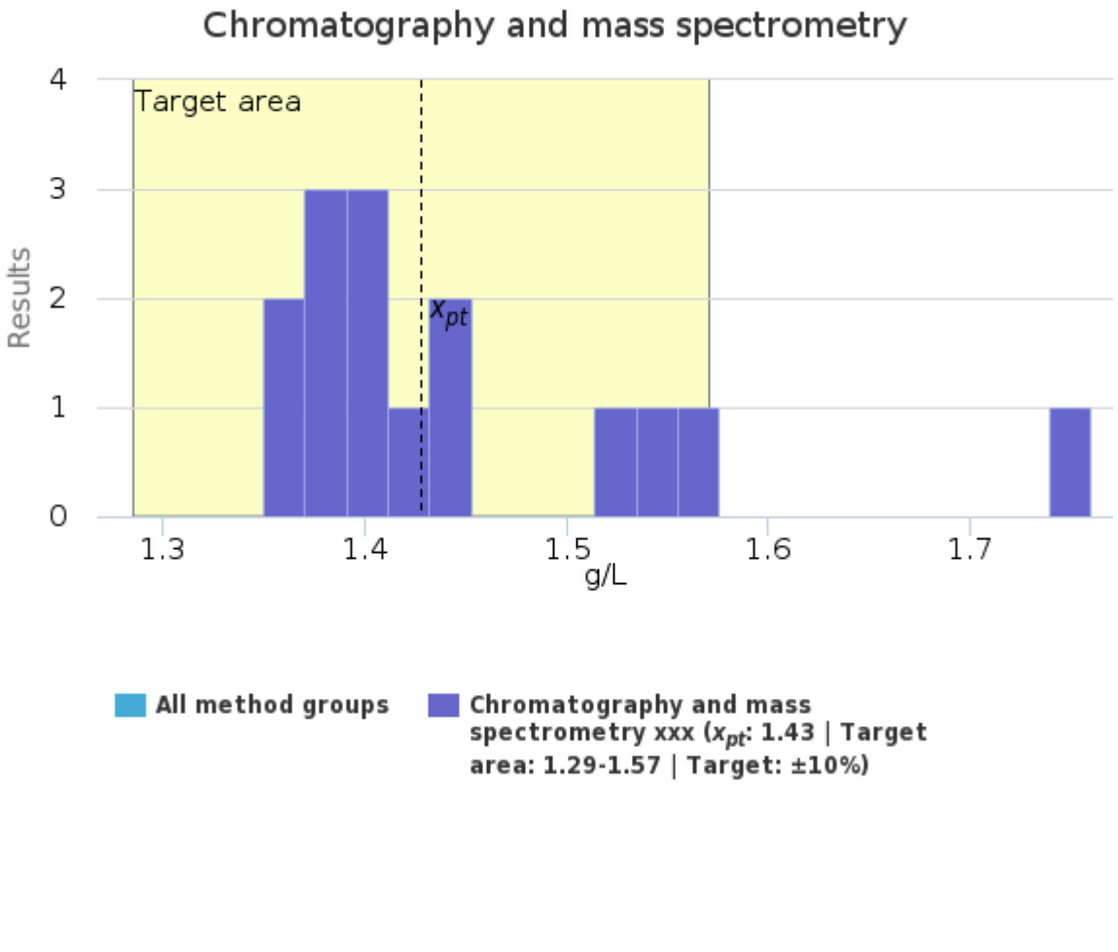




Sample S002 | B -Isopropanol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	1.43	1.40	0.07	4.7	0.02	1.35	1.56	1	15
All	**1.43**	**1.40**	**0.07**	**4.7**	**0.02**	**1.35**	**1.56**	**1**	**15**

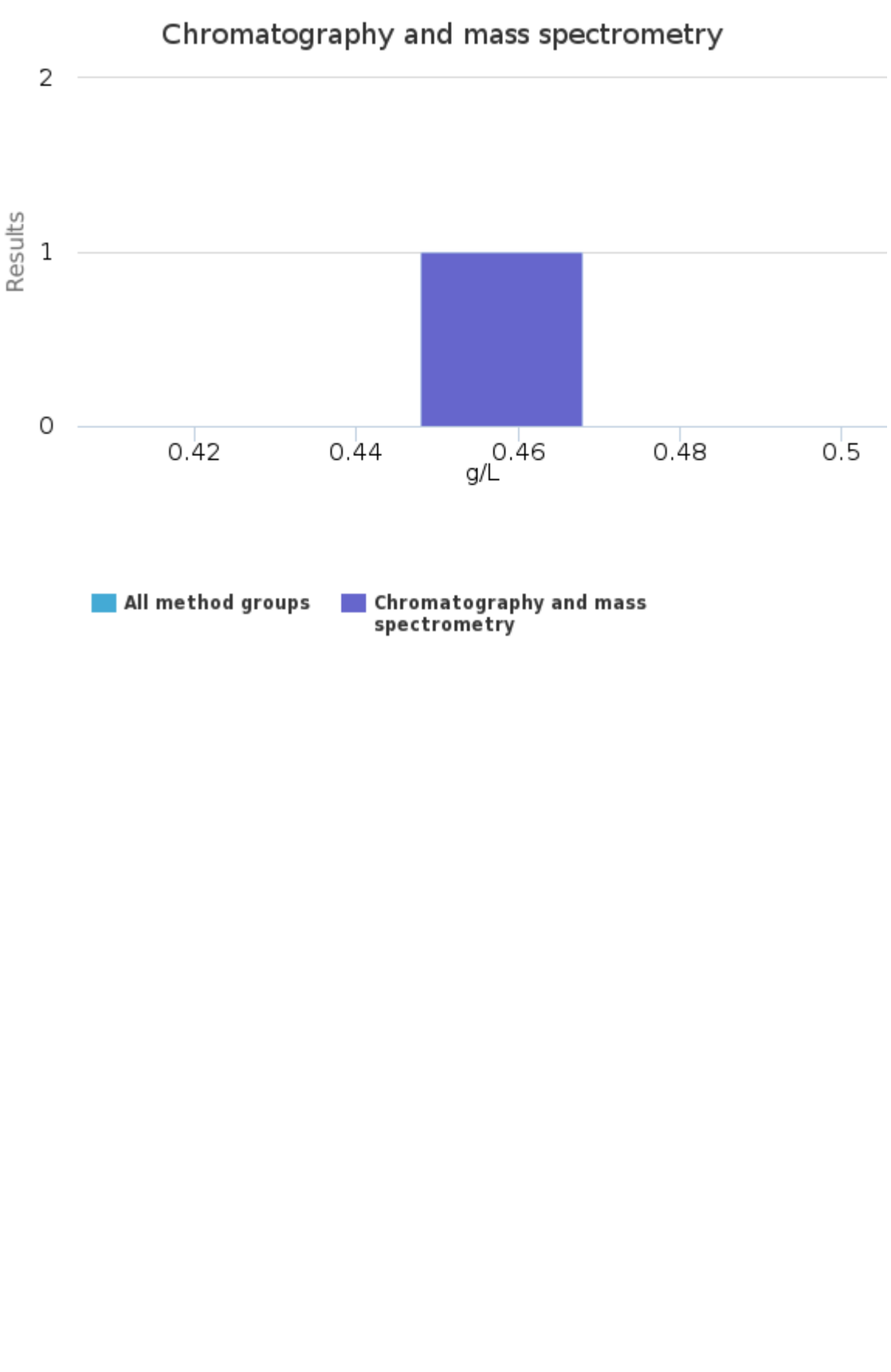
Sample S002 | B -Isopropanol, g/L| histogram summaries in LabScala



Sample S003 | B -Ethyleneglycol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	-	-	-	-	-	0.46	0.46	-	1
All	**-**	**-**	**-**	**-**	**-**	**0.46**	**0.46**	**-**	**1**

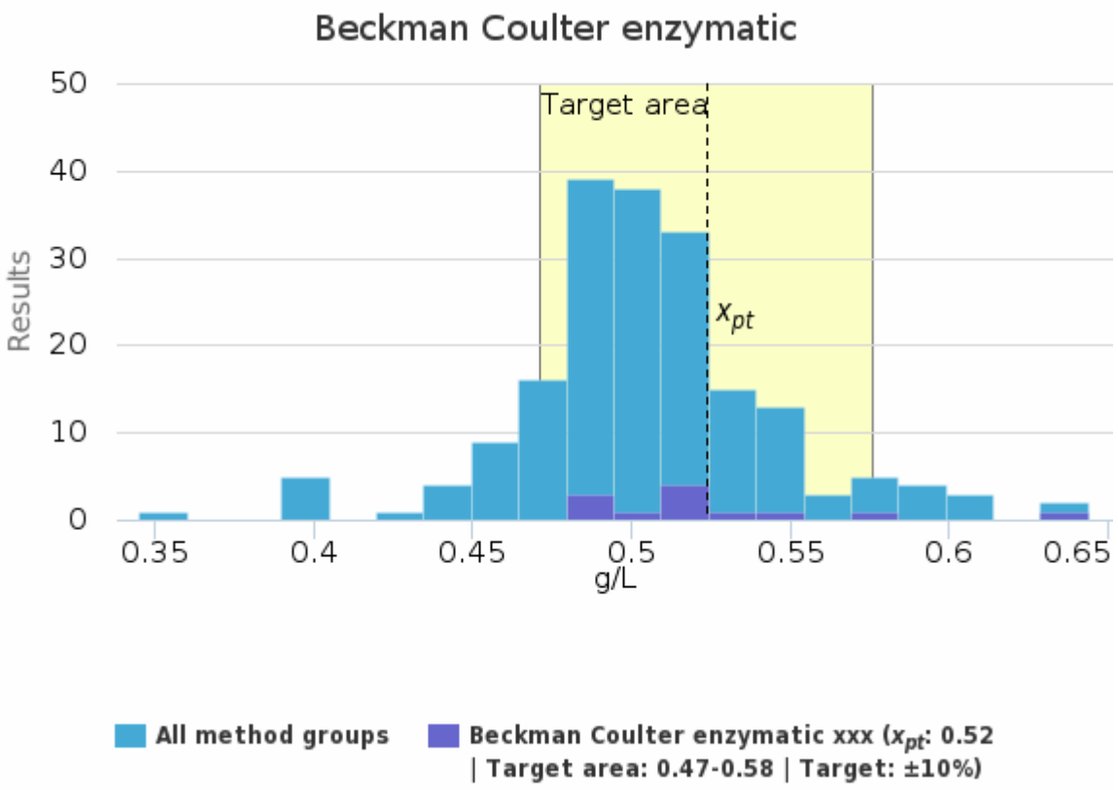
Sample S003 | B -Ethyleneglycol, g/L| histogram summaries in LabScala

