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This report contains:
• Covering letter
• Summary report
• Individual results

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HIL-index and interference, program no. 4131 EQA report no. 1 2023

The quality assurance program HIL-index and interference examines both preanalytical, analytical and postanalytical conditions.
Preanalytical conditions: determination of haemolysis (H), icterus (I) og lipemia (L) called the HIL-index in the distributed samples. Is the determination of the HIL-index comparable among the groups of instruments?
Analytical: comparison of the analysis results of 7 components between a 'normal' sample without the interference (Sample A) and a hemolyzed sample (Sample B). In this distribution the interference caused by hemolysis is examined.
Postanalytical: sharing of the comments accompanying a result to the relevant department, had this been a patient sample with inference outside of the allowable level.

The number of participants

Results from 112 sample sets have been reported in this round.

Control material

The two samples A and B are from similar serum pools except sample B is added hemolyzed, washed erythrocytes and sample A is added the same amount of 0,9% NaCl solution.

Statistics

Target values and tolerance intervals

The target values in the graphics for the 'normal' components, I-index and L-index are the mean value of all the participants' analysis results for Sample A and this is indicated with M. Sample B's target value is the same as for Sample A and is indicated with R; any deviation from R is a measure of interference, if the deviation is larger than what is observed for Sample A.
For the H-index, both the target values for Sample A and Sample B are marked with R, and it is calculated as mean of means for all manufactures with more than 3 participants.
The background for the tolerance intervals and a guide to reading the report is found at deks.dk:
https://deks.dk/en/products/information-about-the-danish-products/hil-index-3121-dk/

Outliers

Outliers are defined as results lying further from the average of all the results than 3.2 SD (standard deviation). This time, 24 outliers are found; Bilirubine: 1, LDH: 7, Phosphate: 4.
For the hemolytic index, 8 outliers are found, and at the icteric index, 4 outliers are found.

Overview of manufacturer and method groups

Manufacturer and method group results for all 'normal' components, the H-index, the I-index and the L-index are found at the pages "summary report" prior to the individual results in the report.

Results and comments

Preanalytical

Graphics

In this round there are graphics for the lipemic index, and for the haemolytic and icteric indexes. These can be seen in the graphic for your individual results.

Unit conversions

Note: Results which are not entered in the unit g/L are recalculated to g/L to enable the comparison.

If unit conversion is performed, it will be noted below the histogram as either:

"Own result: 19 mg/dL = 0,19 g/L"
Stating that DEKS has made a recalculation from mg/dL to g/L,

or as:
*"Own result: 24 [*mg/dL] = 0,24 g/L"*
Meaning that DEKS has assumed that your entered unit is false, and it has been substituted with mg/dL followed by a recalculation to g/L.

For results given as an index value, the middle of the interval is chosen.

Important: if you agree in the substitution, please change your method information (metodeoplysninger) in DEKSonline, so it will be correct next time. If you do not agree, please contact DEKS and let us know.

Hemolytic index

For the hemolytic index the graphical part shows a refence value, which is the "Reference target" seen in summary report for method groups. This applies for both Sample A and Sample B.

Table 1a. *The hemolytic index for each method group of sample B. Difference% is the difference from the 'reference target'.*

Method group	Result g/L	Difference %	number, n	Outlier
Reference target	1,345			
Advia Chemistry	1,4	4,1	1	0
Alinity	1,327	-1,3	26	0
Architect	1,363	1,3	6	0
Atellica	1,379	2,5	15	2
Au series	2	49	1	0
Cobas c-module	1,325	-1,5	57	2
Dimension Vista			0	2
Vitros	1,35	0,4	1	0

The 'difference %' is calculated from the "Reference target". "Reference target" = 'mean of means of all manufactory groups, larger than 3 participants'. Results for the method groups can be found in summary report prior to the individual graphical part. For sample B the most important results are shown in table 1a.

The tolerance interval for the hemolytic index is 5% and 6 method groups met this criteria this round: Advia Chemiststry, Alinity, Architect, Atellica, Cobas c-module and Vitros. AU series is above the acceptance limit but with only 1 participant in the group.

Icteric index

For both Abbott Alinity and Abbott Architect, there is, as previously found, negative interference on the icteric index due to the hemolytic interference. In this round your own data is shown in the graphic. Recalculation of results have been made, so everyone has the same unit.

__Table 1b__. The icteric index for each method group of sample A and Sample B. Difference in % is the difference between Sample A and B. The number n is for results reported for sample B. Pink numbers indicates a difference higher than 12%, the suggested tolerance limit.

I-index				
	Sample A	Sample B	Difference %	Number, n based on Sample B
All	15,05	13,39	-11,0	110
Advia Chemistry	0	0	0	1
Alinity	17,35	10,1	-41,8	24
Andre	17,1	17,1	0,0	1
Architect	19	9,85	-48,2	4
Atellica	10,92	11,38	4,2	17
AU series	32,5	32,5	0,0	1
Cobas c-modul	14,57	14,91	2,3	59
Dimension Vista	17,1	17,1	0,0	2
Vitros	34,2	34,2	0	1

Lipemic index

For the lipemic index almost all manufactures have interference from the hemolysis on the lipemic index. In this round your own data is shown in the graphic. Recalculation of results have been made, so everyone has the same unit.

Analytical

Components with interference

In this round interference is found in 3 out of 7 components. The components are bilirubin (conjugated), lactate dehydrogenase (LDH) and phosphate where interference is seen with hemoglobin, see table 2. We recommend the participants in the relevant method groups to follow up on individual results in concern to internal procedure.

__Table 1c__. The lipemic index for each method group of sample A and Sample B. Difference in % is the difference between Sample A and B. The number n is for results reported for sample B. Pink numbers indicates a difference higher than 15%, the suggested tolerance limit.

L-index				
	Sample A	Sample B	Difference %	Number, n based on Sample B
All	0,1809	0,27	49,3	112
Advia Chemistry	0	0	0	1
Alinity	0,1342	0,285	112,4	26
Others	0,24	0,29	20,8	1
Architect	0,125	0,28	124	4
Atellica	0,0703	0,111	57,9	17
AU series	0,37	0,49	32,4	0
Cobas c-modul	0,233	0,311	33,5	59
Dimension Vista	0,25	0,25	0	2
Vitros	0,2	0,2	0	1

Bilirubin(conjugated)

This time added to the scheme as additional component. Shows negative interference with hemoglobin at all 6 method groups which is exceeding the used acceptance limit on 10%. In relation to the last year, where the hemolytic interference was lower (0,418 g/L) a higher negative interference is seen in this round. Also the interference is present among all instruments (not regarding the single result from the AU series)

Lactatedehydrogenase (LDH, LD)

As it is known that the content of LHD is high in erythrocytes, interference is expected, although the level of interference is unknown and therefore LDH is included in the scheme.

The degree of interference is similar to the interference seen in 2019, when the hemolytic concentration was exactly the same (1,35 g/L).

Phosphate

Most groups except Atellica are just above the tolerance limit. No interference was seen in 2017, when the H-index was 0,7 g/L (lower). In 2019, where the

interference was the same as in the present round, no interference was seen at Alinity and Advia Chemestry, but otherwise the same method groups were affected and in a similar degree.

