



Soft Drinks & Fruit Juice (QBS)

Round: 259

Issue Number 1

Issued 04 January 2018



Science
for a safer world



Scheme Information

Aims of Scheme

The primary aim of the Quality in Beverages Scheme (QBS) is to enable laboratories performing analysis of fruit juices, soft and carbonated drinks, mineral water and other beverages to monitor their performance and compare it with that of their peers. QBS also aims to provide information to participants on technical issues and methodologies relating to testing of beverages.

Further information on the scheme organisation, the test materials, and the statistical analysis of data are available in the QBS Scheme Description and the LGC PT General Protocol.

Performance Assessment

Once a PT round has closed, the results will be analysed and the assigned value determined for each analyte, according to the criteria provided in the Scheme Description. Information regarding the traceability of each calculated assigned value is also provided in the Scheme Description.

For quantitative data, the participant's result, x , (or $\log_{10} x$ for microbiological data) is converted into a z score using the following formula;

$$z = \frac{(x - X)}{\text{SDPA}}$$

X = Assigned value
SDPA = Standard deviation for proficiency assessment

For quantitative data, the uncertainty of the assigned value is calculated to ensure that it would have a negligible effect on participants' performance scores. If the uncertainty of the assigned value is greater than $0.3 \times \text{SDPA}$, then this is not considered negligible. In this situation, a z' (z prime) performance score is automatically calculated rather than a z score, in order to take account of the measurement uncertainty of the assigned value. The z' score is calculated using the following formula;

$$z' = \frac{(x - X)}{\sqrt{(\text{SDPA}^2 + UxAV^2)}}$$

X = Assigned value
SDPA = Standard deviation for proficiency assessment
 $UxAV$ = Uncertainty of the assigned value

$$\text{Expanded SDPA} = \sqrt{(\text{SDPA}^2 + UxAV^2)}$$

Trend graphs will use a mixture of z and z' scores, i.e. the 'performance score' for the round.

For quantitative data, gross errors or blunders are removed from the data by removal of any results that are greater than the assigned value $\pm 5 \times \text{SDPA}$. These results are not used in the final calculation of the assigned value and other summary statistics and will be included in the number of 'Excluded Results'. All results, including excluded results, will be given a performance score.

For the purposes of performance assessment for a single round, z and z' scores are interpreted as follows:

z/z' score	Interpretation	Colour coding
$ z \leq 2.00$	Satisfactory result	Green
$2.00 < z $ and < 3.00	Questionable result	Amber
$ z \geq 3.00$	Unsatisfactory result	Red
No score given	See below	No colour coding

Performance scores will not be given for the following:

- For qualitative results, where satisfactory performance is based on the participants reporting the same result as the assigned result. E.g. detected, not detected. For these results, colour coding of green (satisfactory) or red (unsatisfactory) will apply.
- For results of zero; such a result is not normally appropriate and should not be reported, the result should be reported as less than the detection limit rather than zero.
Note: for a very small number of analytes it may be appropriate to report a result of zero, depending on the type of measurement scale being used.
- For quantitative results where the analyte under test is present in the test material but participants report zero results or greater than results. In these cases, it is not possible to allocate a performance score and participants should assess their performance based on the assigned value and satisfactory range given.
- For quantitative results where the analyte under test is present in the test material but participants report a 'less than' value. In these cases, it is not possible to allocate a numeric performance score, however, where the 'less than' value reported is $< (AV - 3 \times \text{SDPA})$ the 'less than' value will be assessed as unsatisfactory (red colour coding), where the less than value reported is between $< (AV - 3 \times \text{SDPA})$ and $< (AV - 2 \times \text{SDPA})$, or $> (AV + 2 \times \text{SDPA})$ the assessment will be questionable (orange colour coding) and it is recommend that you assess whether the method used is fit for purpose, and where the less than value reported is between $(AV - 2 \times \text{SDPA})$ and $(AV + 2 \times \text{SDPA})$ a satisfactory assessment (green colour coding) will be given as such results are deemed to be consistent with the assigned value.
- For quantitative results, for microbiological test materials, where the analyte under test is not present in the test material, the assigned value will be classified as 'Absent'. Results reported as 'less than' at or below the detection level for our method of confirmation will be assessed as satisfactory (green colour code). Results reported at a higher detection level will not be assessed and participants will need to use their own judgement to determine whether their result is fit for its intended use. Results reporting a positive count will be assessed as unsatisfactory (red colour code).
- For quantitative results, for chemistry or clinical test materials, where the analyte under test has not been spiked into the test material, the assigned value will be classified as 'Zero Spike'. A 'less than' value reported at or below the detection level, set as the assigned

value, will be assessed as satisfactory (green colour code). A 'less than' value reported above the detection level will not be assessed and participants will need to use their own judgement to determine whether their result is fit for its intended use. Positive, numeric, results which are below the detection level, set as the assigned value, will not be assessed, whilst those that are greater than the assigned value will be assessed as unsatisfactory (red colour code).

In some cases, performance scores may not be provided or may be provided but with colour coding suspended (indicating that scores need to be interpreted with caution). For example:

- For small data sets where less than 8 results have been submitted and the assigned value is derived using a consensus value from the participants' results. In these circumstances, there may be increased uncertainty of the assigned value, given the low number of participants, and performance scores will be given for information only.
- In cases where the distribution of the results gives cause for concern e.g. bi-modal data sets. These circumstances will be dependent on the statistical design that is in place.
- If the assigned value falls below a concentration threshold (only applies to some schemes).

In these or similar circumstances, further explanation as to the reasons for suspension of performance scoring or colour coding, and on the interpretation of results, will be given in the report.

Note: Data displayed in the report will have been rounded to the required number of decimal places. However statistical calculations will have been performed on unrounded data. For this reason, there may appear to be differences between displayed data and calculated data, but this does not affect results in any way.

Confidentiality

A unique laboratory reference code is used to report results in order to ensure confidentiality.

Contact details

The microbiological technical scheme coordinator is Jonathan Bradley

The chemistry technical scheme coordinator is Fiona Bury

Please contact gbs@lgcgroup.com if you have any questions or comments regarding the scheme.

Authorisation

This report was authorised by Matthew Whetton, Head of Chemistry on the 04 January 2018



Sample Details

Samples were despatched on 20 November 2017
The reporting deadline was 18 December 2017

The following samples were distributed in QBS Round 259:

Sample	Matrix	Contents
500	Lyophilised vial with fruit juice diluent	<i>Escherichia coli</i> <i>Candida albicans</i> <i>Aspergillus brasiliensis</i> <i>Leuconostoc mesenteroides</i>
501	Lyophilised vial with soft drink diluent	<i>Escherichia coli</i> <i>Candida albicans</i> <i>Aspergillus brasiliensis</i> <i>Leuconostoc mesenteroides</i>
505	Lyophilised vial	<i>Escherichia coli</i> <i>Leuconostoc citreum</i> <i>Penicillium chrysogenum</i>
510	Fruit juice	
514	Ascorbic acid solution	
515	Carbonated fruit drink	
516A	Soft drink simulant	
516B	Soft drink simulant	
517A	Dilutable/ready to drink simulant	
517B	Dilutable/ready to drink simulant	
519	Soft drink simulant	
524	Carbonated water	

Further information regarding assigned values, performance assessment and technical comments can be found under the individual sample and analyte results.

Quality Control

All homogeneity assessments have been conducted in accordance with the principles stipulated in ISO 13528 ^[1]. Further details regarding the assessment of homogeneity can be found in the LGC Standards Proficiency Testing General Protocol.

Sample	Analyte/Test	Method	Result
500	Total viable count	PC PP 30	Pass
	Yeast enumeration	RB SP 25	Pass
	Mould enumeration	RB SP 25	Pass
	Lactic acid bacteria enumeration	AM SP 30	Pass
	<i>Escherichia coli</i> detection	TBX PP 37-44	Pass
501	Total viable count	PC PP 30	Pass
	Yeast enumeration	RB SP 25	Pass
	Mould enumeration	RB SP 25	Pass
	Lactic acid bacteria enumeration	AM SP 30	Pass
	<i>Escherichia coli</i> detection	TBX PP 37-44	Pass
505	Total viable count	PCA PP 30	Pass
	Yeast enumeration	RB SP 25	Pass
	Mould enumeration	RB SP 25	Pass
	Lactic acid bacteria enumeration	AM SP 30	Pass
	<i>Escherichia coli</i> detection	MEMF MLGA 37	Pass
510	Acidity	Titration	Pass
514	Vitamin C	Titration	Fail
515	Carbon dioxide	Corning Meter	Pass
515	Density converted to Brix	Density Meter	Pass
524	Carbon dioxide	Corning Meter	Pass
524	Conductivity	Conductivity meter	Fail
524	pH	pH Meter	Pass

The analysis of the sample 515 for homogeneity assessment for this round was undertaken by Campden BRI.

