ENVIRONMENT AGENCY AUSTRIA umweltbundesamt

EVALUATION OF THE INTERLABORATORY COMPARISON TEST

Sum parameters SP03

Sample dispatch on 15.05.2018

1st Edition 12th July 2018

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Table of contents

1 Interlaboratory comparison test: Sum parameters SP03

1.1 Participants and time schedule

- Number of registrations: 41
- Number of submitted data records: 40
- Dispatch of samples: 15th May 2018
- Closing date for submission of data: 12th June 2018

To anonymize results, each laboratory was given a laboratory code on a random basis.

1.2 Sampling, sample material and distribution

The following samples were made available

- synthetic water (Sample A)
- ground water (Sample B)

The sampling of ground water was carried out on 12th May 2018. The sample was stored at < 4 °C until further processing.

The samples for the HC-Index (SP03 A KWI and SP03 B KWI) were prepared on 14th May 2018 and stored at < 4 °C.

The samples for the Phenol Index (SP03 A PHE and SP03 B PHE) were prepared at the day of dispatch. For stabilisation they were brought to pH < 4 with phosphoric acid and 1 g/L Copper sulfate pentahydrate was added.

All samples were spiked with the corresponding substances.

The water was filled into bottles under continuous stirring to achieve homogeneous samples. The samples were dispatched on 15th May 2018.

Each participant received:

- 2 samples (each 2000 ml), each filled in 2x 1000 ml glas bottles for the assay of HC-Index

Depending on thier order, serveral laboratories also received:

- 2 samples (each 2000 ml), each filled in 2x 1000 ml glas bottles for the assay of phenol Index

1.3 Control testing

During filling the bottles, aliquots of each sample were collected randomly for control testing. Testing was performed close to the time of sample dispatch. The HC-Index and the phenol index were determined by an external laboratory.

In the parameter-oriented evaluation, the results of the control testing are given in the form of arithmetic means of the detected concentrations as control test value ± U.

2 Evaluation

The analytical results had to be made available to the organiser not later than 12th June 2018. Any values received at a later date were not considered. A statistical evaluation of interlaboratory comparison data was only carried out if at least 6 valid results per parameter were available.

To evaluate the data, outliers were detected first by using the outlier test method according to Hampel. Values identified as conspicuous by this test method are marked specifically in the parameter-oriented evaluation.

In justified cases, the outlier elimination was done according to other criteria. This procedure is documented in section 4 of the report.

Further evaluation was performed in accordance with DIN ISO 5725-2. Results < LOQ or < LOD are not taken into account for calculation.

The adjusted average value (after removal of outliers) for all submitted results was used as a basis for the calculation of recovery rates and z-scores.

z-Score

z-Scores were calculated on the basis of the following formula:

$$z - score = \frac{x_i - \overline{X}}{Criteria}$$

In this context,

x_i is the measurement value of the participating laboratory.

$\overline{X}$ is the target value, normally the average value of the participants' results after removal of outliers; if this approach is not applicable, the target value is assigned according to the procedure given in section 4;

Criteria — is normally the reproducibility standard deviation (sR) calculated from the participants' results (after removal of outliers) in the relevant test round; if this approach is not applicable, the criteria is derived according to the procedure given in section 4

Interpretation of z-Scores in the parameter-oriented evaluation:

- |z| < 2 result: good
- 2 < |z| < 3 result: questionable
- |z| > 3 result: not satisfactory

3 Representation and interpretation of measurement results

The parameter oriented report shows the measurement values including uncertainty, recovery rate, calculated z-Score and the outliers in tabular form. The results listed in the table are also represented graphically.

The laboratory oriented report shows the results of the individual laboratories, including the recovery rates and z-Scores.

An annotation of the tables and graphics is given in section 5.

4 Explanatory notes

As explained in section 2, the z-Score is normally calculated using the reproducibility standard deviation, calculated from the participants' results (after removal of outliers) in the relevant test round. It might occur that the z-Score between -2 and 2 covers a large range of measurement values when the variance of the results is high. On the other hand, the range of good results can be very narrow, when the variation of the participants' results is small.

The recovery rate is calculated for the individual result based on the target value and is thus independent of the reproducibility standard deviation. In the case of a high variance of the results, participants should also consider recovery rates as additional criteria to decide on the necessity of internal quality assurance measures.

At this Interlaboratory comparison test the HC-Index in both samples shows a high variance of the results.

If low results were received we recommend to check, if the entire bottle was extracted and/or rinsed with solvent to exclude adsorption effects on the glass wall.

5 Annotations on tables and charts

5.1 Information and abbreviations in tables

Parameter	Analyte identifier
Sample	Sample identifier
Unit	Given unit for result and uncertainty (e.g. µg/l)
Mean	Mean of the participants results, without outliers (3 significant digits)
CI (99 %)	99% confidence interval (3 significant digits)
Minimum	Minimum of all submitted results, after removal of outliers (3 significant digits)
Maximum	Maximum of all submitted results, after removal of outliers (3 significant digits)
SD	Reproducibility standard deviation, calculated from the participants results, after removal of outliers (3 significant digits)
RSD %	Reproducibility standard deviation, calculated from the participants results relative to the target value, given in %, after removal of outliers (2 significant digits)
Control test value ± U	Mean of control test value ± measurement uncertainty (3 significant digits)
Labcode	Laboratory identifier (anonymized)
Result	Result as indicated by participant (max. 5 decimal places)
± U	Results uncertainty as indicated by participant (max. 5 decimal places)
LOQ	Limit of quantification
LOD	Limit of detection
Recovery	Recovery rate in % based on target value (3 significant digits, max. one decimal place given)
z-Score	Deviation of result based on target value depicted as a multiple of the criteria (3 significant digits, max. 2 decimal places given)
-	*No data available*
Comments	Comment on the respective result (e.g. H, FN, FP)
H	Outlier according to Hampel-Test
FN	False negative – for a result < LOQ or result < LOD: The absolute value of the LOQ or LOD fulfils the condition of an outlier according to the Hampel test.
FP	False positive – for parameters where no target value is available because of a too low analyte content (n < 6):

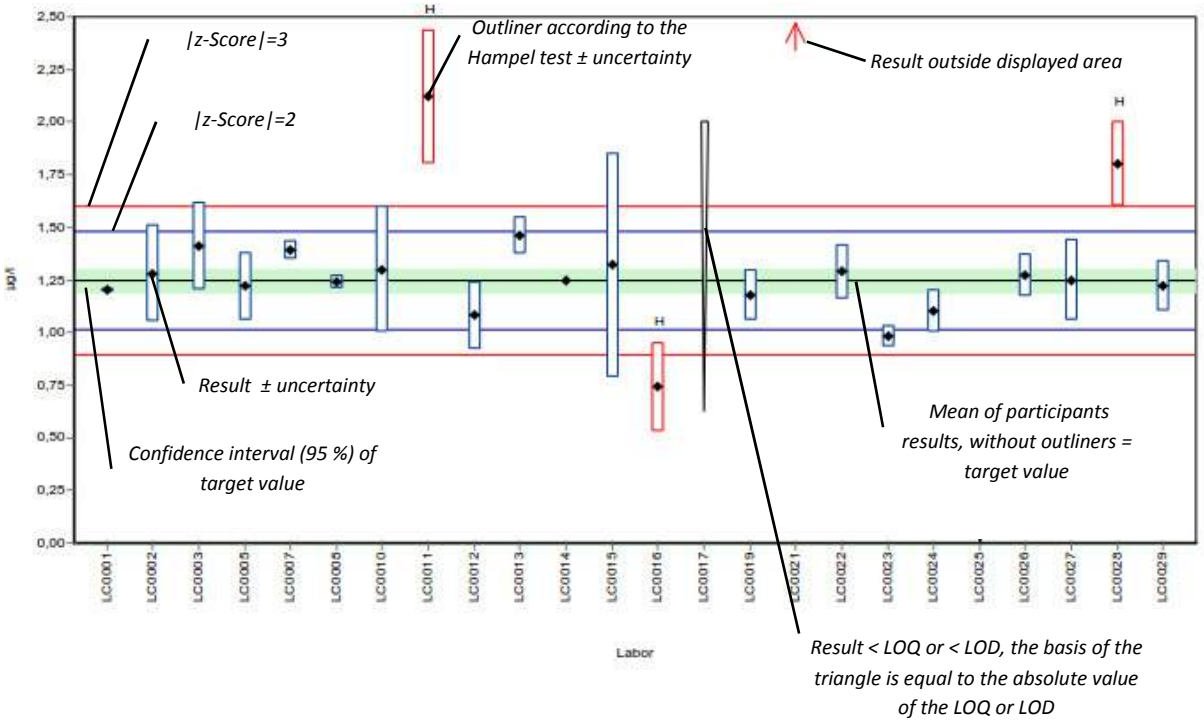
	Result that exceeds the median of the absolute values of the transmitted LOQs or LODs by more than 100 %.
Standard deviation	Reproducibility standard deviation, calculated from the participants results (3 significant digits)
Rel. standard deviation	Reproducibility standard deviation, calculated from the participants results relative to the target value, given in %, (3 significant digits)
n	Number of results
Target value	Mean of the participants results, without outliers (3 significant digits)
Criteria	Criteria for z-Score calculation (if not otherwise stated in clause 4: The given value matches the reproducibility standard deviation, calculated from the participants' results, after removal of outliers (3 significant digits).

6 Summary of results, after removal of outliers

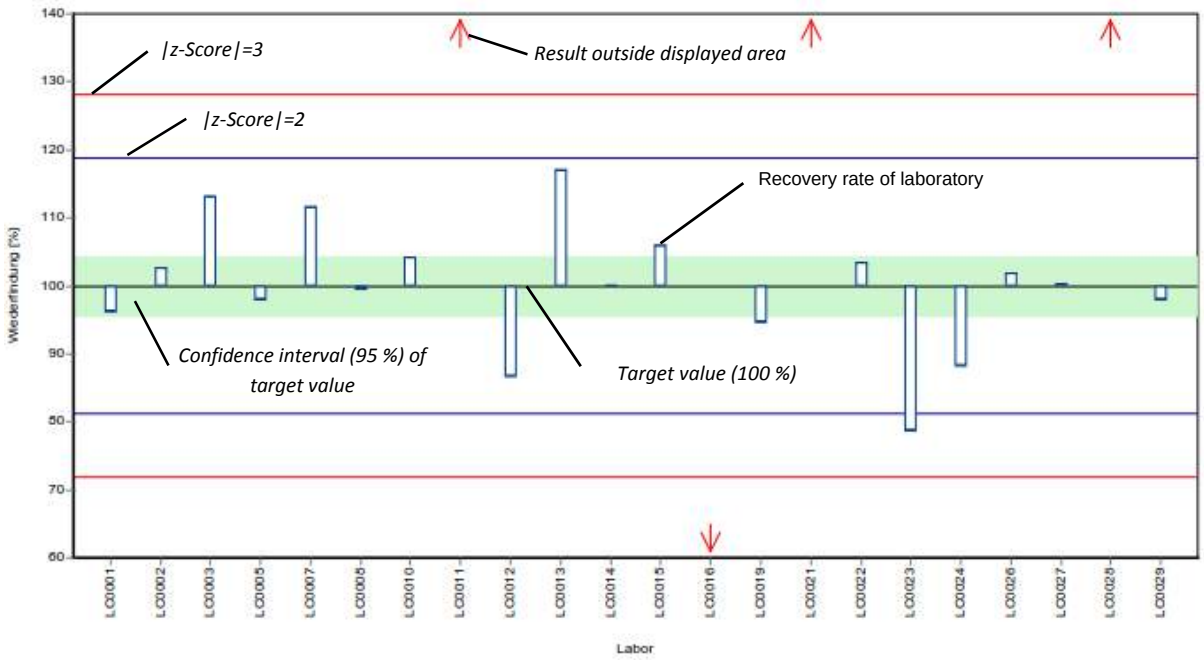
Parameter	Sample	Unit	Number of results for calculation	Number of outliers	Mean	±	CI (99%)	Minimum	Maximum	SD	RSD %
HC-Index	SP03 A - HC-Index	mg/l	39	1	1.75	±	0.374	0.11	3.7	0.779	45
	SP03 B - HC-index	mg/l	38	0	0.448	±	0.103	0.03	0.95	0.212	47
Phenol Index	SP03 A - Phenol index	mg/l	15	1	0.11	±	0.0126	0.08	0.133	0.0162	15
	SP03 B - Phenol index	mg/l	13	2	0.0521	±	0.00544	0.04	0.064	0.00654	13

5.2 Graphical presentation of results

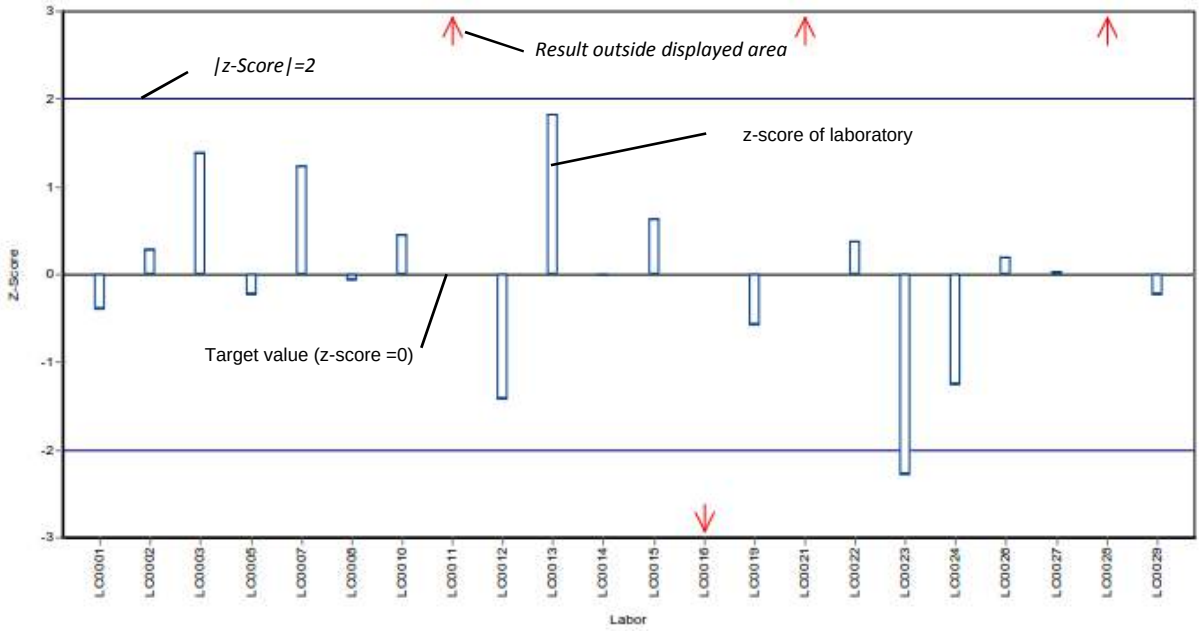
Example chart: Results



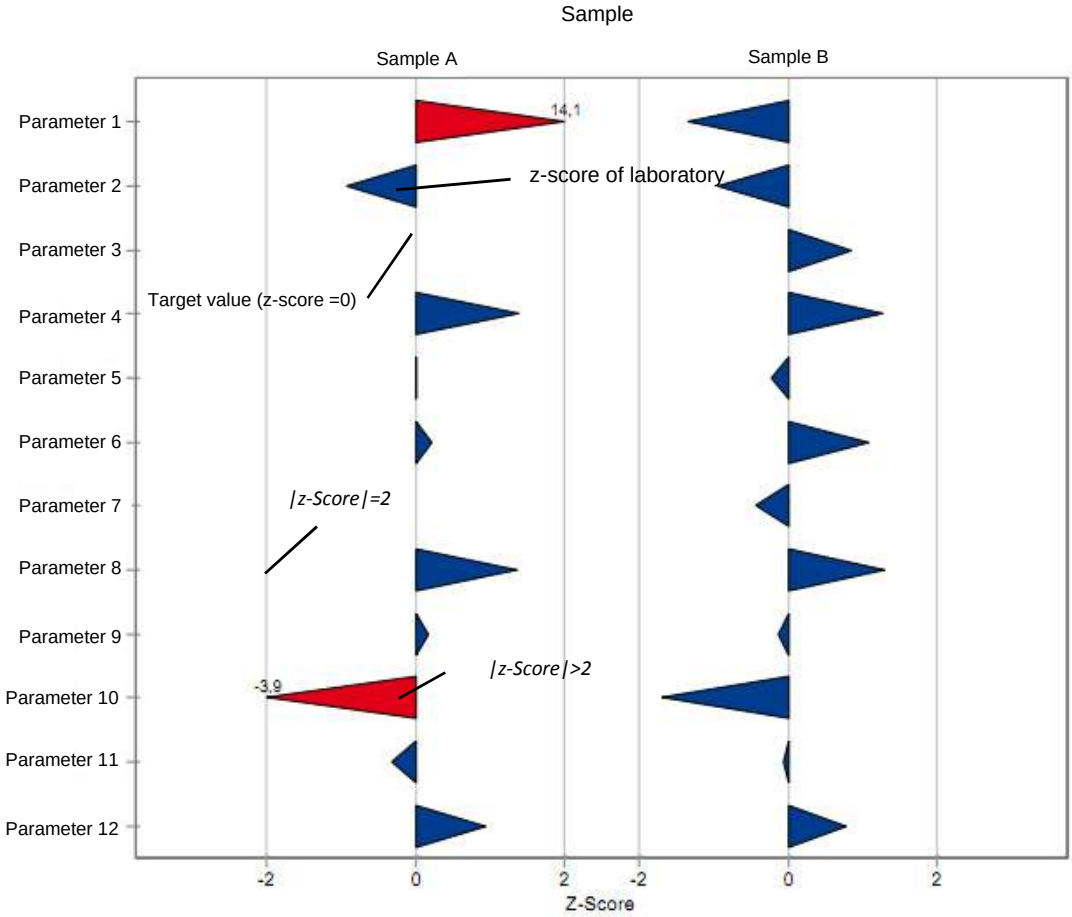
Example chart: Recovery



Example chart: z-score



Example chart: z-score - laboratory oriented report



7 Parameter oriented report

Parameter oriented report

SP03 A - HC-Index

HC-Index

Unit	mg/l
Mean ± CI (99%)	1.75 ± 0.374
Minimum - Maximum	0.11 - 3.7
Control test value ± U	-

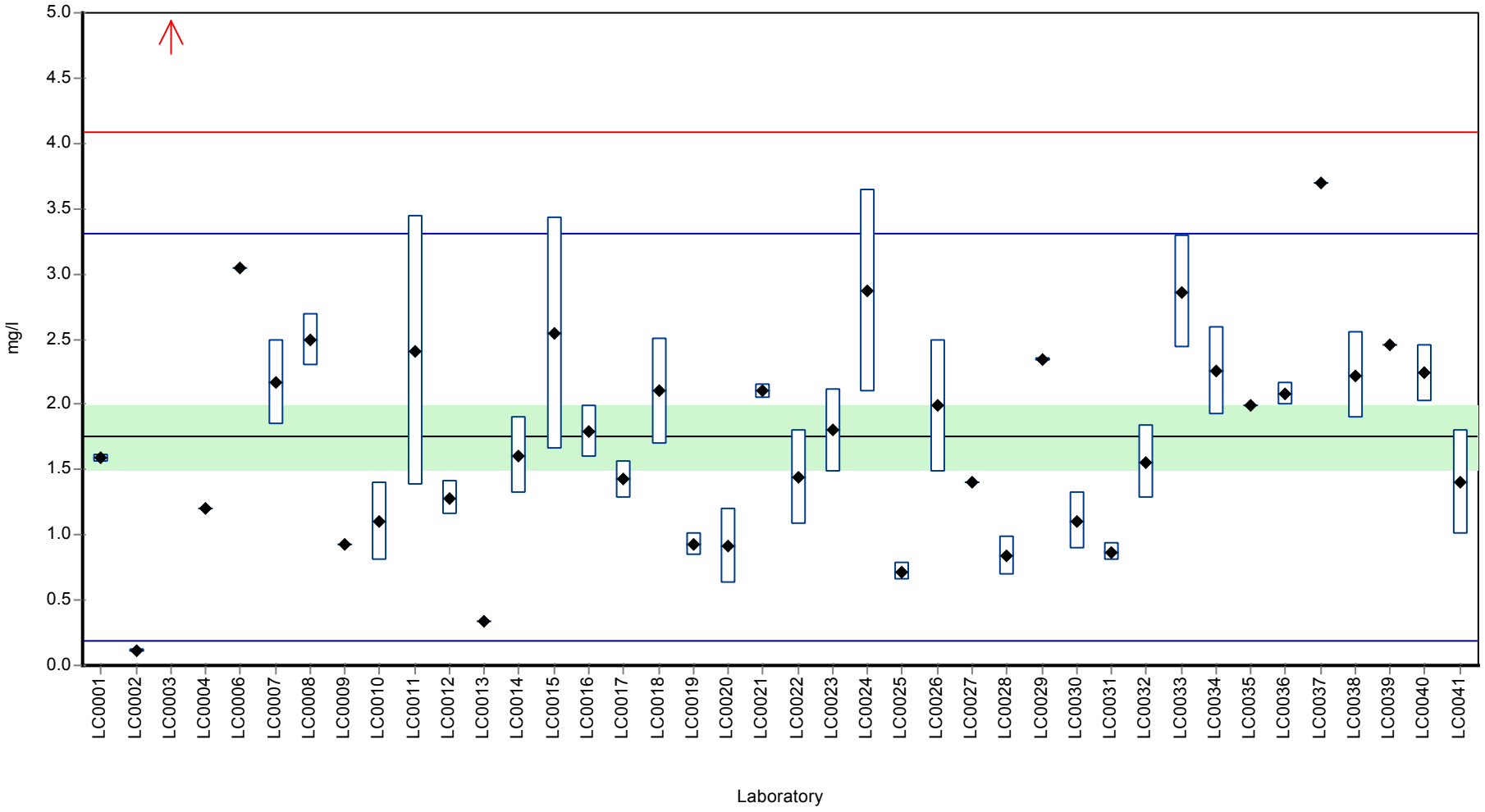
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	1.587	0.034	90.7	-0.21	
LC0002	0.11	0.015	6.3	-2.1	
LC0003	5.63	0.56	322	4.98	H
LC0004	1.2	-	68.6	-0.7	
LC0005	-	-	-	-	
LC0006	3.04	-	174	1.66	
LC0007	2.17	0.33	124	0.54	
LC0008	2.49	0.2	142	0.95	
LC0009	0.93	-	53.2	-1.05	
LC0010	1.1	0.3	62.9	-0.83	
LC0011	2.411	1.032	138	0.85	
LC0012	1.28	0.13	73.2	-0.6	
LC0013	0.34	-	19.4	-1.81	
LC0014	1.61	0.29	92	-0.18	
LC0015	2.543	0.89	145	1.02	
LC0016	1.79	0.2	102	0.05	
LC0017	1.425	0.143	81.5	-0.42	
LC0018	2.1	0.41	120	0.45	
LC0019	0.93	0.09	53.2	-1.05	
LC0020	0.911	0.29	52.1	-1.08	
LC0021	2.1	0.06	120	0.45	
LC0022	1.44	0.36	82.3	-0.4	
LC0023	1.8	0.32	103	0.07	
LC0024	2.87	0.78	164	1.44	
LC0025	0.72	0.07	41.2	-1.32	
LC0026	1.99	0.51	114	0.31	
LC0027	1.4	-	80	-0.45	
LC0028	0.84	0.15	48	-1.17	
LC0029	2.345	0.011	134	0.77	
LC0030	1.106	0.219	63.2	-0.82	
LC0031	0.87	0.07	49.7	-1.13	
LC0032	1.56	0.28	89.2	-0.24	
LC0033	2.86	0.432	164	1.43	
LC0034	2.26	0.339	129	0.66	
LC0035	1.99	-	114	0.31	
LC0036	2.08	0.09	119	0.42	
LC0037	3.7	-	212	2.5	
LC0038	2.222	0.33522	127	0.61	
LC0039	2.46	-	141	0.91	
LC0040	2.238	0.224	128	0.63	
LC0041	1.4	0.4	80	-0.45	

Characteristics of parameter

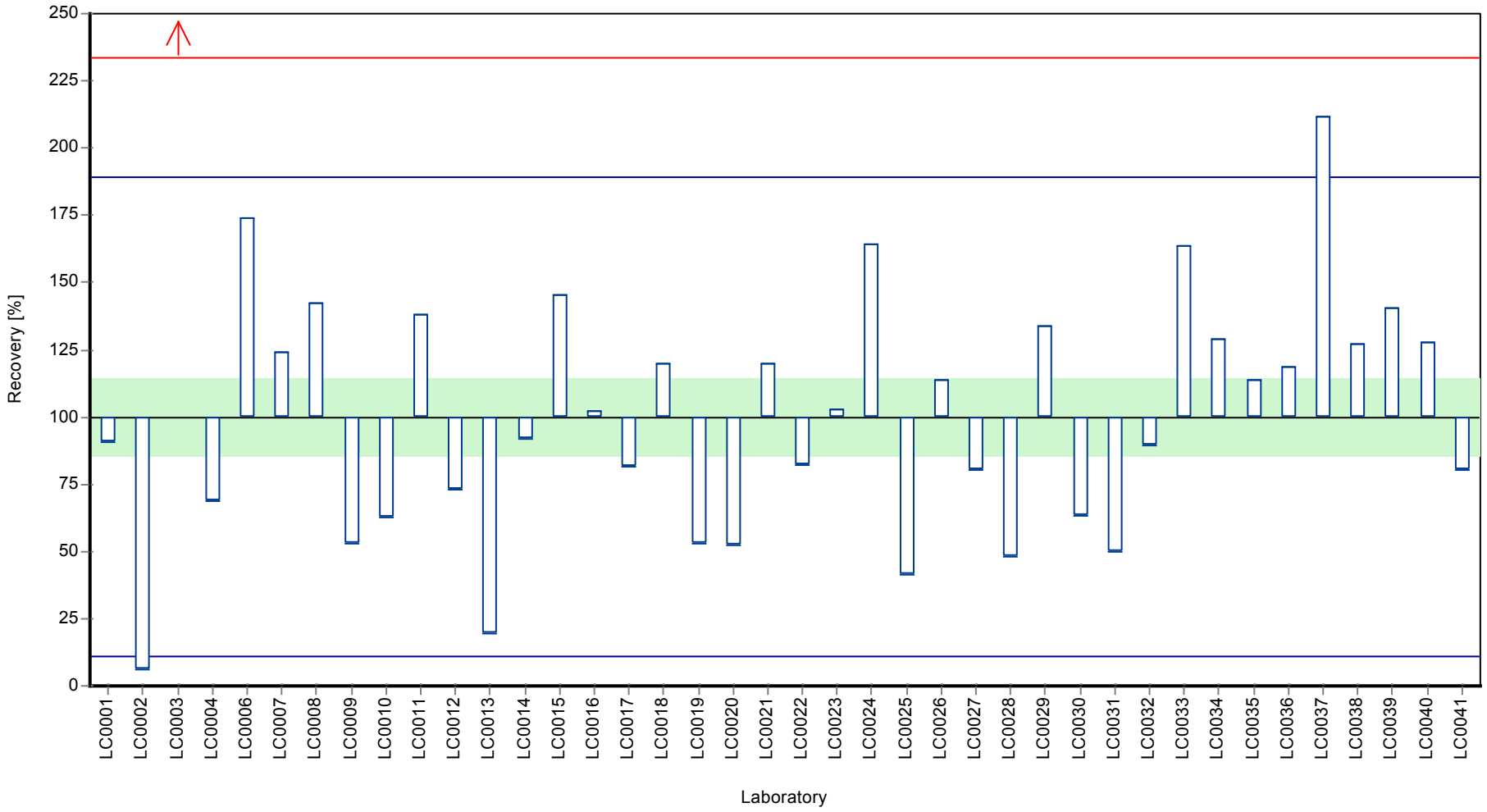
	all results	without outliers	Unit
Mean ± CI (99%)	1.85 ± 0.467	1.75 ± 0.374	mg/l
Minimum	0.11	0.11	mg/l
Maximum	5.63	3.7	mg/l
Standard deviation	0.984	0.779	mg/l
rel. Standard deviation	53.3	44.5	%
n	40	39	-