Components without interference

Estimated by the average of the method groups, there was no interference for cholesterol, creatinine, ferritin, potassium in regards to the tolerance limits. The results from all components can be found in ”summary report” which can be found before the laboratory specific graphics in this report.

Table 2. *Components with or without interference. Difference in % is the difference between sample A and B. The number n is for results reported for sample B. Red figures indicates that the tolerance limits have been exceeded:*

Bilirubin(conjugated)

	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	3,14	2,29	-27,1	31	10
Advia Chemistry	4	3	-25	1	
Alinity	3,31	2,46	-25,7	9	
Architect	4,1	2,45	-40,2	2	
Atellica	3,71	2,77	-25,3	4	
AU series	1,69	6,27	271	1	
Cobas c-modul	2,76	1,677	-39,2	14	

Cholesterol

	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	4,42	4,49	1,6	105	5
Advia Chemistry	4,4	4,4	0	1	
Alinity	4,49	4,51	0,4	26	
Architect	4,45	4,51	1,3	5	
Atellica	4,37	4,44	1,6	16	
AU series	4,45	4,64	4,3	1	
Cobas c-modul	4,4	4,48	1,8	54	
Dimension Vista	4,55	4,5	-1,1	1	
Vitros	4,5	4,5	0	1	

Creatininium

	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	78,8	78,2	-0,8	110	8
Abbott	76,9	74,9	-2,6	26	
Advia chemistry	76	77	1,3	1	
Architect	76,5	75,4	-1,4	6	
Atellica	77,2	77,6	0,5	17	
Beckman Coulter AU	76	75	-1,3	1	
Cobas c-modul	81	80	-1,2	51	
Cobas c-modul, Jaffe	77,6	82,8	6,7	5	
Dimension Vista	75,1	80	6,5	2	
Vitros	77	72	-6,5	1	

Ferritin

	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	69	69,9	1,3	95	15
Alinity	65,4	66	0,9	22	
Architect	63	65,6	4,1	4	
Atellica	44	45,2	2,7	13	
AU series	71	71	0	1	
Cobas c-modul	81,5	83,5	2,5	9	
Cobas e-modul	76,7	77,6	1,2	43	
Dimension Vista	74	77	4,1	1	
TOSOH AIA	44,2	42,1	-4,8	1	
Vitros	62	66	6,5	1	

P- Potasium-ion					
	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	8,17	8,55	4,7	106	5,6
Advia Chemistry XPT	8,3	8,5	2,4	1	
Alinity	8,16	8,54	4,7	25	
Architect	8,07	8,49	5,2	6	
Atellica	8,14	8,51	4,5	17	
Beckman Coulter AU	7,89	8,33	5,6	1	
Cobas c-modul	8,19	8,6	5,0	33	
Cobas ISE-modul	8,2	8,54	4,1	20	
Dimension Vista	8,5	8,55	0,6	2	
Vitros	8	8,4	5	1	

Lactatdehydrogenase(LD, LDH)					
	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	194,7	335	72,1	94	11,4
Advia Chemistry XPT	199	330	65,8	1	
Alinity	197,9	338	70,8	23	
Architect	199,6	339	69,8	6	
Atellica	191,8	329	71,5	16	
AU series	185	330	78,3	1	
Cobac c-modul	193,9	336	73,3	45	
Dimension Vista	181	336	85,6	1	
Vitros 5,1 FS	191	299	56,5	1	

Phosphate					
	Sample A	Sample B	Difference %	Number, n based on Sample B	Tolerance limit %
All	1,19	1,266	6,4	99	6
Advia Chemistry	1,18	1,27	7,6	1	
Alinity	1,181	1,257	6,4	23	
Architect	1,182	1,262	6,8	5	
Atellica	1,231	1,283	4,2	15	
AU series	1,2	1,3	8,3	1	
Cobas c-modul	1,183	1,264	6,8	53	
Dimension Vista	0	-		0	
Vitros	1,23	1,32	7,3	1	

Postanalytical

For mutual inspiration and to strengthen the post-analytical part, we continue to encourage all participants to share their potential comments to the clinicians (the comments that would have accompanied the result of an analysis request).
We recommend that you look at your own results and compare them to any comments made, especially in relation to your own tolerance limits.

In appendix 1, the comments for clinicians can be seen. This time 83 comments have been reported.

Bilirubin (Conjugated)

Only 7 comments are reported in concern to hemolysis, despite the high negative interference for all method groups.
Almost all participants exceed the used tolerance limit of 10% and 13 of those laboratories *should have* included a comment but did not. Assuming they would not have included a comment *or* would not have withheld the result, they are having a general risk of releasing an answer that are falsely low in a true clinical situation.

Lactatedehydrogenase (LDH, LD)

The many comments on LDH reflects the expected and found interference shown in table 2.
30 laboratories would correctly not have reported an answer due to hemolysis *or* would have reported an answer with a comment about hemolysis. 55 laboratories *should have* included a comment but did not. They are therefore having a general risk of releasing an answer that are falsely high in a true clinical situation.

Phosphate

Those participants where a comment was shared, are correct: Interference is present in a level above the tolerance limit. Those without comments, except for Atellica, are in risk of releasing falsely high results in a true clinical situation.

Potassium
Based on the method group mean, the potassium results could in this round have been given to a clinician without a comment. However if you operate with a stricter limit than the 5,6%-deviation, there is a need to include a comment to the clinician.
Several laboratories have included a comment for potassium: Either that results would not have been submitted due to hemolysis or that results could be false too high. In a true clinical situation, in this case where the interference was lower than the tolerance limit, there is a risk of falsely withholding a useful result.

Ferritin
7 laboratories made comments with concerns about hemolysis, though no large interferences are seen.

End of report

Questions and comments to this scheme are always welcome to Sanne Schou: sanne.schou@deks.dk or Morten Pedersen: morten.pedersen@deks.dk

Kind regards

Sanne Schou and Morten Pedersen

Appendix 1 Postanalytical

The laboratories' comments to the clinicians, shown here for mutual inspiration, as there are differences in the way hemolytic test results are handled.

The following comments have accompanied the result of an analysis request.