The analysis of the sample 524 for homogeneity assessment of carbon dioxide for this round was undertaken by Campden BRI.

For quantitative testing, one-way ANOVA is used to estimate the analytical and sampling variance. For the sample to be considered sufficiently homogeneous for use in the PT scheme, the calculated sampling variance must be less than a critical value calculated according to the

For qualitative testing, the target analyte must be detected in 100% of test materials analysed.

Often a particular test material does not require homogeneity assessment prior to distribution. Such sample types include standard solutions and aqueous solutions.

Test materials provided under the LGC scope of accreditation are assessed to ensure that they are sufficiently stable for the duration of the PT round. If test materials are subsequently shown to have changed significantly through the time of the PT round either, the effect of the instability will be quantified and taken into account in the performance evaluation or participant performance will not be evaluated.

[1] ISO 13528 (2015), 'Statistical methods for use in proficiency testing by inter-laboratory comparisons'.

Sample: 500 - Fruit Juice

Analyte: Total aerobic mesophilic count

Lab ID	Method	Result (cfu/ml)	z score
BV6026	Other	13,000	0.46
BV6107	PCA PP 30	10,200	0.16
BV6108	Other	6,000	-0.50
BV6141	Other	133,500	3.35
BV6158	PCA PP 30	14,200	0.57
BV6164	Other	9,900	0.12
BV6166	PCA PP 30	3,450	-1.19
BV6180	Other	15,100	0.64
BV6184	Other	3,640	-1.12
BV6184	MEMF 30	6,400	-0.42
BV6184	TSA PP 30	4,000	-1.01
BV6209	Other	12,900	0.45
BV6225	PCA PP 30	7,000	-0.31
BV6263	Other	2,850	-1.43
BV6294	PCA PP 30	6,800	-0.35
BV6336	PCA PP 30	9,600	0.08
BV6337	PCA PP 30	20,111	1.00
BV6360	PCA PP 30	19,000	0.93
BV6366	PCA PP 30	13,182	0.47
BV6372	PCA PP 30	9,700	0.09
BV6437	PCA PP 30	7,990	-0.15
BV6631	PCA PP 30	6,100	-0.48
BV6635	PCA PP 30	5,713	-0.56
BV6738	Other	6,960	-0.32
BV6769	PCA PP 30	9,000	0.00
BV6893	Other	6,035	-0.50
BV6967	PCA PP 30	230,000	4.02
BV7005	Other	9,800	0.11
BV7020	Other	8,900	-0.01
BV7030	Other	11,100	0.26
BV7035	PCA PP 30	10,117	0.15
BV7097	PCA PP 30	8,764	-0.03
BV7117	PCA PP 30	290	-4.26
BV7147	Other	5,600	-0.59
BV7172	Other	16,000	0.71
BV7234	Other	5,200	-0.68
BV7242	PCA PP 30	5,820	-0.54
BV7255	PCA PP 30	9,000	0.00
BV7287	Other	711	-3.15
BV7288	Other	22,000	1.11
BV7375	PCA PP 30	51,000	2.15
BV7378	PCA PP 30	110,000	3.11
BV7393	Other	6,600	-0.38
BV7395	Other	6,700	-0.37
BV7396	Other	6,800	-0.35
BV7414	PCA PP 30	6,214	-0.46
BV7455	PCA PP 30	9,500	0.07
BV7477	PCA PP 30	11,100	0.26
BV7597	Other	6,000	-0.50
BV7606	PCA PP 30	11,600	0.31
BV7667	PCA PP 30	115,000	3.16
BV7669	PCA PP 30	1,200,000	6.07

Sample: 500 - Fruit Juice

Analyte: Total aerobic mesophilic count

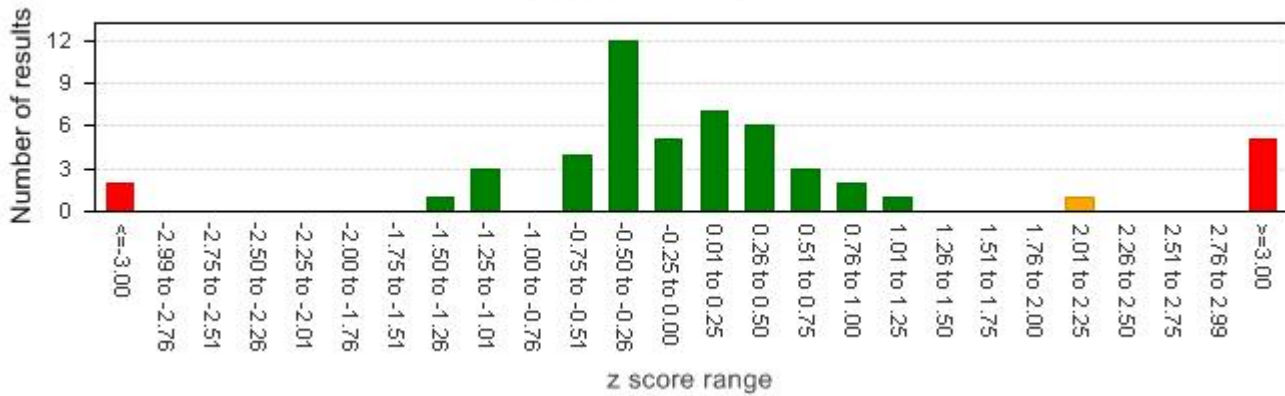
Data Statistics

	Value
Number of Results	52
Number of Excluded Results	1
Mean	3.98 log10
Median	3.95 log10
Standard Deviation	0.48 log10
Robust Standard Deviation	0.25 log10
Result Range	290 to 230000 cfu/ml

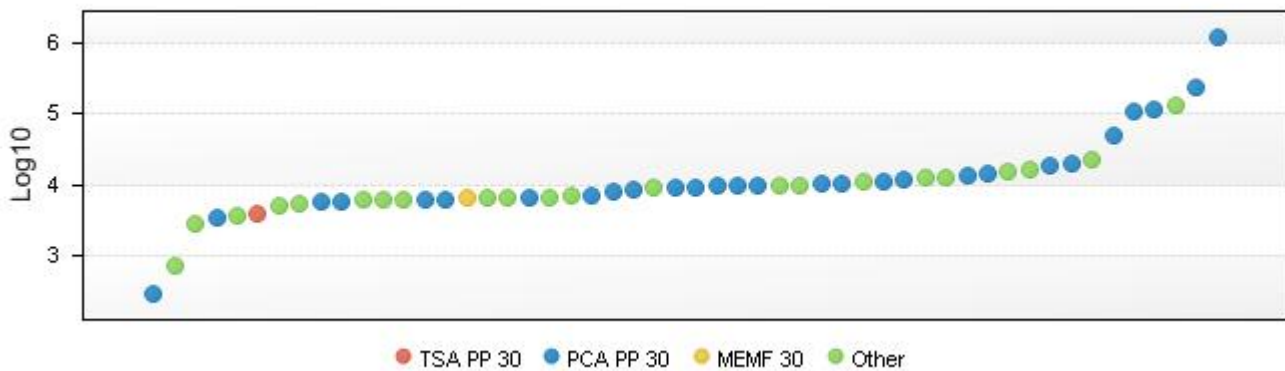
Performance Statistics

	Value
Assigned Value	9,000 cfu/ml
Uncertainty of Assigned Value	0.04 log10
SDPA	0.35 log10
Satisfactory Range	1,796 to 45,107 cfu/ml
Satisfactory z scores	84.6%
Questionable z scores	1.9%
Unsatisfactory z scores	13.5%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
TSA PP 30	1	0	1.92	3.60	0.00	4000 to 4000	100.0
PCA PP 30	28	1	53.85	3.98	0.22	290 to 230000	78.6
MEMF 30	1	0	1.92	3.81	0.00	6400 to 6400	100.0
Other	22	0	42.31	3.84	0.23	711 to 133500	90.9
All	52	1	100	3.95	0.25	290 to 230000	84.6

Sample: 500 - Fruit Juice

Analyte: Total aerobic mesophilic count

Comments

The test material contained *Escherichia coli*, *Candida albicans*, *Aspergillus brasiliensis* and *Leuconostoc mesenteroides*. The assigned value for total aerobic mesophilic count is 9,000 cfu/ml.