Graphical presentation of results

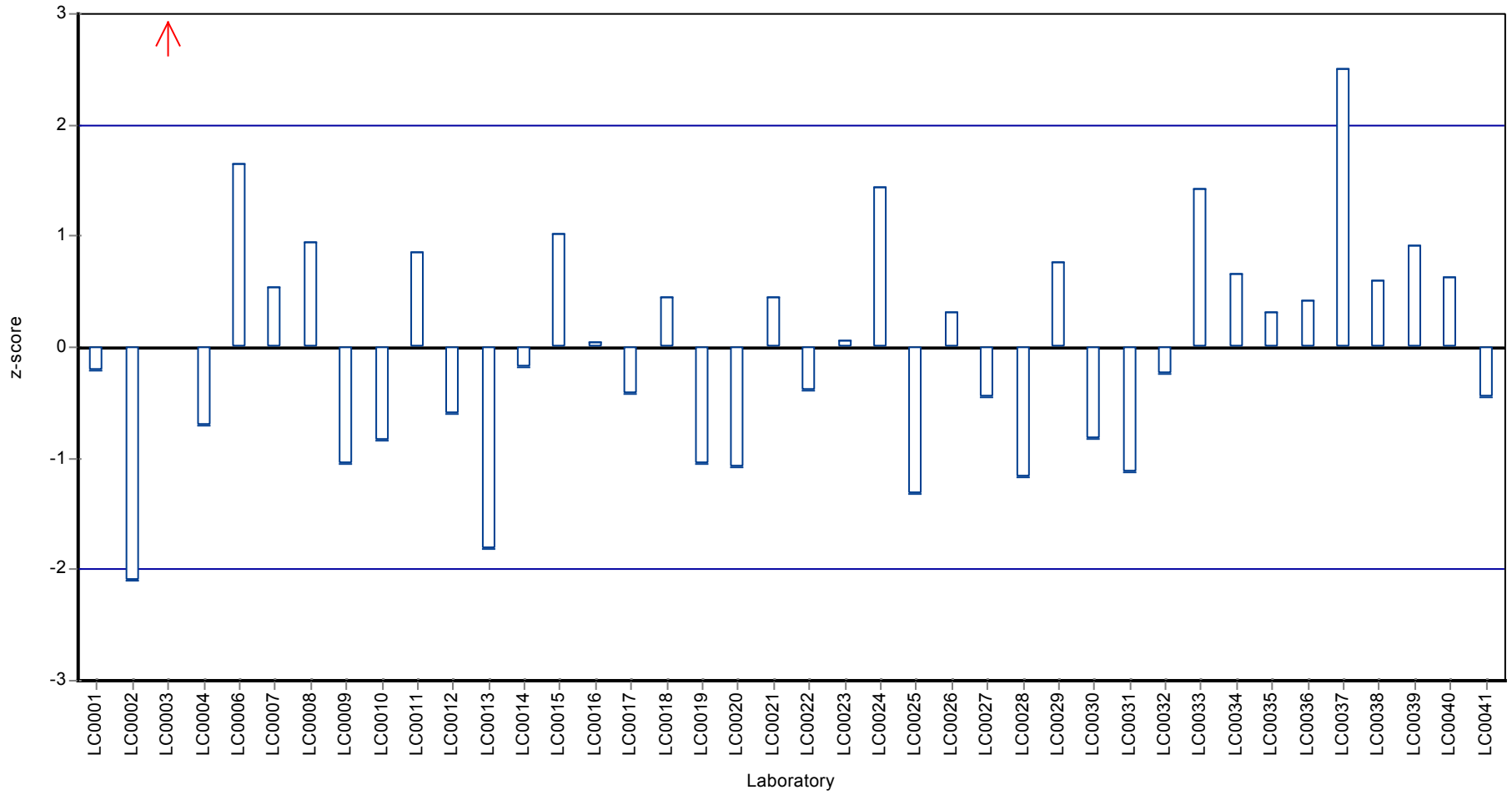
Results



Recovery rate



Z-score


3
2
1
0
-1
-2
-3
z-score
LC0001
LC0002
LC0003
LC0004
LC0006
LC0007
LC0008
LC0009
LC0010
LC0011
LC0012
LC0013
LC0014
LC0015
LC0016
LC0017
LC0018
LC0019
LC0020
LC0021
LC0022
LC0023
LC0024
LC0025
LC0026
LC0027
LC0028
LC0029
LC0030
LC0031
LC0032
LC0033
LC0034
LC0035
LC0036
LC0037
LC0038
LC0039
LC0040
LC0041
Laboratory

Parameter oriented report

SP03 B - HC-index

HC-Index

Unit	mg/l
Mean ± CI (99%)	0.448 ± 0.103
Minimum - Maximum	0.03 - 0.95
Control test value ± U	-

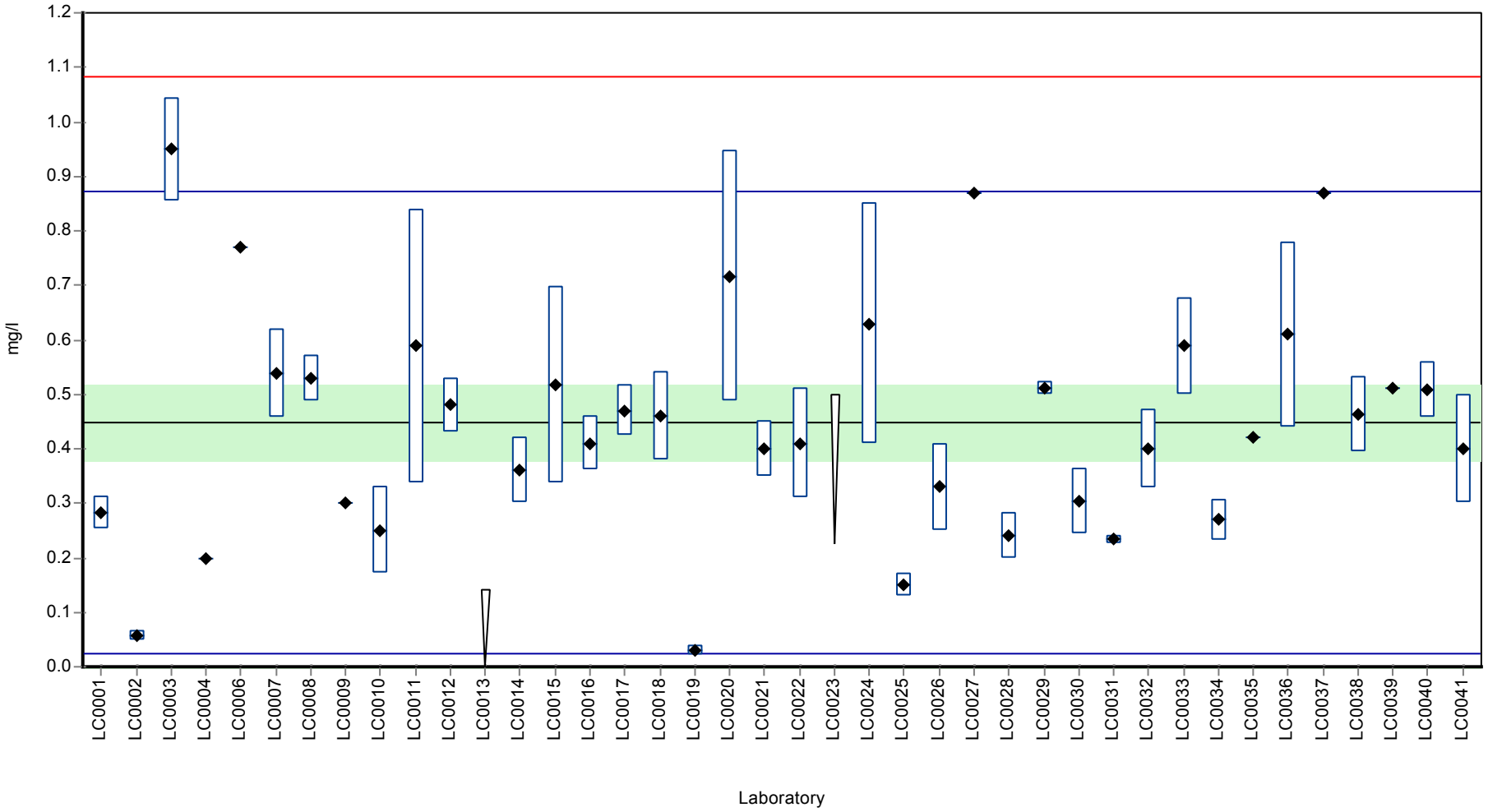
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.283	0.031	63.1	-0.78	
LC0002	0.057	0.008	12.7	-1.85	
LC0003	0.95	0.095	212	2.37	
LC0004	0.2	-	44.6	-1.17	
LC0005	-	-	-	-	
LC0006	0.77	-	172	1.52	
LC0007	0.539	0.081	120	0.43	
LC0008	0.53	0.042	118	0.39	
LC0009	0.3	-	66.9	-0.7	
LC0010	0.25	0.08	55.8	-0.94	
LC0011	0.588	0.252	131	0.66	
LC0012	0.48	0.05	107	0.15	
LC0013	< 0.14 (LOQ)	-	-	-	
LC0014	0.36	0.06	80.3	-0.42	
LC0015	0.518	0.18	116	0.33	
LC0016	0.41	0.05	91.5	-0.18	
LC0017	0.47	0.047	105	0.1	
LC0018	0.46	0.08	103	0.06	
LC0019	0.03	0.01	6.7	-1.98	
LC0020	0.717	0.23	160	1.27	
LC0021	0.4	0.05	89.2	-0.23	
LC0022	0.41	0.1	91.5	-0.18	
LC0023	< 0.5 (LOQ)	-	-	-	
LC0024	0.63	0.22	141	0.86	
LC0025	0.15	0.02	33.5	-1.41	
LC0026	0.33	0.08	73.6	-0.56	
LC0027	0.87	-	194	1.99	
LC0028	0.24	0.042	53.5	-0.98	
LC0029	0.511	0.011	114	0.3	
LC0030	0.304	0.06	67.8	-0.68	
LC0031	0.234	0.008	52.2	-1.01	
LC0032	0.399	0.072	89	-0.23	
LC0033	0.589	0.089	131	0.67	
LC0034	0.27	0.038	60.2	-0.84	
LC0035	0.422	-	94.1	-0.12	
LC0036	0.61	0.17	136	0.76	
LC0037	0.87	-	194	1.99	
LC0038	0.464	0.06954	104	0.07	
LC0039	0.51	-	114	0.29	
LC0040	0.509	0.051	114	0.29	
LC0041	0.4	0.1	89.2	-0.23	

Characteristics of parameter

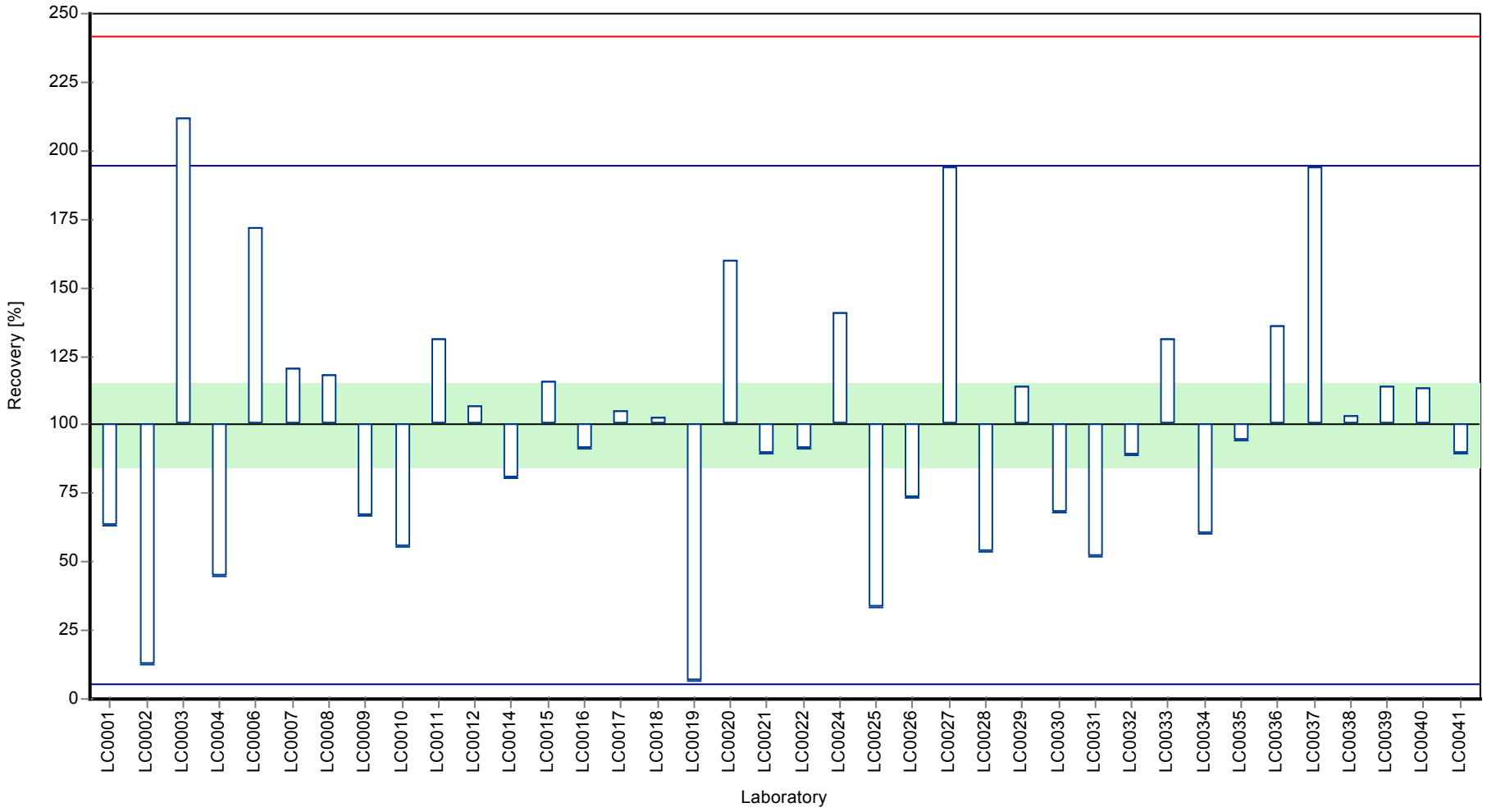
	all results	without outliers	Unit
Mean ± CI (99%)	0.448 ± 0.103	0.448 ± 0.103	mg/l
Minimum	0.03	0.03	mg/l
Maximum	0.95	0.95	mg/l
Standard deviation	0.212	0.212	mg/l
rel. Standard deviation	47.2	47.2	%
n	38	38	-

Graphical presentation of results

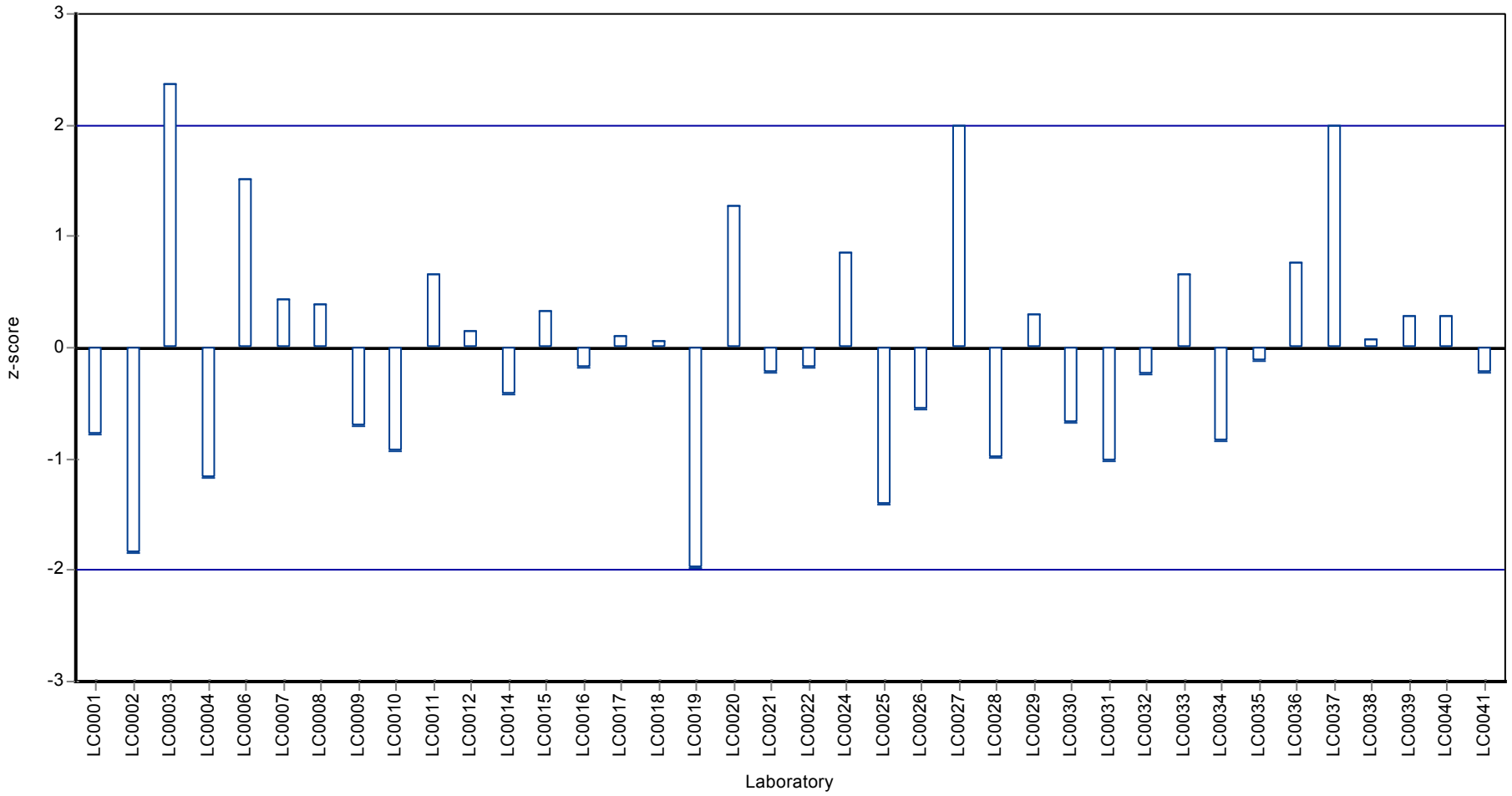
Results



Recovery rate



Z-score


3
2
1
0
-1
-2
-3
z-score
LC0001
LC0002
LC0003
LC0004
LC0006
LC0007
LC0008
LC0009
LC0010
LC0011
LC0012
LC0014
LC0015
LC0016
LC0017
LC0018
LC0019
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LC0024
LC0025
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LC0027
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LC0029
LC0030
LC0031
LC0032
LC0033
LC0034
LC0035
LC0036
LC0037
LC0038
LC0039
LC0040
LC0041
Laboratory

Parameter oriented report

SP03 A - Phenol index

Phenol Index

Unit	mg/l
Mean ± CI (99%)	0.11 ± 0.0126
Minimum - Maximum	0.08 - 0.133
Control test value ± U	0.09 ± 0.009

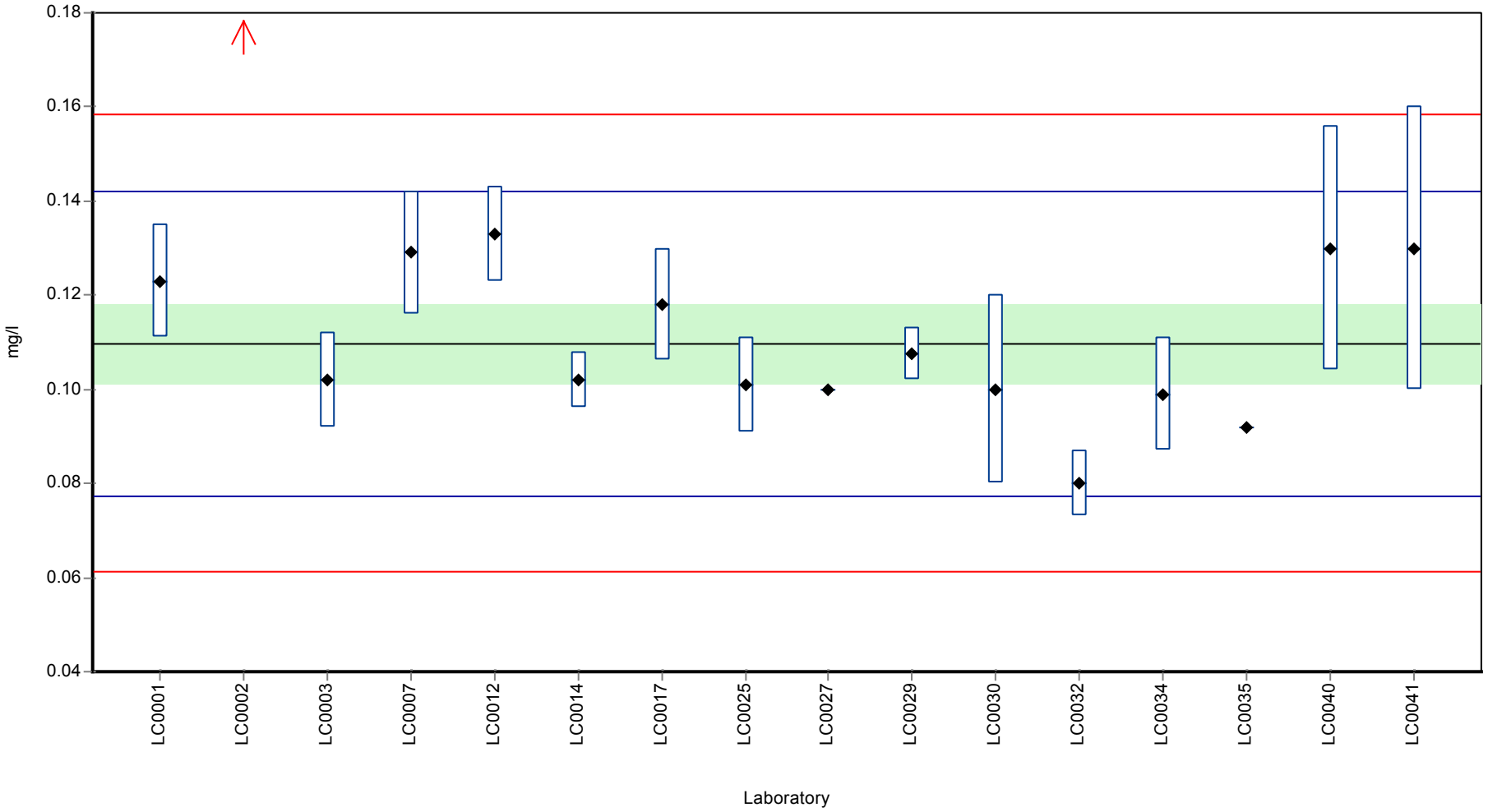
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.123	0.012	112	0.82	
LC0002	1.84	0.21	1680	107	H
LC0003	0.102	0.01	92.9	-0.48	
LC0005	-	-	-	-	
LC0007	0.129	0.013	118	1.19	
LC0012	0.133	0.01	121	1.43	
LC0014	0.102	0.006	92.9	-0.48	
LC0017	0.118	0.012	107	0.51	
LC0025	0.101	0.01	92	-0.54	
LC0027	0.1	-	91.1	-0.6	
LC0029	0.1076	0.00569	98	-0.13	
LC0030	0.1	0.02	91.1	-0.6	
LC0032	0.08	0.007	72.9	-1.84	
LC0034	0.099	0.012	90.2	-0.66	
LC0035	0.092	-	83.8	-1.1	
LC0040	0.13	0.026	118	1.25	
LC0041	0.13	0.03	118	1.25	

Characteristics of parameter

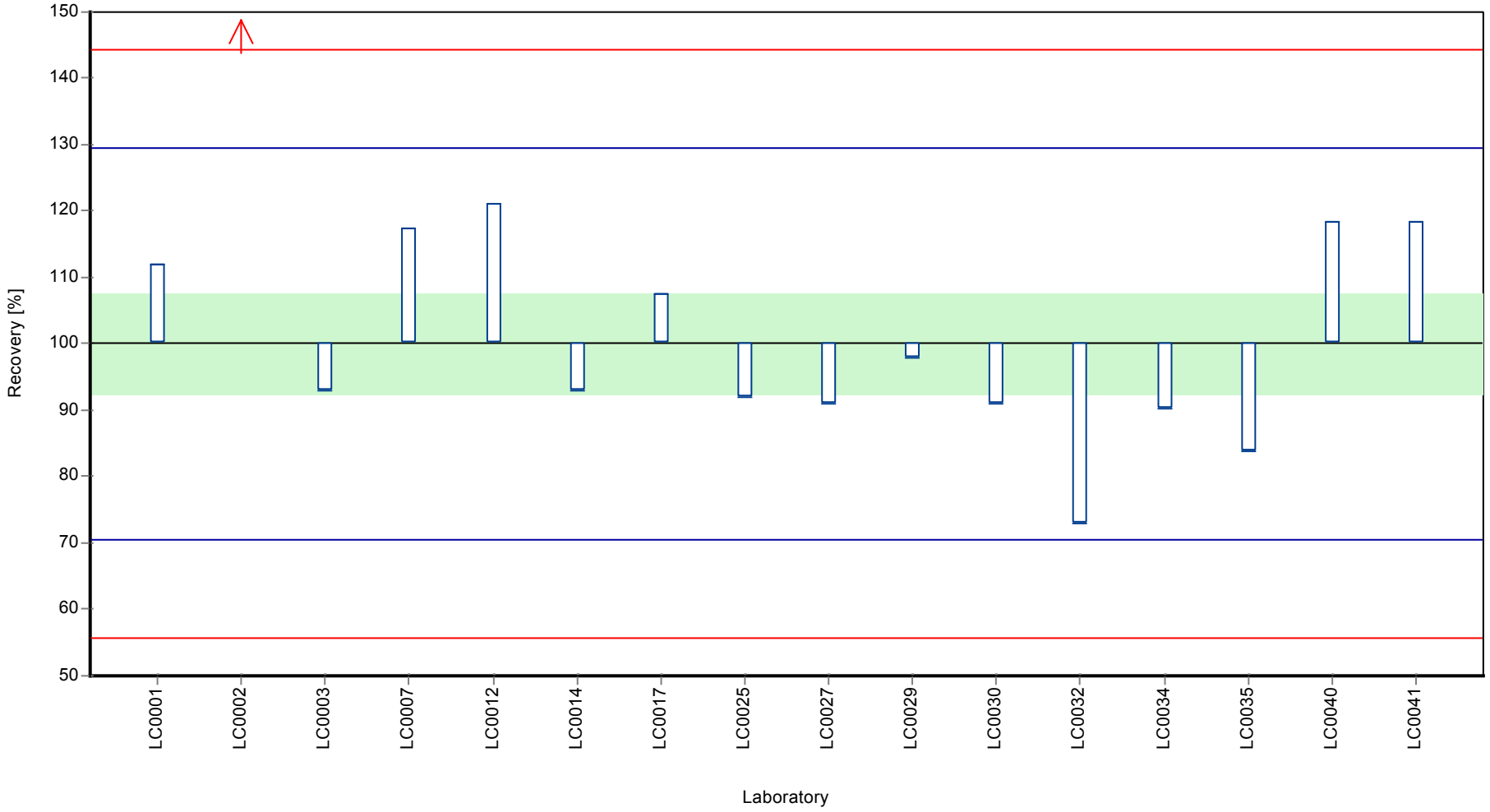
	all results	without outliers	Unit
Mean ± CI (99%)	0.218 ± 0.325	0.11 ± 0.0126	mg/l
Minimum	0.08	0.08	mg/l
Maximum	1.84	0.133	mg/l
Standard deviation	0.433	0.0162	mg/l
rel. Standard deviation	199	14.8	%
n	16	15	-