Component	Answer to the clinician sample B	Instrument	DEKS no
Bilirubin, conjungated	Hemolysis	Alinity	56
	Sample B - preanalytical error, result with an error.	Cobas 8000/c 702	627
	I would not release the result potassium, LDH and bilirubin konjug. in sample B	Cobas 6000/c 501	678
	Sample B: not performed, sample hemolyzed	Alinity	750
	The analysis cannot be performed due to hemolysis in the sample. Please order a new sample	Alinity	2552
	Severe hemolysis. Hemolysis gives significantly lower results. A new test is recommended.	Cobas 8000/c 702	2602
	Sample B <3 Significantly hemolyzed sample, gives falsely low value	Cobas 8000/c 702	2610
Ferritin	Sample B: HEMO	Cobas 8000/e 602	3
	Sample B: submitted as: Hemolysis	Cobas 8000/e 801	24
	Sample. B. Answered: Hemolysis	Cobas 8000/e 801	51
	Sample B - preanalytical error, result with an error.	Cobas 8000/e 801	627
	If hemolysis of 140 mg/dL is detected, the analysis is deleted	Cobas 8000/e 602	2604
	Sample B: Not performed. Cannot be measured due to hemoly-sis	Cobas 8000/e 801	2610
	Sample B: Comment in addition to answer; "The result can be falsely too high due to hemolysis."	Cobas 8000/e 602	2660
Potassium	Sample B is rejected with the answer "Hemolyzed sample not performed"	Cobas 6000/c 501	2
	sample B: HEMO	Cobas 8000/ISE-modul	3
	Not performed, sample hemolyzed	Atellica	7
	Not performed due to hemolysis	Atellica	14
	Sample B: answer is given as: Hemolysis	Cobas 8000/ISE-modul	24
	Sample B = Hemolysis	Cobas 6000/c 501	28
	Sample B: answer is given as: Hemolysis	Vitros 5,1 FS	33
	Prøve B: Hæmolyse	Cobas 8000/ISE-modul	35

Component	Answer to the clinician sample B	Instrument	DEKS no
Potassium *continued*	Pr. B. Answer: Hemolysis	Cobas 8000/ISE-modul	51
	Prøve B afgives ikke pga. Hemolysis.	Cobas 8000/c 702	54
	Hemolysis	Alinity	56
	B: Cannot be performed due to Hemolysis	Atellica	58
	Answer: Hemolysis	Cobas 8000/c 702	106
	Not performed due to hemolysis	Alinity	179
	Potassium for sample B would be answered with comment "Hemolysis in the sample, P-K result falsely elevated"	Atellica	278
	Sample B: Result blocked due to hemolysis, recommend new sample.	Cobas 6000/c 501	507
	Sample B - preanalitical error, result with an error.	Cobas 8000/ISE-modul	627
	Hemolysis in the sample material	Atellica	663
	I would not release the result potassium, LDH and bilirubin konjug. in sample B	Cobas 6000/c 501	678
	Sample B- hemolysis. Result not shown for patient. Second sample is recommended.	Atellica	684
	Hemolytic sample would not have been reported.	Cobas 8000/ISE-modul	693
	Sample B: Not performed, sample hemolyzed	Alinity	750
	Due to hemolysis, the answer may be falsely high	Alinity	2553
	Comment on sample B: Due to hemolysis, the answer may be falsely too high	Cobas 8000/ISE-modul	2554
	The answer is replied as "HEMOLYSIS"	Architect	2559
	If hemolysis of 140 mg/dL is detected, the analysis is deleted	Advia Chemistry XPT	2604
	Sample B: haemolysed sample, can give a falsely high value, and the result must therefore be regarded as somewhat uncertain.	Cobas 8000/ISE-modul	2610
	"not performed due to hemolysis"	Atellica	2623
	Replaced comment. Hemolysert prøve, kan gi falskt for høyt resultat.	Alinity	2626
	Sample B: Answers are not released. Comment: "Hemolysis. Cannot be analyzed."	Cobas 6000/c 501	2628
	Sample B: replaced answer; "Cannot be analyzed due to hemolysis."	Cobas 8000/ISE-modul	2660

Component	Answer to the clinician sample B	Instrument	DEKS no
LDH	Sample B is rejected with standard response "Not performed the sample hemolyzed"	Cobas 6000/c 501	2
	Sample B: HEMO	Cobas 8000/c 702	3
	Not performed, sample hemolyzed	Atellica	7
	Not performed due to Hemolysis	Atellica	14
	Sample B: answer is submitted as: Hemolysis	Cobas 8000/c 702	24
	Sample B = LHD = Hemolysis	Cobas 6000/c 501	28
	Sample B response is submitted as Hemolysis	Vitros 5,1 FS	33
	Sample B: Hemolysis	Cobas 8000/c 702	35
	Sample B Hemolysis	Cobas 8000/c 702	51
	Sample B is not submitted due to hemolysis	Cobas 8000/c 702	54
	Hemolysis	Alinity	56
	Cannot be performed due to Hemolysis	Atellica	58
	Answer submission: Hemolysis	Cobas 8000/c 702	106
	Sample B: Not performed, sample hemolyzed	Alinity	179
	Sample B: Result blocked due to hemolysis, recommend new sample.	Cobas 6000/c 501	507
	Sample B - preanalytical error, result with an error.	Cobas 8000/c 702	627
	Hemolysis in the sample material	Atellica	663
	I would not release the result potassium, LDH and bilirubin konjug. in sample B	Cobas 6000/c 501	678
	Sample B- hemolysis. Result not shown for patient. Second sample is recommended	Atellica	684
	Sample B: Not performed, sample hemolyzed	Alinity	750
	The analysis cannot be performed due to hemolysis in the sample. Please order a new sample.	Alinity	2552
	Due to hemolysis, the answer may be falsely high	Alinity	2553
	Comment on sample B: Due to hemolysis, the answer may be falsely too high	Alinity	2554
	The answer is published as "HEMOLYSIS"	Architect	2559
	Hemolysis. Cannot be analyzed.	Cobas 8000/c 702	2602
	A comment is placed on the analysis result that LD may be falsely elevated due to hemolysis.	Advia Chemistry XPT	2604
	Sample B: Significantly haemolysed sample, gives a falsely low value.	Cobas 8000/c 702	2610
	Additional comment: "Hemolysis gives a falsely elevated response"	Atellica	2623
	Haemolysed sample can give a falsely high result.	Alinity	2626
	Test B: Answers are not published. Comment: "Hemolysis. Cannot be analyzed."	Cobas 6000/c 501	2628
	Sample B: Substitute answer; "Cannot be analyzed due to hemolysis."	Cobas 8000/c 702	2660

Component	Answer to the clinician sample B	Instrument	DEKS no
Phosphate	Sample B response is submitted as hemolysis	Vitros 5,1 FS	33
	Hemolysis	Alinity	56
	Sample B: Not performed, sample hemolyzed	Alinity	179
	I would not release the result potassium, LDH and bilirubin konjug. in sample B	Cobas 6000/c 501	678
	Sample B: Not performed, sample hemolyzed	Alinity	750
	The analysis cannot be performed due to hemolysis in the sample. Please order a new sample.	Alinity	2552
	Due to hemolysis, the answer may be falsely high.	Alinity	2553
	The answer is published as "HEMOLYSIS”	Architect	2559