Total aerobic mesophilic counts are used to determine the general microbial population of a sample.

Sample: 500 - Fruit Juice

Analyte: Yeast

Lab ID	Method	Result (cfu/ml)	z score
BV6023	OSA SP 25	870	-0.85
BV6026	Other	12,200	2.42
BV6107	MEA SP 25	1,100	-0.56
BV6108	MEA SP 25	5,200	1.37
BV6141	Other	15,950	2.76
BV6158	Other	2,600	0.51
BV6164	PDA SP 25	960	-0.73
BV6166	Other	550	-1.42
BV6180	MEA SP 25	1,400	-0.26
BV6184	PDA SP 25	1,600	-0.10
BV6184	OSA SP 25	2,800	0.60
BV6184	MEA SP 25	2,000	0.18
BV6209	Other	5,200	1.37
BV6225	Other	1,330	-0.33
BV6246	Other	670	-1.18
BV6263	Other	7,400	1.80
BV6294	Other	820	-0.93
BV6336	Other	2,200	0.30
BV6337	Other	450	-1.67
BV6360	Other	3,500	0.87
BV6366	Other	1,809	0.06
BV6372	OGYE SP 25	1,700	-0.02
BV6437	Other	1,620	-0.08
BV6631	Other	550	-1.42
BV6635	Other	1,123	-0.54
BV6738	Other	1,730	0.00
BV6769	MEA SP 25	2,100	0.24
BV6893	Other	1,903	0.12
BV6967	Other	9,900	2.16
BV7005	Other	2,000	0.18
BV7020	Other	2,000	0.18
BV7035	Other	843	-0.89
BV7097	PDA SP 25	2,358	0.38
BV7117	MEA SP 25	190	-2.74
BV7147	Other	270	-2.30
BV7172	PDA SP 25	2,267	0.34
BV7234	Other	290	-2.22
BV7242	Other	2,190	0.29
BV7287	PDA SP 25	608	-1.30
BV7288	PDA SP 25	3,100	0.72
BV7375	Other	2,500	0.46
BV7378	Other	17,000	2.84
BV7393	Other	900	-0.81
BV7395	Other	950	-0.74
BV7396	Other	1,000	-0.68
BV7414	OSA SP 25	4,453	1.17
BV7455	Other	2,700	0.55
BV7477	PDA SP 25	1,724	0.00
BV7597	Other	850	-0.88
BV7606	Other	1,400	-0.26
BV7667	Other	22,000	3.16
BV7669	Other	102,000	5.06

Sample: 500 - Fruit Juice

Analyte: Yeast

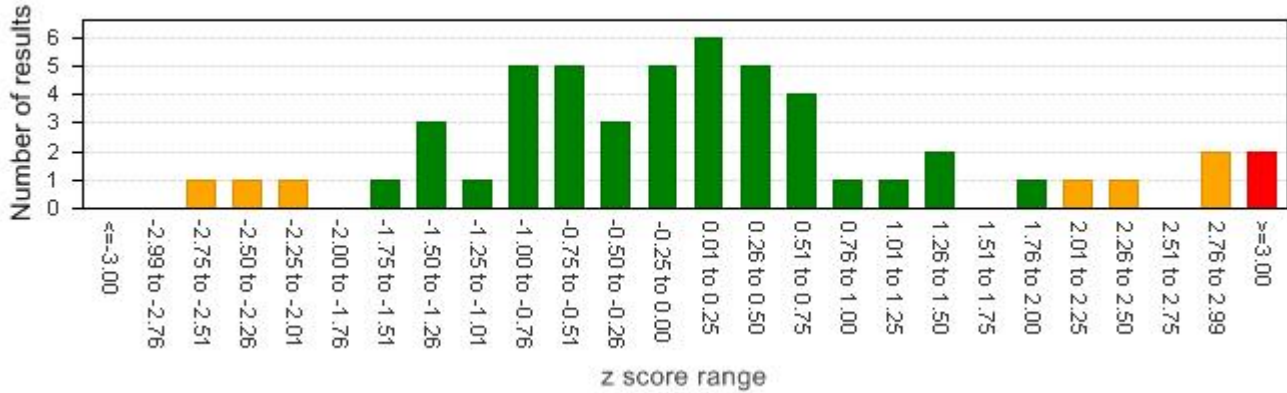
Data Statistics

	Value
Number of Results	52
Number of Excluded Results	1
Mean	3.25 log10
Median	3.24 log10
Standard Deviation	0.45 log10
Robust Standard Deviation	0.38 log10
Result Range	190 to 22000 cfu/ml

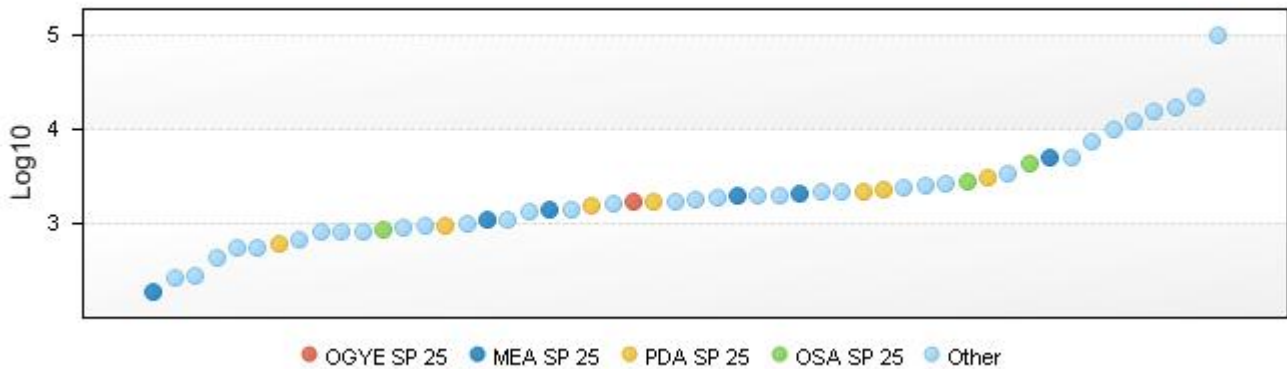
Performance Statistics

	Value
Assigned Value	1,730 cfu/ml
Uncertainty of Assigned Value	0.07 log10
SDPA	0.35 log10
Satisfactory Range	345 to 8,671 cfu/ml
Satisfactory z scores	82.7%
Questionable z scores	13.5%
Unsatisfactory z scores	3.8%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
OGYE SP 25	1	0	1.92	3.23	0.00	1700 to 1700	100.0
MEA SP 25	6	0	11.54	3.22	0.21	190 to 5200	83.3
PDA SP 25	7	0	13.46	3.24	0.20	608 to 3100	100.0
OSA SP 25	3	0	5.77	3.45	0.30	870 to 4453	100.0
Other	35	1	67.31	3.25	0.44	270 to 22000	77.1
All	52	1	100	3.24	0.38	190 to 22000	82.7

Comments

Sample: 500 - Fruit Juice

Analyte: Yeast

The test material contained *Candida albicans* at an assigned value of 1,730 cfu/ml.

Fungi, including yeast and moulds, are ubiquitous throughout the environment. They can survive adverse conditions by the production of spores. Yeasts are simply fungi whose main growth form is unicellular and which usually replicate by budding.