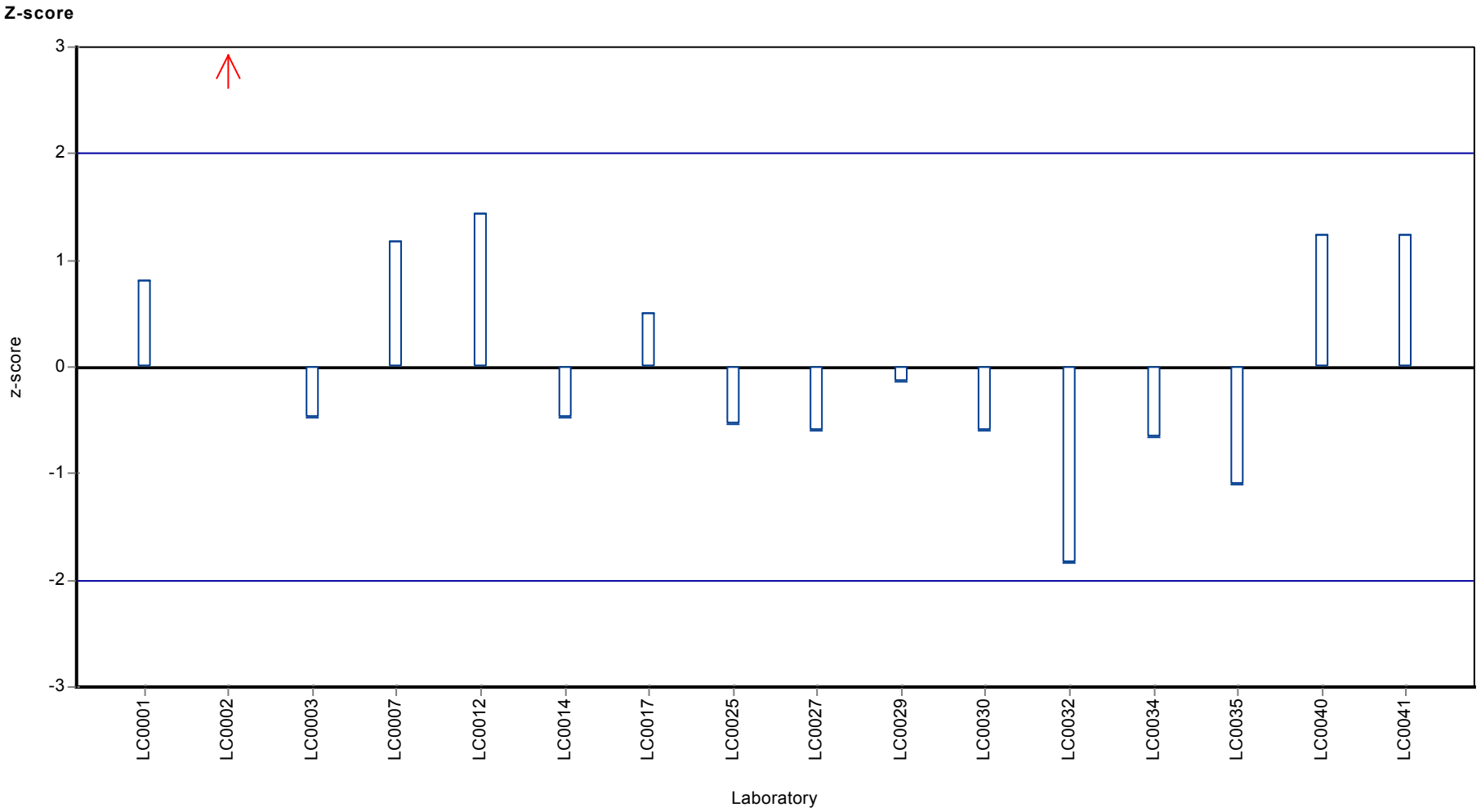
Graphical presentation of results

Results



Recovery rate




Z-score
3
2
1
0
-1
-2
-3
z-score
LC0001
LC0002
LC0003
LC0007
LC0012
LC0014
LC0017
LC0025
LC0027
LC0029
LC0030
LC0032
LC0034
LC0035
LC0040
LC0041
Laboratory

Parameter oriented report

SP03 B - Phenol index

Phenol Index

Unit	mg/l
Mean ± CI (99%)	0.0521 ± 0.00544
Minimum - Maximum	0.04 - 0.064
Control test value ± U	< 0.061 (LOQ)

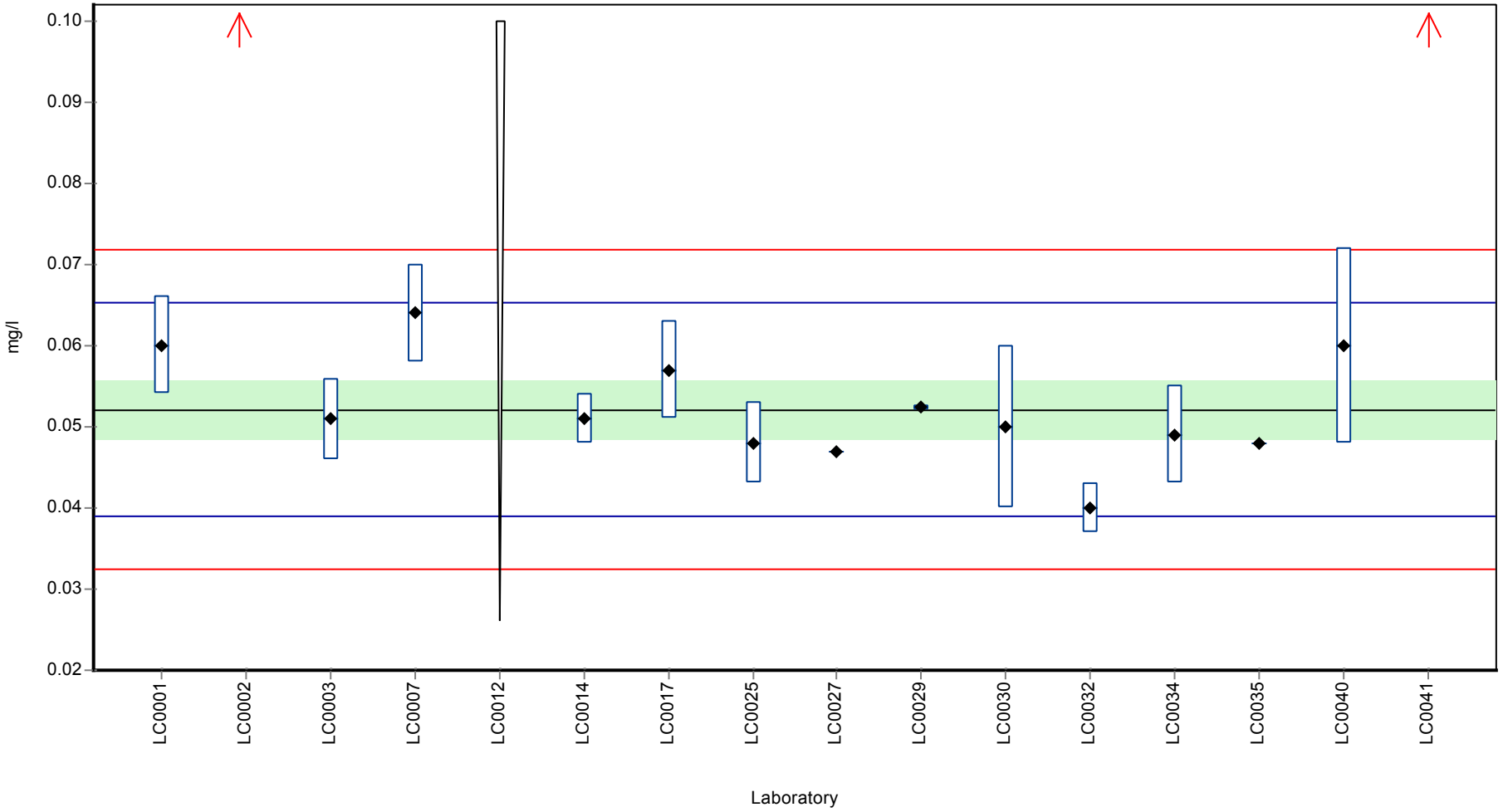
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.06	0.006	115	1.21	
LC0002	0.45	0.05	864	60.9	H
LC0003	0.051	0.005	97.9	-0.17	
LC0005	-	-	-	-	
LC0007	0.064	0.006	123	1.82	
LC0012	< 0.1 (LOQ)	-	-	-	
LC0014	0.051	0.003	97.9	-0.17	
LC0017	0.057	0.006	109	0.75	
LC0025	0.048	0.005	92.1	-0.63	
LC0027	0.047	-	90.2	-0.78	
LC0029	0.0524	0.00028	101	0.04	
LC0030	0.05	0.01	96	-0.32	
LC0032	0.04	0.003	76.8	-1.85	
LC0034	0.049	0.006	94	-0.47	
LC0035	0.048	-	92.1	-0.63	
LC0040	0.06	0.012	115	1.21	
LC0041	0.15	0.03	288	15	H

Characteristics of parameter

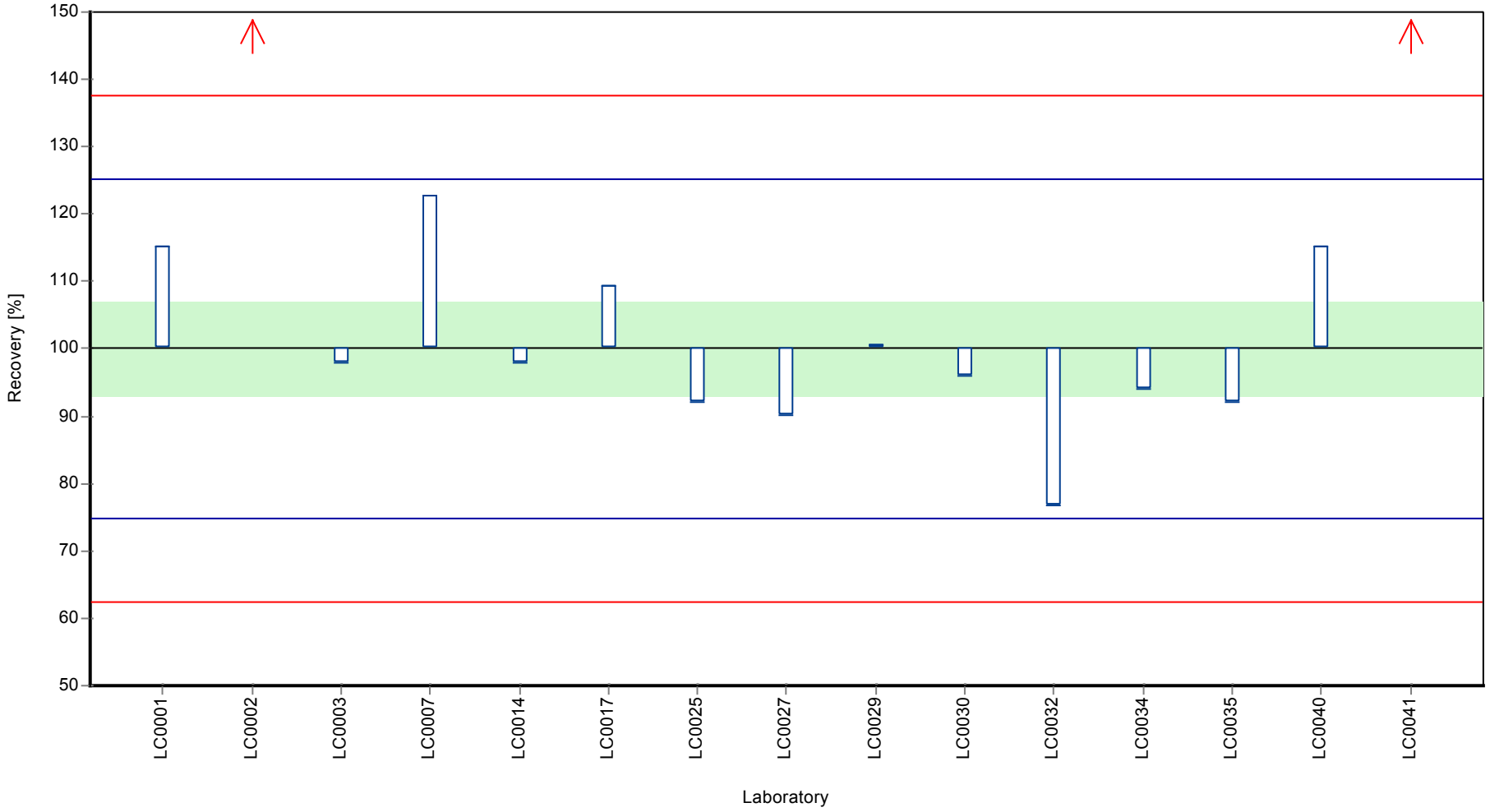
	all results	without outliers	Unit
Mean ± CI (99%)	0.0852 ± 0.0807	0.0521 ± 0.00544	mg/l
Minimum	0.04	0.04	mg/l
Maximum	0.45	0.064	mg/l
Standard deviation	0.104	0.00654	mg/l
rel. Standard deviation	122	12.5	%
n	15	13	-

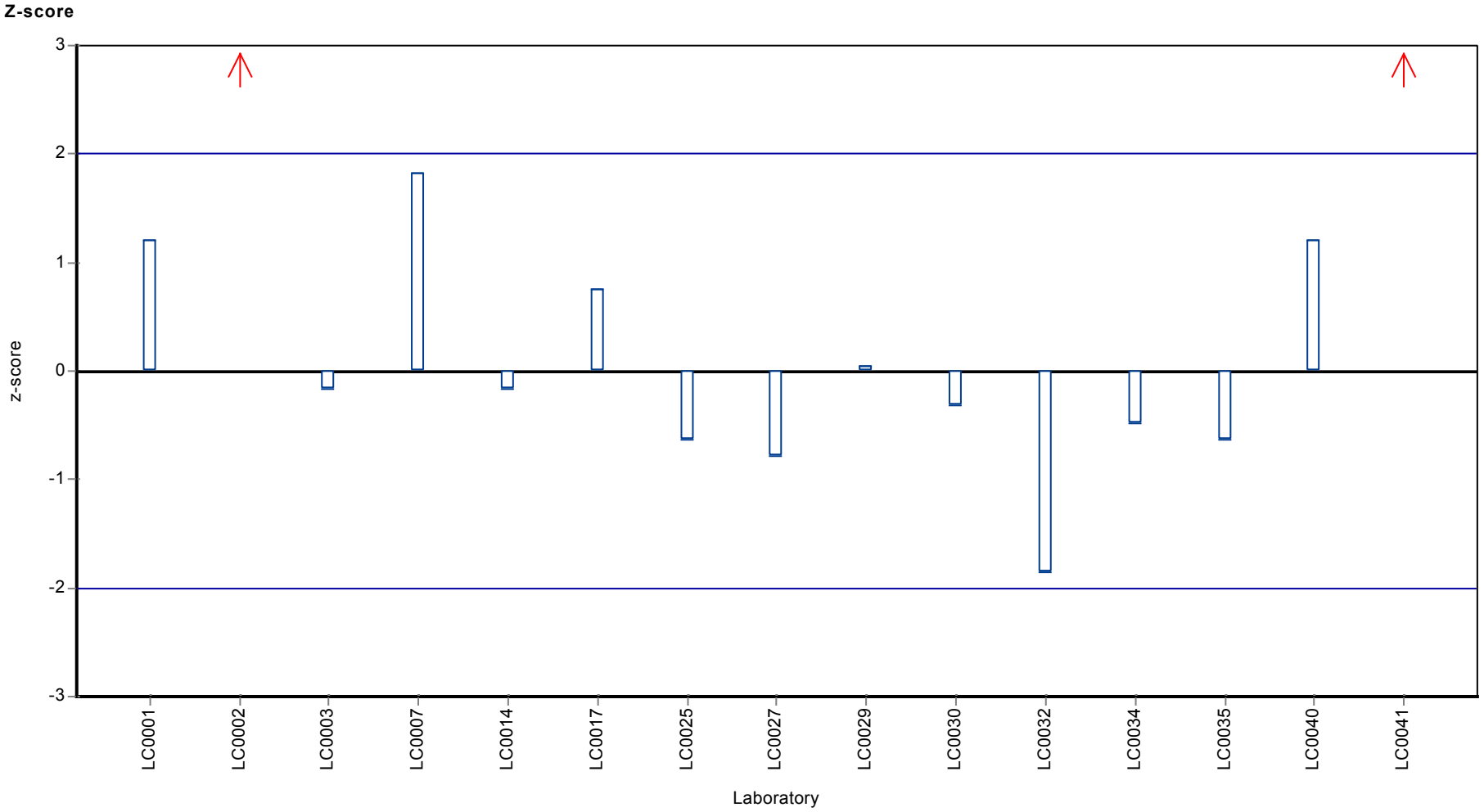
Graphical presentation of results

Results



Recovery rate




Z-score
3
2
1
0
-1
-2
-3
z-score
LC0001
LC0002
LC0003
LC0007
LC0014
LC0017
LC0025
LC0027
LC0029
LC0030
LC0032
LC0034
LC0035
LC0040
LC0041
Laboratory

8 Laboratory oriented report

The laboratory oriented report is sorted by laboratory code.

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.587	0.034	0.779	90.7	-0.21

Sample: SP03KWIB

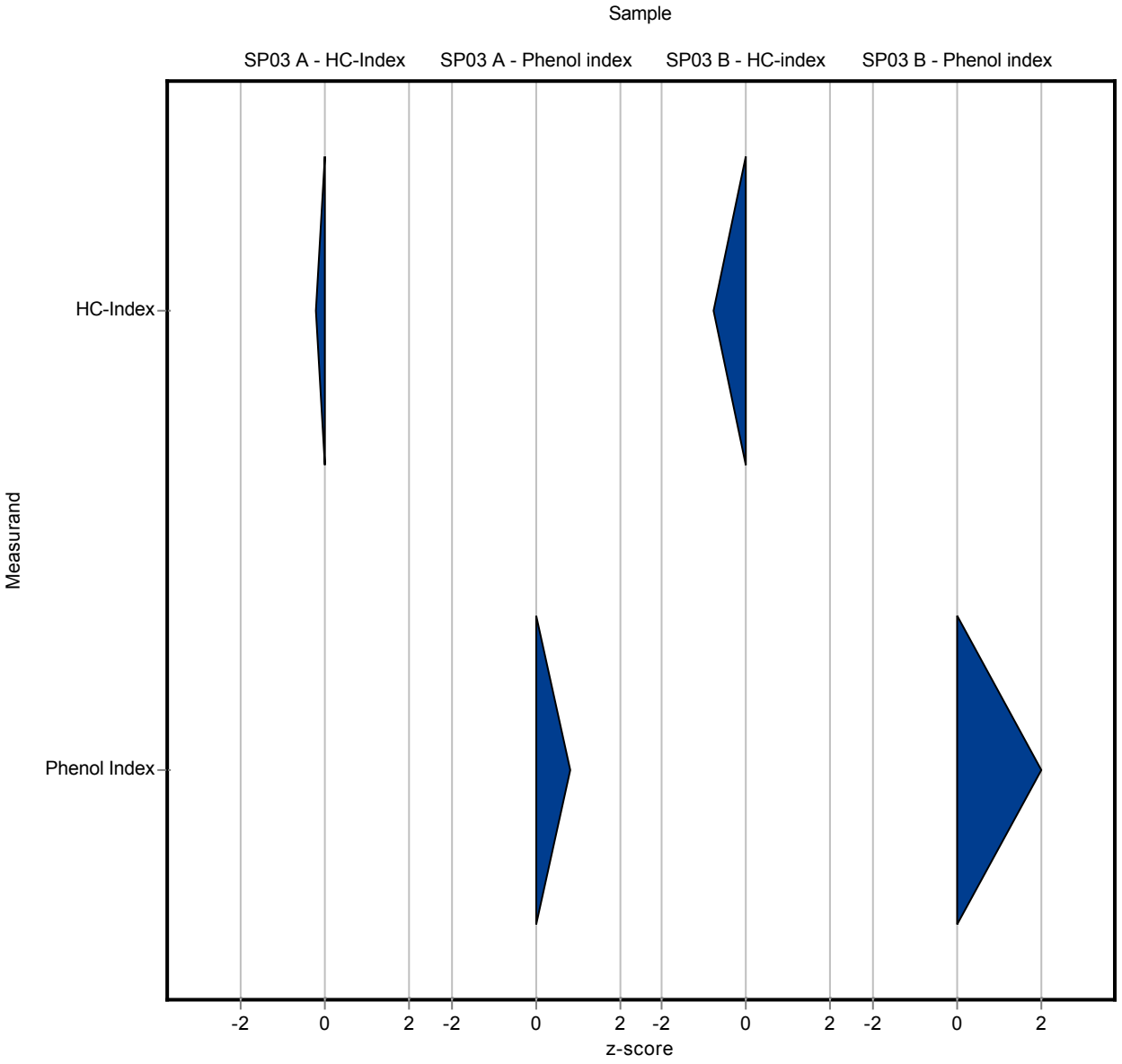
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.283	0.031	0.212	63.1	-0.78

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.123	0.012	0.0162	112	0.82

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.06	0.006	0.00654	115	1.21


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.11	0.015	0.779	6.29	-2.10

Sample: SP03KWIB

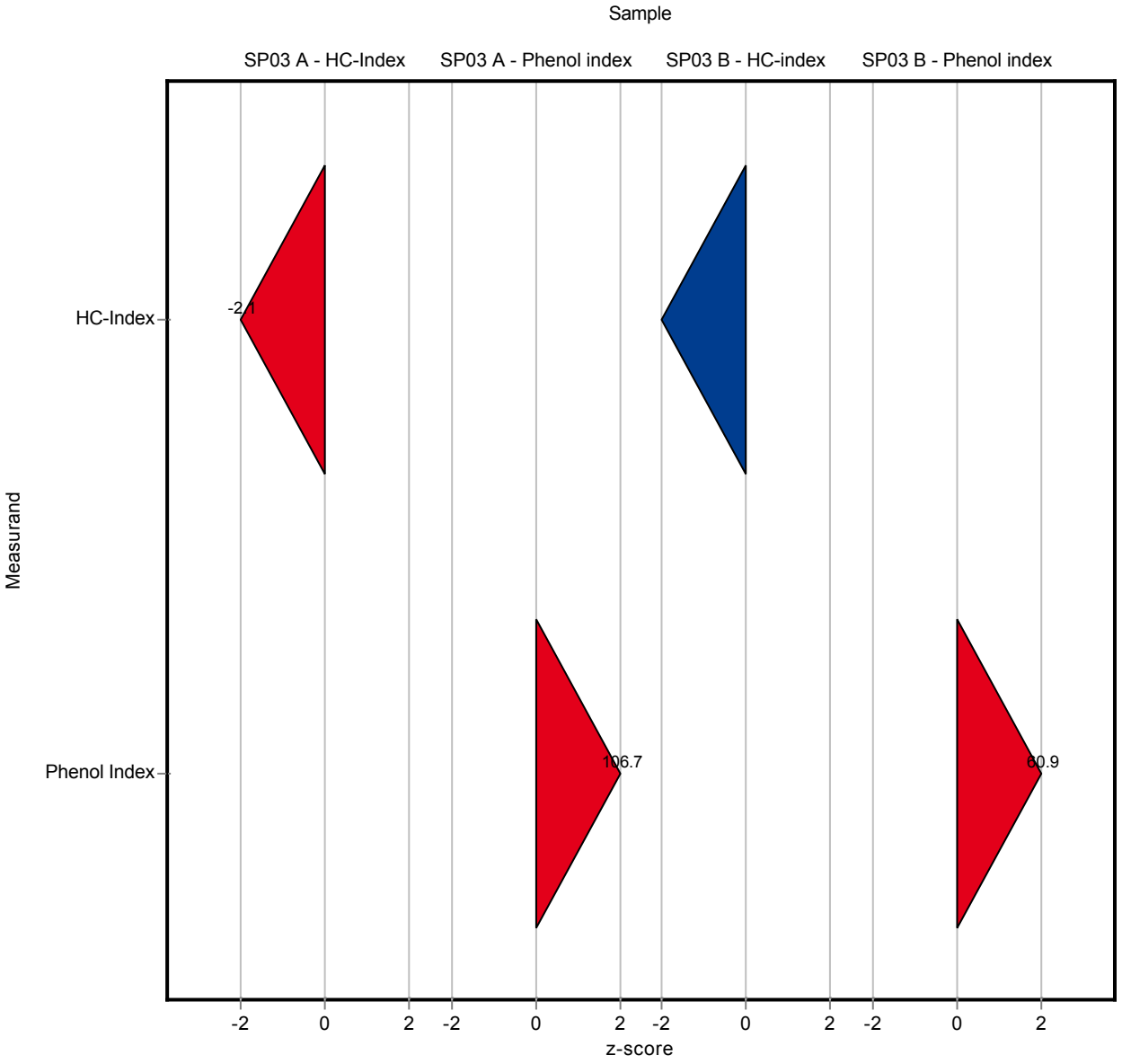
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.057	0.008	0.212	12.7	-1.85

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	1.84	0.21	0.0162	1680	107.00

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.45	0.05	0.00654	864	60.90


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
Measurand
HC-Index
Phenol Index
-2.1
106.7
60.9
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	5.63	0.56	0.779	322	4.98

Sample: SP03KWIB

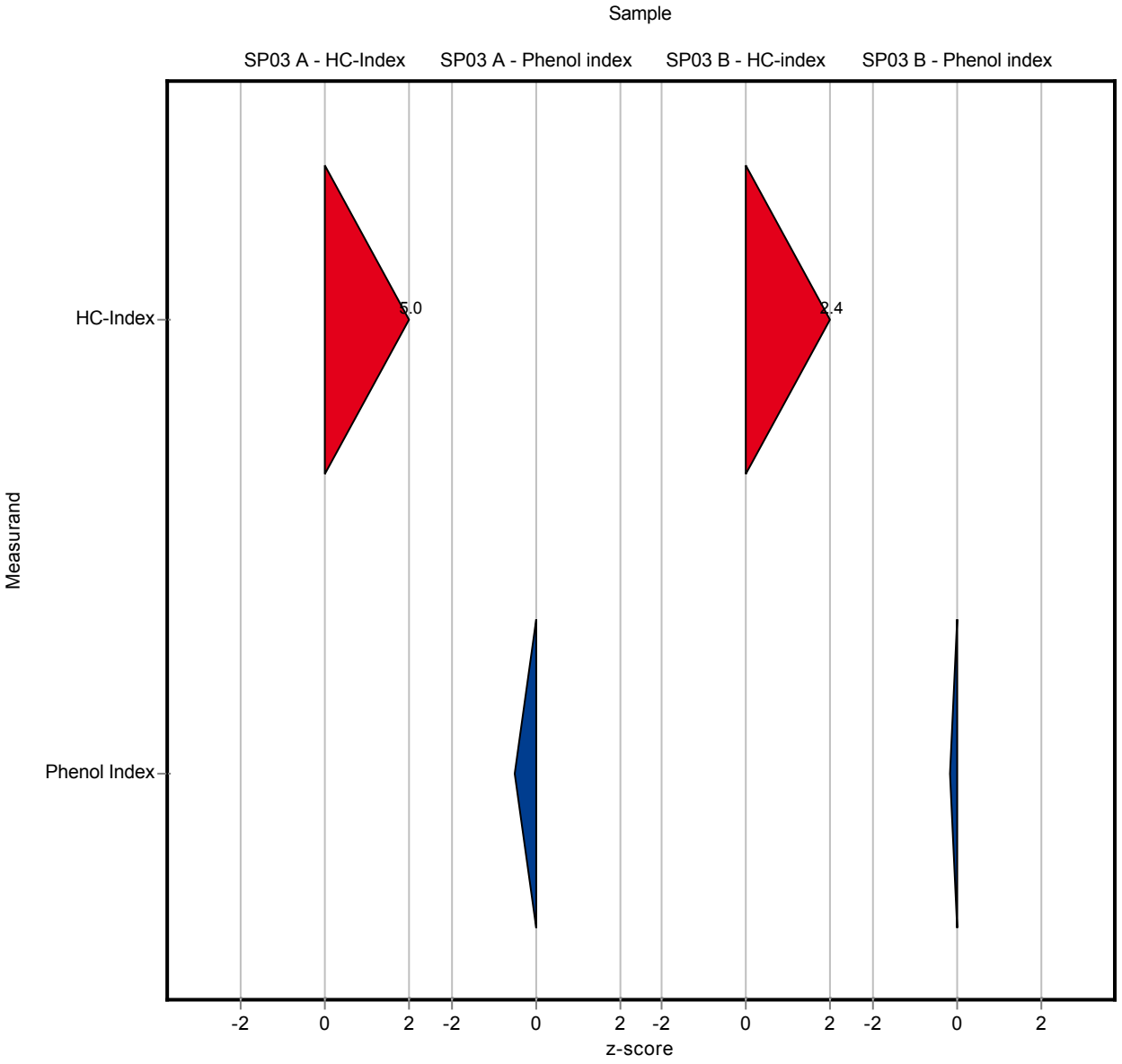
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.95	0.095	0.212	212	2.37

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.102	0.01	0.0162	92.9	-0.48

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.051	0.005	0.00654	97.9	-0.17