Component	Mean	Sd	CV	sem	N	Outliers
P- Bilirubin(konjugeret)stofk. Sample 'Gln'						
Reference Target	3,14					
Alle	2,29	1,454	63,6	0,261	31	0
Advia Chemistry	3				1	0
Alinity	2,46	0,355	14,44	0,1185	9	0
Architect	2,45	0,636	26	0,45	2	0
Atellica	2,77	0,335	12,09	0,1676	4	0
AU series	6,27				1	0
Cobas c-modul	1,677	1,728	103	0,462	14	0
P- Bilirubin(konjugeret)stofk. Sample 'Iln'						
Alle	3,14	0,83	26,4	0,1516	30	1
Advia Chemistry	4				1	0
Alinity	3,31	0,413	12,48	0,1377	9	0
Architect	4,1	0,1414	3,45	0,1	2	0
Atellica	3,71	0,304	8,19	0,1518	4	0
AU series	1,69				1	0
Cobas c-modul	2,76	0,921	33,4	0,255	13	1
P- Cholesterolstofk. Sample 'Gln'						
Reference Target	4,42					
Alle	4,49	0,1041	2,32	0,01016	105	0
Advia Chemistry	4,4				1	0
Alinity	4,51	0,1096	2,43	0,0215	26	0
Architect	4,51	0,1484	3,29	0,0664	5	0
Atellica	4,44	0,101	2,28	0,0253	16	0
AU series	4,64				1	0
Cobas c-modul	4,48	0,0965	2,15	0,01314	54	0
Dimension Vista	4,5				1	0
Vitros	4,5				1	0
P- Cholesterolstofk. Sample 'Iln'						
Alle	4,42	0,1048	2,37	0,01023	105	0
Advia Chemistry	4,4				1	0
Alinity	4,49	0,103	2,3	0,0202	26	0
Architect	4,45	0,0853	1,919	0,0382	5	0
Atellica	4,37	0,1073	2,45	0,0268	16	0
AU series	4,45				1	0
Cobas c-modul	4,4	0,0949	2,16	0,01291	54	0
Dimension Vista	4,55				1	0
Vitros	4,5				1	0
P- Creatininiumstofk. Sample 'Gln'						
Reference Target	78,8					
Alle	78,2	3,61	4,62	0,344	110	0
Enzymatic	77,9	3,5	4,5	0,354	98	0
Jaffe	80,5	3,77	4,68	1,088	12	0
P- Creatininiumstofk. Sample 'Iln'						
Alle	78,8	2,99	3,79	0,285	110	0
Enzymatic	79	2,98	3,77	0,301	98	0
Jaffe	77,3	2,73	3,54	0,789	12	0
P- Ferritinmassek. Sample 'Gln'						
Reference Target	69					
Alle	69,9	12,35	17,65	1,267	95	0
Alinity	66	3,4	5,15	0,725	22	0
Architect	65,6	2,07	3,16	1,035	4	0
Atellica	45,2	2,29	5,08	0,636	13	0
AU series	71				1	0
Cobas c-modul	83,5	3,66	4,38	1,219	9	0
Cobas e-modul	77,6	3,41	4,4	0,521	43	0
Dimension Vista	77				1	0
TOSOH AIA	42,1				1	0
Vitros	66				1	0

Component	Mean	Sd	CV	sem	N	Outliers
P- Ferritinmassek. Sample 'Iln'						
Alle	69	12,36	17,92	1,262	96	0
Alinity	65,4	5,18	7,92	1,104	22	0
Architect	63	1,857	2,95	0,928	4	0
Atellica	44	1,062	2,42	0,295	13	0
AU series	71				1	0
Cobas c-modul	81,5	4,21	5,17	1,403	9	0
Cobas e-modul	76,7	3,44	4,48	0,518	44	0
Dimension Vista	74				1	0
TOSOH AIA	44,2				1	0
Vitros	62				1	0
P- H - Hæmolyse Index Sample 'Gln'						
Reference Target	1,345					
Alle	1,342	0,0851	6,34	0,00819	108	6
Advia Chemistry	1,4				1	0
Alinity	1,327	0,0517	3,9	0,01014	26	0
Andre	1,3				1	0
Architect	1,363	0,0441	3,24	0,01801	6	0
Atellica	1,379	0,0396	2,87	0,01023	15	2
AU series	2				1	0
Cobas c-modul	1,325	0,0588	4,43	0,00778	57	2
Dimension Vista					0	2
Vitros	1,35				1	0
P- H - Hæmolyse Index Sample 'Iln'						
Reference Target	0,065					
Alle	0,07	0,023	32,9	0,00218	112	2
Advia Chemistry	0				1	0
Alinity	0,0673	0,01313	19,51	0,00258	26	0
Andre	0,07				1	0
Architect	0,0767	0,01366	17,82	0,00558	6	0
Atellica	0,0554	0,0228	41,2	0,00553	17	0
AU series	0,2				1	0
Cobas c-modul	0,073	0,01442	19,74	0,001909	57	2
Dimension Vista	0,05	0	0	0	2	0
Vitros	0,15				1	0
P- I - Icterisk Index Sample 'Gln'						
Reference Target	15,05					
Alle	13,39	5,65	42,2	0,539	110	2
Advia Chemistry	0				1	0
Alinity	10,1	2,4	23,7	0,489	24	2
Andre	17,1				1	0
Architect	9,85	1,31	13,3	0,655	4	0
Atellica	11,38	5,92	52	1,435	17	0
AU series	32,5				1	0
Cobas c-modul	14,91	4,64	31,1	0,604	59	0
Dimension Vista	17,1	0	0	0	2	0
Vitros	34,2				1	0
P- I - Icterisk Index Sample 'Iln'						
Alle	15,05	5,92	39,3	0,564	110	2
Advia Chemistry	0				1	0
Alinity	17,35	1,045	6,02	0,213	24	2
Andre	17,1				1	0
Architect	19	0,424	2,23	0,212	4	0
Atellica	10,92	6,7	61,3	1,625	17	0
AU series	32,5				1	0
Cobas c-modul	14,57	5,36	36,8	0,698	59	0
Dimension Vista	17,1	0	0	0	2	0
Vitros	34,2				1	0