Sample: 500 - Fruit Juice

Analyte: Mould

Lab ID	Method	Result (cfu/ml)	z score
BV6023	OSA SP 25	540	0.29
BV6026	Other	700	0.61
BV6107	MEA SP 25	200	-0.95
BV6108	MEA SP 25	240	-0.72
BV6141	Other	8,000	3.63
BV6158	Other	1,800	1.78
BV6164	PDA SP 25	240	-0.72
BV6166	Other	350	-0.25
BV6180	MEA SP 25	480	0.14
BV6184	PDA SP 25	9	-4.79
BV6184	OSA SP 25	10	-4.66
BV6184	MEA SP 25	10	-4.66
BV6209	Other	700	0.61
BV6225	Other	385	-0.13
BV6246	Other	200	-0.95
BV6263	Other	750	0.69
BV6294	Other	440	0.03
BV6336	Other	460	0.09
BV6337	Other	333	-0.31
BV6360	Other	6,000	3.27
BV6366	Other	300	-0.44
BV6372	OGYE SP 25	470	0.11
BV6437	Other	600	0.42
BV6631	Other	230	-0.77
BV6635	PDA SP 25	304	-0.43
BV6738	Other	300	-0.44
BV6769	MEA SP 25	200	-0.95
BV6893	Other	429	0.00
BV6967	Other	5,200	3.10
BV7005	Other	900	0.92
BV7020	Other	260	-0.62
BV7035	Other	1,200	1.28
BV7097	PDA SP 25	714	0.63
BV7117	MEA SP 25	10	-4.66
BV7147	Other	370	-0.18
BV7172	PDA SP 25	933	0.96
BV7234	Other	440	0.03
BV7242	Other	380	-0.15
BV7255	OSA SP 25	400	-0.09
BV7287	PDA SP 25	105	-1.75
BV7288	PDA SP 25	420	-0.03
BV7375	Other	5,000	3.05
BV7378	Other	12,000	4.13
BV7393	Other	500	0.19
BV7395	Other	400	-0.09
BV7396	Other	450	0.06
BV7414	OSA SP 25	330	-0.33
BV7455	Other	860	0.86
BV7477	PDA SP 25	262	-0.61
BV7597	Other	230	-0.77
BV7606	Other	1,100	1.17
BV7667	Other	5,100	3.07
BV7669	Other	5,000	3.05

Sample: 500 - Fruit Juice

Analyte: Mould

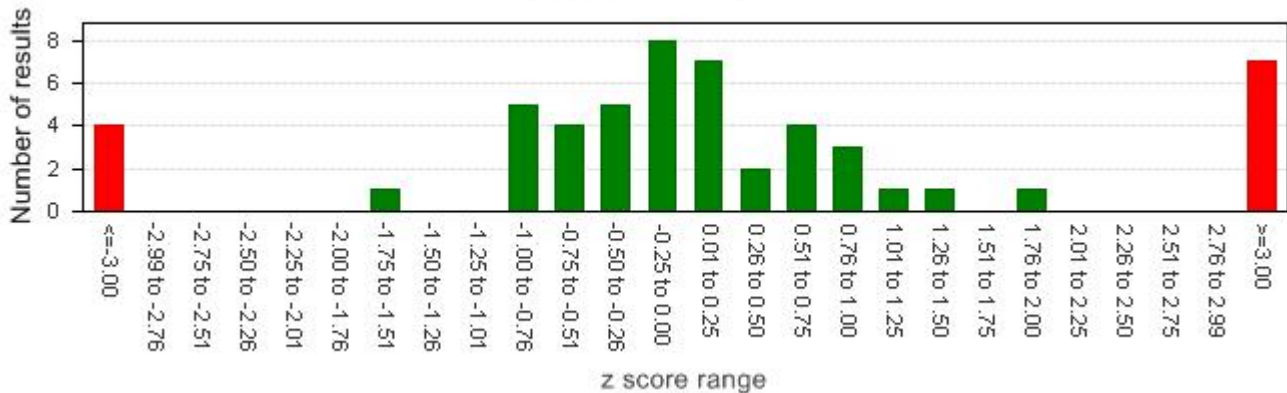
Data Statistics

	Value
Number of Results	53
Number of Excluded Results	0
Mean	2.66 log10
Median	2.63 log10
Standard Deviation	0.66 log10
Robust Standard Deviation	0.33 log10
Result Range	9 to 12000 cfu/ml

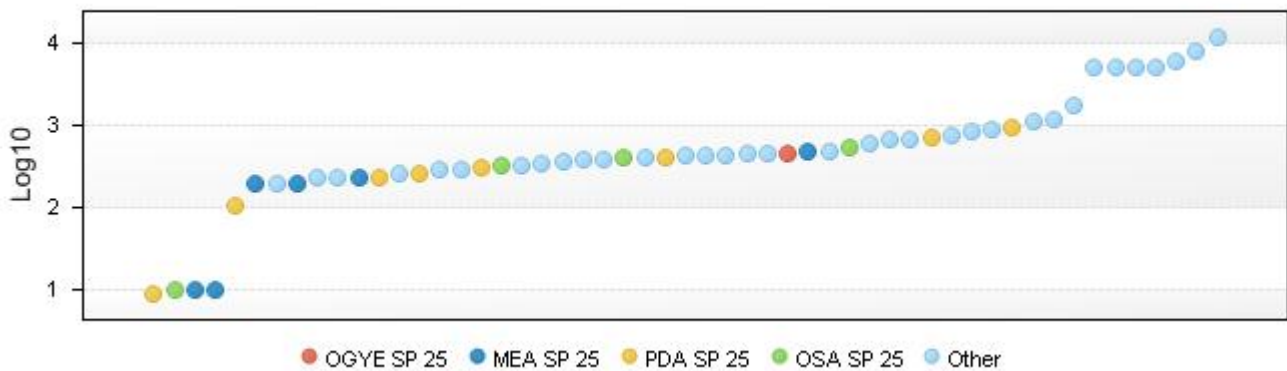
Performance Statistics

	Value
Assigned Value	429 cfu/ml
Uncertainty of Assigned Value	0.06 log10
SDPA	0.35 log10
Satisfactory Range	86 to 2,150 cfu/ml
Satisfactory z scores	79.2%
Questionable z scores	0.0%
Unsatisfactory z scores	20.8%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
OGYE SP 25	1	0	1.89	2.67	0.00	470 to 470	100.0
MEA SP 25	6	0	11.32	2.30	0.34	10 to 480	66.7
PDA SP 25	8	0	15.09	2.45	0.43	9 to 933	87.5
OSA SP 25	4	0	7.55	2.56	0.16	10 to 540	75.0
Other	34	0	64.15	2.68	0.30	200 to 12000	79.4
All	53	0	100	2.63	0.33	9 to 12000	79.2

Comments

Sample: 500 - Fruit Juice

Analyte: Mould

The test material contained *Aspergillus brasiliensis* at an assigned value of 429 cfu/ml.

Fungi, including yeast and moulds, are ubiquitous throughout the environment. They can survive adverse conditions by the production of spores.

Sample: 500 - Fruit Juice

Analyte: Lactic acid bacteria

Lab ID	Method	Result (cfu/ml)	z score
BV6026	Other	20,000	2.09
BV6107	MRS PP 30	4,200	0.15
BV6141	MRS SP 30	40,370	2.96
BV6164	Other	2,300	-0.59
BV6184	MEMF 30	2,080	-0.72
BV6184	MRS SP 30	2,130	-0.69
BV6184	MRS PP 30	2,200	-0.65
BV6209	MRS PP 30	5,100	0.40
BV6294	MRS PP 30	2,500	-0.49
BV6336	MRS PP 30	6,080	0.61
BV6360	MRS PP 30	10,000	1.23
BV6366	MRS PP 30	3,818	0.04
BV6372	MRS SP 30	3,600	-0.04
BV6437	MRS PP 30	3,570	-0.05
BV6631	MRS SP 30	3,000	-0.26
BV6635	MRS PP 30	1,678	-0.98
BV6738	MRS PP 30	4,720	0.30
BV6769	MRS PP 30	4,500	0.24
BV6893	Other	2,743	-0.37
BV6967	MRS PP 30	83,000	3.86
BV7020	MRS SP 30	2,300	-0.59
BV7097	MRS PP 30	6,008	0.60
BV7242	Other	3,240	-0.17
BV7287	MRS SP 30	3,486	-0.08
BV7288	MRS SP 30	<1	
BV7375	MRS PP 30	28,000	2.51
BV7378	MRS PP 30	49,000	3.20
BV7393	MRS PP 30	1,250	-1.35
BV7395	MRS PP 30	1,300	-1.30
BV7455	Other	6,300	0.66
BV7477	MRS SP 30	6,240	0.65
BV7606	MRS SP 30	125	-4.21
BV7667	MRS PP 30	37,000	2.85
BV7669	MRS PP 30	1,075,000	7.04