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
5.0
2.4
-2
0
2
z-score

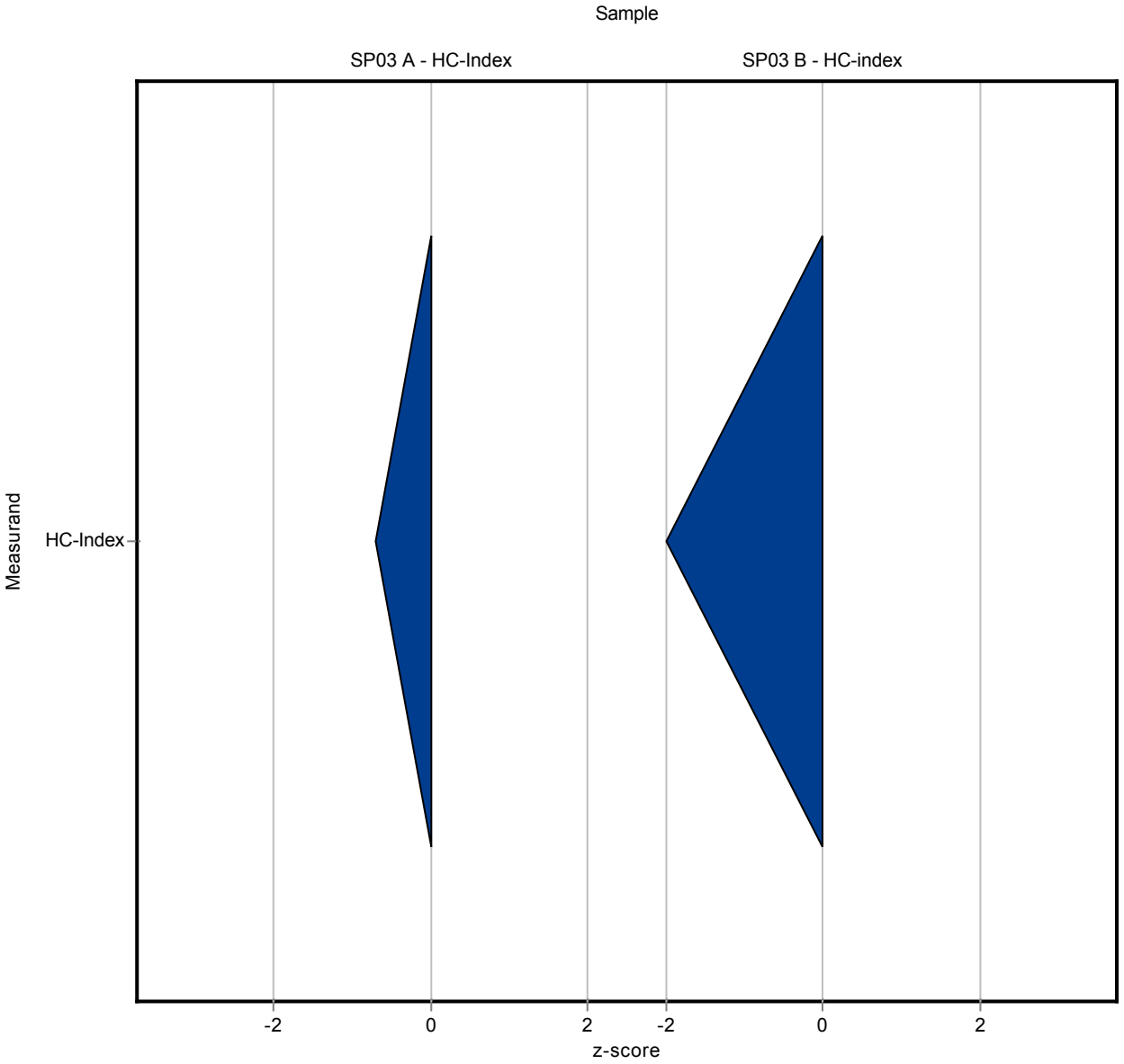
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.2	-	0.779	68.6	-0.70

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.2	-	0.212	44.6	-1.17


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	-	-	0.779	-	-

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	-	-	0.212	-	-

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	-	-	0.0162	-	-

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	-	-	0.00654	-	-

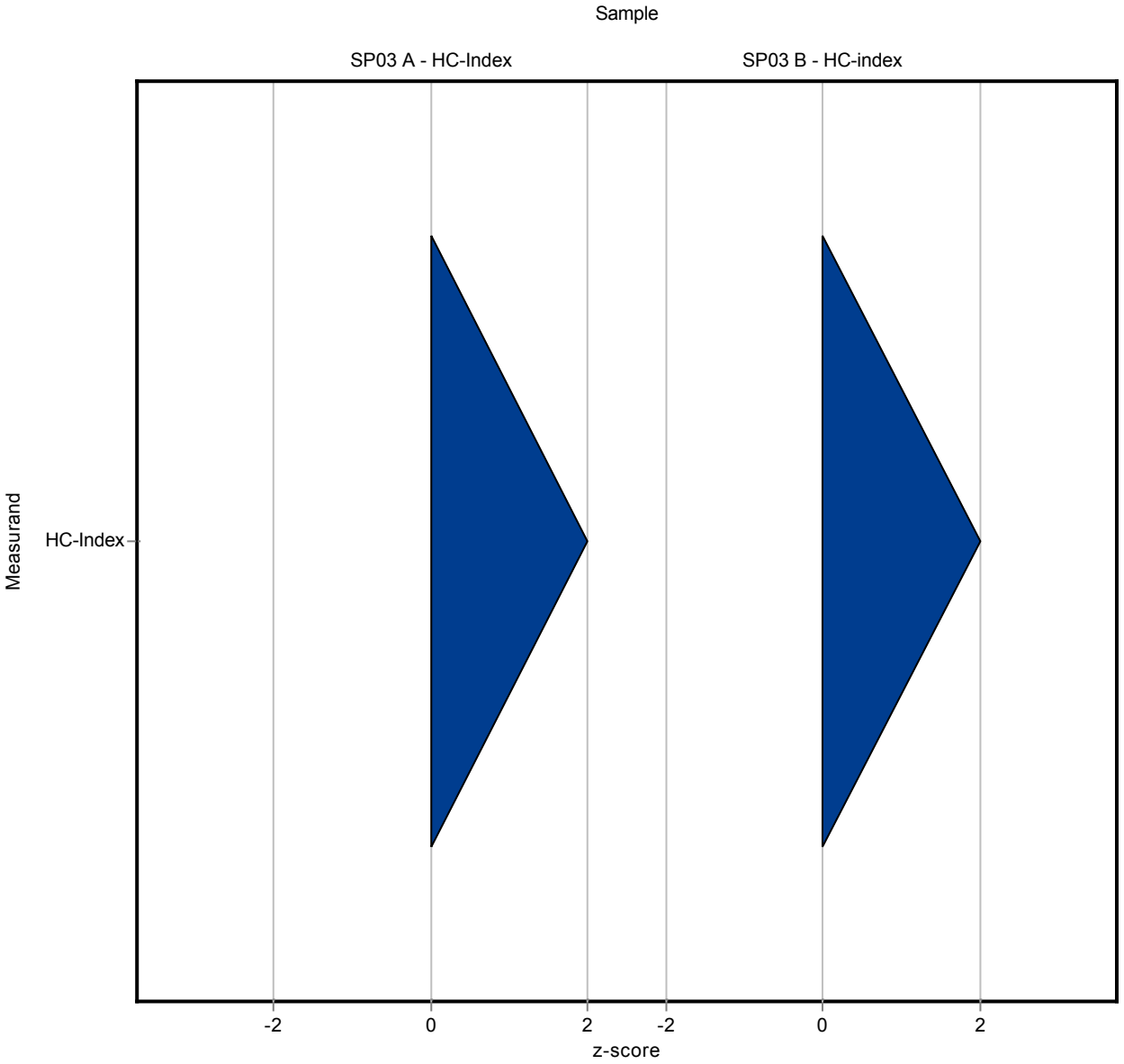
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	3.04	-	0.779	174	1.66

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.77	-	0.212	172	1.52


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.17	0.33	0.779	124	0.54

Sample: SP03KWIB

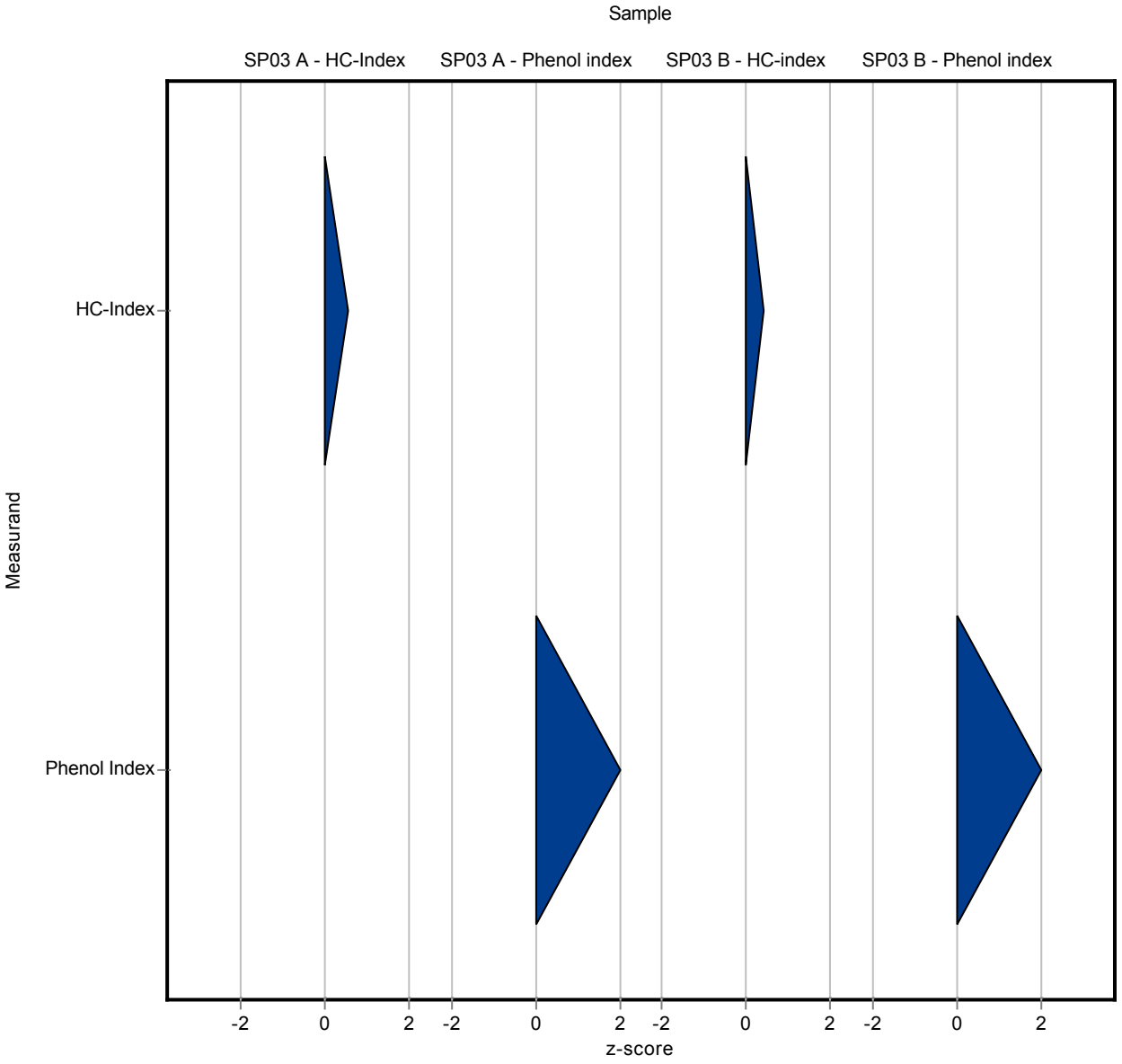
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.539	0.081	0.212	120	0.43

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.129	0.013	0.0162	118	1.19

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.064	0.006	0.00654	123	1.82


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

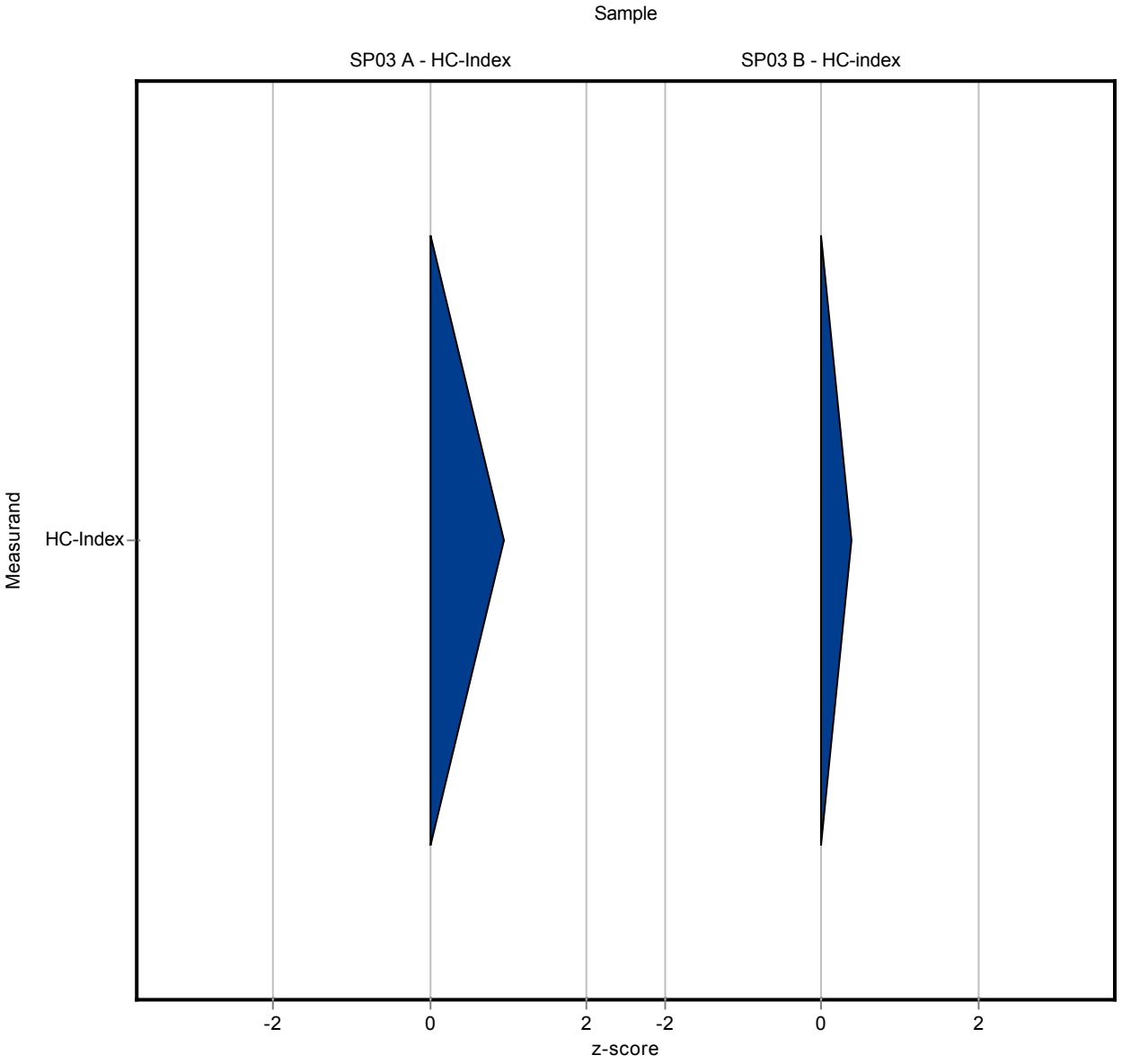
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	2.49	0.2	0.779	142	0.95

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	0.53	0.042	0.212	118	0.39


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

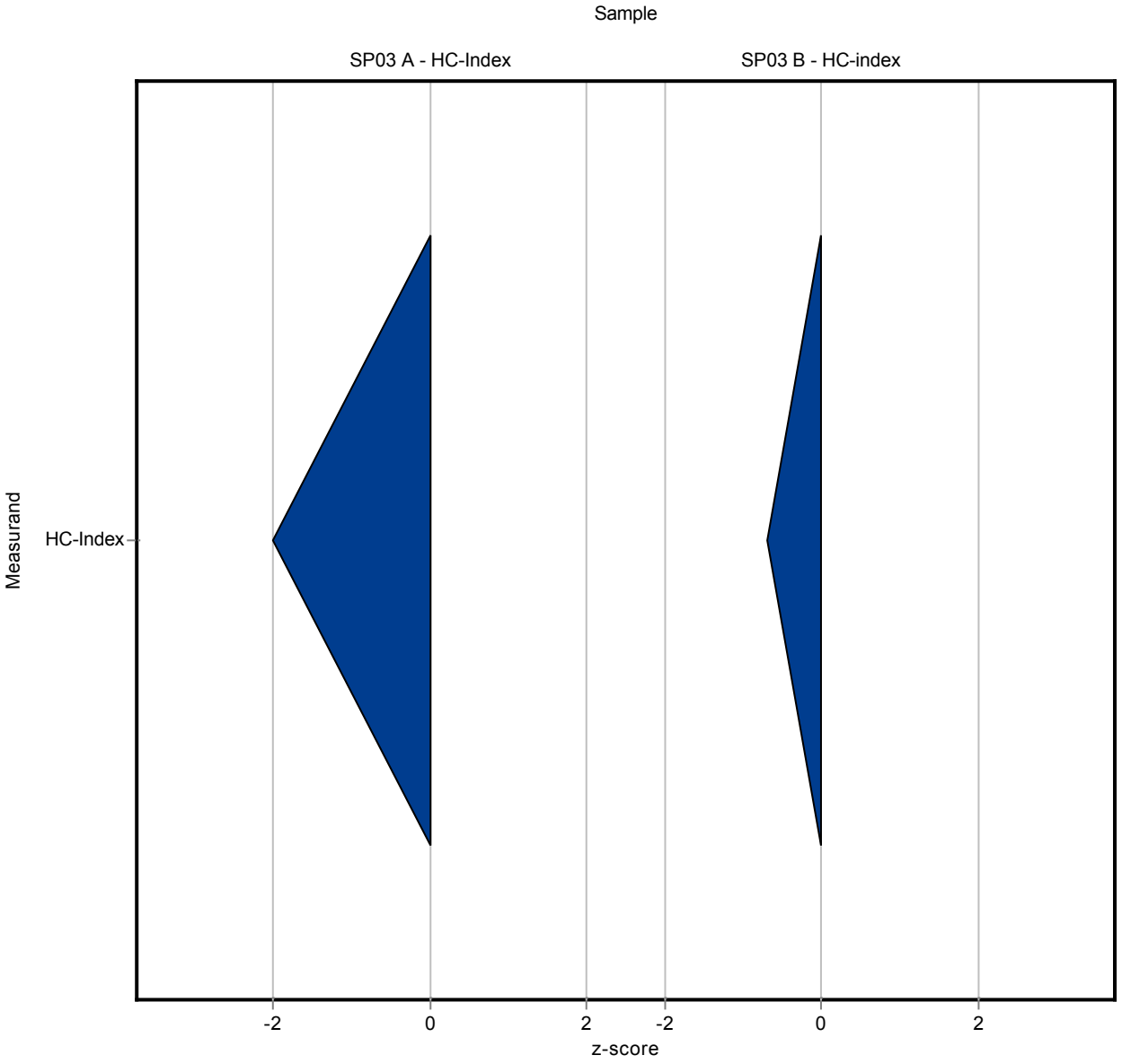
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.93	-	0.779	53.2	-1.05

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.3	-	0.212	66.9	-0.70


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

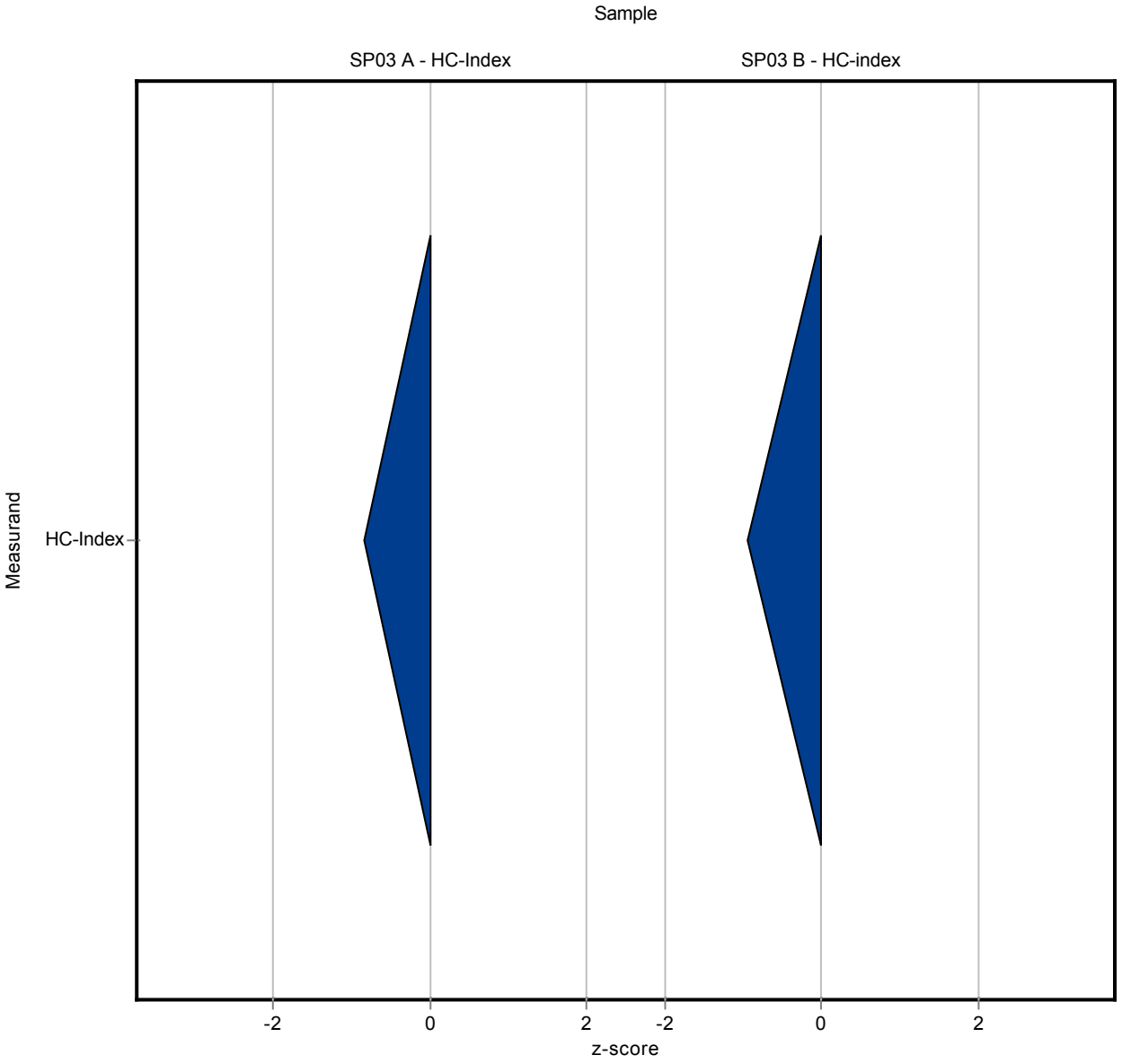
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.1	0.3	0.779	62.9	-0.83

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.25	0.08	0.212	55.8	-0.94


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

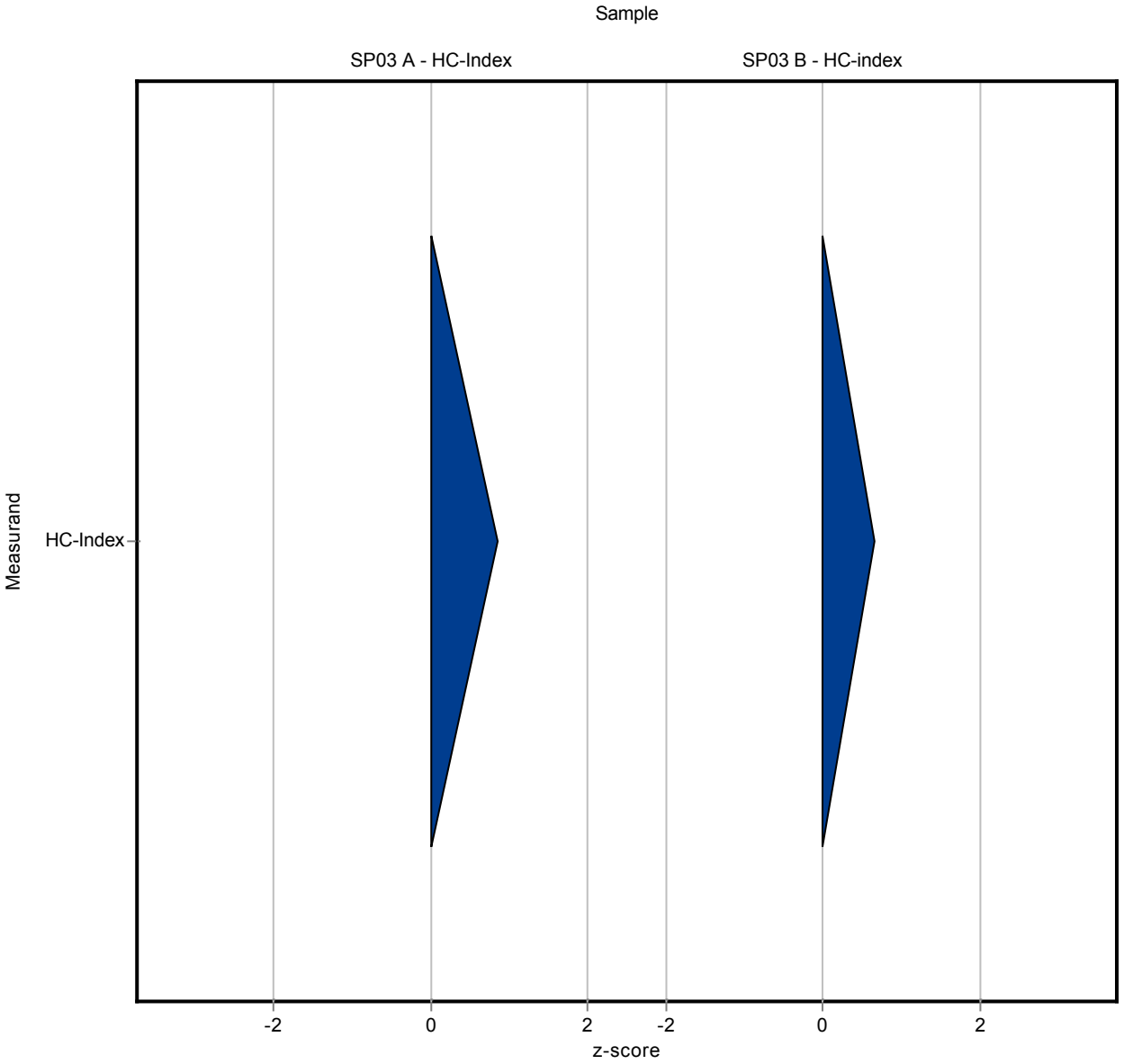
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	2.411	1.032	0.779	138	0.85

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	0.588	0.252	0.212	131	0.66


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.28	0.13	0.779	73.2	-0.60

Sample: SP03KWIB

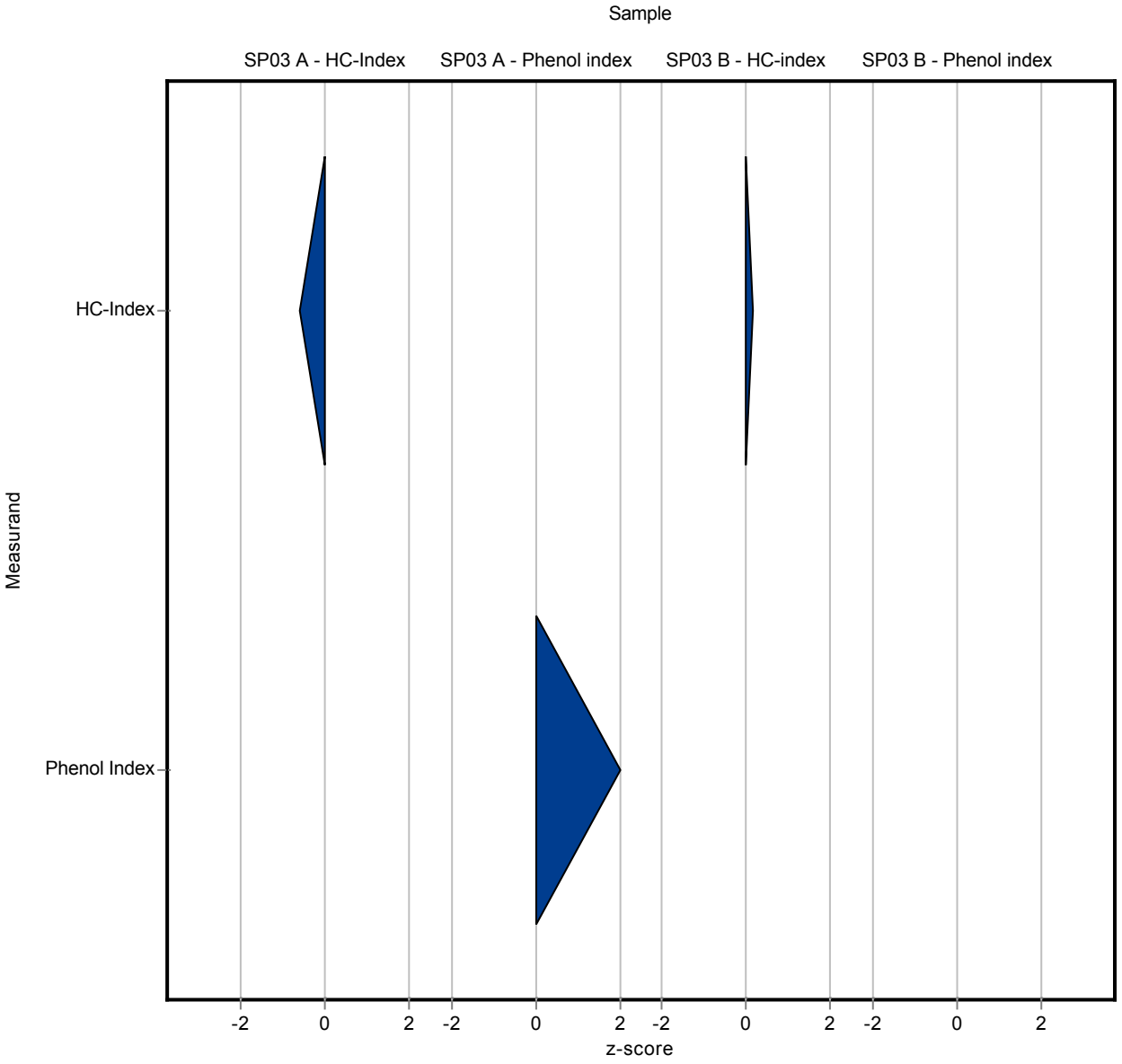
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.48	0.05	0.212	107	0.15