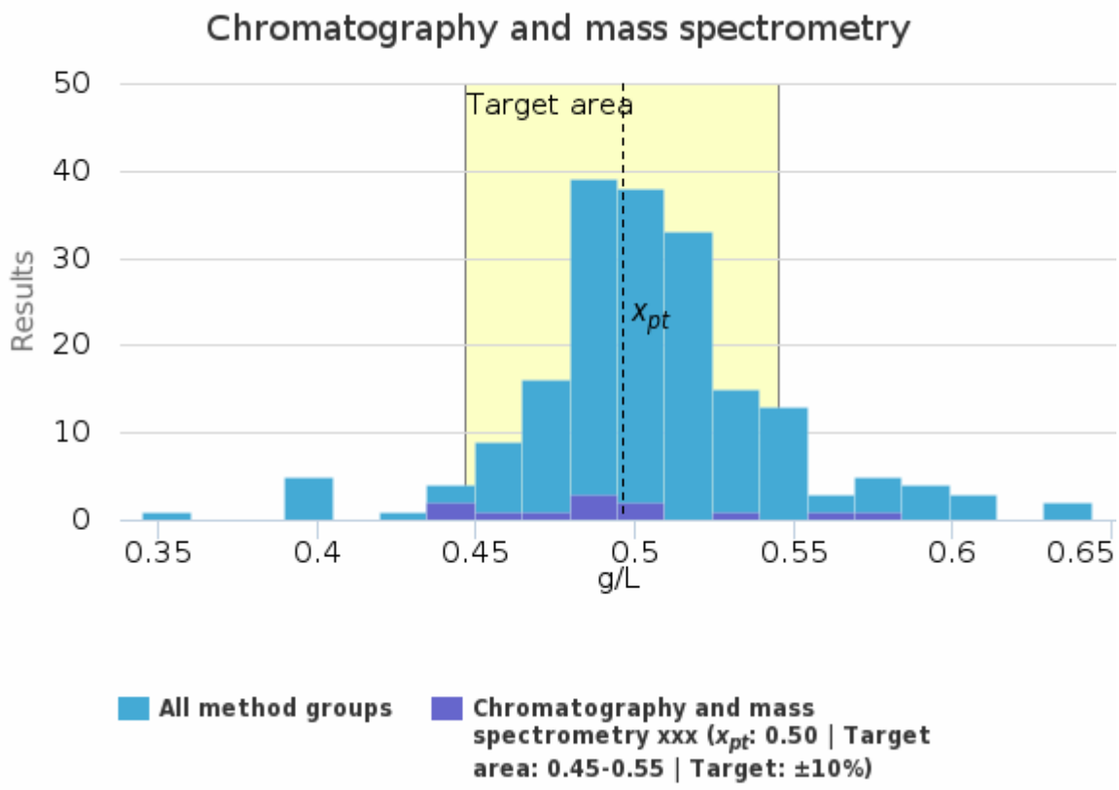


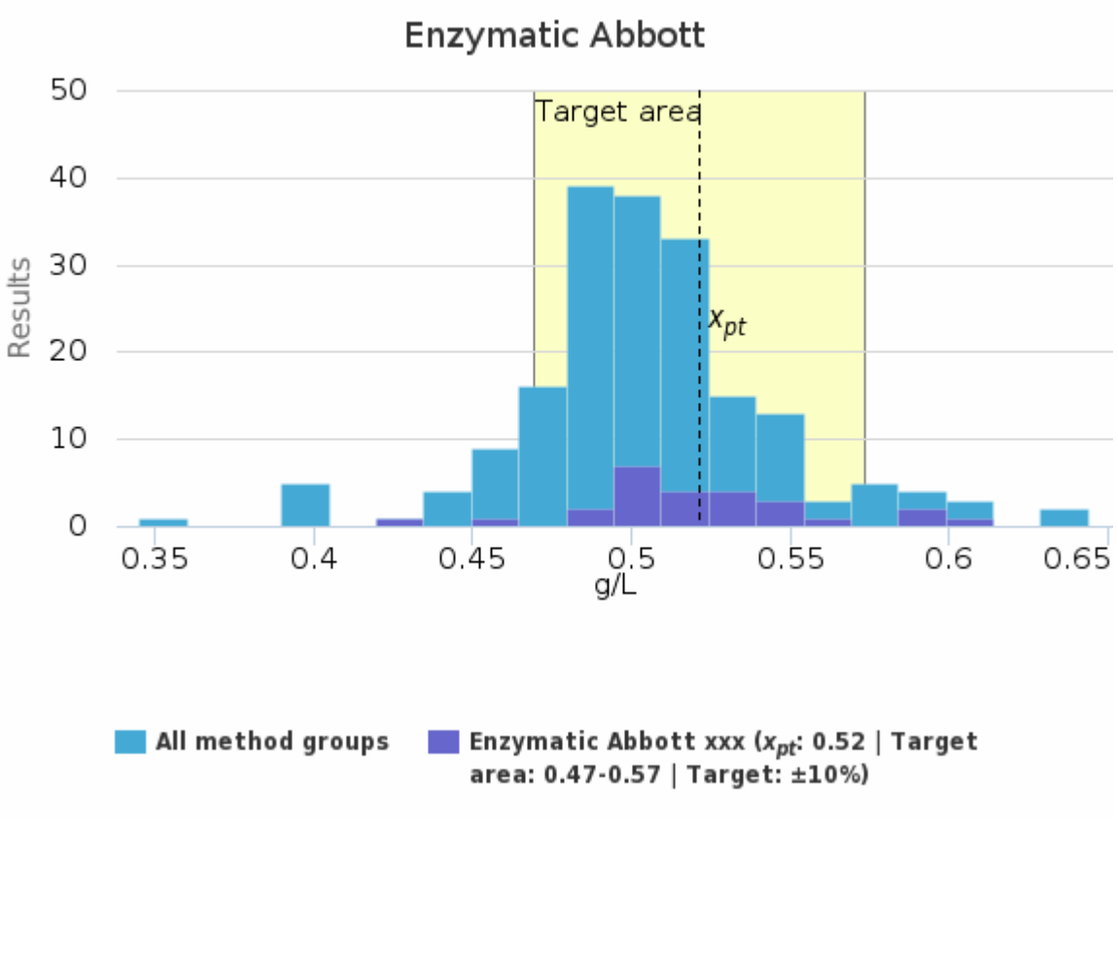
Sample S004 | S -Ethanol, g/L

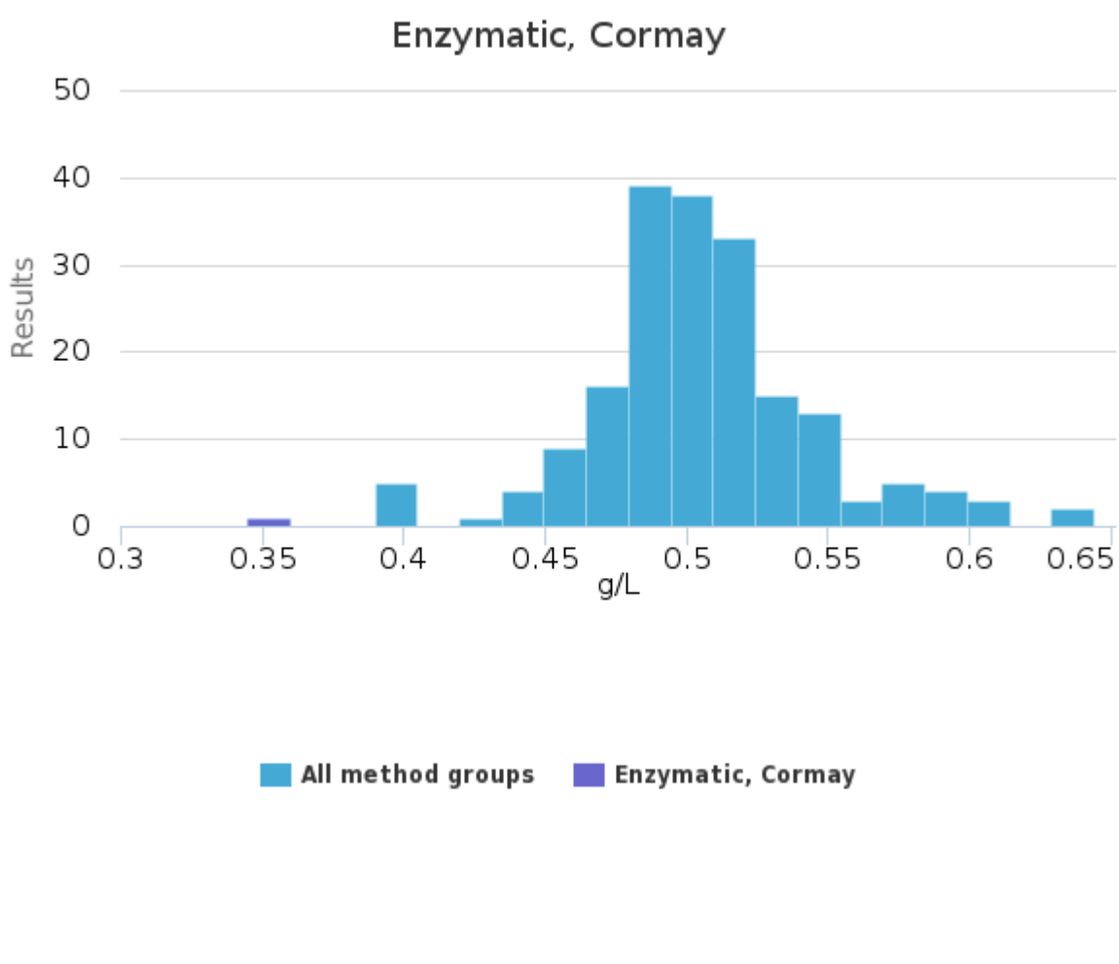
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Beckman Coulter enzymatic	0.52	0.51	0.04	8.2	0.01	0.48	0.63	-	12
Chromatography and mass spectrometry	0.50	0.49	0.04	8.7	0.01	0.44	0.58	-	12
Enzymatic Abbott	0.52	0.52	0.04	7.9	<0.01	0.42	0.60	-	26
Enzymatic, Cormay	-	-	-	-	-	0.35	0.35	-	1
Enzymatic Konelab	0.53	0.52	0.04	7.6	0.02	0.49	0.58	-	4
Enzymatic Roche	0.49	0.50	0.03	6.1	<0.01	0.40	0.59	1	106
Enzymatic Siemens	0.52	0.52	0.05	9.7	0.01	0.40	0.64	-	22
Siemens	0.51	0.50	0.04	8.5	0.02	0.48	0.60	-	6
Vitros	0.55	0.55	<0.01	1.3	<0.01	0.54	0.55	-	2
All	**0.50**	**0.50**	**0.04**	**7.4**	**<0.01**	**0.39**	**0.60**	**3**	**191**