Data Statistics

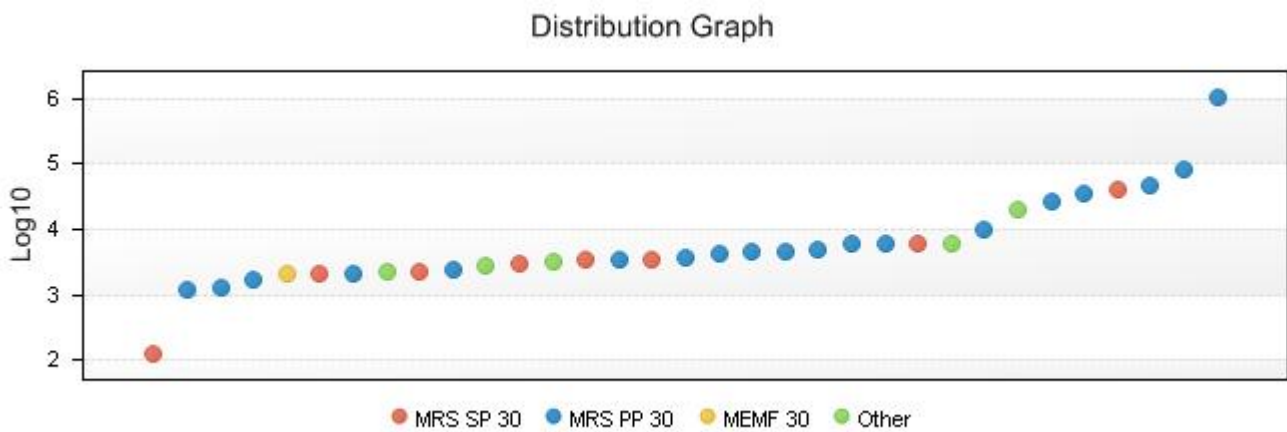
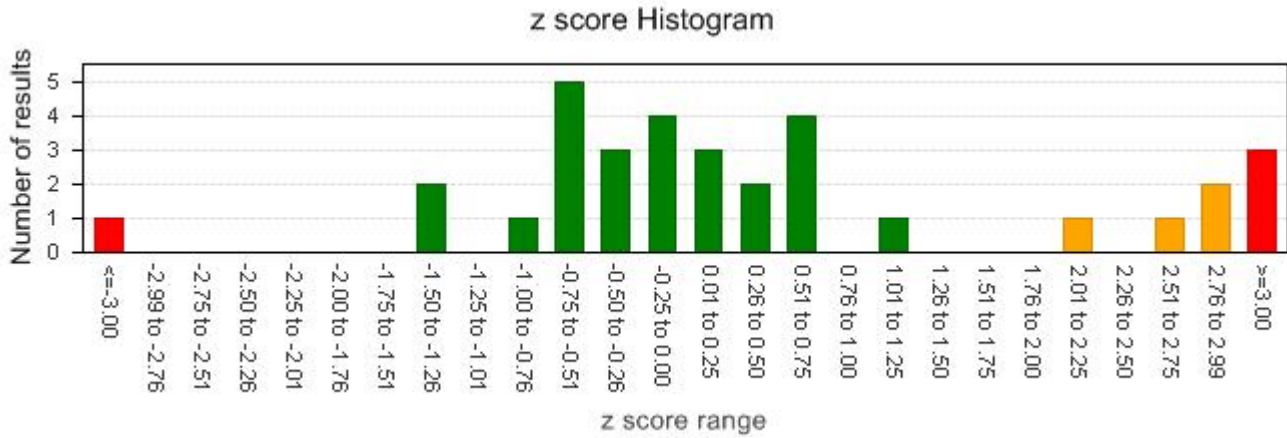
	Value
Number of Results	34
Number of Excluded Results	2
Mean	3.68 log10
Median	3.57 log10
Standard Deviation	0.55 log10
Robust Standard Deviation	0.33 log10
Result Range	125 to 83000 cfu/ml

Performance Statistics

	Value
Assigned Value	3,707 cfu/ml
Uncertainty of Assigned Value	0.07 log10
SDPA	0.35 log10
Satisfactory Range	740 to 18,579 cfu/ml
Satisfactory z scores	75.8%
Questionable z scores	12.1%
Unsatisfactory z scores	12.1%

Sample: 500 - Fruit Juice

Analyte: Lactic acid bacteria



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
MRS SP 30	9	1	26.47	3.51	0.24	125 to 40370	75.0
MRS PP 30	19	1	55.88	3.66	0.44	1250 to 83000	73.7
MEMF 30	1	0	2.94	3.32	0.00	2080 to 2080	100.0
Other	5	0	14.71	3.51	0.22	2300 to 20000	80.0
All	34	2	100	3.57	0.33	125 to 83000	75.8

Comments

The test material contained *Leuconostoc mesenteroides* at an assigned value of 3,707 cfu/ml.

Lactic acid bacteria are important in the food, brewing, and dairy industries, where they are used in fermentations due to the production of lactic and acetic acids. Lactic acid bacteria can also cause spoilage; high levels can cause off flavours and odours and lead to reduced shelf life.

Sample: 500 - Fruit Juice

Analyte: *Escherichia coli*

Lab ID	Method	Result
BV6026	Other	Detected
BV6107	MPN	Detected
BV6108	Other	Detected
BV6141	Petrifilm	Not Detected
BV6141	Other	Detected
BV6158	TBX PP 37-44	Detected
BV6184	VG PP 37	Detected
BV6184	Chromogenic agar	Detected
BV6184	Other	Detected
BV6209	Chromogenic agar	Detected
BV6225	Other	Detected
BV6263	Chromogenic agar	Detected
BV6294	Other	Detected
BV6336	Other	Detected
BV6360	Chromogenic agar	Detected
BV6366	Other	Detected
BV6372	Chromogenic agar	Detected
BV6437	Chromogenic agar	Detected
BV6635	Other	Detected
BV6738	Other	Detected
BV6769	Chromogenic agar	Detected
BV6893	Chromogenic agar	Detected
BV6967	TBX PP 37-44	Detected
BV7097	Chromogenic agar	Detected
BV7287	Other	Detected
BV7288	Other	Detected
BV7375	Other	Detected
BV7378	Other	Detected
BV7393	Petrifilm	Detected
BV7395	Petrifilm	Detected
BV7455	Other	Detected
BV7477	Chromogenic agar	Detected
BV7606	Chromogenic agar	Detected
BV7606	Other	Detected
BV7606	TBX PP 37-44	Detected
BV7667	Other	Detected
BV7669	MPN	Detected

Data Statistics

	Result
Assigned Value	Detected
Number of Results	37
Satisfactory	97%

Methodology Summary

Method	% Satisfactory
Chromogenic agar	100%
MPN	100%
Petrifilm	67%
TBX PP 37-44	100%
VG PP 37	100%
Other	100%

Comments

The test material contained *Escherichia coli* at an approximate inoculum level of 2,800 cfu/ml. The assigned value is therefore *Escherichia coli* 'detected'.

Escherichia coli is found in human and animal intestines, and, therefore, the presence of the organism in foods is thought to indicate faecal contamination although it is also widespread throughout the environment. It is historically used as an 'indicator' organism, to indicate whether more serious pathogens, such as Salmonella are also likely to be present.