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.133	0.01	0.0162	121	1.43

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	<0.1 (LOQ)	-	0.00654	-	-


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

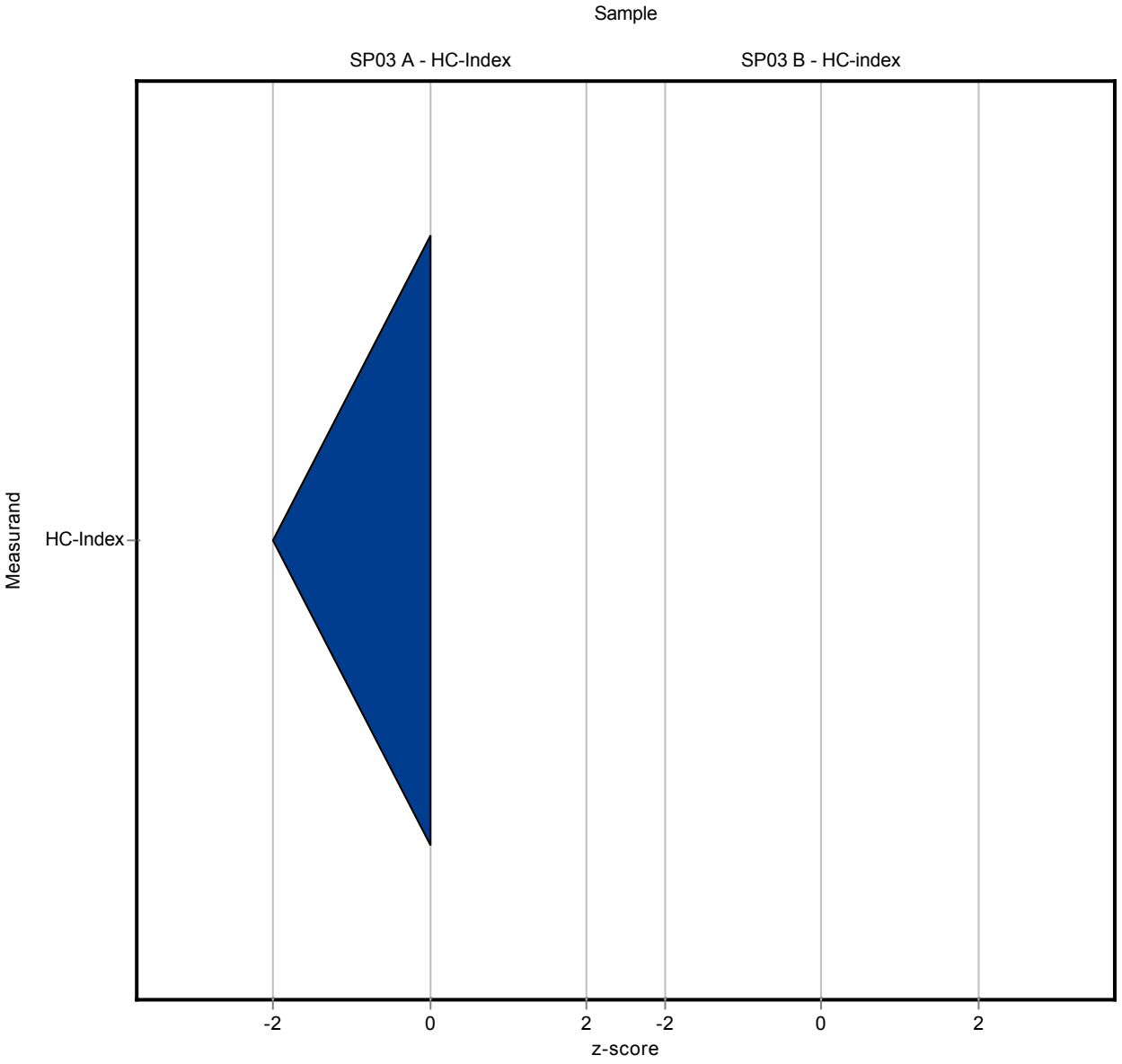
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.34	-	0.779	19.4	-1.81

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	<0.14 (LOQ)	-	0.212	-	-


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.61	0.29	0.779	92	-0.18

Sample: SP03KWIB

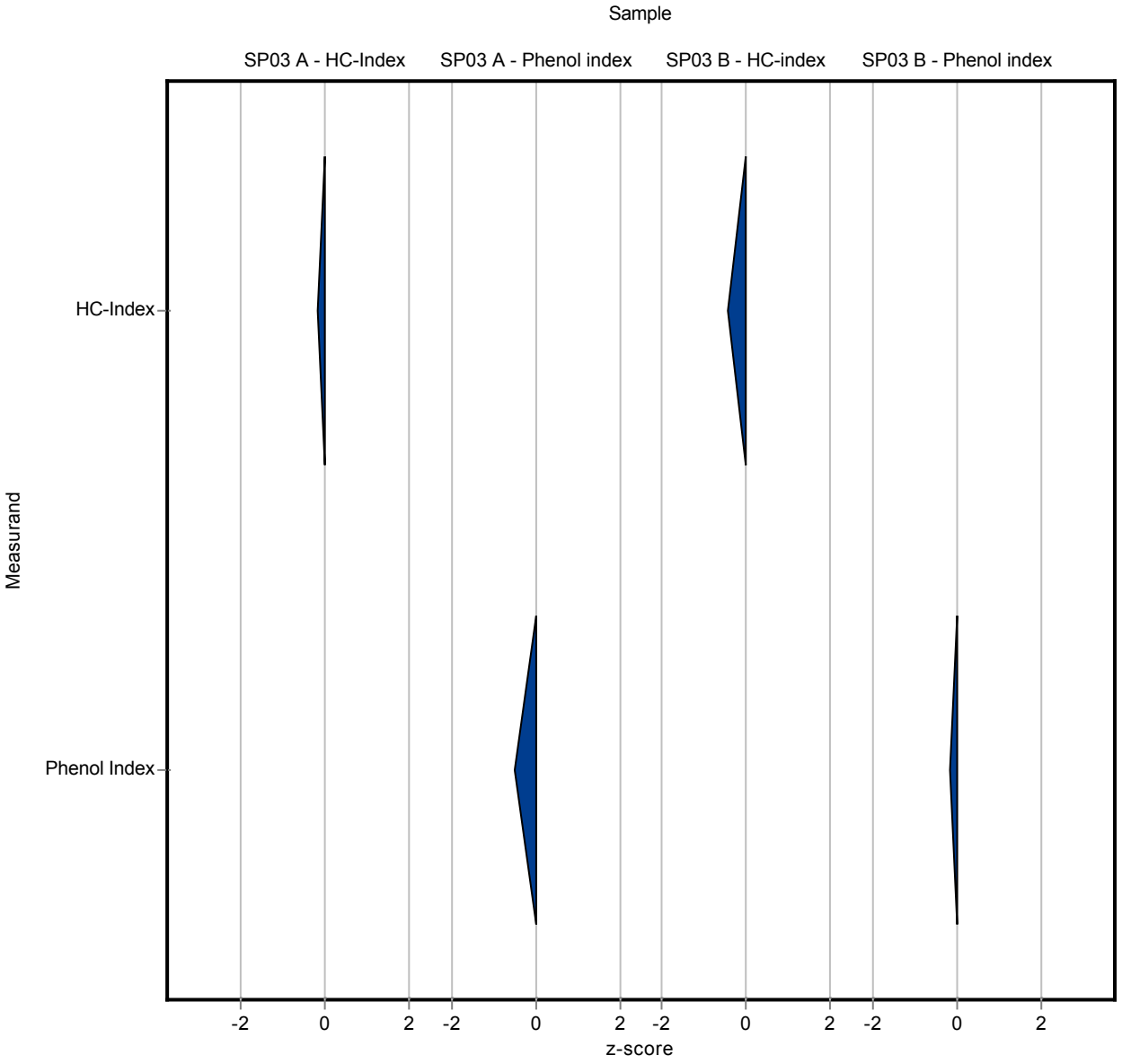
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.36	0.06	0.212	80.3	-0.42

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.102	0.006	0.0162	92.9	-0.48

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.051	0.003	0.00654	97.9	-0.17


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

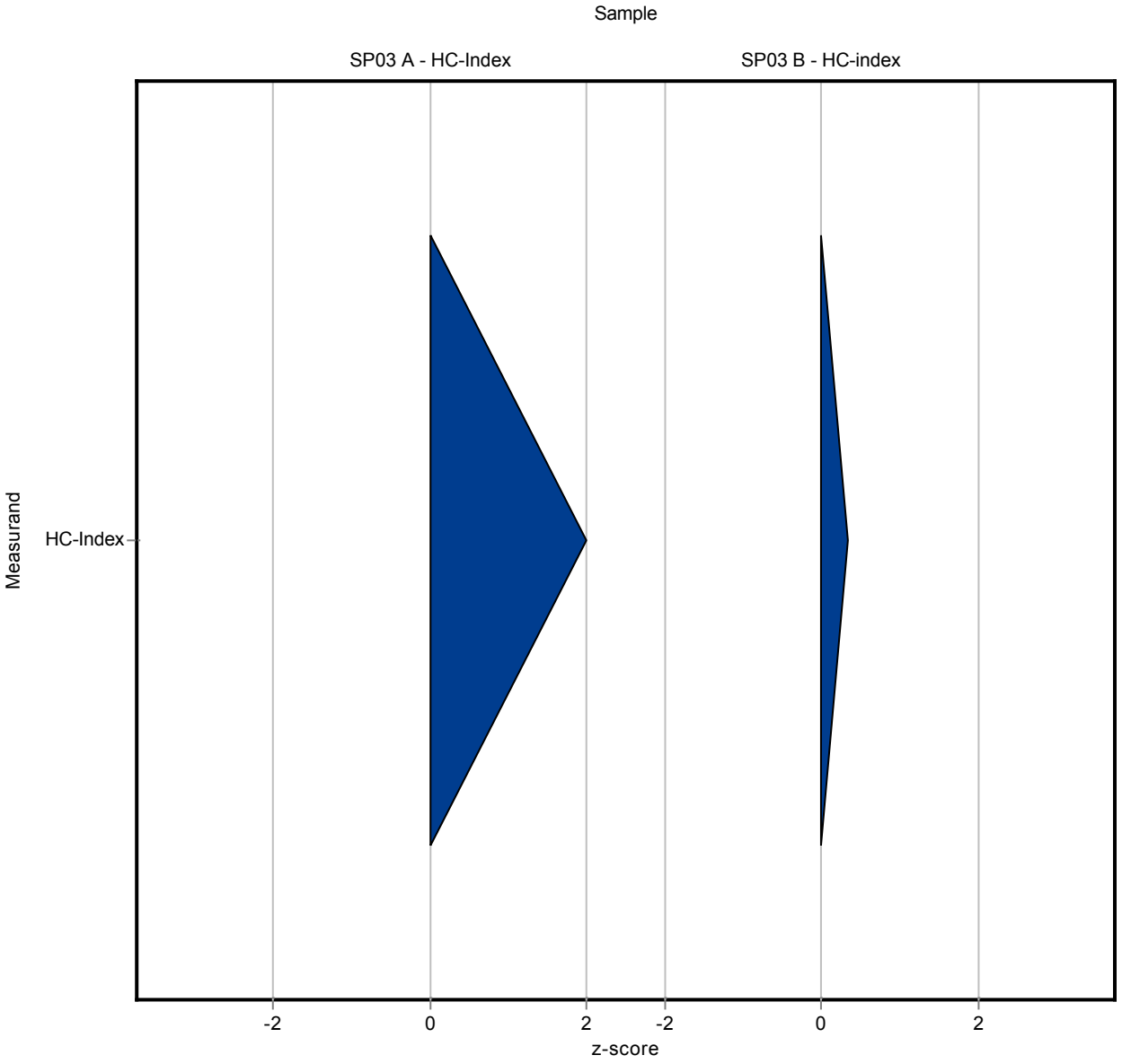
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.543	0.89	0.779	145	1.02

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.518	0.18	0.212	116	0.33


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

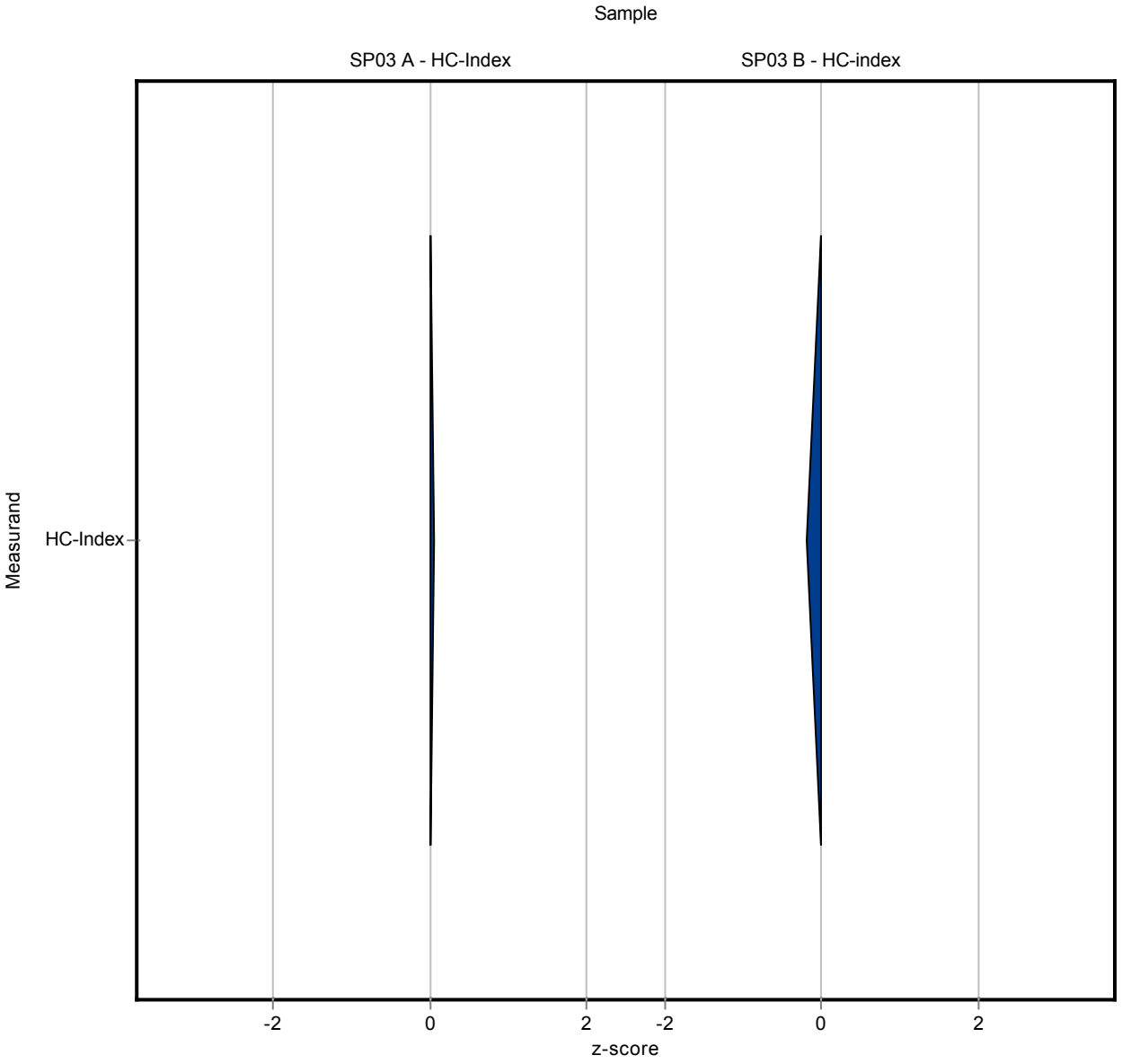
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.79	0.2	0.779	102	0.05

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.41	0.05	0.212	91.5	-0.18


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.425	0.143	0.779	81.5	-0.42

Sample: SP03KWIB

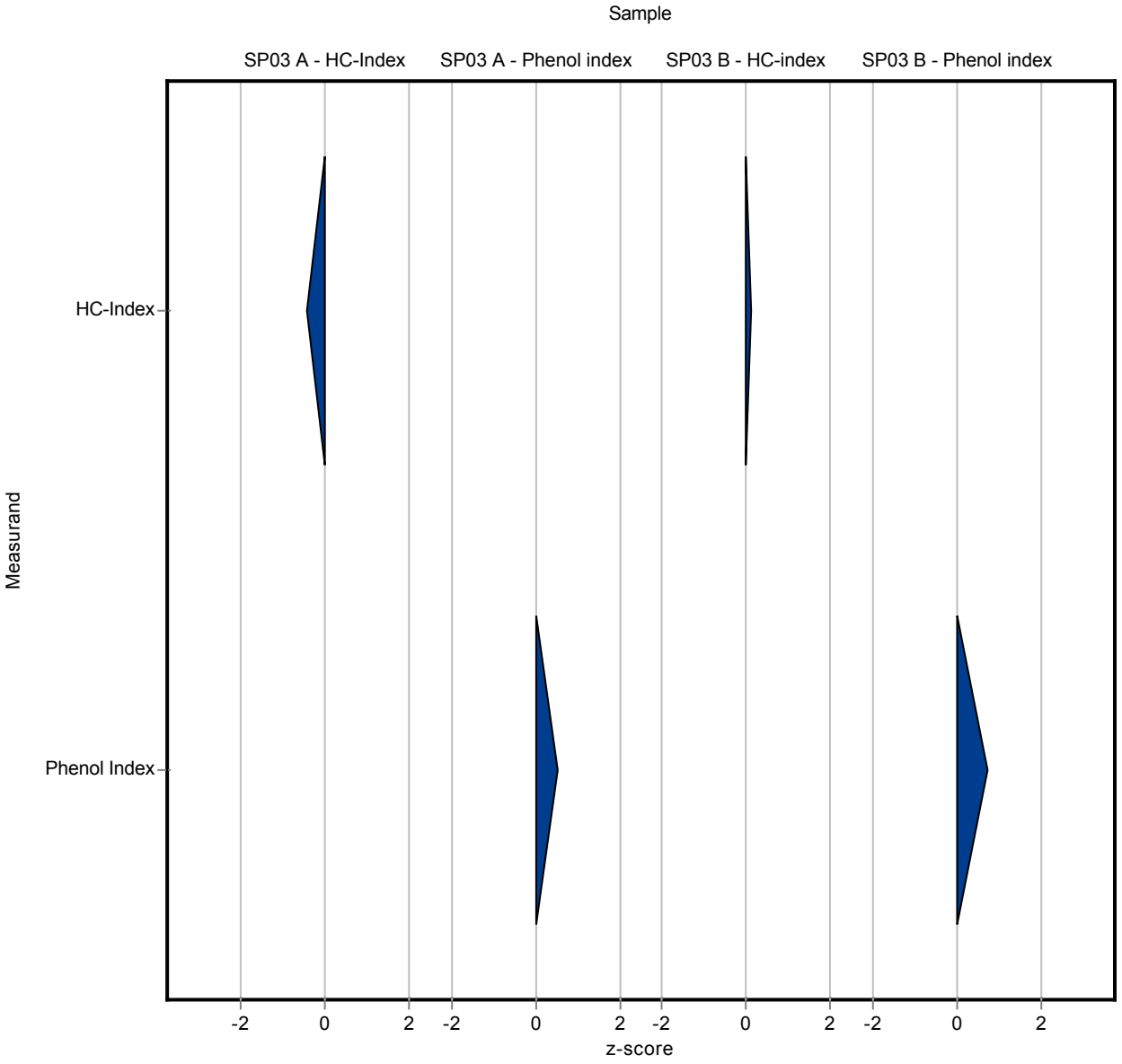
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.47	0.047	0.212	105	0.10

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.118	0.012	0.0162	107	0.51

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.057	0.006	0.00654	109	0.75


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

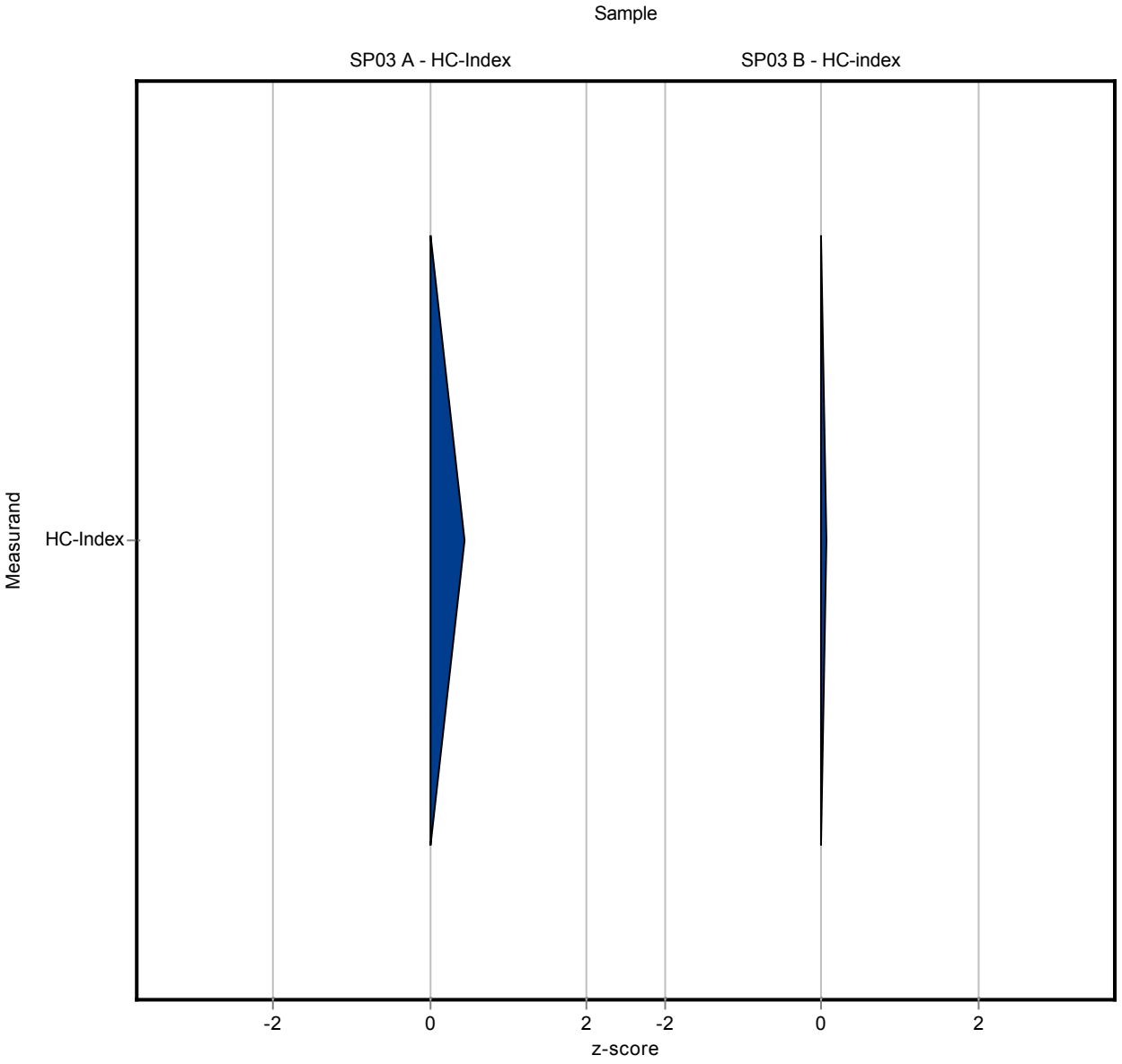
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.1	0.41	0.779	120	0.45

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.46	0.08	0.212	103	0.06


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

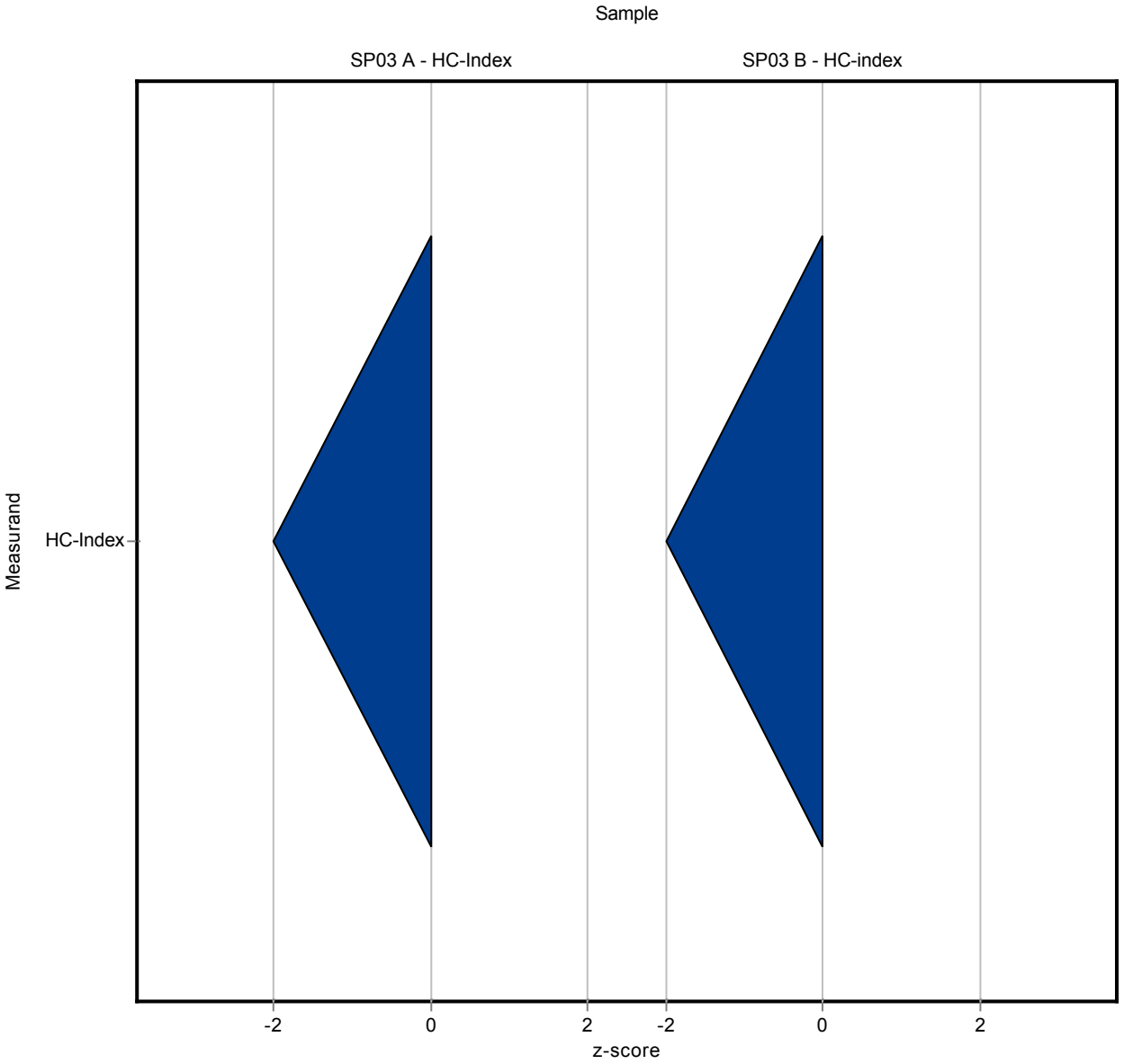
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.93	0.09	0.779	53.2	-1.05