Sample S004 | S -Ethanol, g/L| histogram summaries in LabScala

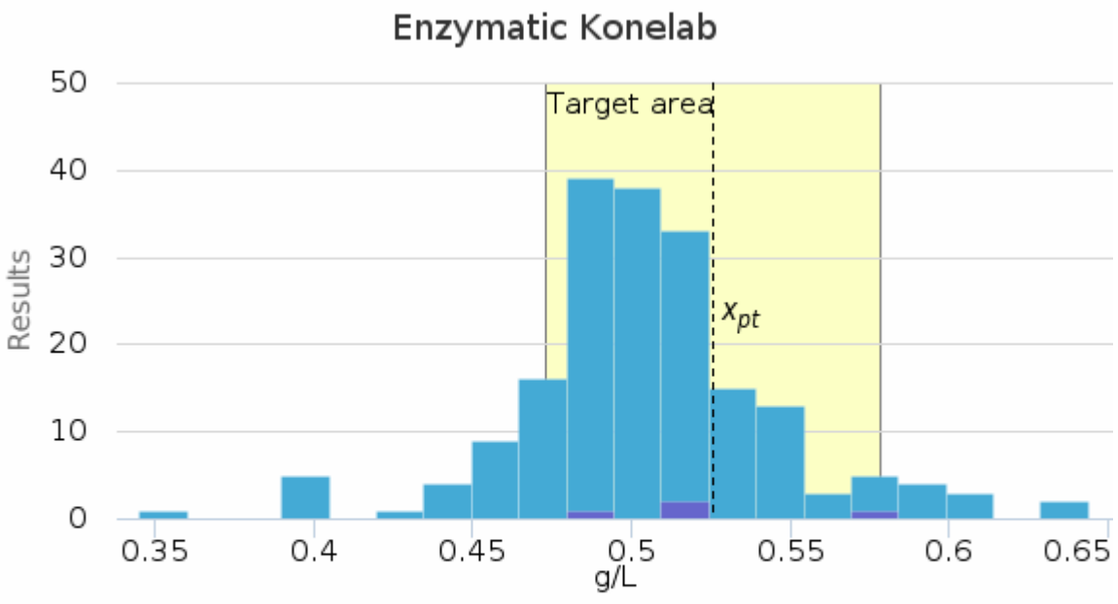


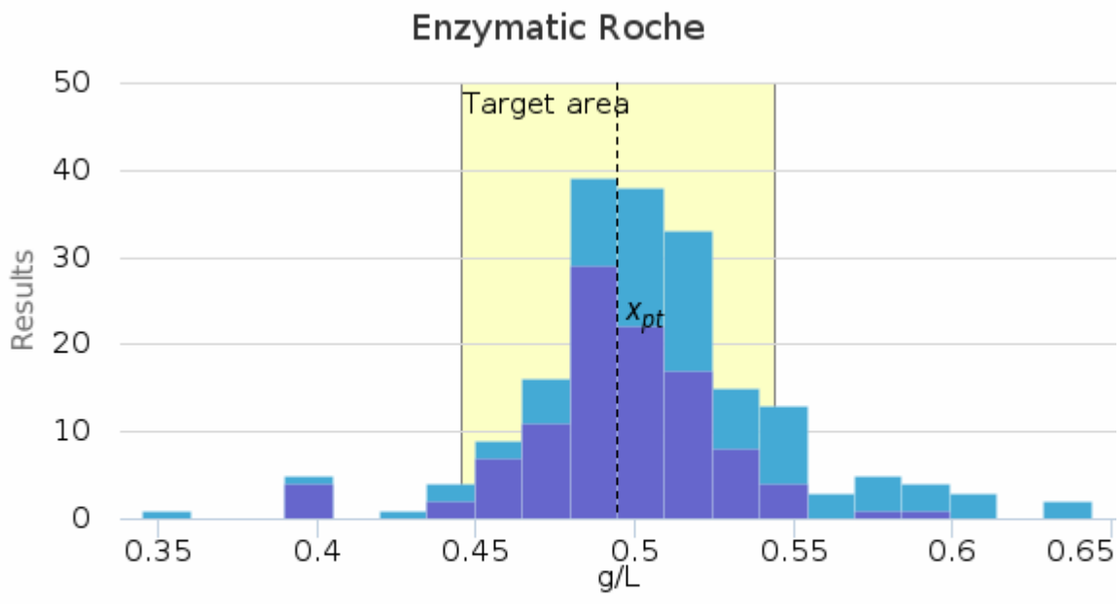


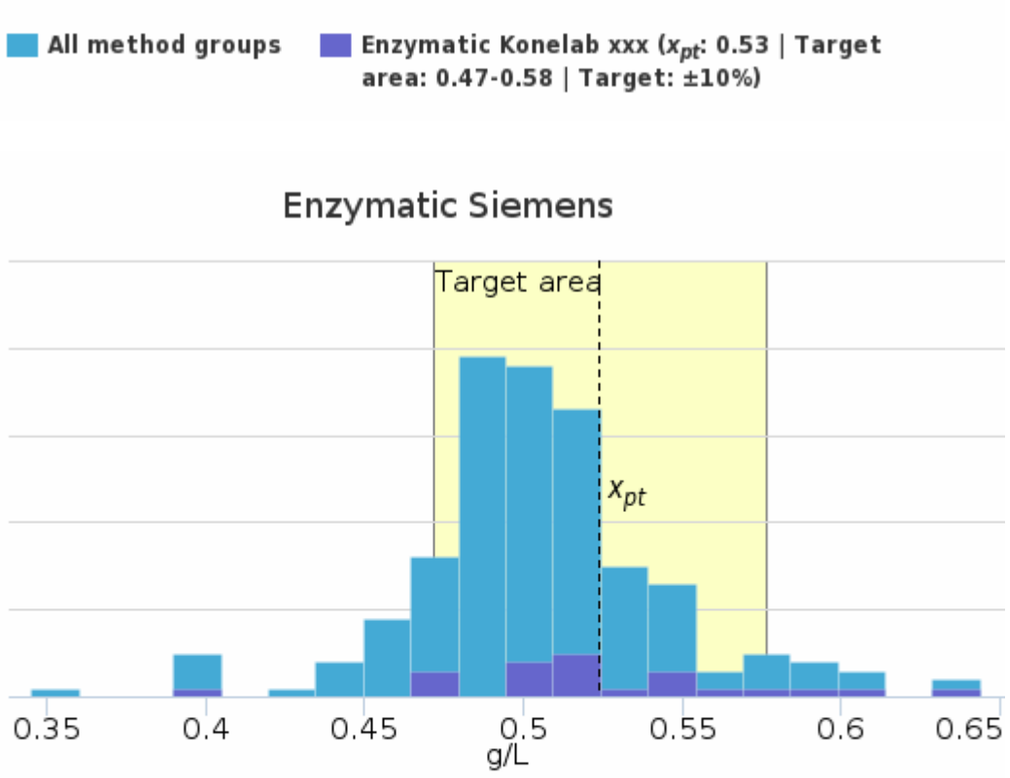


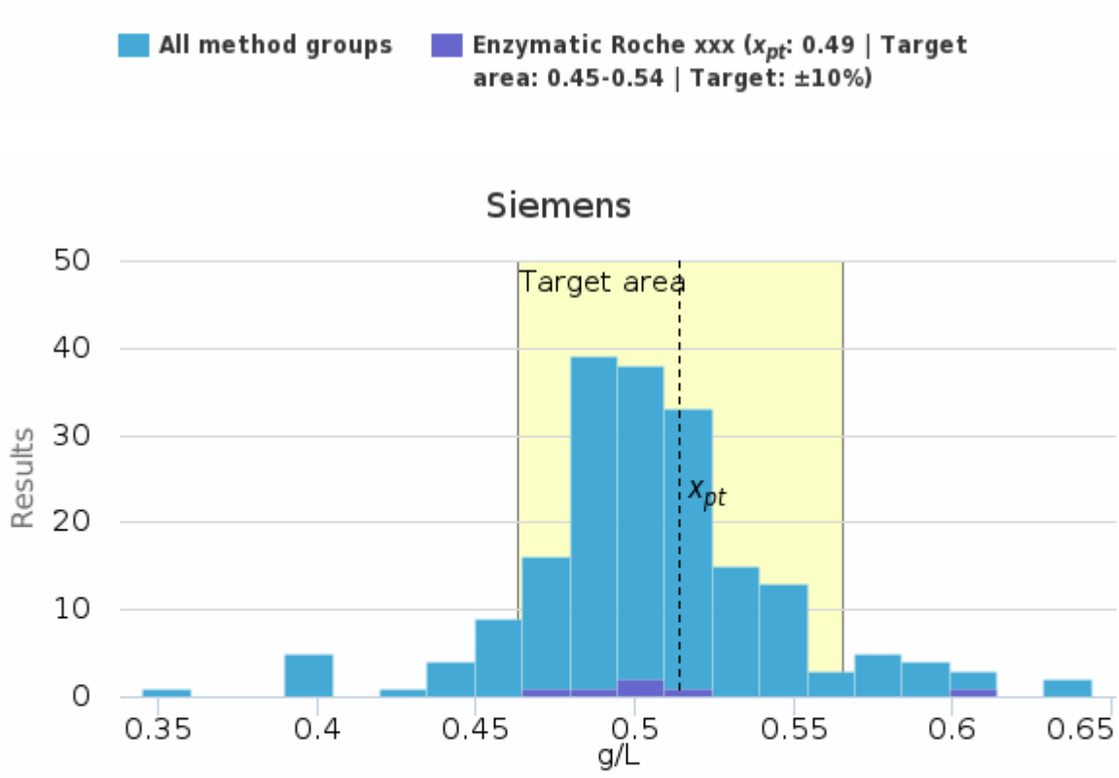


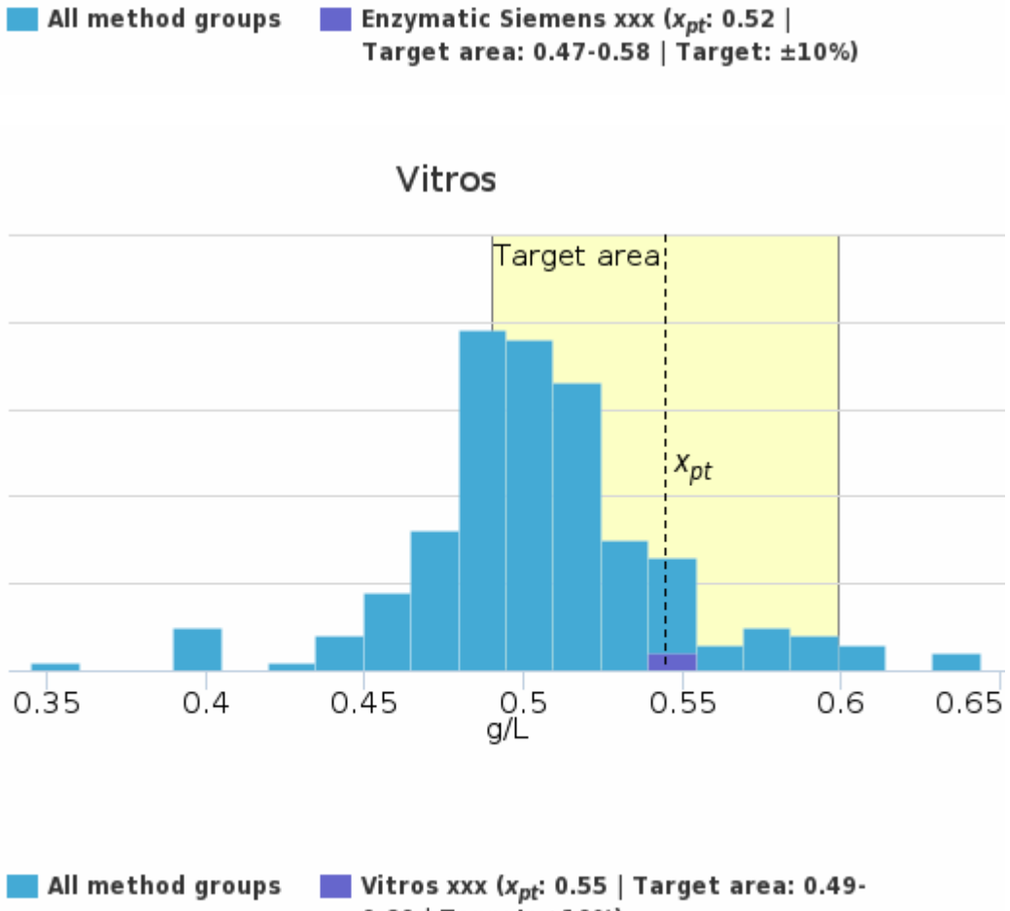
Alcohol determinations, March, 1-2023







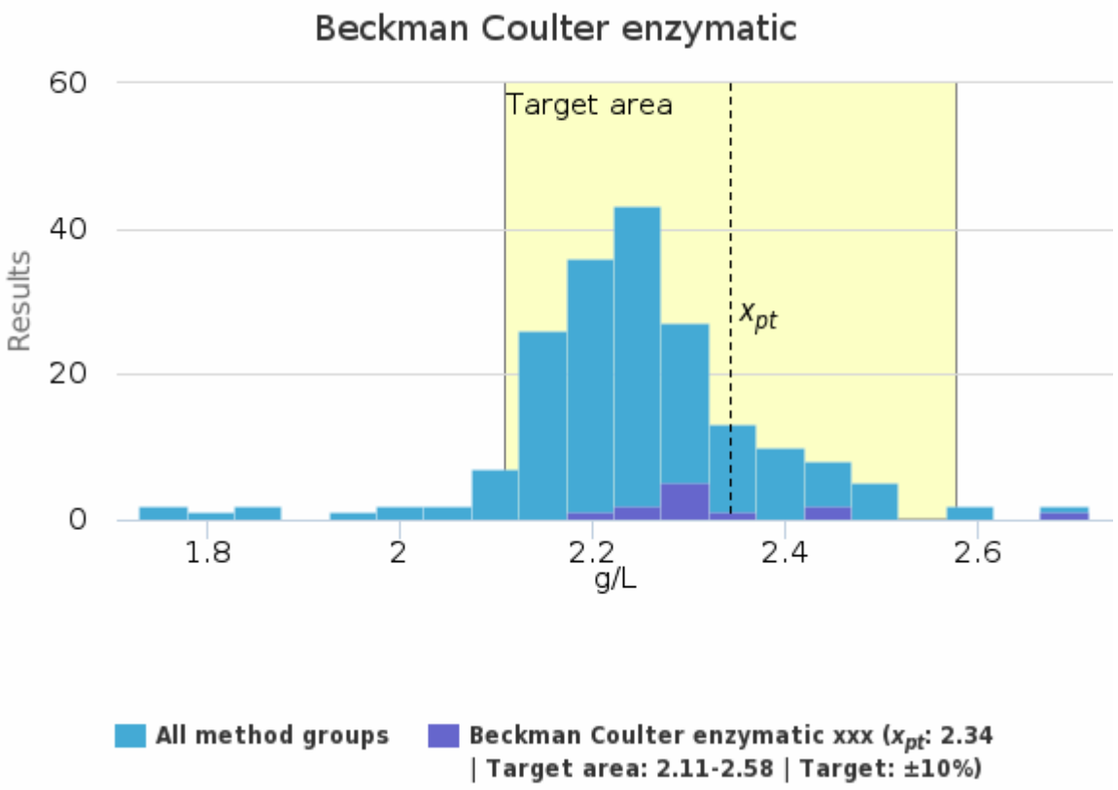


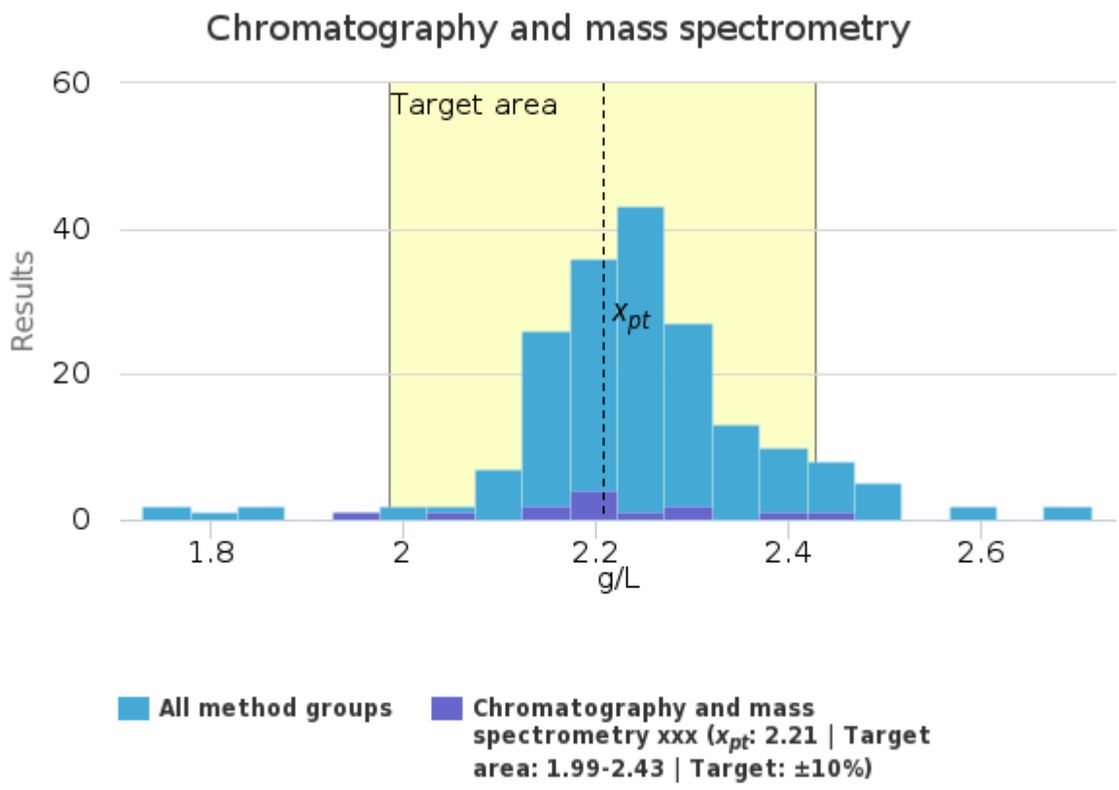


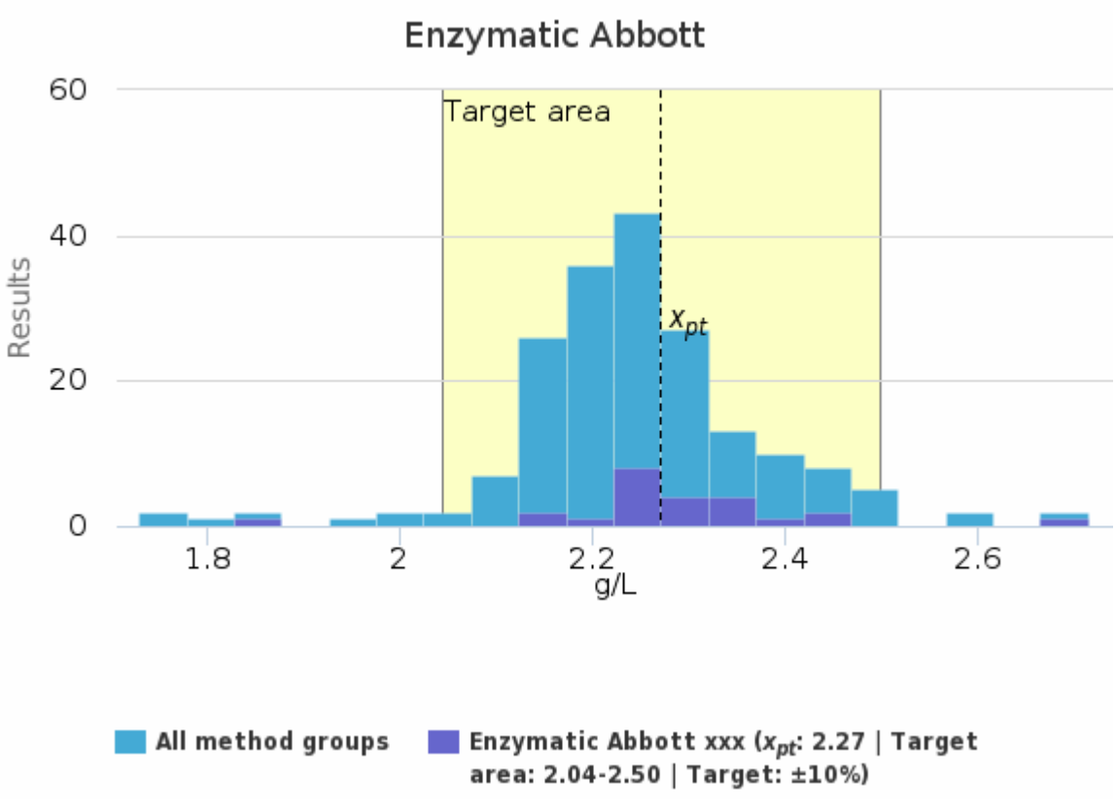
Sample S005 | S -Ethanol, g/L

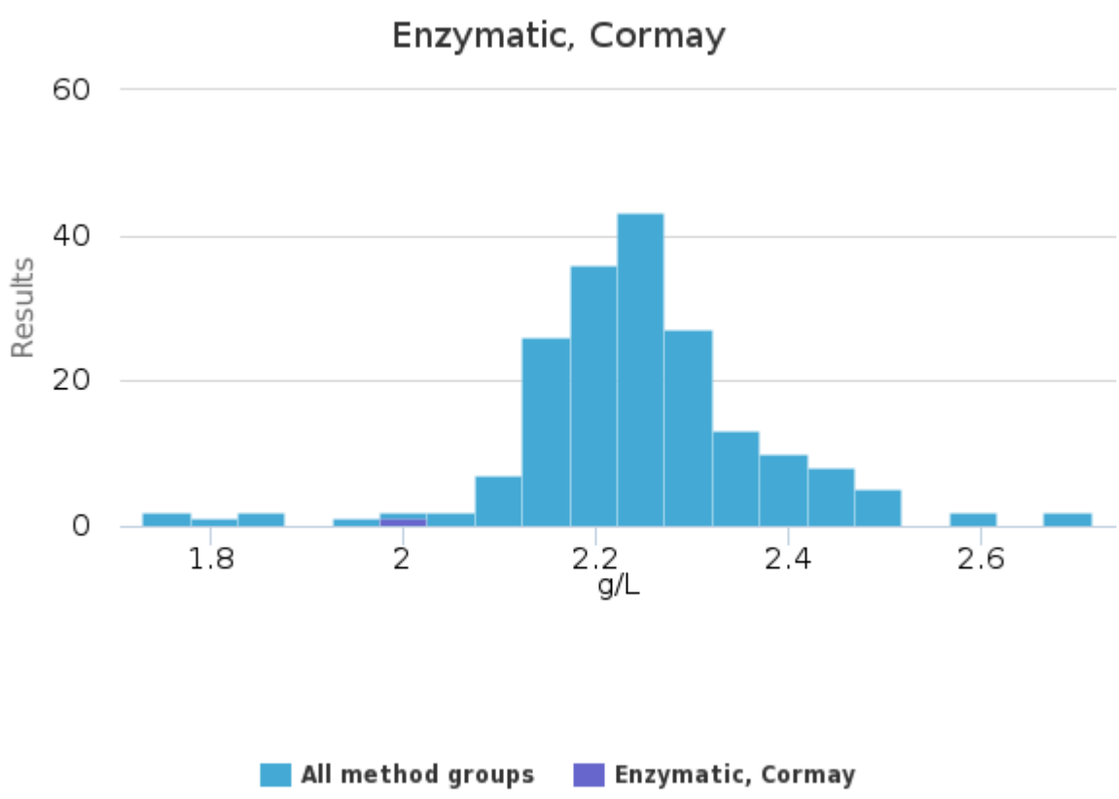
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Beckman Coulter enzymatic	2.34	2.31	0.13	5.5	0.04	2.19	2.69	-	12
Chromatography and mass spectrometry	2.21	2.20	0.13	5.9	0.04	1.97	2.43	-	13
Enzymatic Abbott	2.27	2.27	0.11	5.1	0.02	1.86	2.45	1	24
Enzymatic, Cormay	-	-	-	-	-	1.99	1.99	-	1
Enzymatic Konelab	2.29	2.28	0.06	2.8	0.03	2.23	2.38	-	4
Enzymatic Roche	2.22	2.22	0.07	3.3	<0.01	2.07	2.45	4	105
Enzymatic Siemens	2.35	2.35	0.12	5.3	0.03	2.00	2.58	-	22
Siemens	2.23	2.21	0.15	6.7	0.06	2.08	2.50	-	6
Vitros	2.53	2.53	0.07	2.8	0.05	2.48	2.58	-	2
All	**2.25**	**2.24**	**0.11**	**4.9**	**<0.01**	**1.86**	**2.58**	**5**	**189**