Component	Mean	Sd	CV	sem	N	Outliers
P- Kalium-ionstofk. Sample 'Gln'						
Reference Target	8,17					
Alle	8,55	0,1298	1,518	0,01261	106	0
Advia Chemistry XPT	8,5				1	0
Alinity	8,54	0,1045	1,224	0,0209	25	0
Architect	8,49	0,0606	0,713	0,0247	6	0
Atellica	8,51	0,0786	0,923	0,01906	17	0
Beckman Coulter AU	8,33				1	0
Cobas c-modul	8,6	0,1376	1,599	0,0239	33	0
Cobas ISE-modul	8,54	0,1733	2,03	0,0388	20	0
Dimension Vista	8,55	0,0707	0,827	0,05	2	0
Vitros 5,1	8,4				1	0
P- Kalium-ionstofk. Sample 'Iln'						
Alle	8,17	0,1261	1,543	0,01213	108	0
Advia Chemistry XPT	8,3				1	0
Alinity	8,16	0,1287	1,577	0,0257	25	0
Architect	8,07	0,0835	1,035	0,0341	6	0
Atellica	8,14	0,123	1,512	0,0298	17	0
Beckman Coulter AU	7,89				1	0
Cobas c-modul	8,19	0,0948	1,158	0,01651	33	0
Cobas ISE-modul	8,2	0,1148	1,399	0,0245	22	0
Dimension Vista	8,5	0	0	0	2	0
Vitros 5,1	8				1	0
P- L - Lipæmisk Index Sample 'Gln'						
Reference Target	0,1809					
Alle	0,27	0,1264	46,8	0,01194	112	0
Advia Chemistry	0				1	0
Alinity	0,285	0,0221	7,76	0,00434	26	0
Andre	0,29				1	0
Architect	0,28	0,01155	4,12	0,00577	4	0
Atellica	0,111	0,0672	60,5	0,0163	17	0
AU series	0,49				1	0
Cobas c-modul	0,311	0,1331	42,9	0,01733	59	0
Dimension Vista	0,25	0	0	0	2	0
Vitros	0,2				1	0
P- L - Lipæmisk Index Sample 'Iln'						
Alle	0,1809	0,075	41,4	0,00708	112	0
Advia Chemistry	0				1	0
Alinity	0,1342	0,01206	8,98	0,00236	26	0
Andre	0,24				1	0
Architect	0,125	0,00577	4,62	0,00289	4	0
Atellica	0,0703	0,0535	76,1	0,01298	17	0
AU series	0,37				1	0
Cobas c-modul	0,233	0,0301	12,92	0,00393	59	0
Dimension Vista	0,25	0	0	0	2	0
Vitros	0,2				1	0
P- Lactatdehydrogenase(LD, LDH)kat.k. Sample 'Gln'						
Reference Target	194,7					
Alle	335	11,46	3,42	1,182	94	5
Advia Chemistry XPT	330				1	0
Alinity	338	11,59	3,43	2,42	23	0
Architect	339	7,65	2,26	3,13	6	0
Atellica	329	12,99	3,95	3,25	16	0
AU series	330				1	0
Cobac c-modul	336	9,54	2,84	1,422	45	5
Dimension Vista	336				1	0
Vitros 5,1 FS	299				1	0
P- Lactatdehydrogenase(LD, LDH)kat.k. Sample 'Iln'						
Alle	194,7	9,33	4,79	0,947	97	4
Advia Chemistry XPT	199				1	0
Alinity	197,9	12,71	6,42	2,65	23	0
Architect	199,6	3,89	1,95	1,589	6	0
Atellica	191,8	10,29	5,37	2,57	16	0
AU series	185				1	0
Cobac c-modul	193,9	6,95	3,59	1,003	48	4
Dimension Vista	181				1	0
Vitros 5,1 FS	191				1	0

Component	Mean	Sd	CV	sem	N	Outliers
P- Phosphat(P, uorganisk)stofk. Sample 'Gln'						
Reference Target	1,19					
Alle	1,266	0,0382	3,02	0,00384	99	2
Advia Chemistry	1,27				1	0
Alinity	1,257	0,0353	2,81	0,00737	23	0
Architect	1,262	0,0342	2,71	0,0153	5	0
Atellica	1,283	0,0287	2,24	0,00741	15	0
AU series	1,3				1	0
Cobas c-modul	1,264	0,0413	3,27	0,00567	53	0
Dimension Vista					0	2
Vitros	1,32				1	0
P- Phosphat(P, uorganisk)stofk. Sample 'Iln'						
Alle	1,19	0,0407	3,42	0,00407	100	2
Advia Chemistry	1,18				1	0
Alinity	1,181	0,0293	2,48	0,00612	23	0
Architect	1,182	0,0327	2,77	0,01463	5	0
Atellica	1,231	0,0453	3,68	0,0117	15	0
AU series	1,2				1	0
Cobas c-modul	1,183	0,0388	3,28	0,00529	54	0
Dimension Vista					0	2
Vitros	1,23				1	0

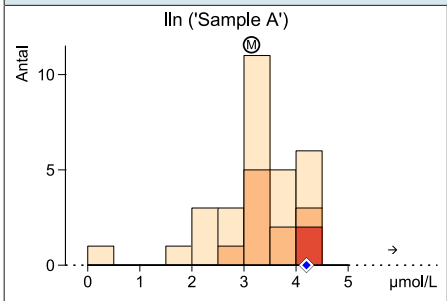
4131 DK - HIL-indeks - EKSEMPEL RAPPORT

Udsendelse 1 - 2023. Laboratorie nr. 500, resultat id. 500

Metodesæt 2 ()

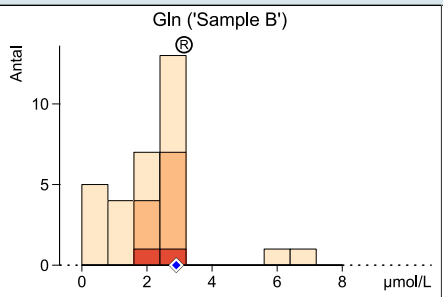
P- Bilirubin(konjugeret){stofk.} -
Producentgruppe: Abbott

Instrument: Architect
Metodegruppe: Architect



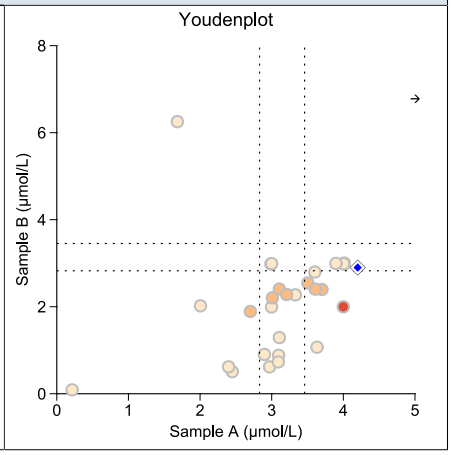
Eget resultat: 4,2 µmol/L (afv. 33,6%)
Middelværdi af alle (M): 3,14 µmol/L
Acceptinterval (M ± 10%): 2,83 - 3,46 µmol/L

	Middel	sd	CV%	SEM	N
Producentgruppe	3,45	0,49	14,2	0,1	11
Metodegruppe	4,10	0,14	3,4	0,1	2
Alle	3,14	0,83	26,4	0,2	30



Eget resultat: 2,9 µmol/L (afv. -7,6%)
Referenceværdi (R): 3,14 µmol/L
Acceptinterval (R ± 10%): 2,83 - 3,45 µmol/L

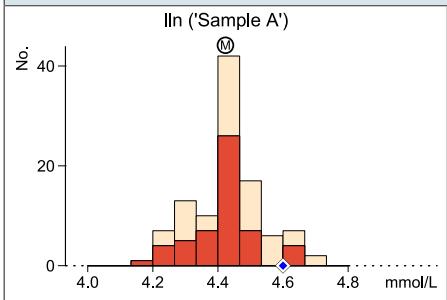
	Middel	sd	CV%	SEM	N
Producentgruppe	2,46	0,38	15,3	0,1	11
Metodegruppe	2,45	0,64	26,0	0,5	2
Alle	2,29	1,45	63,6	0,3	31



Metodesæt 2 ()

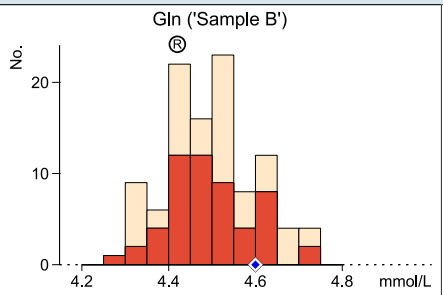
P- Cholesterol{stofk.} -
Producentgruppe: Roche