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.03	0.01	0.212	6.69	-1.98


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

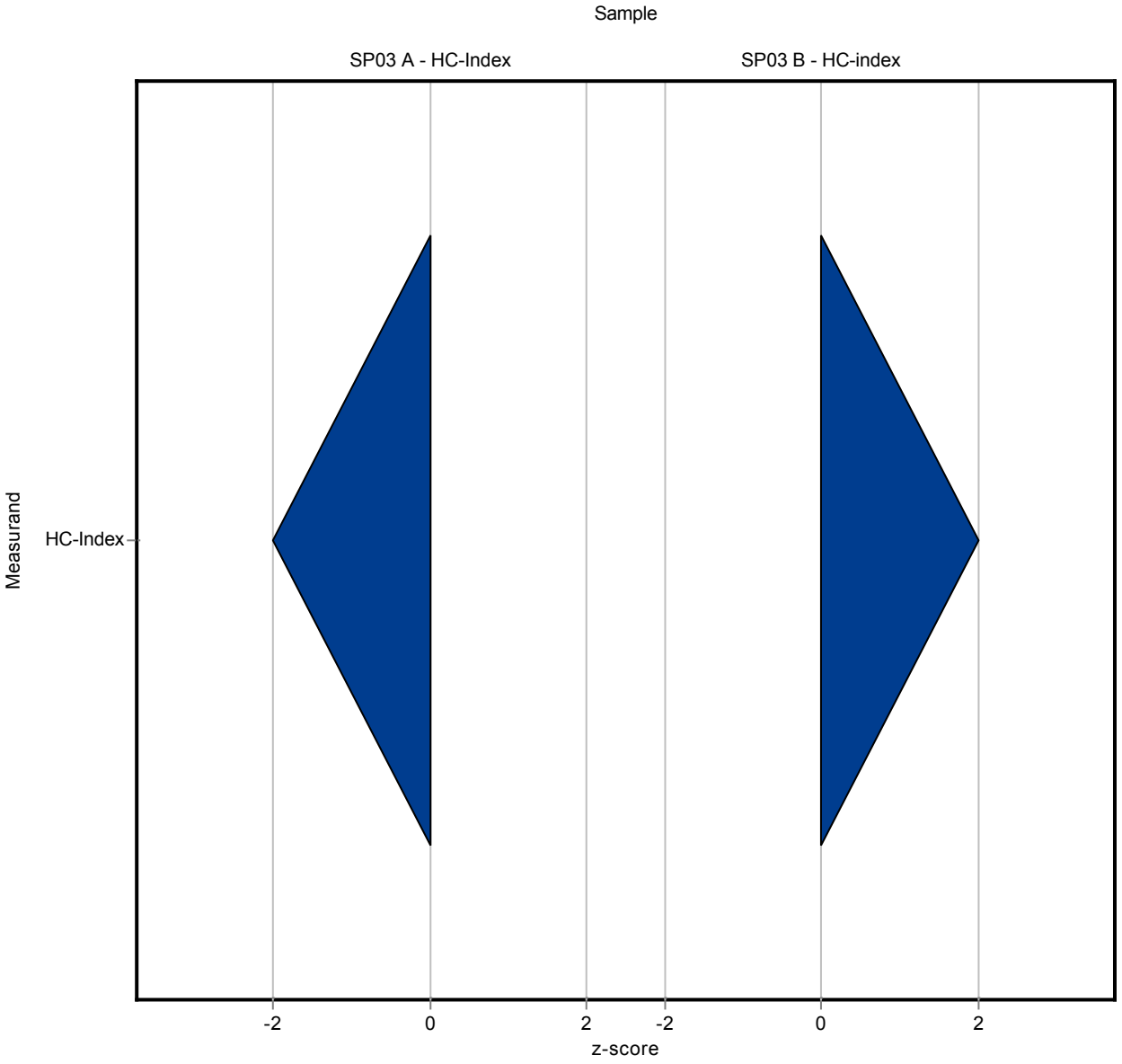
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.911	0.29	0.779	52.1	-1.08

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.717	0.23	0.212	160	1.27


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

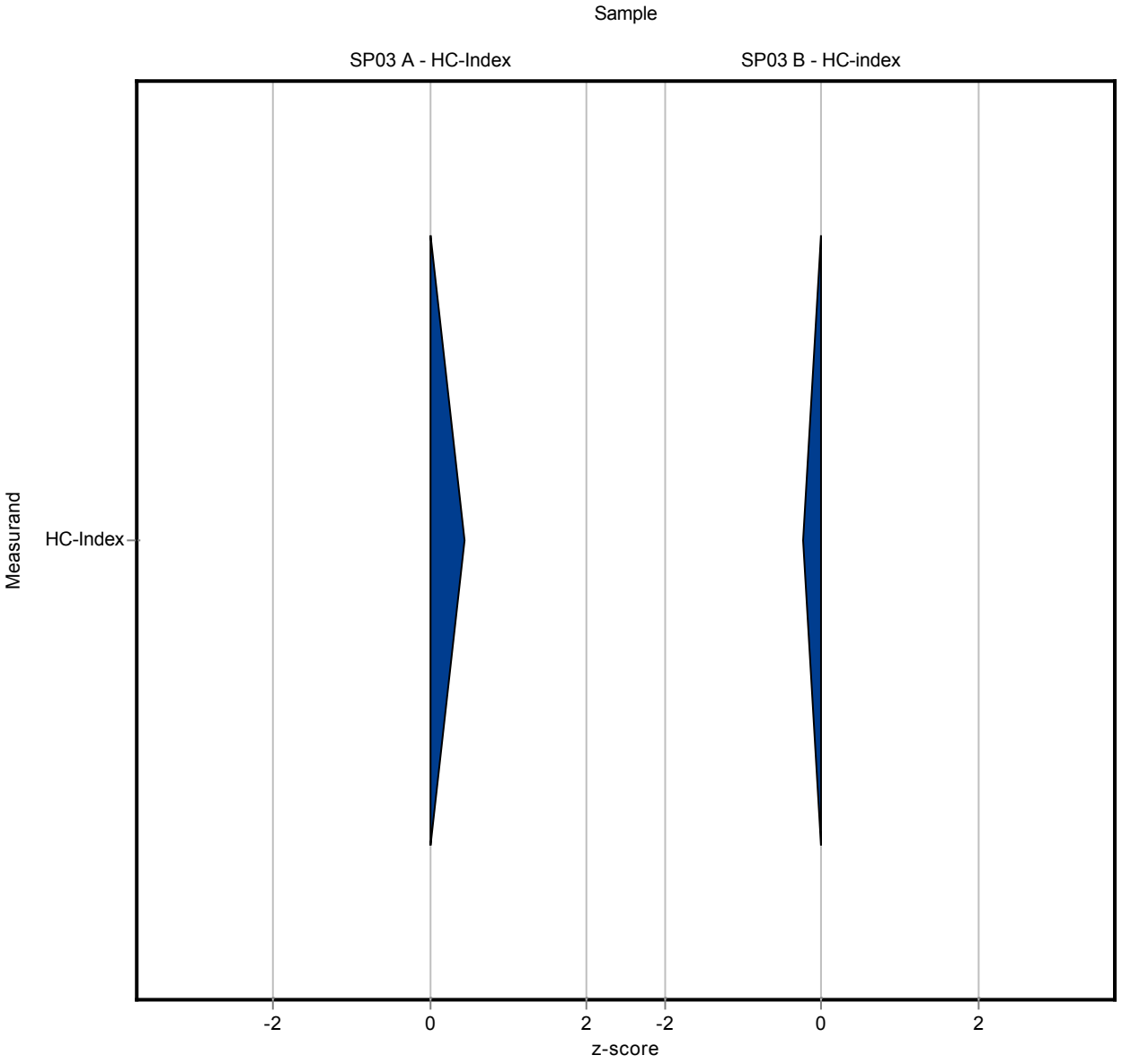
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.1	0.06	0.779	120	0.45

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.4	0.05	0.212	89.2	-0.23


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

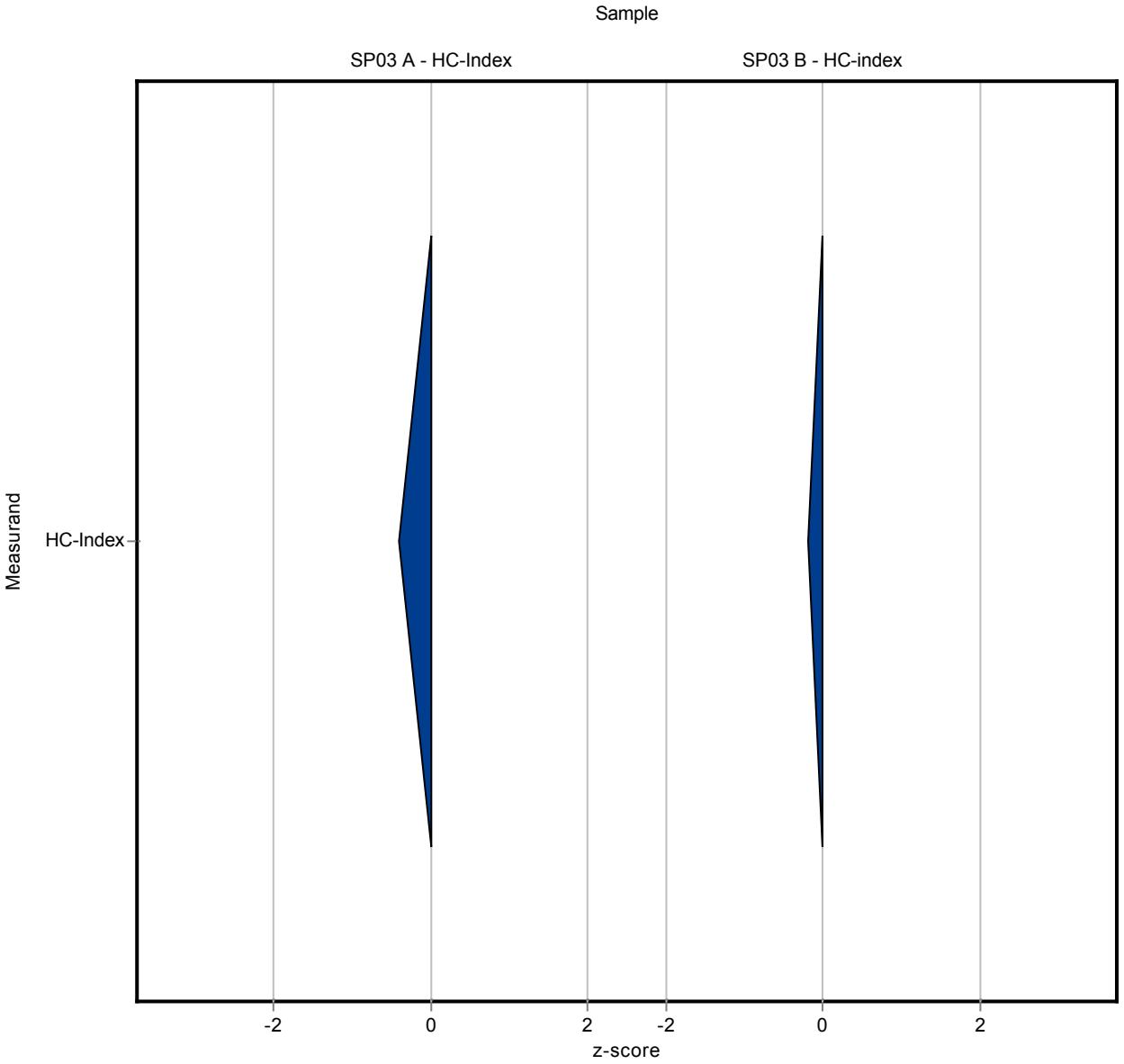
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.44	0.36	0.779	82.3	-0.40

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.41	0.1	0.212	91.5	-0.18


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

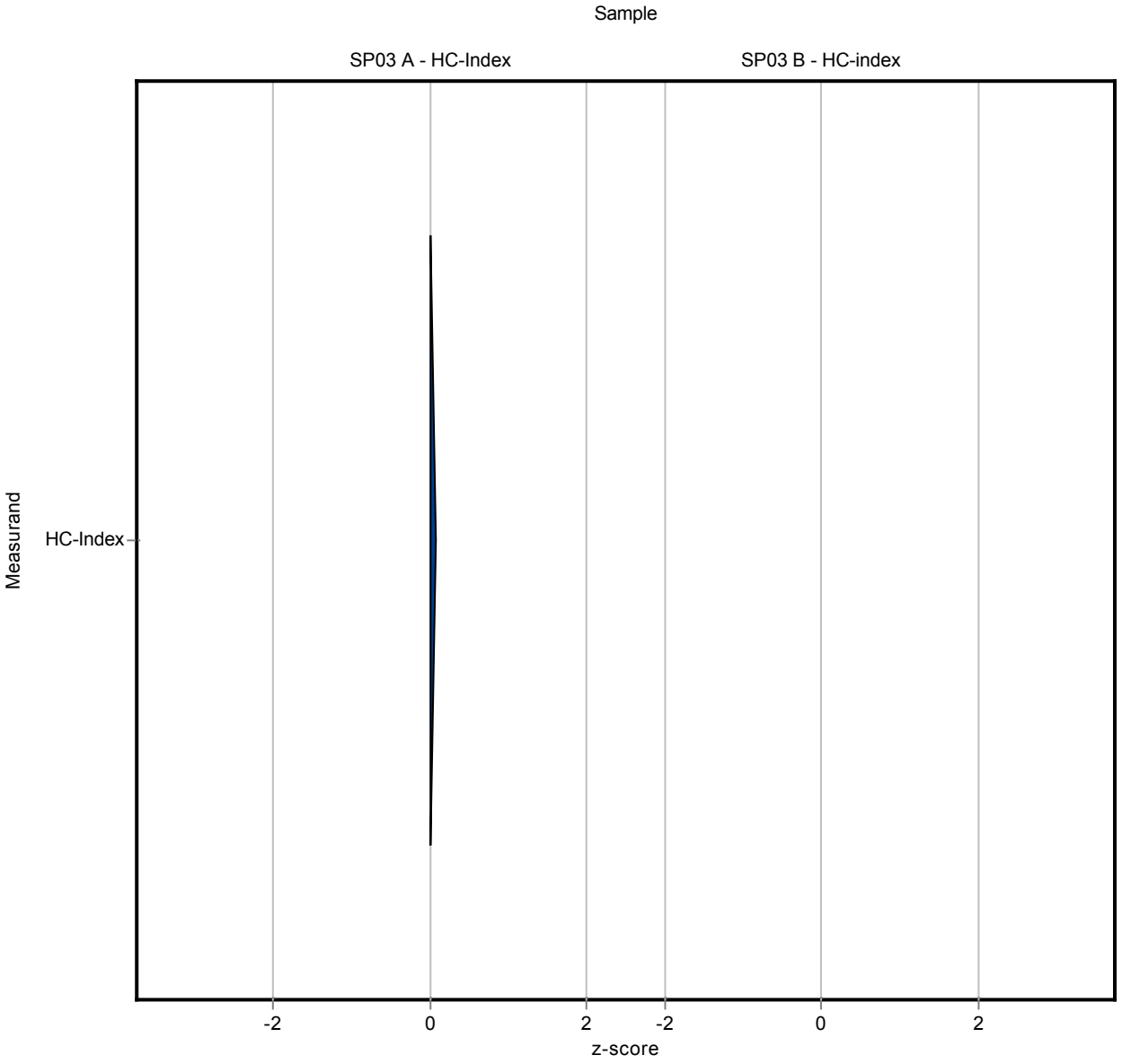
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	1.8	0.32	0.779	103	0.07

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	<0.5 (LOQ)	-	0.212	-	-


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

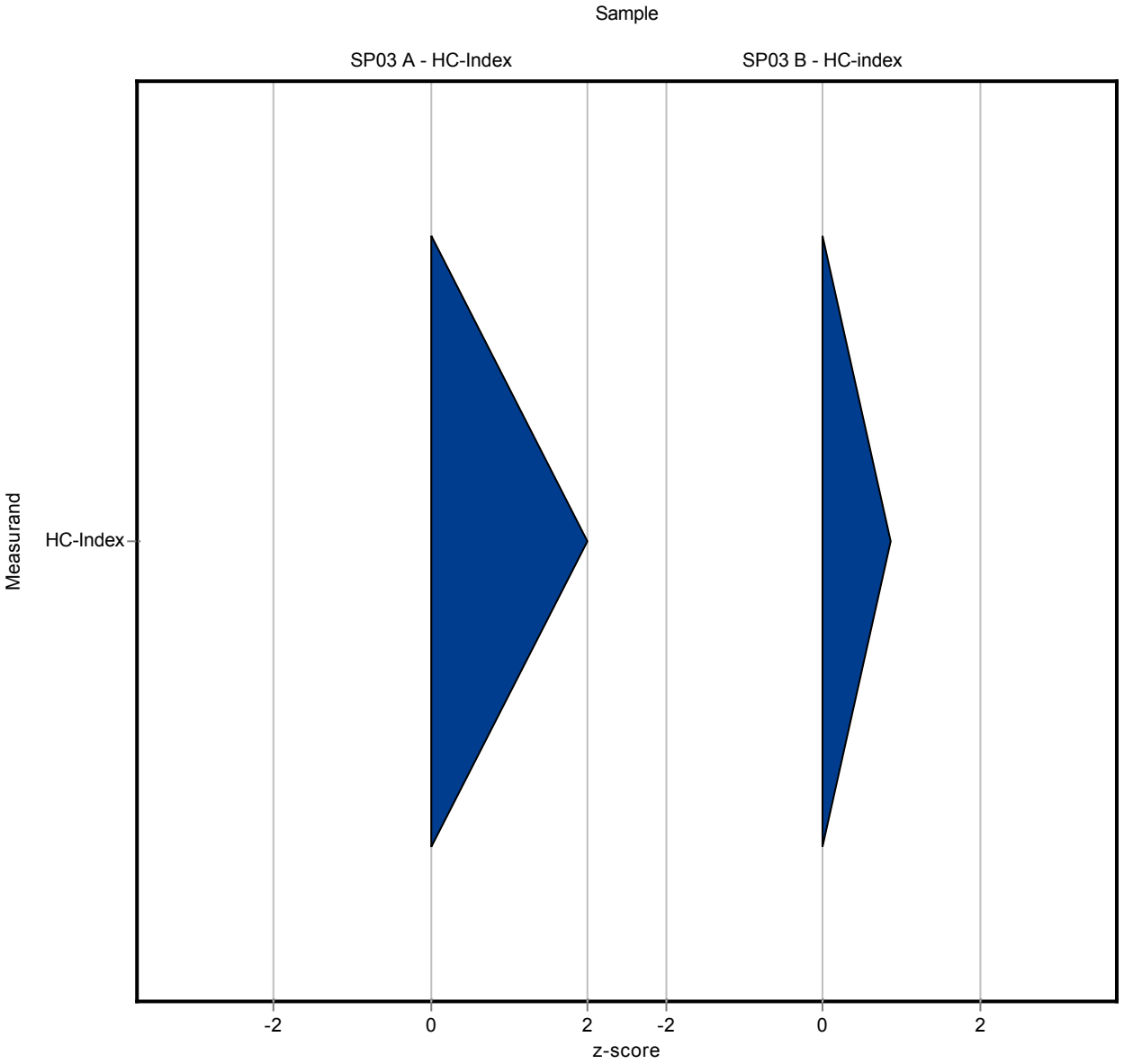
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	2.87	0.78	0.779	164	1.44

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	0.63	0.22	0.212	141	0.86


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.72	0.07	0.779	41.2	-1.32

Sample: SP03KWIB

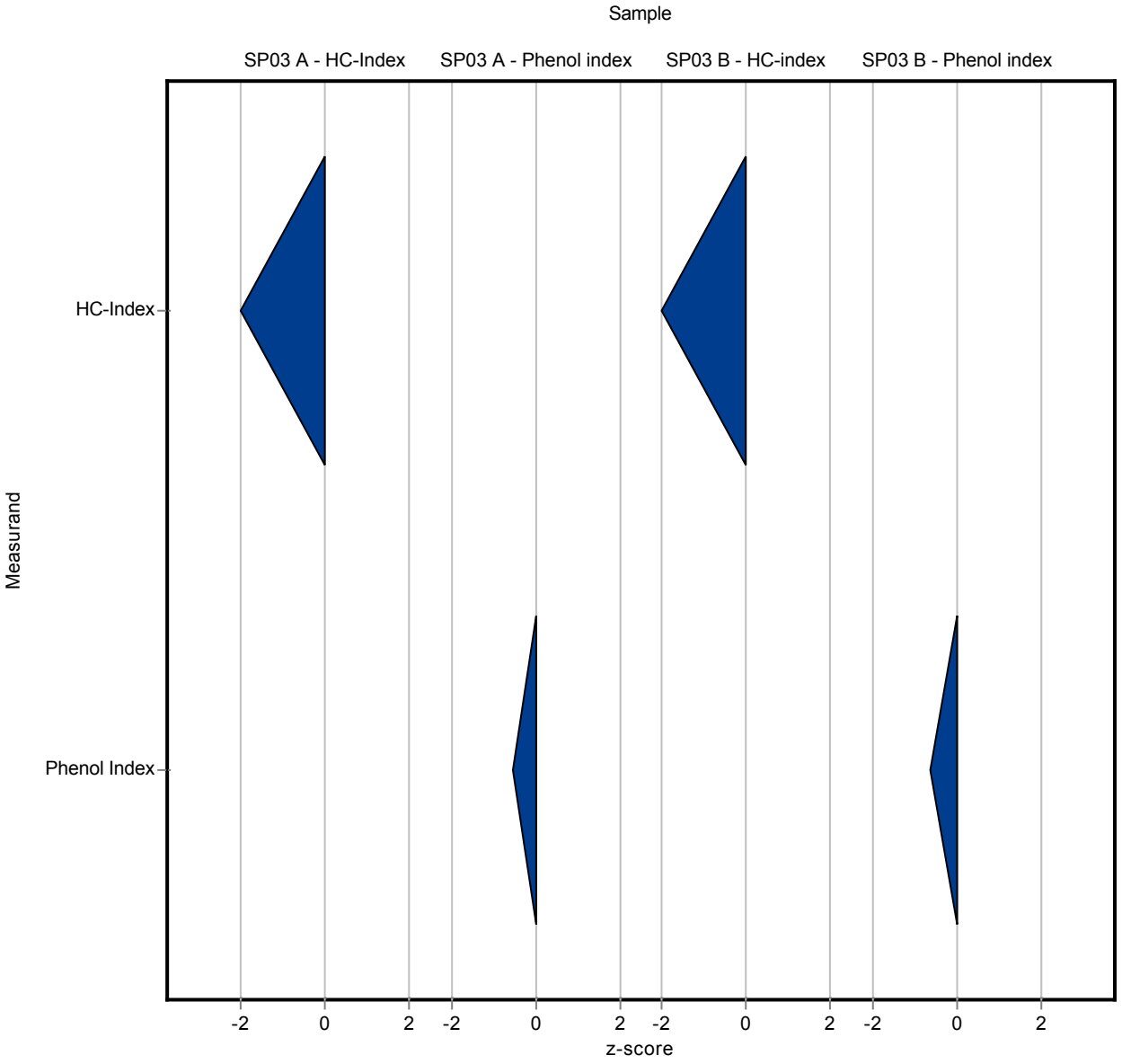
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.15	0.02	0.212	33.5	-1.41

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.101	0.01	0.0162	92	-0.54

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.048	0.005	0.00654	92.1	-0.63


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

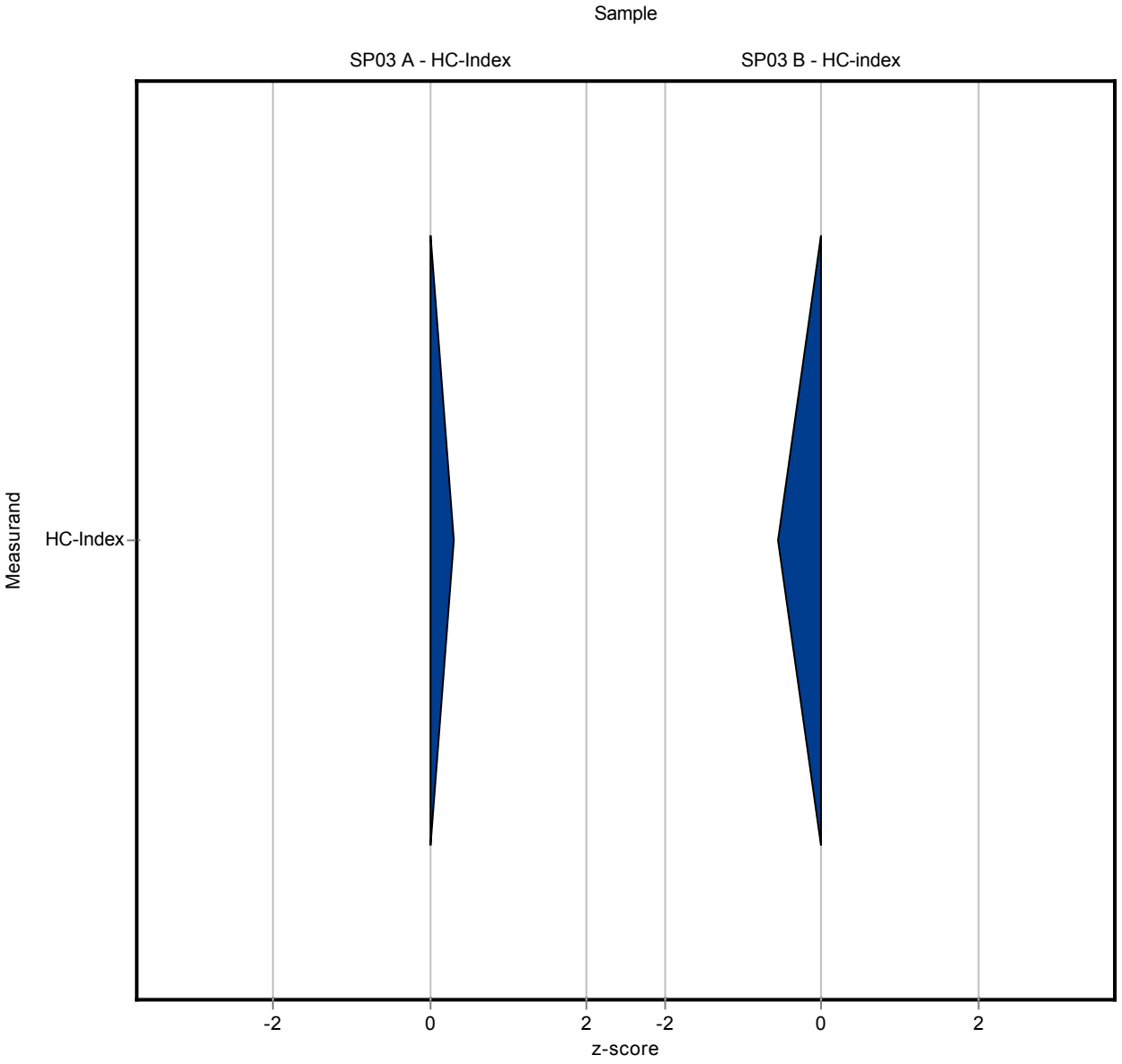
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.99	0.51	0.779	114	0.31

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.33	0.08	0.212	73.6	-0.56


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.4	-	0.779	80	-0.45

Sample: SP03KWIB

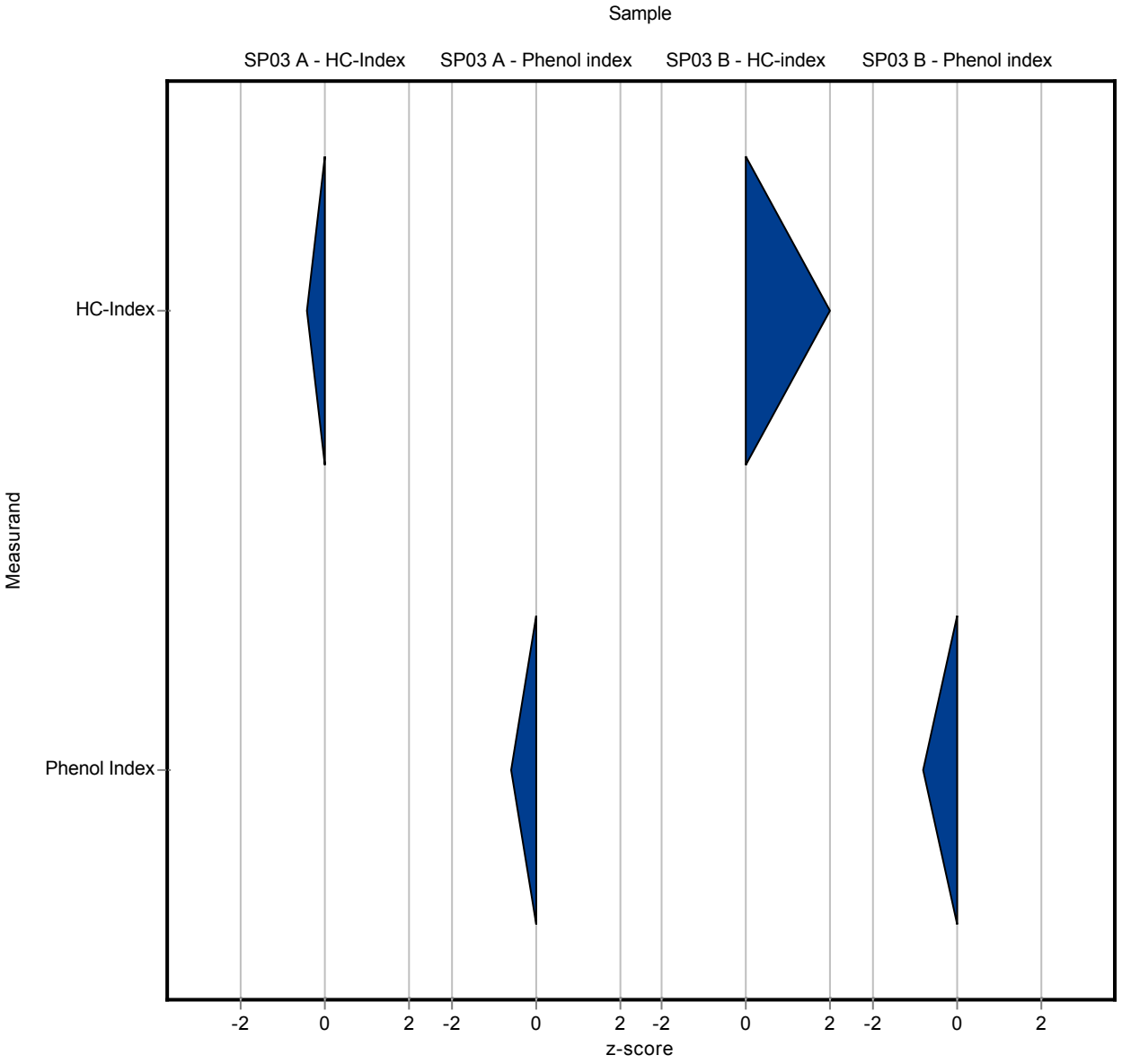
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.87	-	0.212	194	1.99