Sample S005 | S -Ethanol, g/L| histogram summaries in LabScala

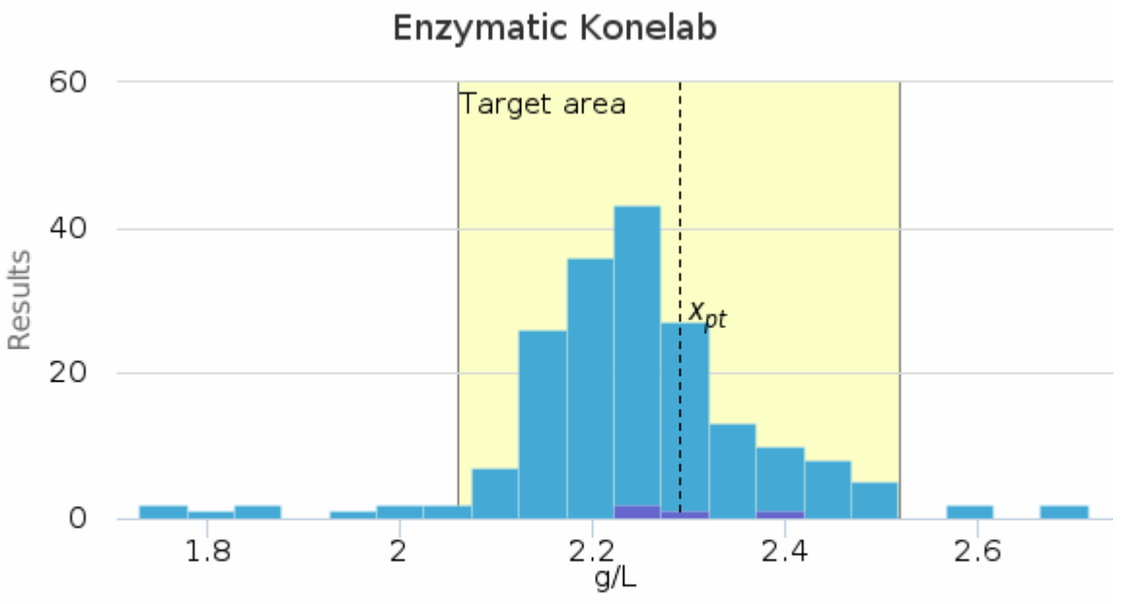


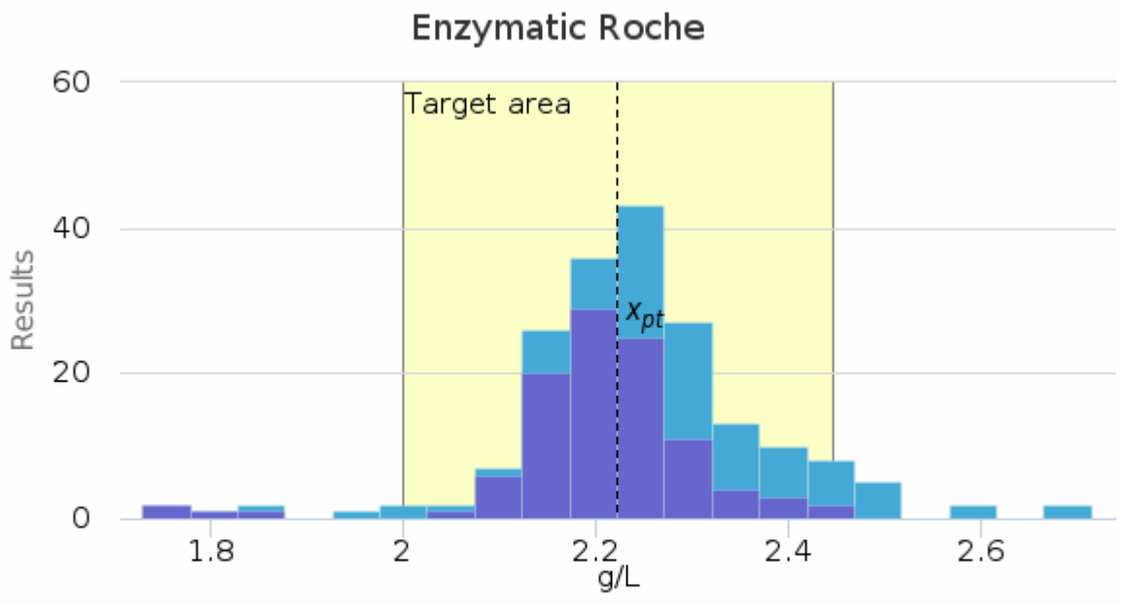




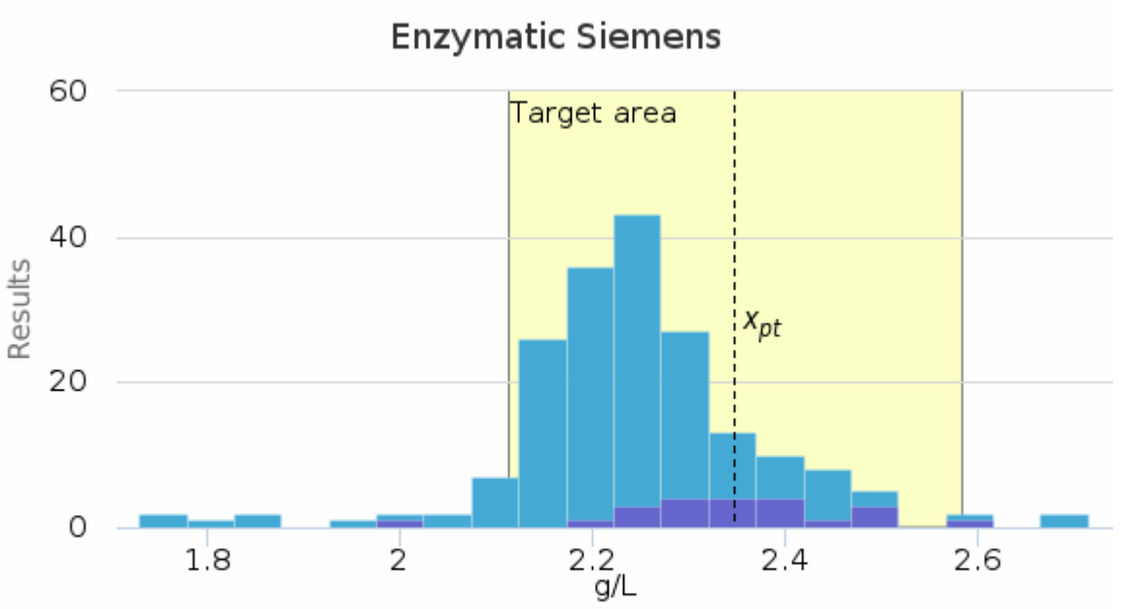


Alcohol determinations, March, 1-2023

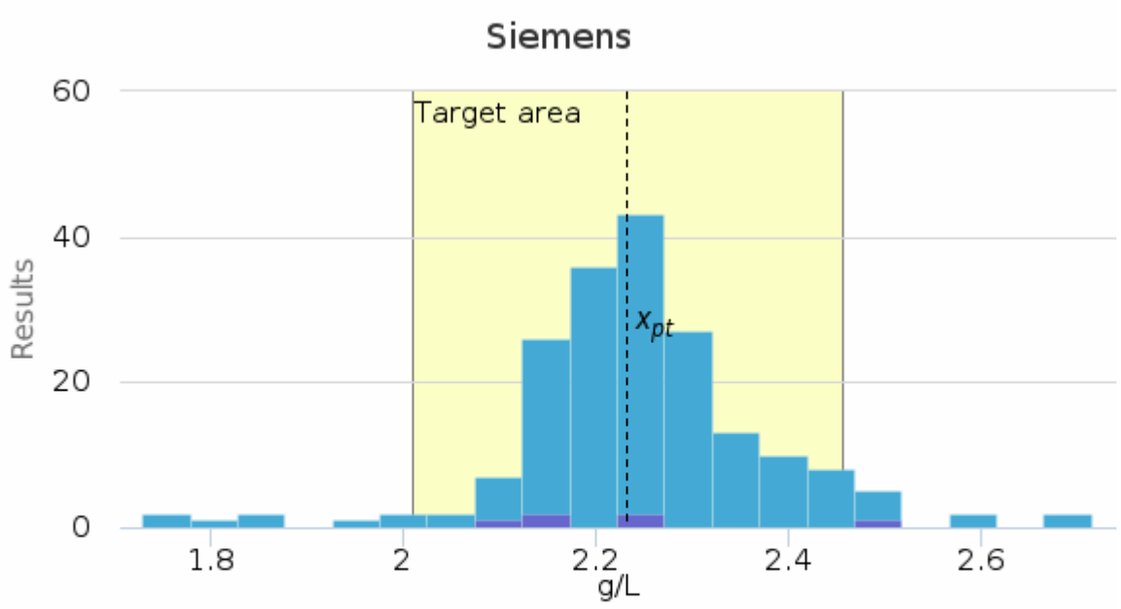




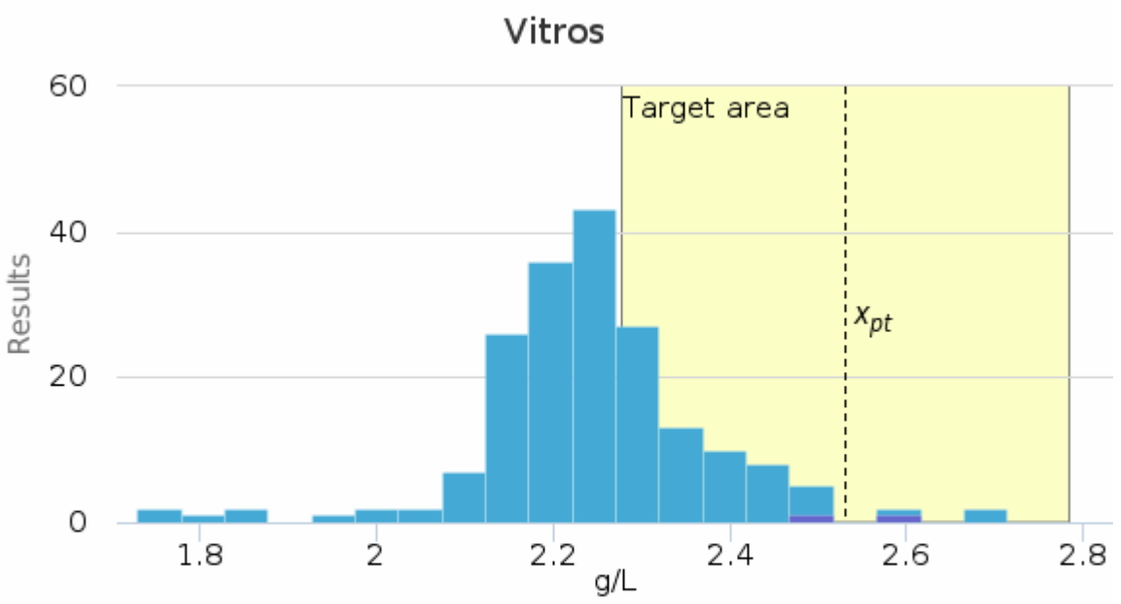
All method groups — Enzymatic Konelab xxx (x_{pt}: 2.29 | Target area: 2.06-2.52 | Target: ±10%)



All method groups — Enzymatic Roche xxx (x_{pt}: 2.22 | Target area: 2.00-2.44 | Target: ±10%)



All method groups — Enzymatic Siemens xxx (x_{pt}: 2.35 | Target area: 2.11-2.58 | Target: ±10%)



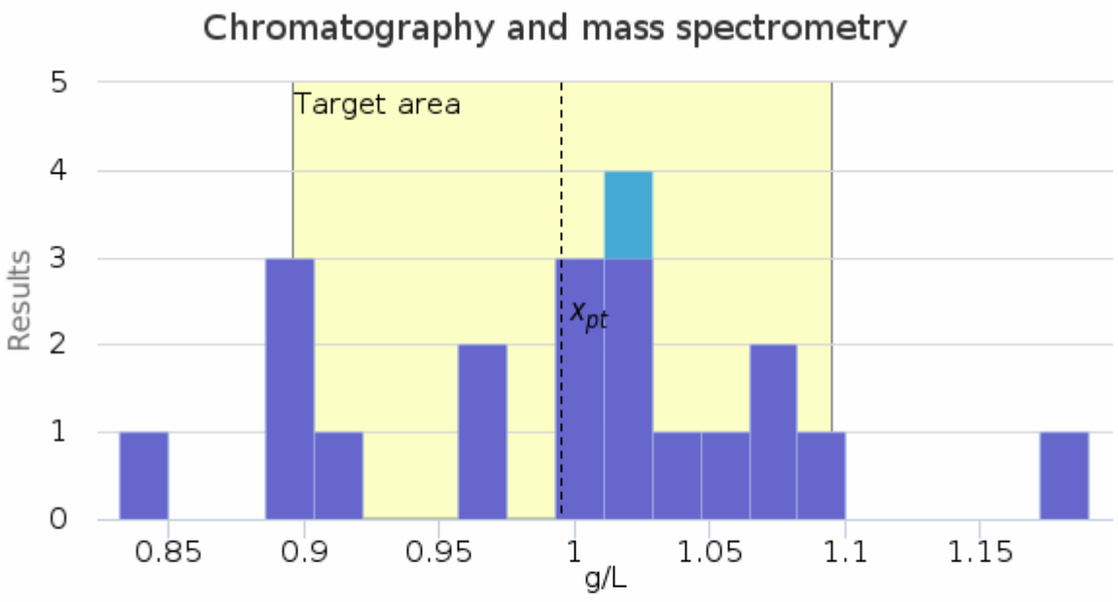
All method groups — Siemens xxx (x_{pt}: 2.23 | Target area: 2.01-2.46 | Target: ±10%)