Instrument: Cobas c 311
Metodegruppe: Cobas c-modul



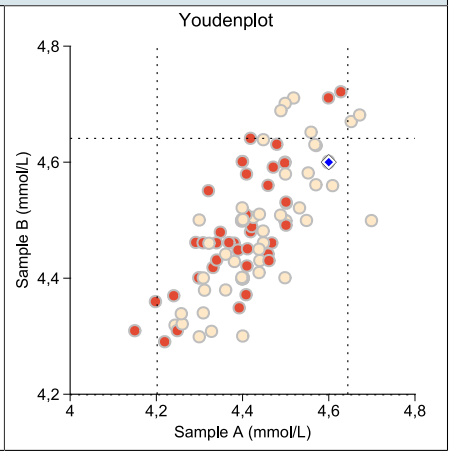
Own result: 4,6 mmol/L (dev. 4,0%)
Mean of all (M): 4,42 mmol/L
Acceptance interval (M ± 5%): 4,20 - 4,64 mmol/L

	Mean	sd	CV%	SEM	N
Manufact. Group	4,40	0,09	2,2	0,0	54
Method group	4,40	0,09	2,2	0,0	54
All	4,42	0,10	2,4	0,0	105



Own result: 4,6 mmol/L (dev. 4,1%)
Reference value (R): 4,42 mmol/L
Acceptance interval (R ± 5%): 4,20 - 4,64 mmol/L

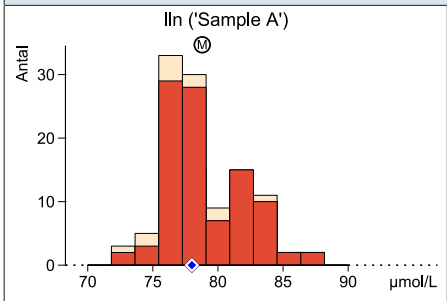
	Mean	sd	CV%	SEM	N
Manufact. Group	4,48	0,10	2,2	0,0	54
Method group	4,48	0,10	2,2	0,0	54
All	4,49	0,10	2,3	0,0	105



Metodesæt 1 ()

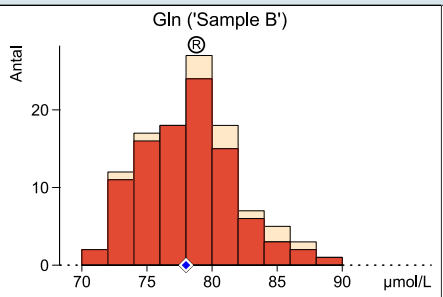
P- Creatininium{stofk.} - NPU18016
Producentgruppe: Cobas c-modul

Instrument: Cobas 8000/c 702
Metodegruppe: Enzymatic



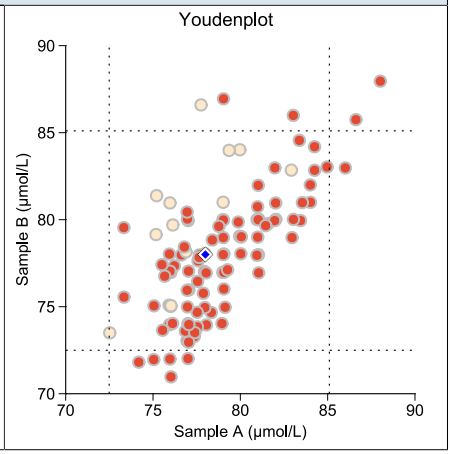
Eget resultat: 78 µmol/L (afv. -1,0%)
Middelværdi af alle (M): 78,8 µmol/L
Acceptinterval (M ± 8%): 72,5 - 85,1 µmol/L

	Middel	sd	CV%	SEM	N
Producentgruppe	81,0	2,59	3,2	0,4	51
Metodegruppe	79,0	2,98	3,8	0,3	98
Alle	78,8	2,99	3,8	0,3	110



Eget resultat: 78 µmol/L (afv. -1,0%)
Referenceværdi (R): 78,8 µmol/L
Acceptinterval (R ± 8%): 72,5 - 85,1 µmol/L

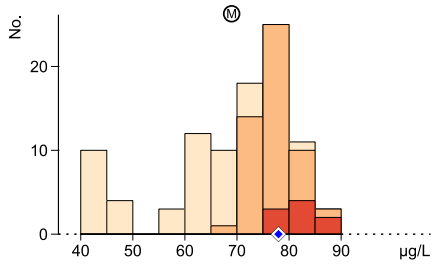
	Middel	sd	CV%	SEM	N
Producentgruppe	80,0	2,97	3,7	0,4	51
Metodegruppe	77,9	3,50	4,5	0,4	98
Alle	78,2	3,61	4,6	0,3	110



Metodesæt 1 ()

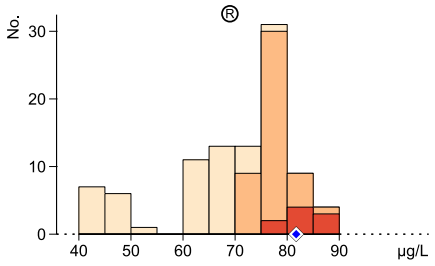
P- Ferritin{massek.} -
Producentgruppe: Roche

Instrument: Cobas c 501
Metodegruppe: Cobas c-modul



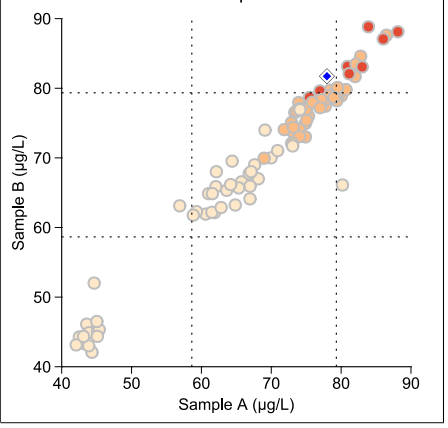
Own result: 77,97 µg/L (dev. 13,0%)
Mean of all (M): 69,0 µg/L
Acceptance interval (M ± 15%): 58,6 - 79,3 µg/L

	Mean	sd	CV%	SEM	N
Manufact. Group	77,5	3,97	5,1	0,5	53
Method group	81,5	4,21	5,2	1,4	9
All	69,0	12,36	17,9	1,3	96



Own result: 81,73 µg/L (dev. 18,4%)
Reference value (R): 69 µg/L
Acceptance interval (R ± 15%): 58,7 - 79,4 µg/L

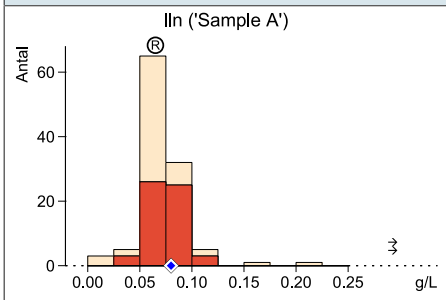
	Mean	sd	CV%	SEM	N
Manufact. Group	78,6	4,11	5,2	0,6	52
Method group	83,5	3,66	4,4	1,2	9
All	69,9	12,35	17,7	1,3	95



Metodesæt 1 ()