Sample: 501 - Soft Drink

Analyte: Total aerobic mesophilic count

Lab ID	Method	Result (cfu/ml)	z score
BV6008	TSA PP 30	9,500	0.15
BV6017	Other	8,000	-0.06
BV6021	Other	2,300	-1.61
BV6026	Other	16,000	0.80
BV6033	PCA PP 30	3,730	-1.01
BV6079	PCA PP 30	4,300	-0.83
BV6110	Other	12,100	0.45
BV6420	Other	5,858	-0.45
BV6442	PCA PP 30	14,700	0.69
BV6451	PCA PP 30	9,750	0.18
BV6508	MEMF 30	5,900	-0.44
BV6508	PCA PP 30	10,400	0.26
BV6664	Other	9,233	0.12
BV6717	Other	9,400	0.14
BV6738	PCA PP 30	5,920	-0.43
BV6859	PCA PP 30	8,112	-0.04
BV6864	MEMF 30	9	-8.49
BV6893	Other	5,444	-0.54
BV6963	PCA PP 30	8,900	0.07
BV7023	PCA PP 30	2,700	-1.41
BV7045	PCA PP 30	10,000	0.22
BV7048	PCA PP 30	3,120	-1.23
BV7258	Other	8,700	0.04
BV7352	Other	100	-5.50
BV7383	Other	3,990	-0.92
BV7384	Other	2,810	-1.36
BV7390	PCA PP 30	11,000	0.33
BV7440	Other	6,068	-0.40
BV7441	Other	4,190	-0.86
BV7442	Other	9,400	0.14
BV7556	PCA PP 30	46,000	2.11
BV7652	PCA PP 30	10,000	0.22

Data Statistics

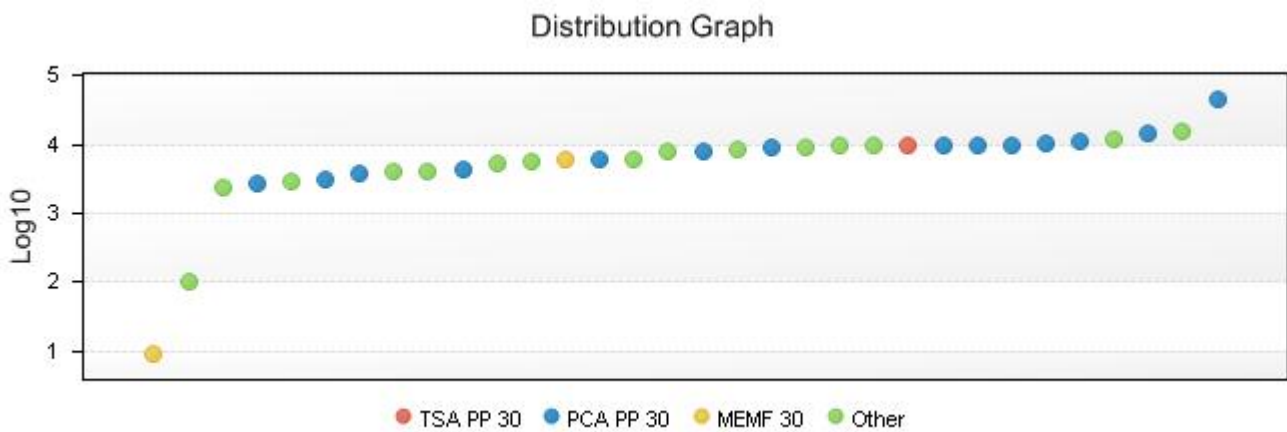
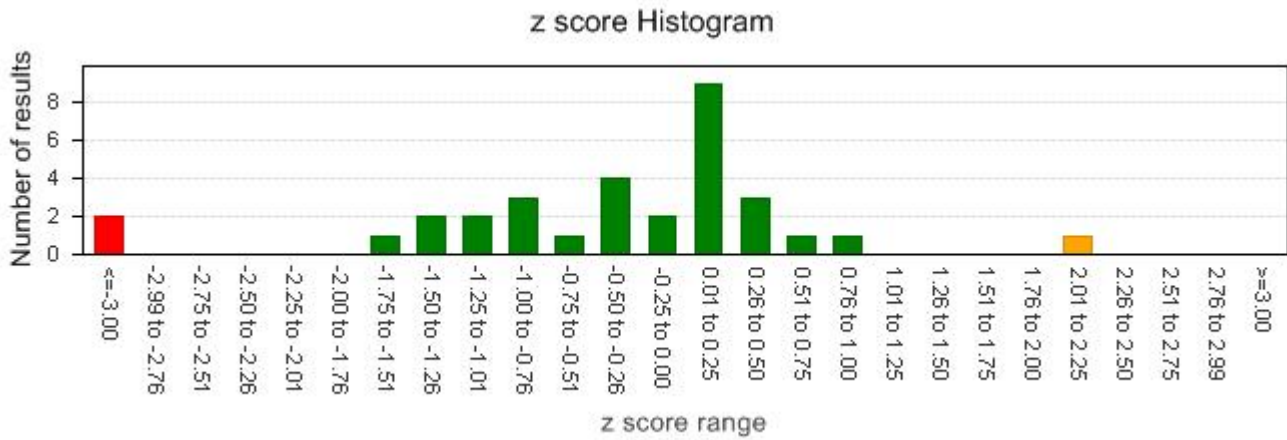
	Value
Number of Results	32
Number of Excluded Results	2
Mean	3.86 log10
Median	3.92 log10
Standard Deviation	0.27 log10
Robust Standard Deviation	0.23 log10
Result Range	2300 to 46000 cfu/ml

Performance Statistics

	Value
Assigned Value	8,401 cfu/ml
Uncertainty of Assigned Value	0.05 log10
SDPA	0.35 log10
Satisfactory Range	1,676 to 42,105 cfu/ml
Satisfactory z scores	90.6%
Questionable z scores	3.1%
Unsatisfactory z scores	6.3%

Sample: 501 - Soft Drink

Analyte: Total aerobic mesophilic count



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
TSA PP 30	1	0	3.13	3.98	0.00	9500 to 9500	100.0
PCA PP 30	14	0	43.75	3.97	0.20	2700 to 46000	92.9
MEMF 30	2	1	6.25	3.77	0.00	5900 to 5900	50.0
Other	15	1	46.88	3.84	0.19	2300 to 16000	93.3
All	32	2	100	3.92	0.23	2300 to 46000	90.6

Comments

The test material contained *Escherichia coli*, *Candida albicans*, *Aspergillus brasiliensis* and *Leuconostoc mesenteroides*. The assigned value for the total aerobic mesophilic count is 8,401 cfu/ml.

Total aerobic mesophilic counts are used to determine the general microbial population of a sample.

Sample: 501 - Soft Drink

Analyte: Yeast

Lab ID	Method	Result (cfu/ml)	z score
BV6008	Other	820	-0.90
BV6008	MEA SP 25	9,900	2.19
BV6021	MEA SP 25	5,900	1.54
BV6026	Other	15,300	2.73
BV6033	MEA SP 25	5,650	1.49
BV6079	Other	1,300	-0.33
BV6420	Other	595	-1.30
BV6442	Other	1,700	0.00
BV6451	Other	2,750	0.60
BV6508	MEMF 25	1,190	-0.44
BV6508	Other	1,440	-0.21
BV6664	OGYE SP 25	2,005	0.20
BV6716	Other	1,200	-0.43
BV6717	Other	1,900	0.14
BV6738	Other	1,224	-0.41
BV6859	Other	1,866	0.12
BV6864	MEA SP 25	<1	
BV6893	Other	1,242	-0.39
BV6916	MEA SP 25	1,767	0.05
BV6963	Other	1,100	-0.54
BV7023	PDA SP 25	1,600	-0.08
BV7045	Other	1,400	-0.24
BV7048	MEA SP 25	1,300	-0.33
BV7258	Other	1,360	-0.28
BV7352	Other	90	-3.65
BV7383	Other	1,790	0.06
BV7384	Other	2,730	0.59
BV7440	Other	8,000	1.92
BV7441	Other	4,600	1.24
BV7442	Other	10,500	2.26
BV7556	Other	11,000	2.32
BV7652	Other	1,600	-0.08