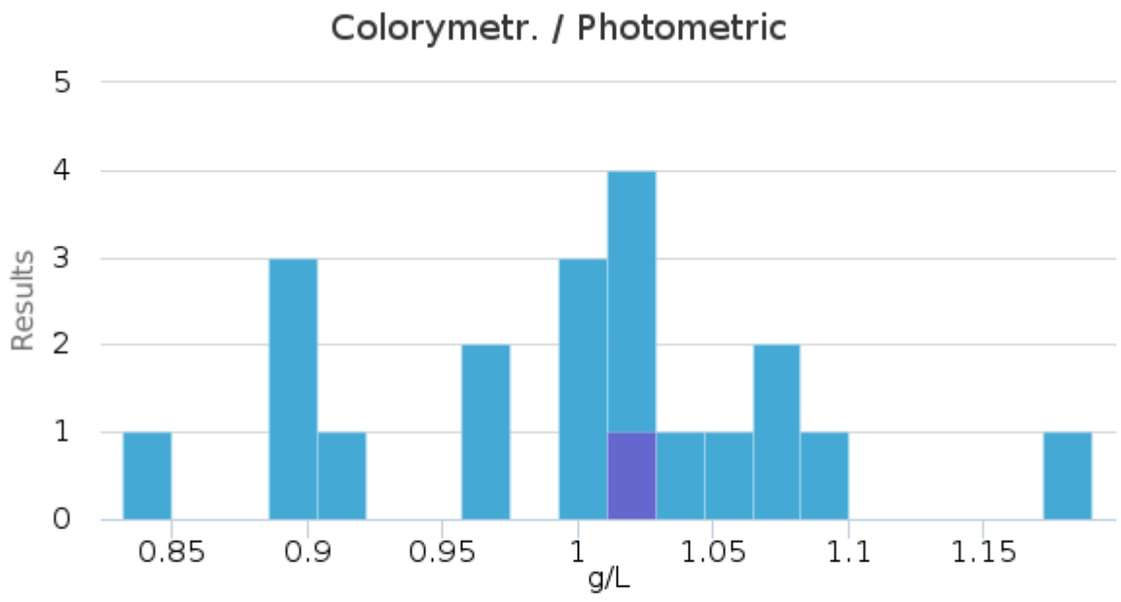
All method groups — Vitros xxx (x_{pt}: 2.53 | Target area: 2.28-2.78 | Target: ±10%)

Sample S005 | S -Methanol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	1.00	1.00	0.09	8.6	0.02	0.83	1.19	-	19
Colorymetr. / Photometric	-	-	-	-	-	1.02	1.02	-	1
All	**1.00**	**1.01**	**0.08**	**8.4**	**0.02**	**0.83**	**1.19**	**-**	**20**

Sample S005 | S -Methanol, g/L| histogram summaries in LabScala

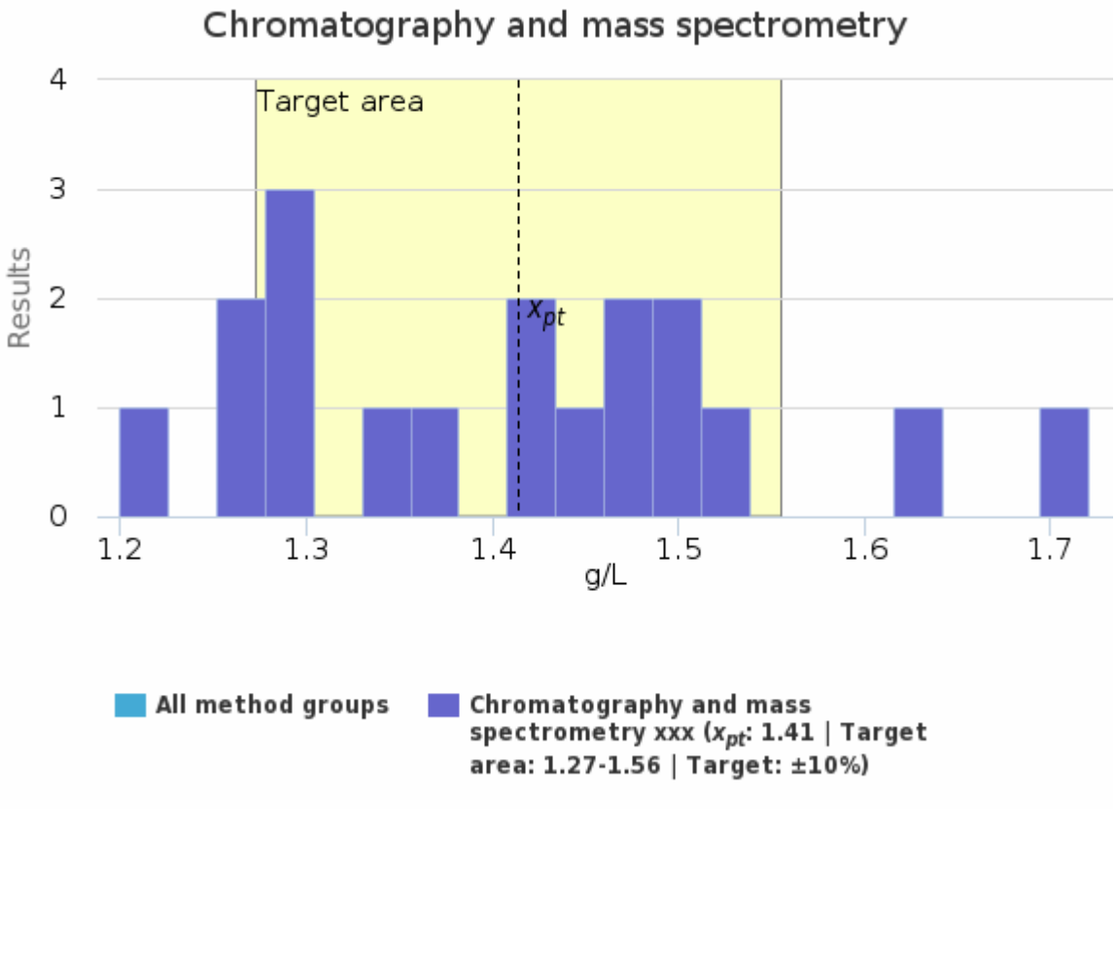




Sample S005 | S-Isopropanol, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	1.41	1.43	0.13	9.5	0.03	1.20	1.72	-	18
All	**1.41**	**1.43**	**0.13**	**9.5**	**0.03**	**1.20**	**1.72**	**-**	**18**