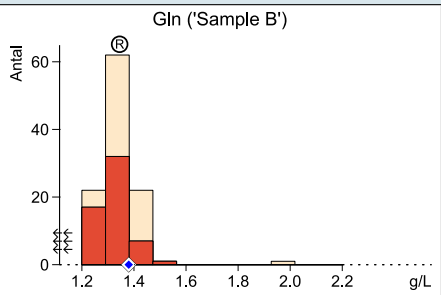
P- H - Hæmolyse Index -
Producentgruppe: Roche

Instrument: Cobas C 503
Metodegruppe: Cobas c-modul



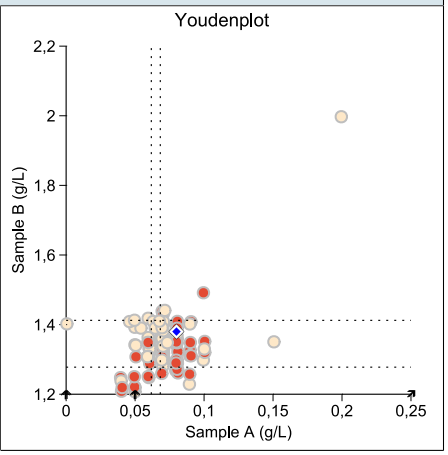
Eget resultat: 8 [*mg/dL]= 0,08 g/L (afv. 23,1%)
Referenceværdi (R): 0,065 g/L
Acceptinterval (R ± 5%): 0,0618 - 0,0683 g/L

	Middel	sd	CV%	SEM	N
Producentgruppe	0,0730	0,01	19,7	0,0	57
Metodegruppe	0,0730	0,01	19,7	0,0	57
Alle	0,0700	0,02	32,9	0,0	112



Eget resultat: 138 [*mg/dL]= 1,38 g/L (afv. 2,6%)
Referenceværdi (R): 1,345 g/L
Acceptinterval (R ± 5%): 1,278 - 1,412 g/L

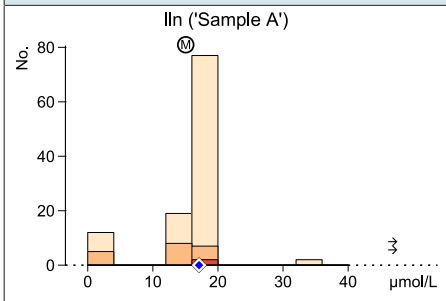
	Middel	sd	CV%	SEM	N
Producentgruppe	1,325	0,06	4,4	0,0	57
Metodegruppe	1,325	0,06	4,4	0,0	57
Alle	1,342	0,09	6,3	0,0	108



Metodesæt 1 ()

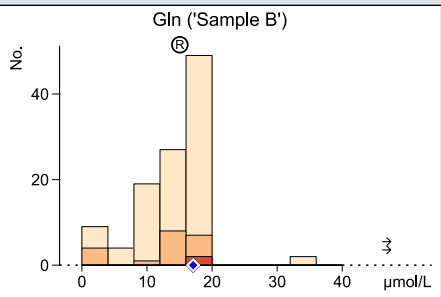
P- I - Icterisk Index -
Producentgruppe: Siemens

Instrument: Dimension EXL 200
Metodegruppe: Dimension Vista



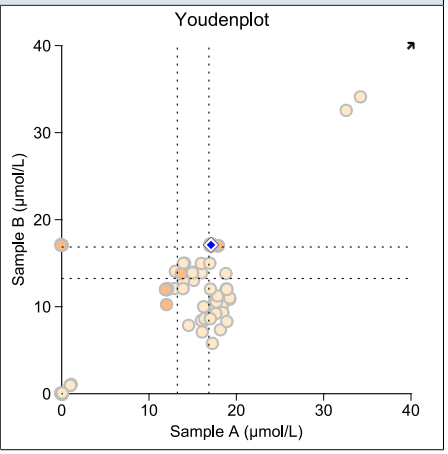
Own result: 1 arb.enh./L= 17,1 µmol/L (dev. 13,6%)
Mean of all (M): 15,05 µmol/L
Acceptance interval (M ± 12%): 13,25 - 16,86 µmol/L

	Mean	sd	CV%	SEM	N
Manufact. Group	11,00	6,94	63,1	1,6	20
Method group	17,10	0,00	0,0	0,0	2
All	15,05	5,92	39,3	0,6	110



Own result: 1 arb.enh./L= 17,1 µmol/L (dev. 13,6%)
Reference value (R): 15,05 µmol/L
Acceptance interval (R ± 12%): 13,24 - 16,86 µmol/L

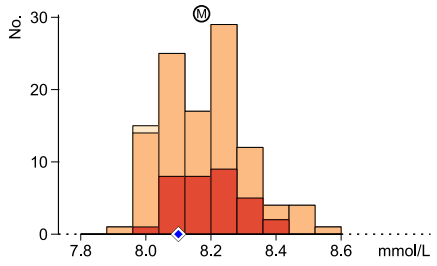
	Mean	sd	CV%	SEM	N
Manufact. Group	11,38	6,30	55,4	1,4	20
Method group	17,10	0,00	0,0	0,0	2
All	13,39	5,65	42,2	0,5	110



Metodesæt 1 ()

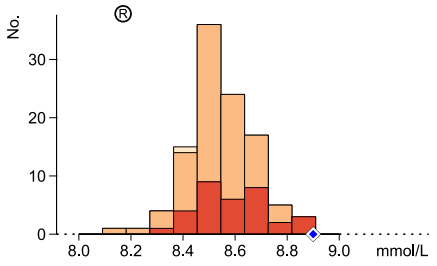
P- Kalium-ion{stofk.} - NPU03230
Producentgruppe: ISE-indirekte

Instrument: Cobas 8000/c 702
Metodegruppe: Cobas c-modul



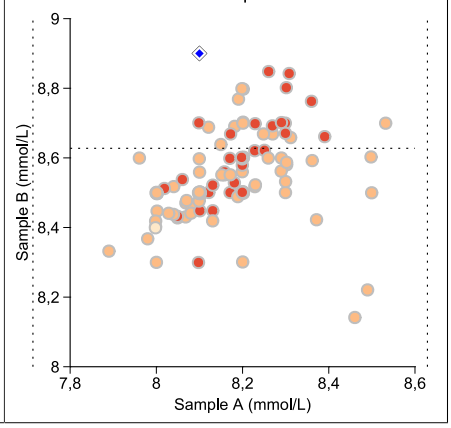
Own result: 8,1 mmol/L (dev. -0,9%)
Mean of all (M): 8,17 mmol/L
Acceptance interval (M ± 5,6%): 7,71 - 8,63 mmol/L

	Mean	sd	CV%	SEM	N
Manufact. Group	8,17	0,13	1,5	0,0	107
Method group	8,19	0,09	1,2	0,0	33
All	8,17	0,13	1,5	0,0	108



Own result: 8,9 mmol/L (dev. 8,9%)
Reference value (R): 8,17 mmol/L
Acceptance interval (R ± 5,6%): 7,71 - 8,63 mmol/L