Data Statistics

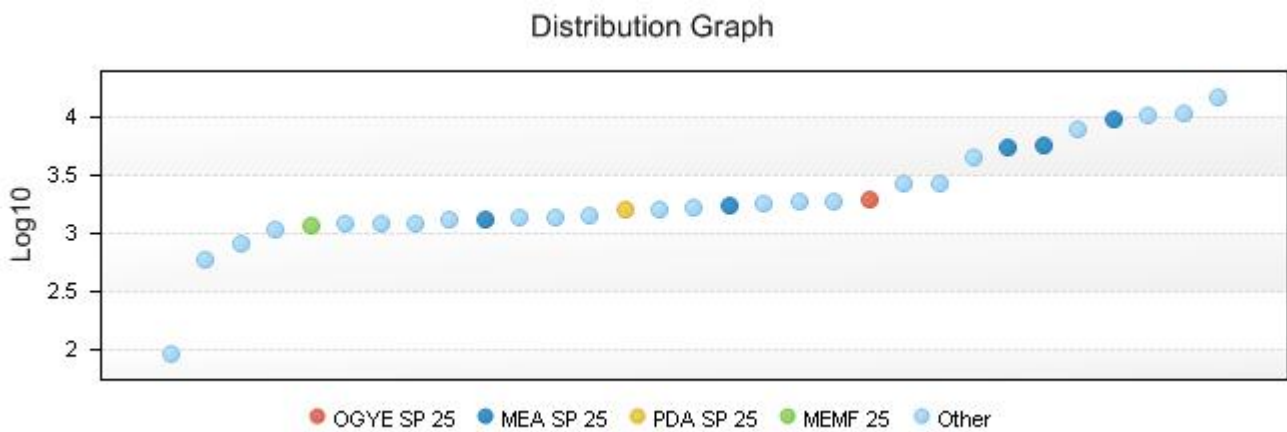
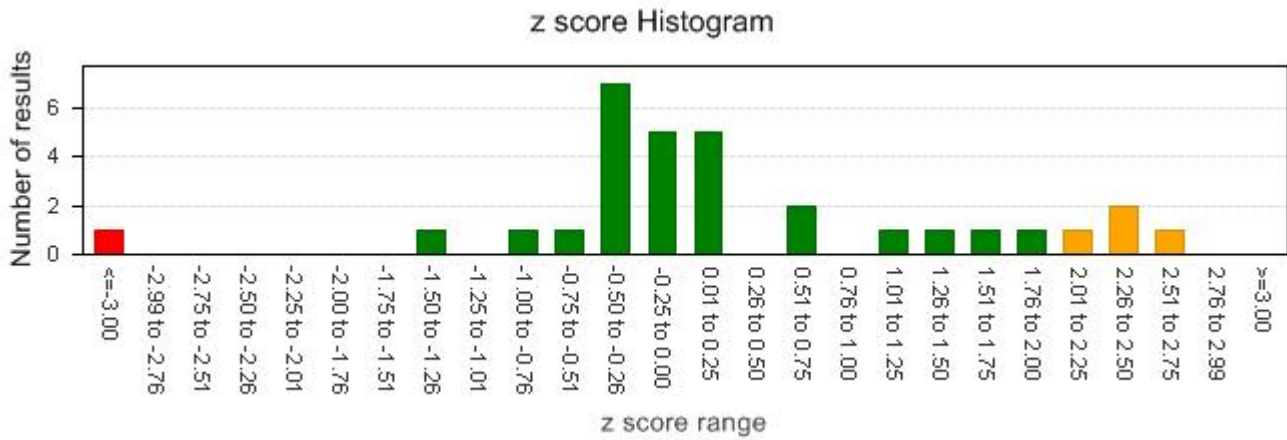
	Value
Number of Results	32
Number of Excluded Results	1
Mean	3.32 log10
Median	3.23 log10
Standard Deviation	0.45 log10
Robust Standard Deviation	0.22 log10
Result Range	90 to 15300 cfu/ml

Performance Statistics

	Value
Assigned Value	1,700 cfu/ml
Uncertainty of Assigned Value	0.05 log10
SDPA	0.35 log10
Satisfactory Range	339 to 8,520 cfu/ml
Satisfactory z scores	83.9%
Questionable z scores	12.9%
Unsatisfactory z scores	3.2%

Sample: 501 - Soft Drink

Analyte: Yeast



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
OGYE SP 25	1	0	3.13	3.30	0.00	2005 to 2005	100.0
MEA SP 25	6	1	18.75	3.75	0.36	1300 to 9900	80.0
PDA SP 25	1	0	3.13	3.20	0.00	1600 to 1600	100.0
MEMF 25	1	0	3.13	3.08	0.00	1190 to 1190	100.0
Other	23	0	71.88	3.20	0.19	90 to 15300	82.6
All	32	1	100	3.23	0.22	90 to 15300	83.9

Comments

The test material contained *Candida albicans* at an assigned value of 1,700 cfu/ml.

Fungi, including yeast and moulds, are ubiquitous throughout the environment. They can survive adverse conditions by the production of spores. Yeasts are simply fungi whose main growth form is unicellular and which usually replicate by budding.

Sample: 501 - Soft Drink

Analyte: Mould

Lab ID	Method	Result (cfu/ml)	z score
BV6008	Other	350	-0.44
BV6008	MEA SP 25	560	0.14
BV6021	MEA SP 25	700	0.42
BV6026	Other	600	0.23
BV6033	OSA SP 25	280	-0.72
BV6079	Other	820	0.61
BV6420	Other	698	0.41
BV6442	Other	500	0.00
BV6451	Other	1,050	0.92
BV6508	Other	320	-0.55
BV6508	MEMF 25	280	-0.72
BV6664	OGYE SP 25	687	0.39
BV6716	Other	630	0.29
BV6717	Other	660	0.34
BV6738	Other	330	-0.52
BV6859	Other	886	0.71
BV6864	MEA SP 25	2	-6.85
BV6893	Other	529	0.07
BV6916	MEA SP 25	420	-0.22
BV6963	Other	460	-0.10
BV7023	PDA SP 25	900	0.73
BV7045	Other	380	-0.34
BV7048	MEA SP 25	200	-1.14
BV7258	Other	400	-0.28
BV7352	Other	1	-7.71
BV7383	Other	730	0.47
BV7384	Other	300	-0.63
BV7440	Other	478	-0.06
BV7441	Other	200	-1.14
BV7442	Other	340	-0.48
BV7483	OSA SP 25	200	-1.14
BV7556	Other	5,400	2.95
BV7652	Other	620	0.27

Data Statistics

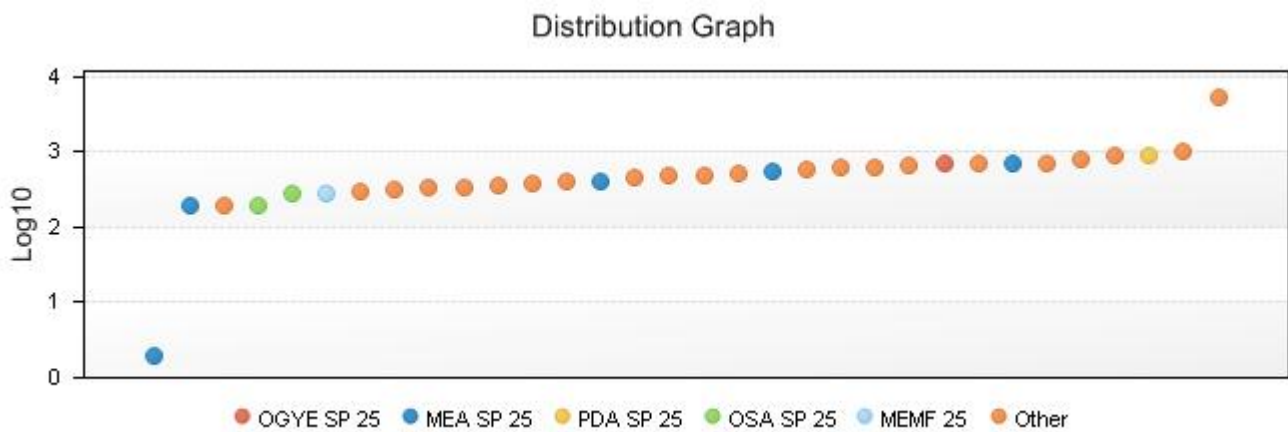
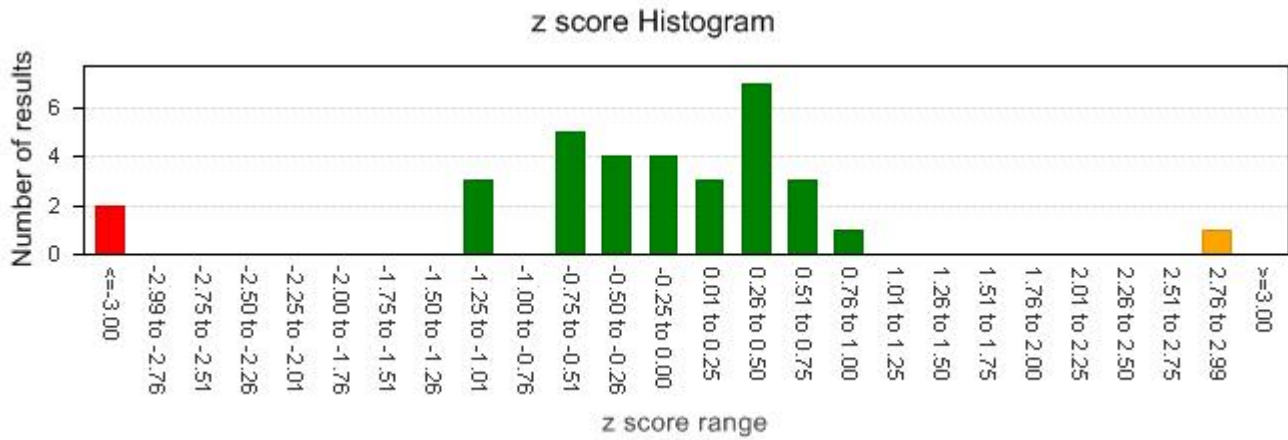
	Value
Number of Results	33
Number of Excluded Results	2
Mean	2.70 log10
Median	2.70 log10
Standard Deviation	0.28 log10
Robust Standard Deviation	0.23 log10
Result Range	200 to 5400 cfu/ml