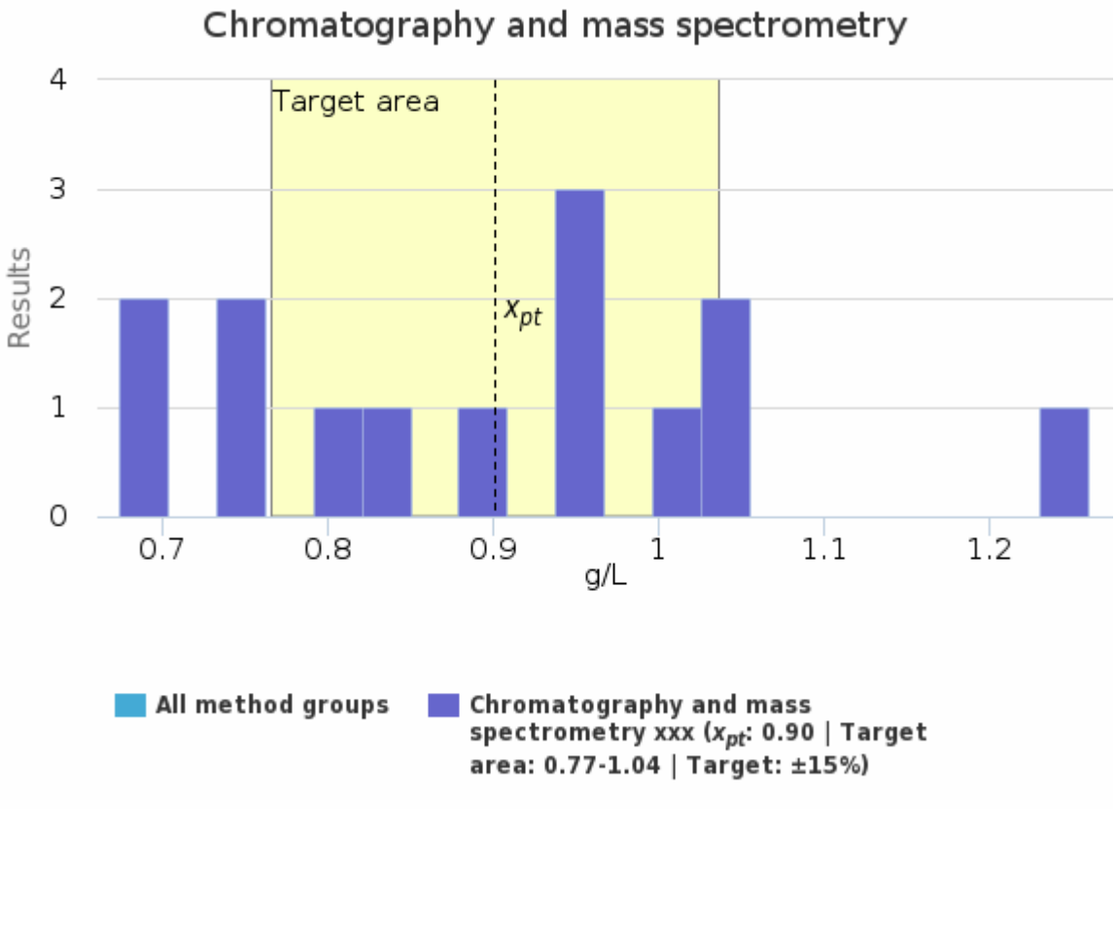
Sample S005 | S-Isopropanol, g/L| histogram summaries in LabScala



Sample S005 | S -Acetone, g/L

Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Chromatography and mass spectrometry	0.90	0.92	0.16	17.8	0.04	0.67	1.26	-	14
All	**0.90**	**0.92**	**0.16**	**17.8**	**0.04**	**0.67**	**1.26**	**-**	**14**

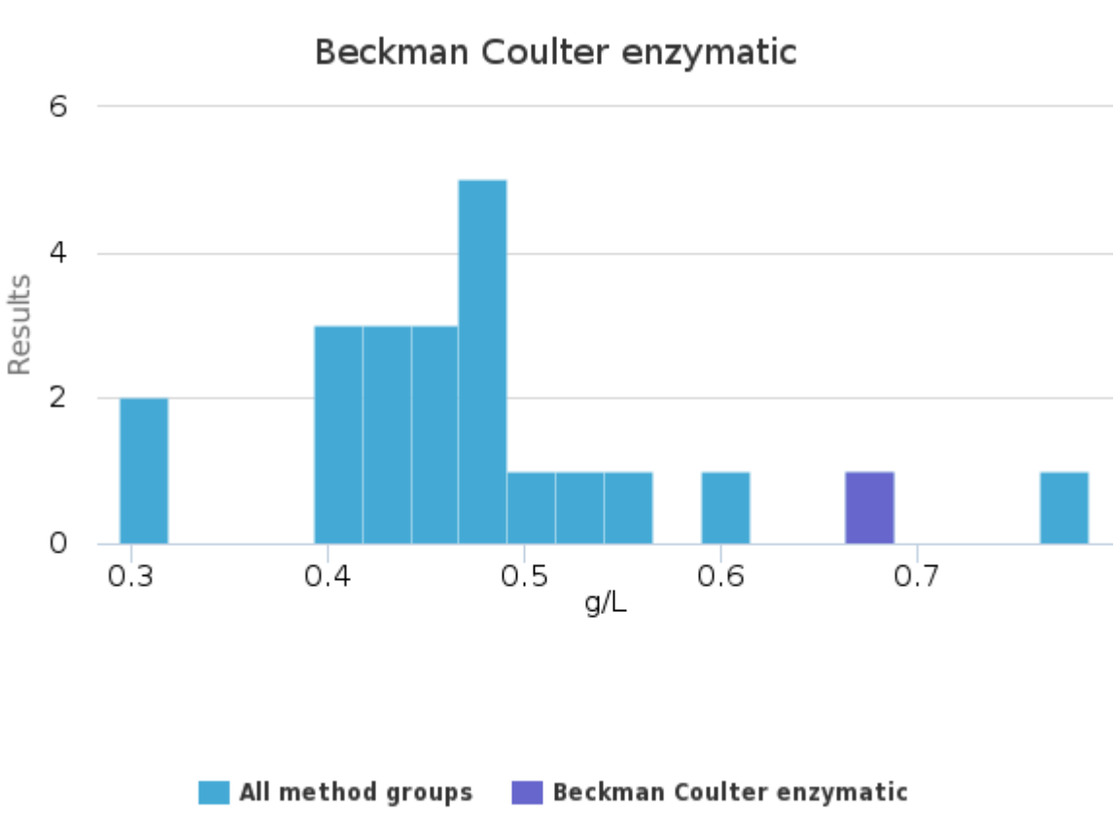
Sample S005 | S -Acetone, g/L| histogram summaries in LabScala