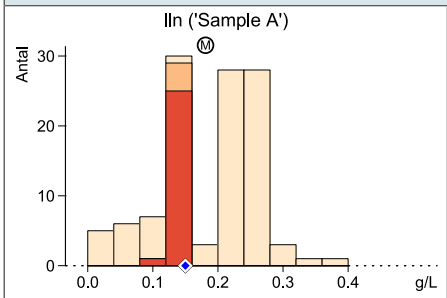
	Mean	sd	CV%	SEM	N
Manufact. Group	8,55	0,13	1,5	0,0	105
Method group	8,60	0,14	1,6	0,0	33
All	8,55	0,13	1,5	0,0	106



Metodesæt 1 ()

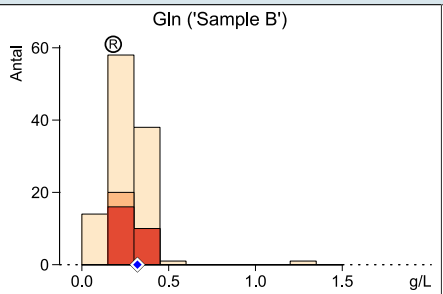
P- L - Lipæmisk Index -
Producentgruppe: Abbott

Instrument: Alinity
Metodegruppe: Alinity



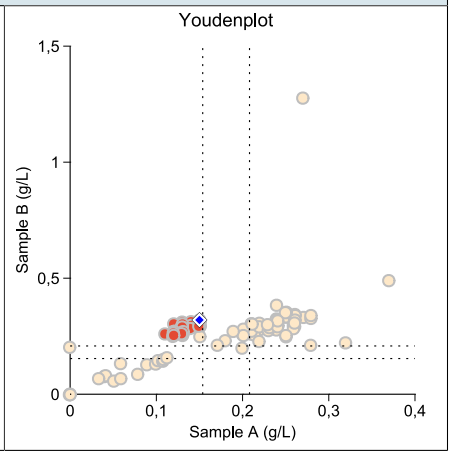
Eget resultat: 0,15 [*g/L]= 0,15 g/L (afv. -17,1%)
Middelværdi af alle (M): 0,1809 g/L
Acceptinterval (M ± 15%): 0,1538 - 0,2081 g/L

	Middel	sd	CV%	SEM	N
Producentgruppe	0,1330	0,01	8,9	0,0	30
Metodegruppe	0,1342	0,01	9,0	0,0	26
Alle	0,1809	0,07	41,4	0,0	112



Eget resultat: 0,32 [*g/L]= 0,32 g/L (afv. 76,9%)
Referenceværdi (R): 0,1809 g/L
Acceptinterval (R ± 15%): 0,1538 - 0,2080 g/L

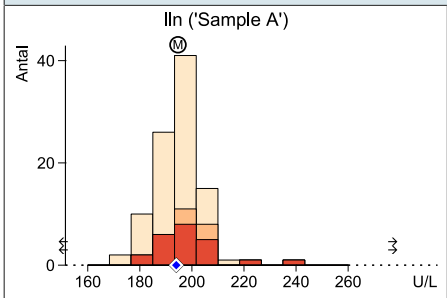
	Middel	sd	CV%	SEM	N
Producentgruppe	0,285	0,02	7,4	0,0	30
Metodegruppe	0,285	0,02	7,8	0,0	26
Alle	0,270	0,13	46,8	0,0	112



Metodesæt 1 ()

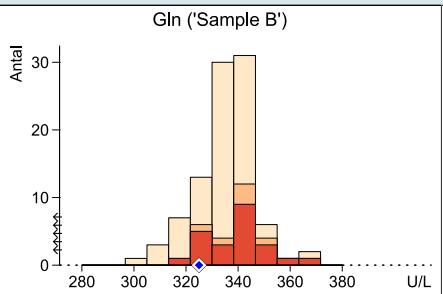
P- Lactatdehydrogenase(LD, LDH){kat.k.} -
Producentgruppe: Abbott

Instrument: Alinity
Metodegruppe: Alinity



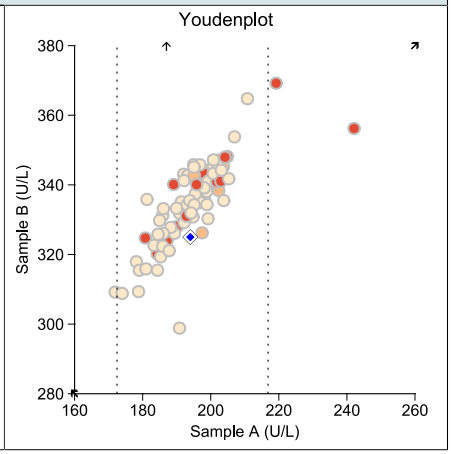
Eget resultat: 194 U/L (afv. -0,3%)
Middelværdi af alle (M): 194,7 U/L
Acceptinterval (M ± 11,4%): 172,5 - 216,8 U/L

	Middel	sd	CV%	SEM	N
Producentgruppe	198,3	11,41	5,8	2,1	29
Metodegruppe	197,9	12,71	6,4	2,7	23
Alle	194,7	9,33	4,8	0,9	97



Eget resultat: 325 U/L (afv. 66,9%)
Referenceværdi (R): 194,7 U/L
Acceptinterval (R ± 11,4%): 172,5 - 216,9 U/L

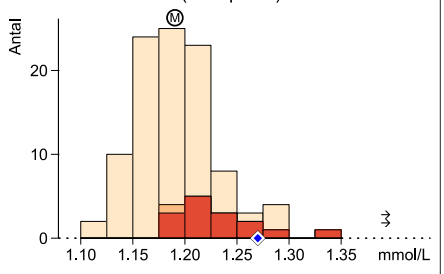
	Middel	sd	CV%	SEM	N
Producentgruppe	339	10,78	3,2	2,0	29
Metodegruppe	338	11,59	3,4	2,4	23
Alle	335	11,46	3,4	1,2	94



Metodesæt 1 ()

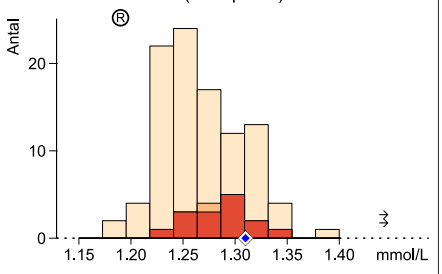
P- Phosphat(P, uorganisk){stofk.} -
Producentgruppe: Siemens

Instrument: Atellica
Metodegruppe: Atellica



Eget resultat: 1,27 mmol/L (afv. 6,7%)
Middelværdi af alle (M): 1,190 mmol/L
Acceptinterval (M ± 6%): 1,119 - 1,262 mmol/L

	Middel	sd	CV%	SEM	N
Producentgruppe	1,228	0,05	3,7	0,0	16
Metodegruppe	1,231	0,05	3,7	0,0	15
Alle	1,190	0,04	3,4	0,0	100



Eget resultat: 1,31 mmol/L (afv. 10,1%)
Referenceværdi (R): 1,19 mmol/L
Acceptinterval (R ± 6%): 1,119 - 1,261 mmol/L

	Middel	sd	CV%	SEM	N
Producentgruppe	1,282	0,03	2,2	0,0	16
Metodegruppe	1,283	0,03	2,2	0,0	15
Alle	1,266	0,04	3,0	0,0	99