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.1	-	0.0162	91.1	-0.60

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.047	-	0.00654	90.2	-0.78


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

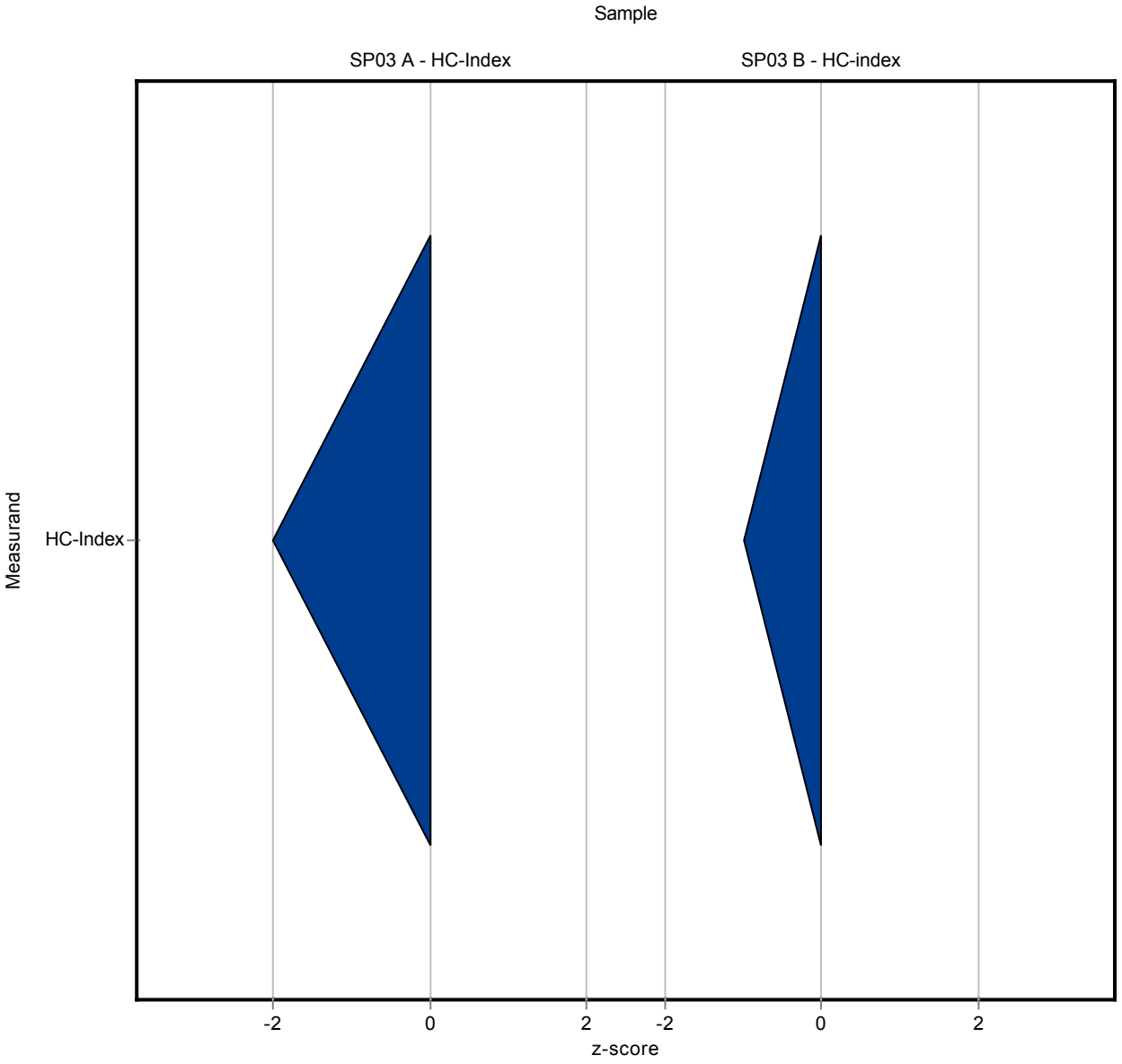
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	0.84	0.15	0.779	48	-1.17

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.24	0.042	0.212	53.5	-0.98


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.345	0.011	0.779	134	0.77

Sample: SP03KWIB

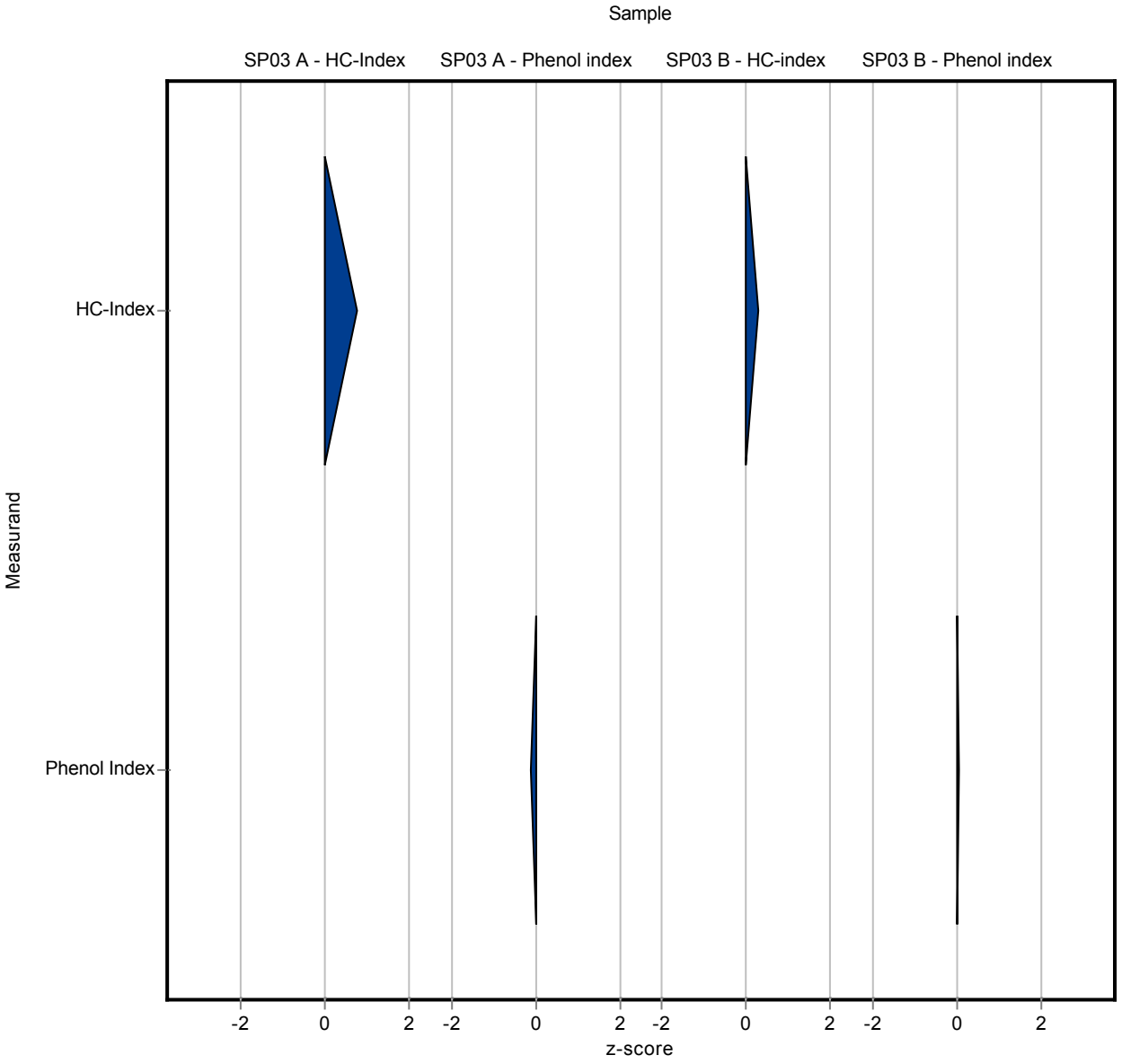
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.511	0.011	0.212	114	0.30

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.1076	0.00569	0.0162	98	-0.13

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.0524	0.00028	0.00654	101	0.04


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.106	0.219	0.779	63.2	-0.82

Sample: SP03KWIB

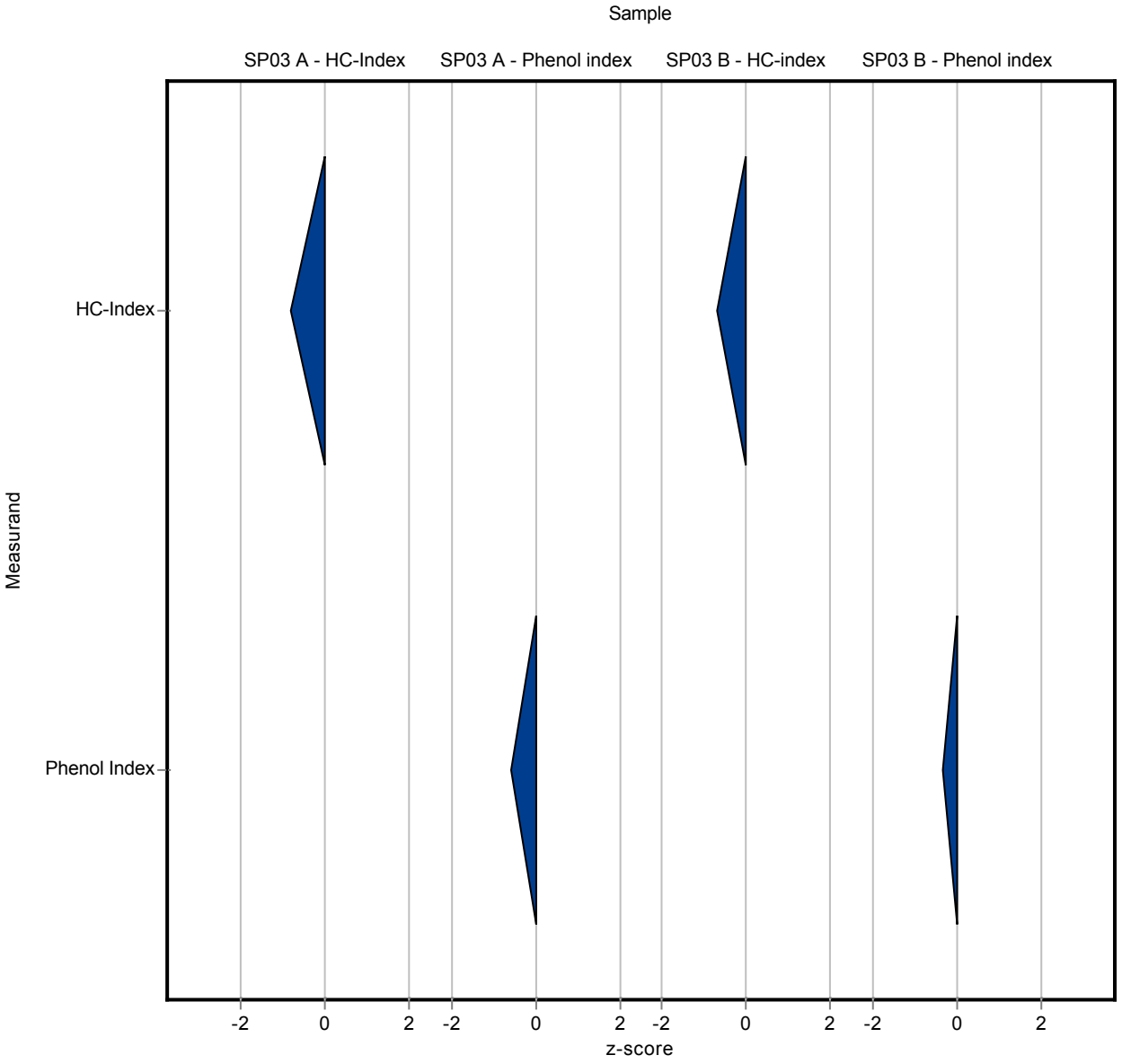
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.304	0.06	0.212	67.8	-0.68

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.1	0.02	0.0162	91.1	-0.60

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.05	0.01	0.00654	96	-0.32


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

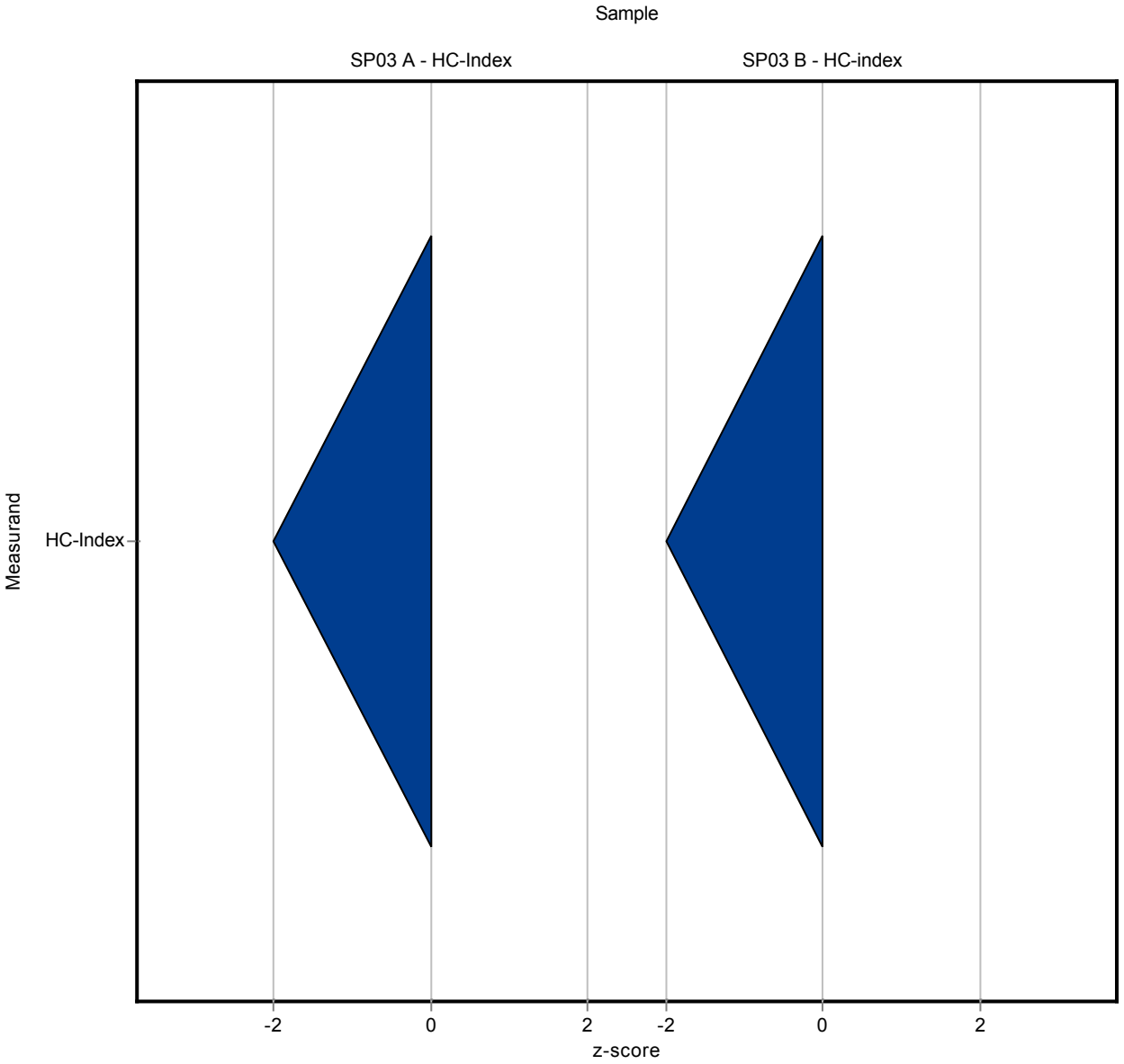
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	0.87	0.07	0.779	49.7	-1.13

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	0.234	0.008	0.212	52.2	-1.01


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.56	0.28	0.779	89.2	-0.24

Sample: SP03KWIB

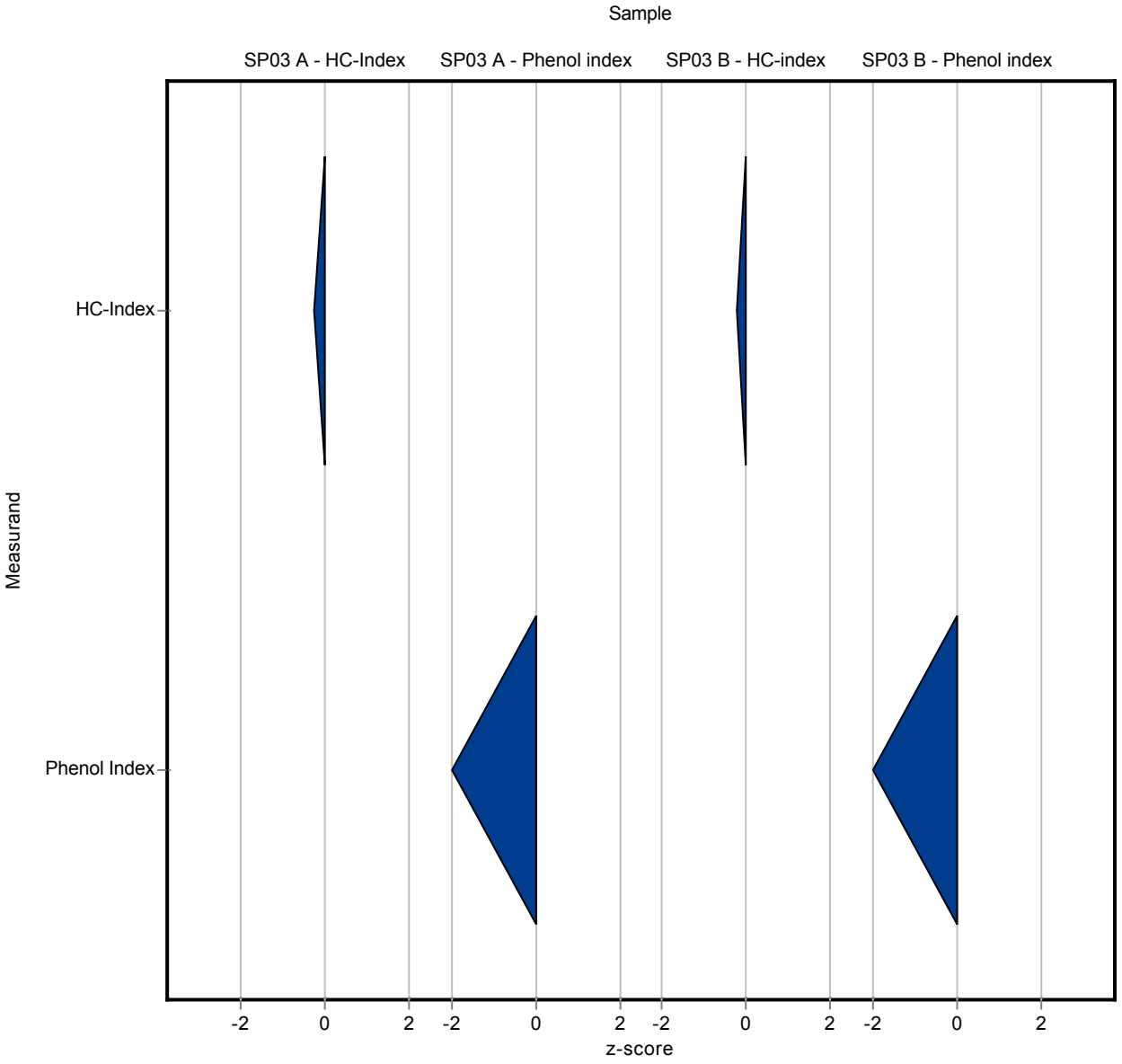
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.399	0.072	0.212	89	-0.23

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.08	0.007	0.0162	72.9	-1.84

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.04	0.003	0.00654	76.8	-1.85


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
Measurand
HC-Index
Phenol Index
-2
0
2
z-score

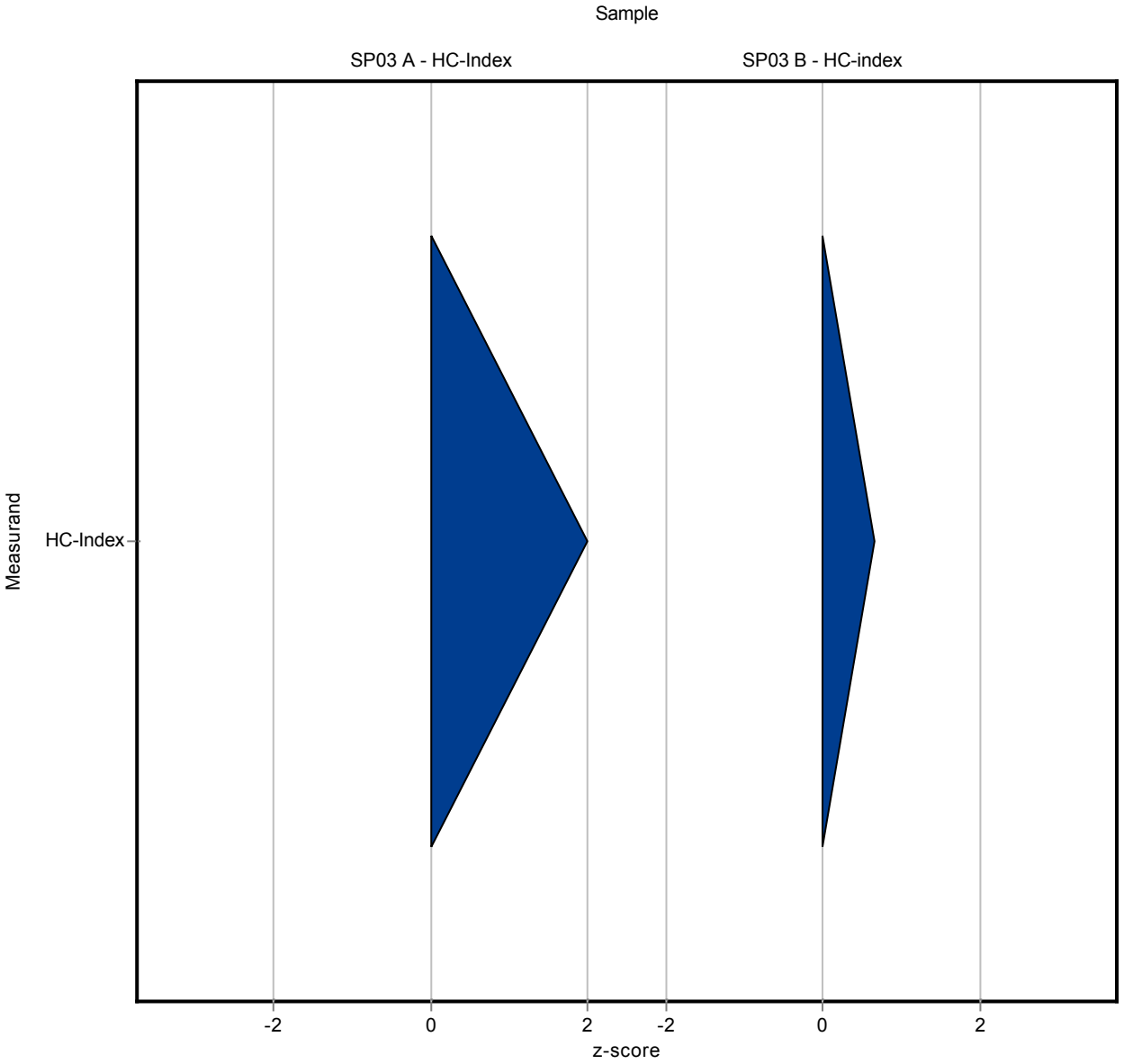
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	2.86	0.432	0.779	164	1.43

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	0.589	0.089	0.212	131	0.67


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.26	0.339	0.779	129	0.66

Sample: SP03KWIB

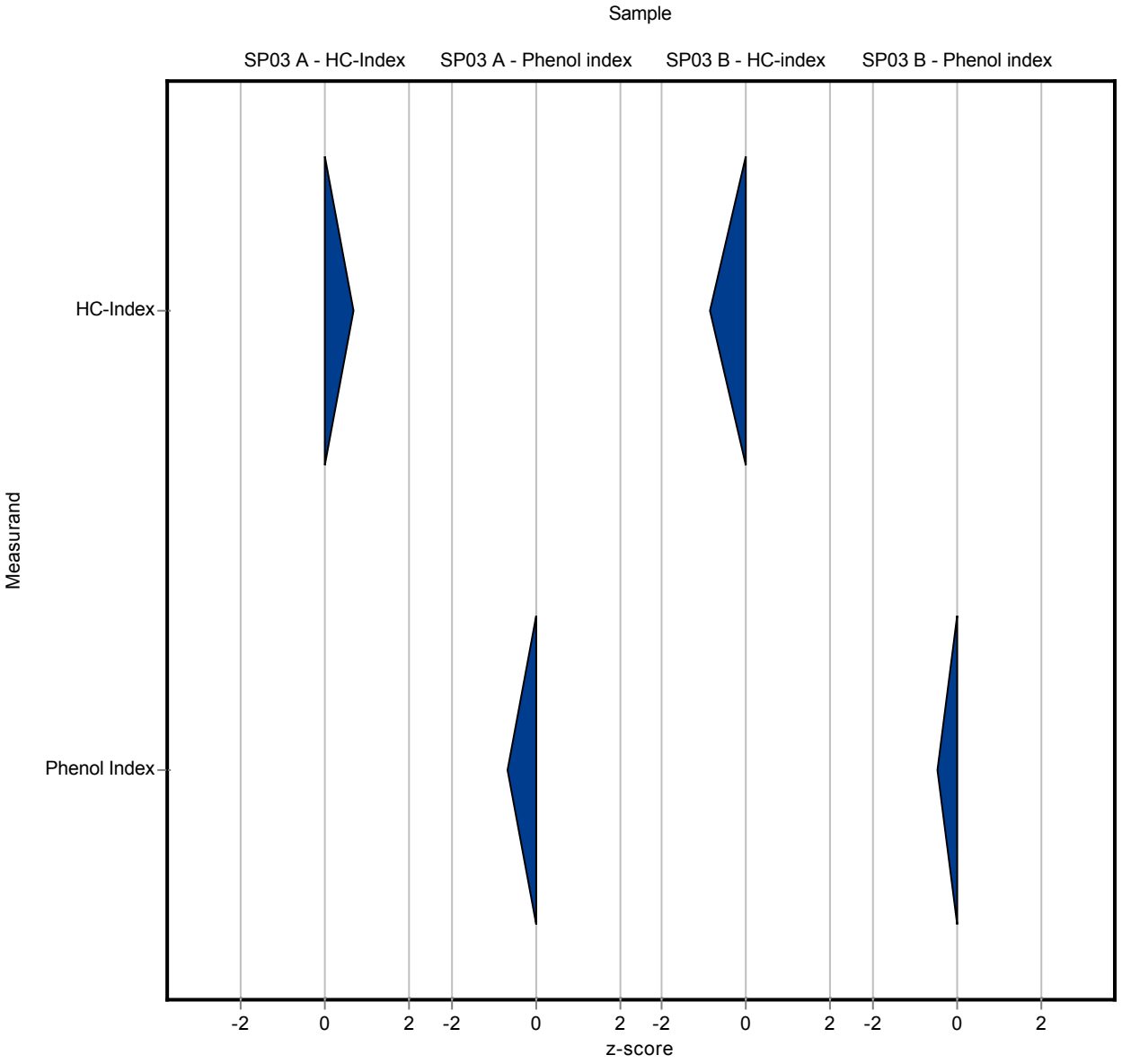
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.27	0.038	0.212	60.2	-0.84