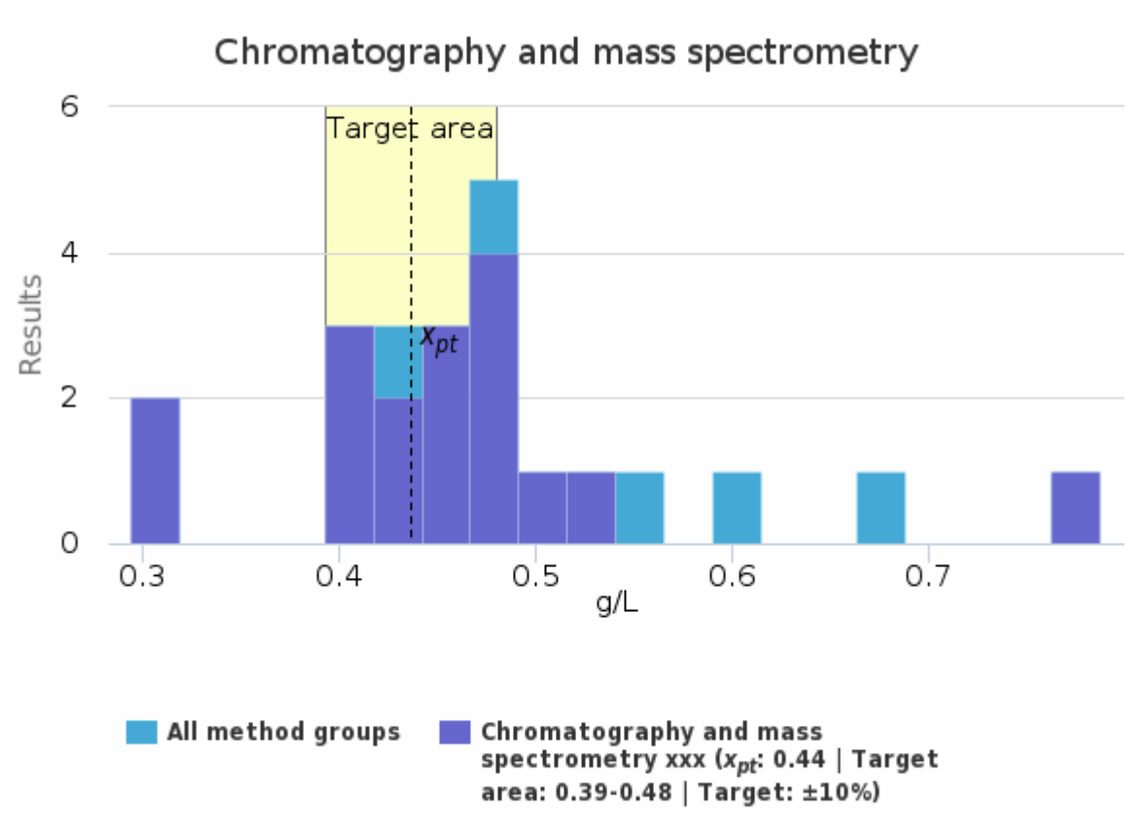


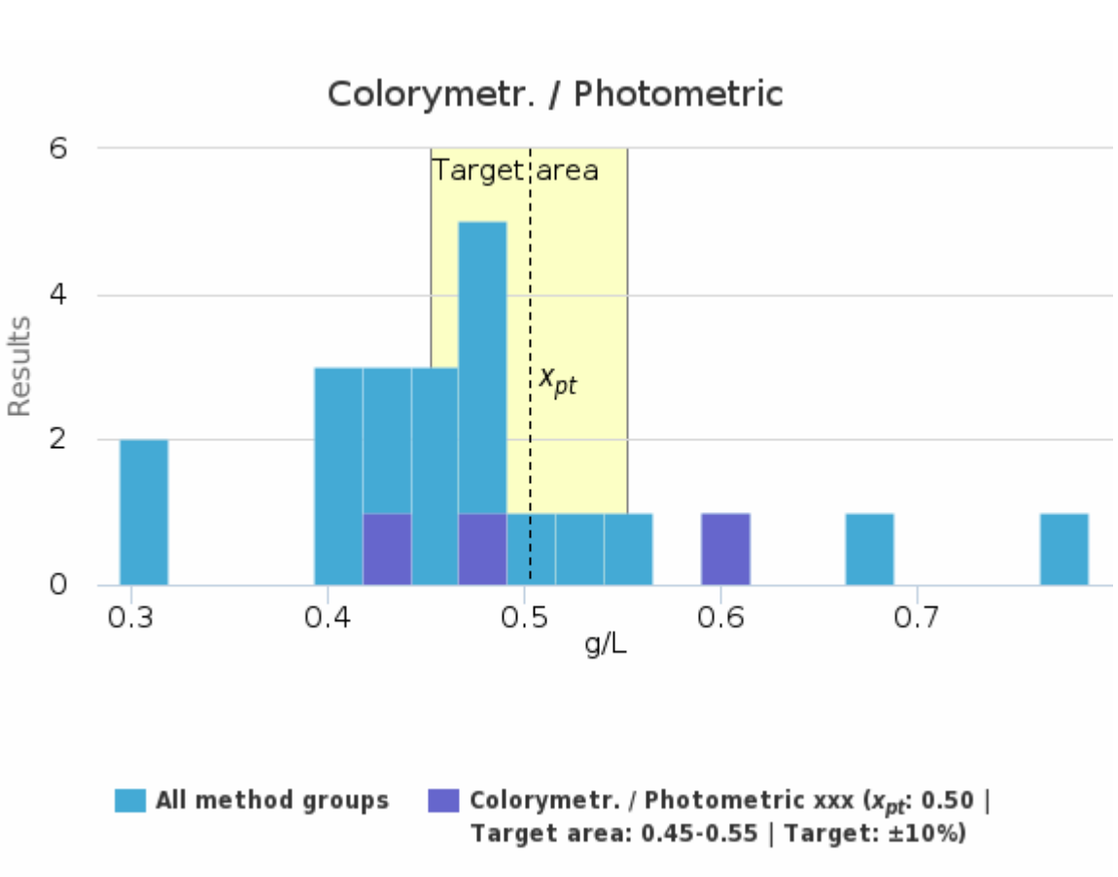
Sample S006 | S -Ethyleneglycol, g/L

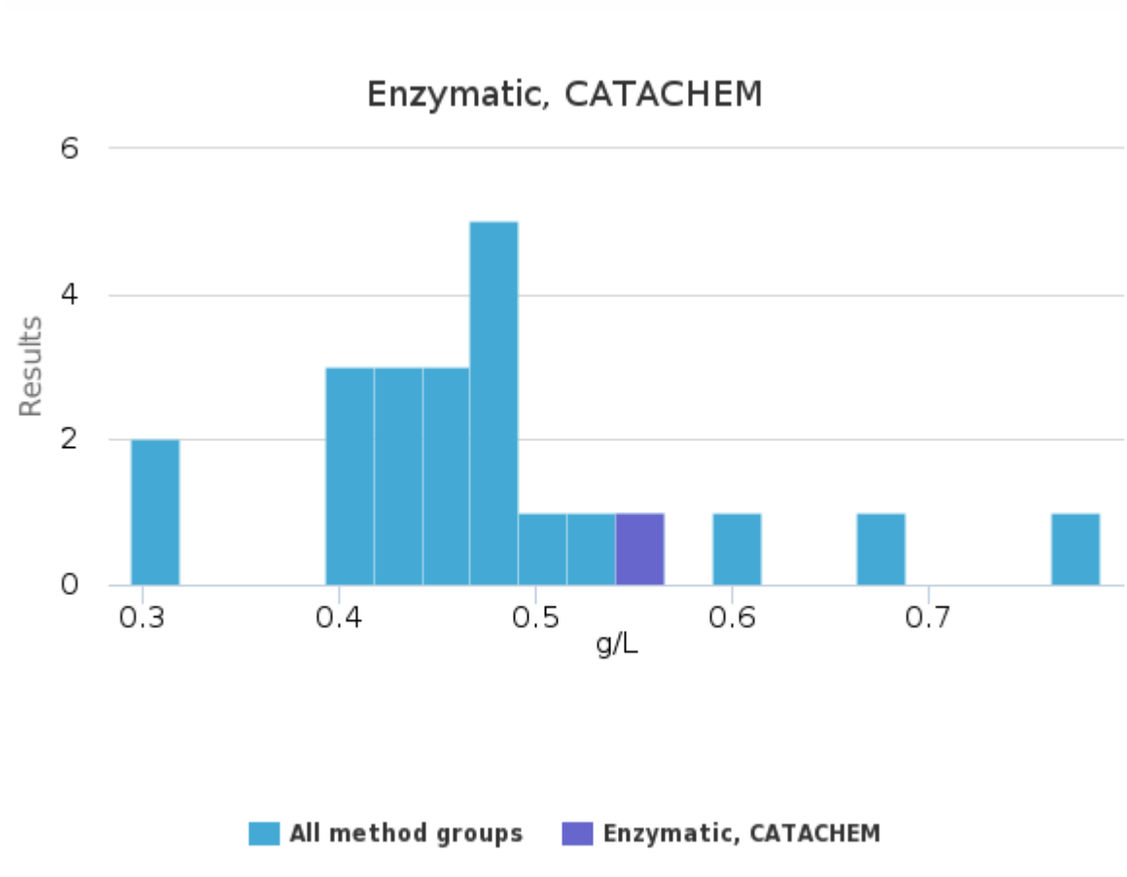
Methodics	x_{pt}	Median	sd	CV%	SEM	min	max	Outliers	n
Beckman Coulter enzymatic	-	-	-	-	-	0.68	0.68	-	1
Chromatography and mass spectrometry	0.44	0.45	0.06	14.5	0.02	0.29	0.53	1	17
Colorymetr. / Photometric	0.50	0.47	0.09	17.2	0.05	0.44	0.60	-	3
Enzymatic, CATACHEM	-	-	-	-	-	0.55	0.55	-	1
All	**0.46**	**0.45**	**0.09**	**18.4**	**0.02**	**0.29**	**0.68**	**1**	**22**

Sample S006 | S -Ethyleneglycol, g/L| histogram summaries in LabScala









Report info

Participants

193 participants from 19 countries.

Report info

Your own result should be compared to others using the same method.
Assigned values (x_{pt}, target values) are means of the results where results deviating more than +/- 3*standard deviation from the median are removed. The standard uncertainty (u) of the assigned value is reported as standard error of the mean (SEM). Additionally, if the measurement uncertainty of the target value is large an automatic text is printed on the report: “The uncertainty of the assigned value is not negligible, and evaluations could be affected.”
In case the client’s result is the only one in the method group, no assigned value will be calculated, no target area shown, and no statistics calculated. In case there are only a few results in the client’s own method group, the result can be compared to all method mean or to a group that is similar to the own method.
Results reported with < or > -signs cannot be included in the statistics.

For information on report interpretation and performance evaluation, please see the " EQAS Interpretation guidelines" LabScala User instructions (top right corner ?Help link).

LABQUALITY

External Quality Assessment Scheme

Alcohol in blood or serum
Round 1, 2023

Specimens
Samples were human based whole blood (LQ750623011-LQ750623013) or animal based serum preparations (LQ750623014- LQ750623016) according to your order. Specimen S001 and S004 contained ethanol. Samples S002 and S005 contained ethanol, methanol and isopropanol. Sample S005 contained also acetone. Samples S003 and S006 contained ethylene glycol. All samples contained 1% sodium fluoride and the whole blood sample contained also anticoagulant.

Based on the previous tests and the results of this round, the samples are homogeneous, stable and suitable for the external quality assessment scheme. The materials were sent without temperature control packaging.

Report info
Please see the description of the data analysis on the last page of the laboratory-specific histograms and Numerical Summary reports. It is important to read the Final report first, because it contains important information of the samples and results in each round.

Comments – Expert
Ethanol was added in the sample S001 and S004 0.5 g/L. Samples S002 and S005 contained ethanol 2.3 g/L, methanol 1 g/L and isopropanol 1.5 g/L. Sample S005 contained also 1 g/L acetone. Sample S003 and S006 contained ethylene glycol 0.5 g/L.

Blood sample S001:
Ethanol was determined by gas chromatography method. In the gas chromatography group, the ethanol content 0,51 g/L (med 0.48 g/L) was very close to the concentration 0.5 g/L that was added to the sample. The standard deviation was reasonably good (CV 13.5%).

Blood sample S002:
Ethanol was determined by gas chromatography. The ethanol content (2.3 g/L) was correctly detected (mean 2.22 g/L, med 2.19 g/L) and the standard deviation was 5.0%.

Methanol had been determined mainly by gas chromatography (N=17). The methanol concentration (1.0 g/L) was detected accurately (mean 1.0 g/L, med 0.97 g/L) and the standard deviation of the results was good (CV 9.5%).

Isopropanol had only been determined by gas chromatography (N=15). The moderate concentration (1.5 g/L) of isopropanol was determined well (mean 1.43 g/L, med 1.40 g/L) with a good standard deviation (CV 4.7%). One outlier result was removed.

Blood sample S003:
Ethylene glycol was determined by gas chromatography only. The reported concentration of ethylene glycol (0.46 g/L) was close to the added amount of ethylene glycol (0.5 g/L) in the sample. There was only one participant in this round.

Serum sample S004:
Ethanol was determined mainly by enzymatic methods but also by gas chromatography. Reported results were close to the low concentration of ethanol (0.5 g/L) added to the sample. The results of the enzymatic Roche-

2023-04-05

FINAL REPORT

Product no. 2510, 2511, 2516, 2517

Subcontracting: Sample preparation, Sample pretesting

Samples sent	2023-03-06
Round closed	2023-03-27
Final report	2023-04-05

Request for correction
Typing errors in laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for result processing. Requests must be notified by writing within three weeks from the date of this letter.

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Finnish Accreditation Service
PT02 (EN ISO/IEC 17043)

Analysis of S-acetone is not accredited

Quality Management ISO 9001:2015

group (N=106) were lower (0.49 g/L) while the results of the Vitros-group (N=2) were rather higher (0.55 g/L) compared to those in other groups. The standard deviation of the results was ok (CV 7.4%).

Serum sample S005:
Ethanol was determined mainly by enzymatic methods but also by gas chromatography. The ethanol concentration (2.3 g/L) was detected well (mean 2.25 g/L). Reported results of the Vitros-group (N=2) were highest (mean 2.53 g/L) while the chromatographic group (N=13) reported the lowest results (mean 2,21 g/l). In all groups the standard deviation was good (CV ≤6.7%).

Methanol had been determined only by gas chromatography (N=19). The added concentration (1.0 g/L) was detected well, and the standard deviation was also good (CV 8.4%).

Isopropanol was determined only by gas chromatography. The moderate concentration (1,5 g/L) was detected quite accurately (mean 1.41 g/L, med 1.43 g/L) and the standard deviation of the results was OK (CV 9.5%).

Acetone was determined by gas chromatography (N=14). The concentration of acetone (mean 0.90 g/L) reported by this group was quite close to the actual added amount of acetone (1.0 g/L) in the sample, but the standard deviation was rather high (CV 17.8%).

Serum sample S006:
Ethylene glycol was determined by three different methods, mainly by gas chromatography. The reported results of the gas chromatography group (mean 0.46 g/L, med 0.45 g/L) were slightly lower than the concentration of ethylene glycol (0.5 g/L) added to the sample, and the standard deviation was slightly higher (CV 18.4%).

End of report