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.099	0.012	0.0162	90.2	-0.66

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.049	0.006	0.00654	94	-0.47


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.99	-	0.779	114	0.31

Sample: SP03KWIB

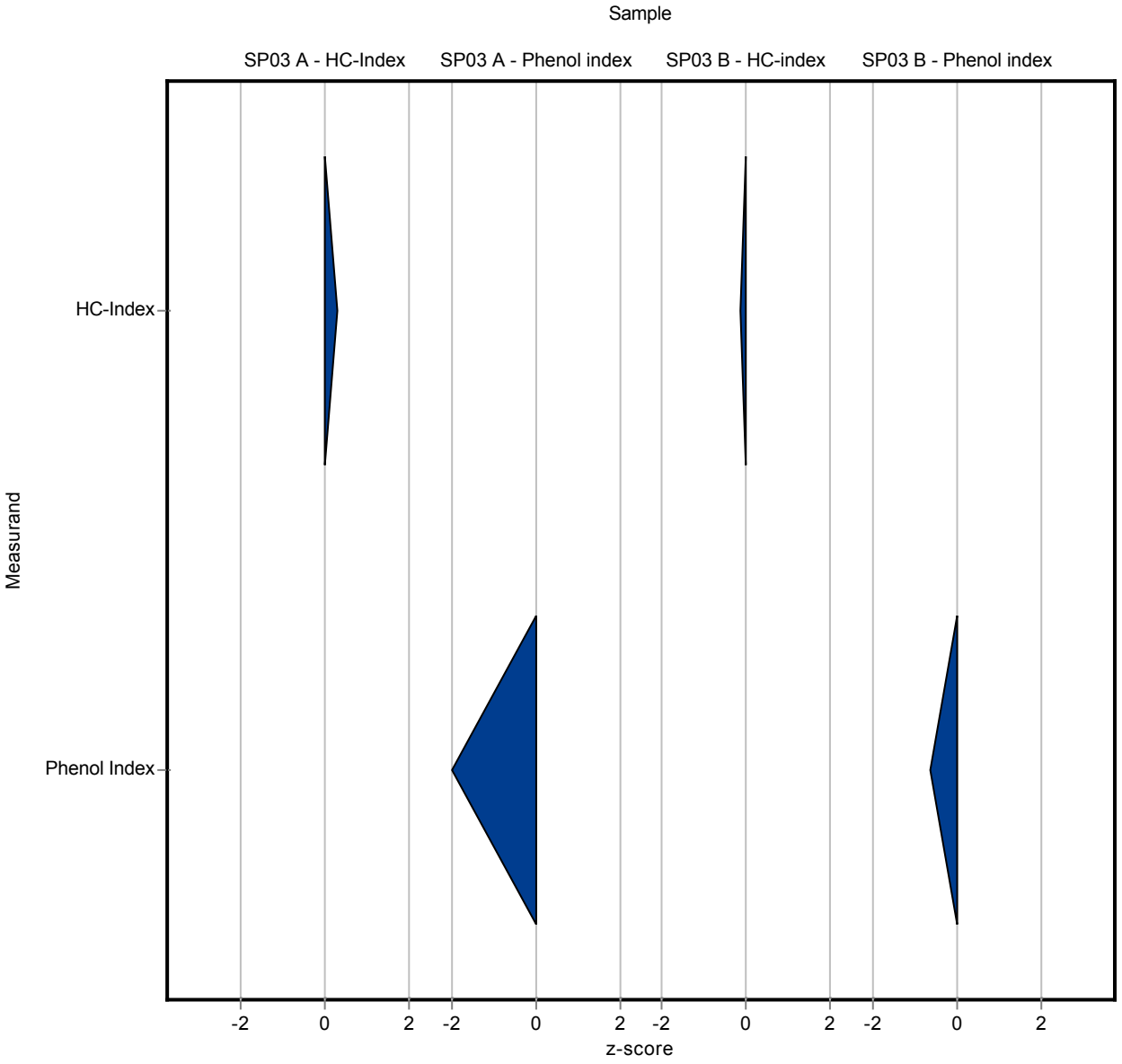
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.422	-	0.212	94.1	-0.12

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.092	-	0.0162	83.8	-1.10

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.048	-	0.00654	92.1	-0.63


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
Measurand
HC-Index
Phenol Index
-2
0
2
z-score

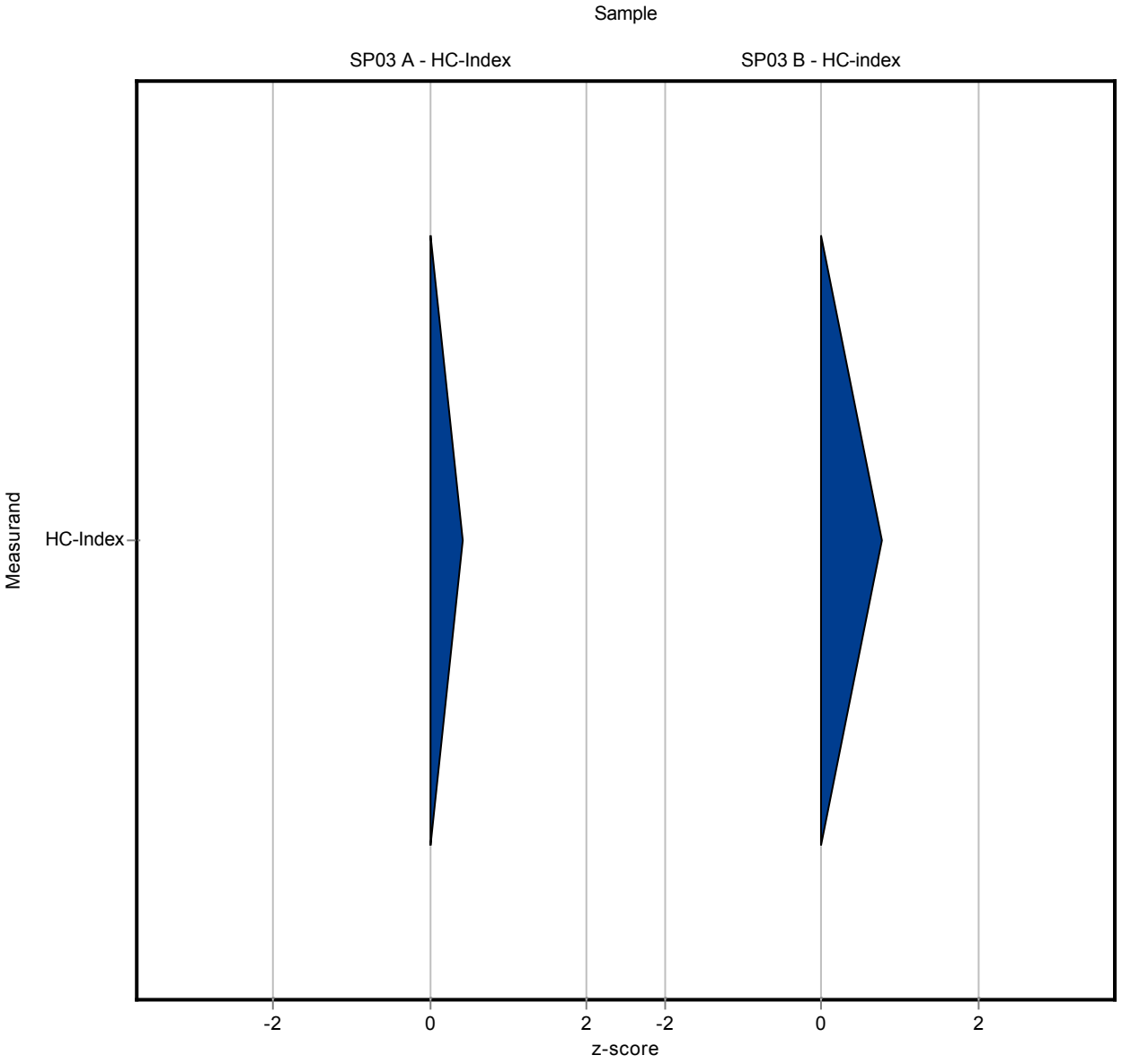
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	±	0.374	2.08	0.09	0.779	119	0.42

Sample: SP03KWIB

Parameter	Unit	Target	±	CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	±	0.103	0.61	0.17	0.212	136	0.76


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

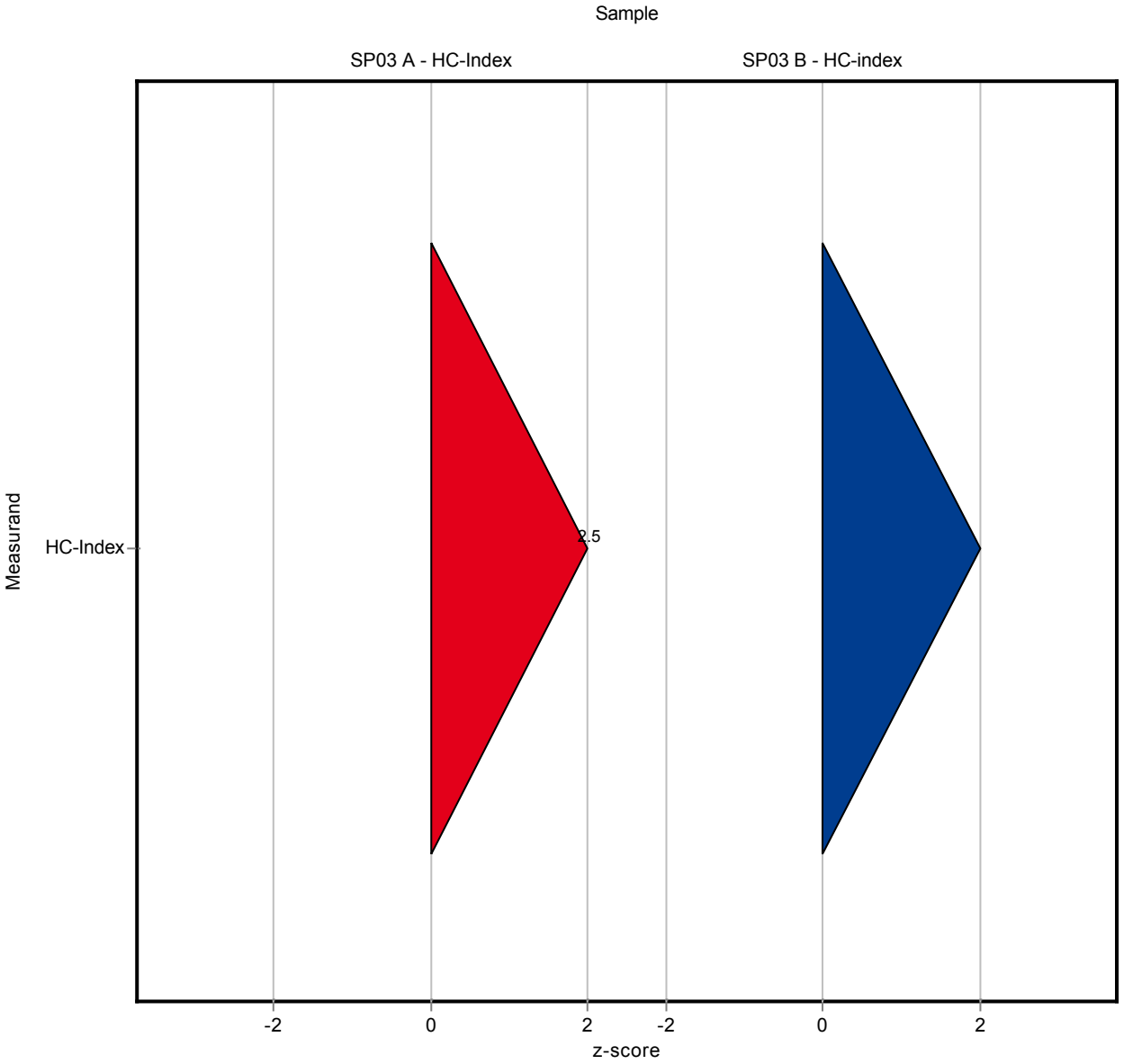
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	3.7	-	0.779	212	2.50

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.87	-	0.212	194	1.99


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
2.5
-2
0
2
-2
0
2
z-score

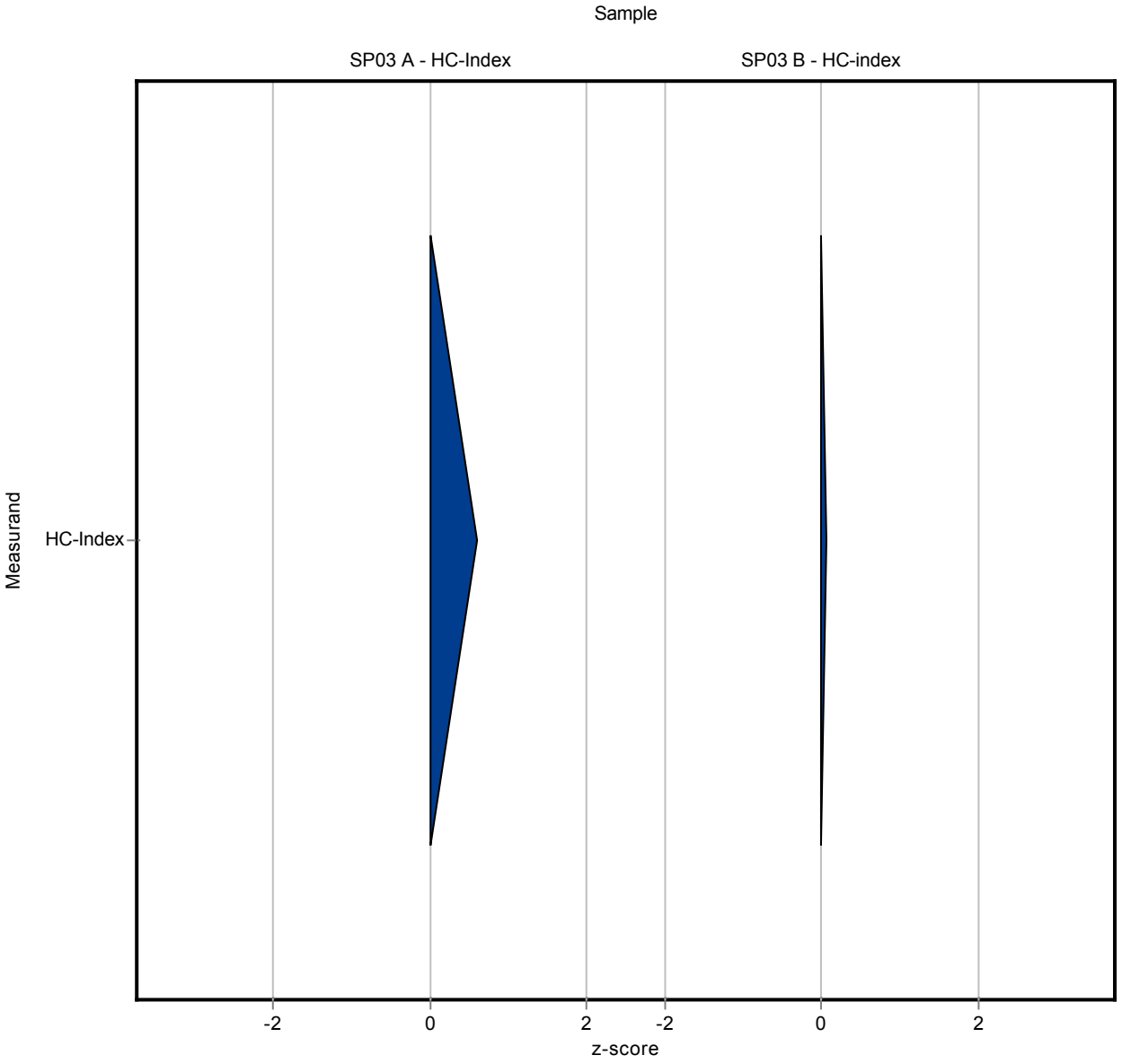
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.222	0.33522	0.779	127	0.61

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.464	0.06954	0.212	104	0.07


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

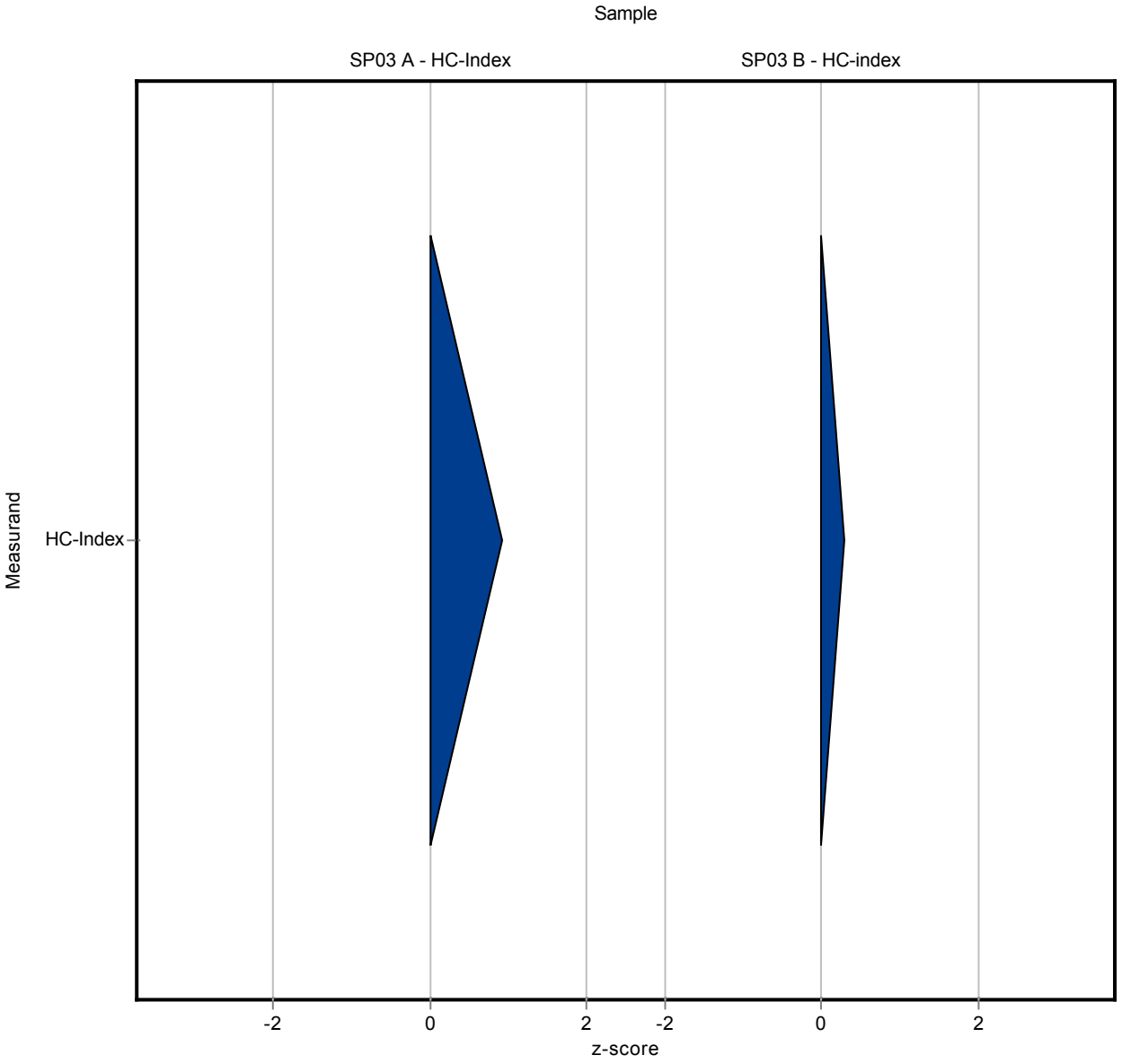
The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.46	-	0.779	141	0.91

Sample: SP03KWIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.51	-	0.212	114	0.29


Sample
SP03 A - HC-Index
SP03 B - HC-index
Measurand
HC-Index
-2
0
2
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	2.238	0.224	0.779	128	0.63

Sample: SP03KWIB

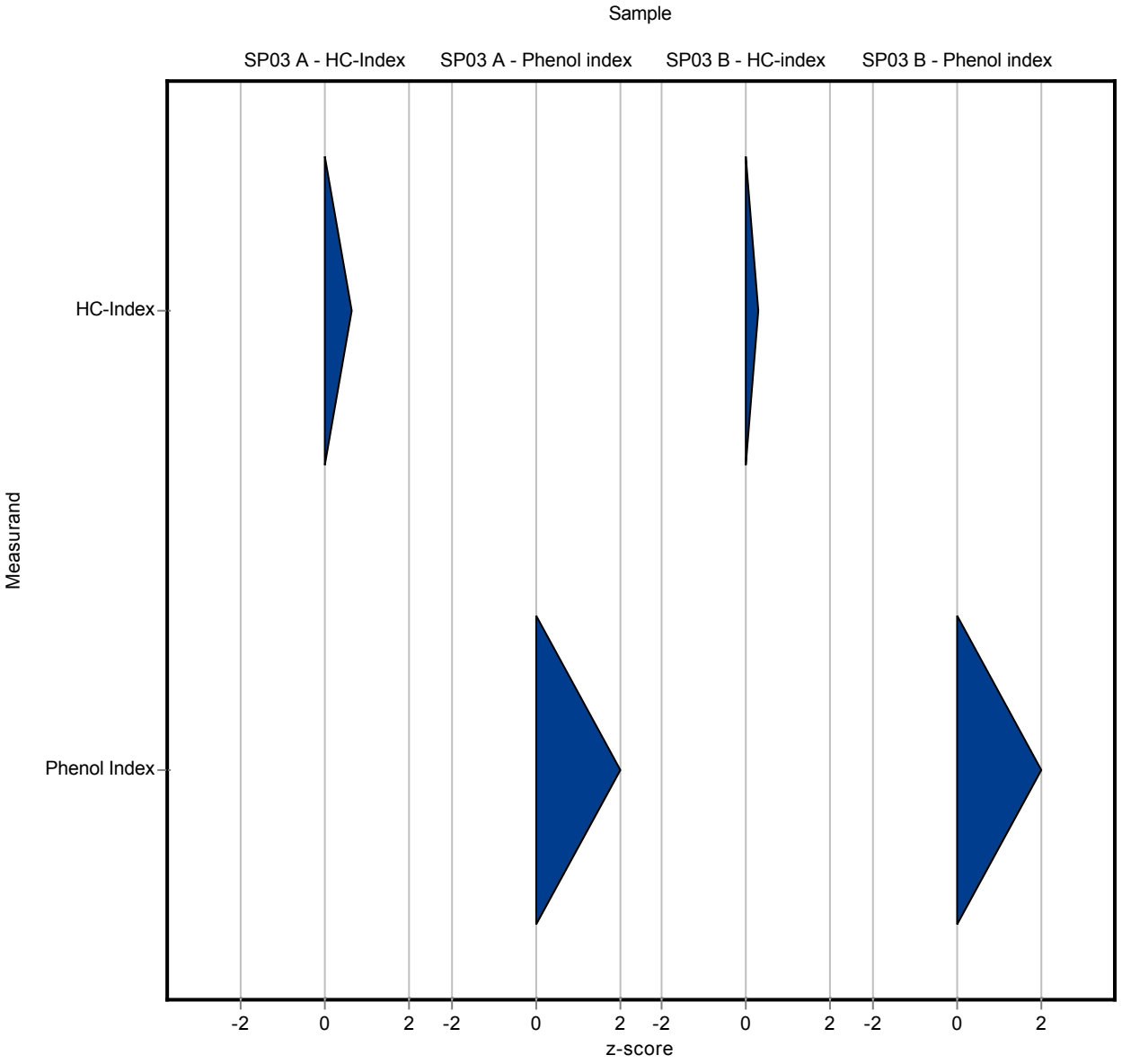
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.509	0.051	0.212	114	0.29

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.13	0.026	0.0162	118	1.25

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.06	0.012	0.00654	115	1.21


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
-2
0
2
z-score

The following results were achieved:

Sample: SP03KWIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	1.75	± 0.374	1.4	0.4	0.779	80	-0.45

Sample: SP03KWIB

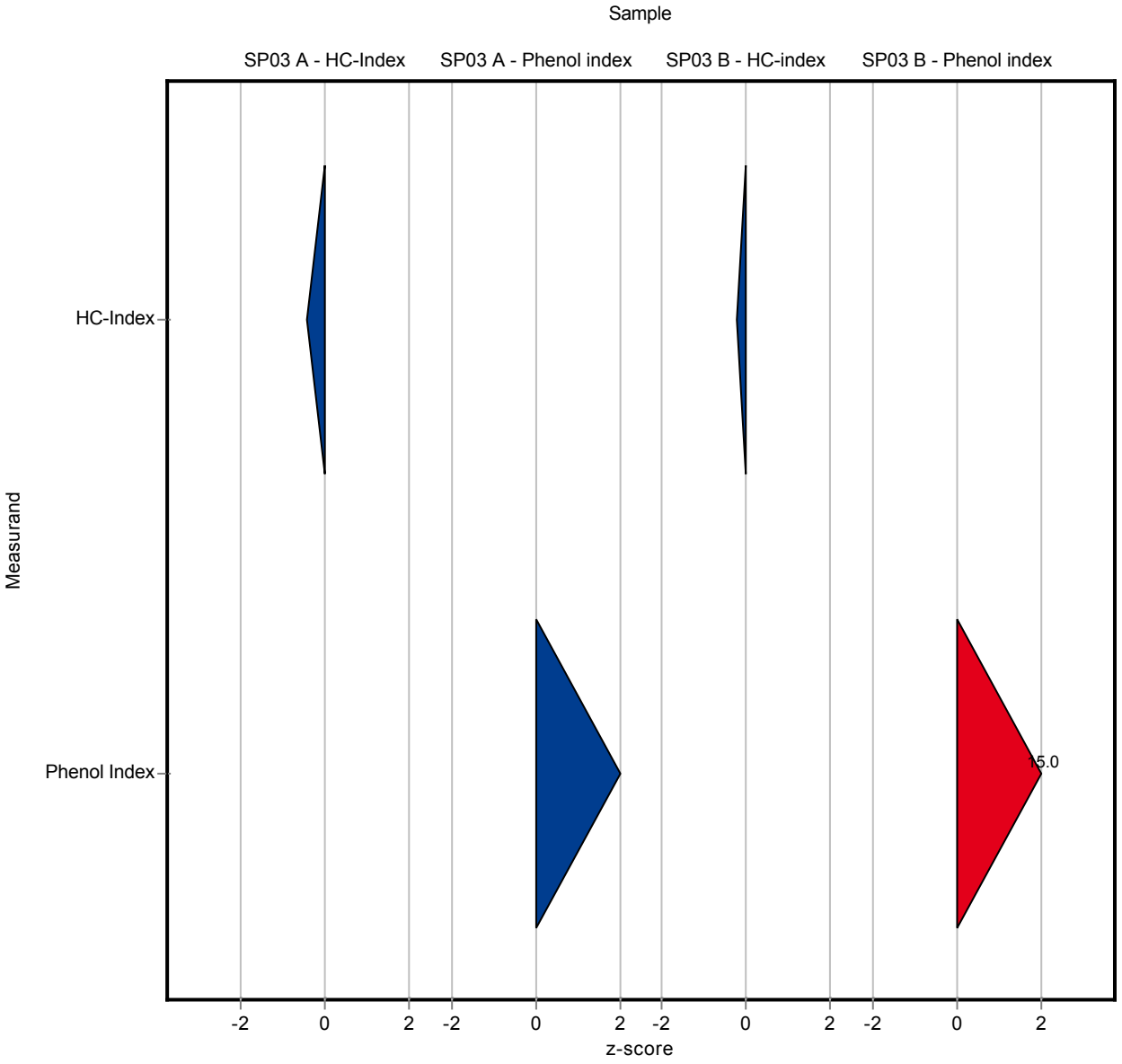
Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
HC-Index	mg/l	0.448	± 0.103	0.4	0.1	0.212	89.2	-0.23

Sample: SP03PHIA

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.11	± 0.0126	0.13	0.03	0.0162	118	1.25

Sample: SP03PHIB

Parameter	Unit	Target	± CI(99%)	Result	± U	Criteria	Recovery	z-score
Phenol Index	mg/l	0.0521	± 0.00544	0.15	0.03	0.00654	288	15.00


Sample
SP03 A - HC-Index
SP03 A - Phenol index
SP03 B - HC-index
SP03 B - Phenol index
HC-Index
Phenol Index
Measurand
15.0
-2
0
2
z-score