Performance Statistics

	Value
Assigned Value	500 cfu/ml
Uncertainty of Assigned Value	0.05 log10
SDPA	0.35 log10
Satisfactory Range	100 to 2,506 cfu/ml
Satisfactory z scores	90.9%
Questionable z scores	3.0%
Unsatisfactory z scores	6.1%

Sample: 501 - Soft Drink

Analyte: Mould



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			
OGYE SP 25	1	0	3.03	2.84	0.00	687 to 687	100.0
MEA SP 25	5	1	15.15	2.69	0.16	200 to 700	80.0
PDA SP 25	1	0	3.03	2.95	0.00	900 to 900	100.0
OSA SP 25	2	0	6.06	2.37	0.11	200 to 280	100.0
MEMF 25	1	0	3.03	2.45	0.00	280 to 280	100.0
Other	23	1	69.7	2.71	0.21	200 to 5400	91.3
All	33	2	100	2.70	0.23	200 to 5400	90.9

Comments

The test material contained *Aspergillus brasiliensis* at an assigned value of 500 cfu/ml.

Fungi, including yeast and moulds, are ubiquitous throughout the environment. They can survive adverse conditions by the production of spores.

Sample: 501 - Soft Drink

Analyte: Lactic acid bacteria

Lab ID	Method	Result (cfu/ml)	z score
BV6008	MRS PP 30	5,100	0.82
BV6026	Other	17,000	2.32
BV6033	Other	2,370	-0.13
BV6079	Other	2,300	-0.16
BV6442	MRS PP 30	3,800	0.46
BV6451	MRS PP 30	2,550	-0.04
BV6717	MRS PP 30	6,100	1.05
BV6738	MRS PP 30	4,500	0.67
BV6859	MRS SP 30	1,304	-0.87
BV6893	Other	1,391	-0.79
BV7023	MRS PP 30	1,500	-0.69
BV7048	Other	<1	
BV7258	MRS PP 30	2,700	0.04
BV7383	Other	2,060	-0.30
BV7384	Other	1,620	-0.60
BV7556	MRS PP 30	44,000	3.50
BV7652	MRS PP 30	3,500	0.36

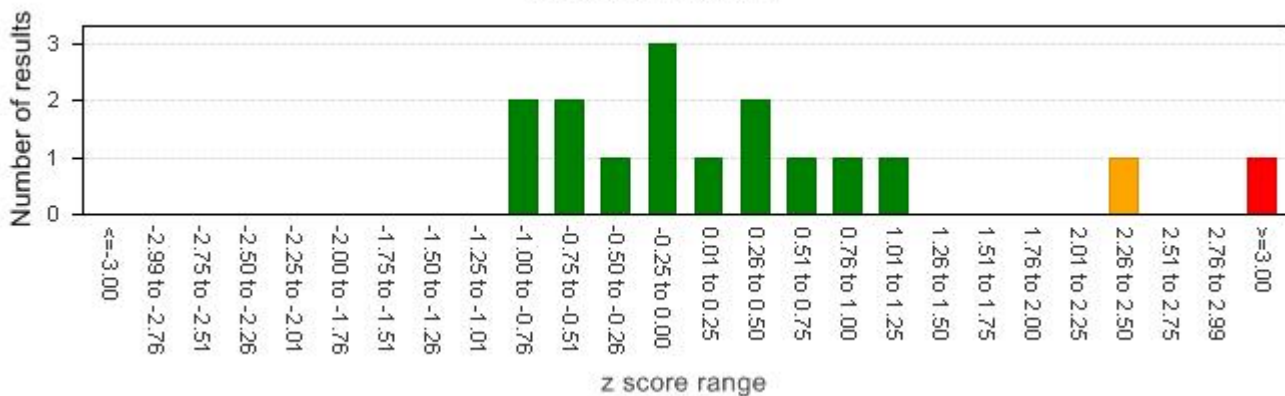
Data Statistics

	Value
Number of Results	17
Number of Excluded Results	1
Mean	3.54 log10
Median	3.42 log10
Standard Deviation	0.41 log10
Robust Standard Deviation	0.33 log10
Result Range	1304 to 44000 cfu/ml

Performance Statistics

	Value
Assigned Value	2,624 cfu/ml
Uncertainty of Assigned Value	0.10 log10
SDPA	0.35 log10
Satisfactory Range	524 to 13,151 cfu/ml
Satisfactory z scores	87.5%
Questionable z scores	6.3%
Unsatisfactory z scores	6.3%

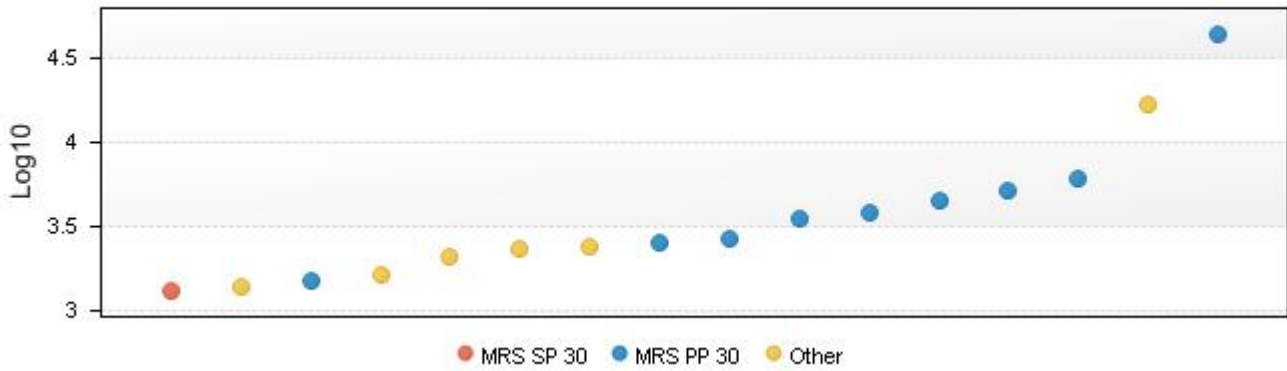
z score Histogram



Sample: 501 - Soft Drink

Analyte: Lactic acid bacteria

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
MRS SP 30	1	0	5.88	3.12	0.00	1304 to 1304	100.0
MRS PP 30	9	0	52.94	3.58	0.22	1500 to 44000	88.9
Other	7	1	41.18	3.34	0.12	1391 to 17000	83.3
All	17	1	100	3.42	0.33	1304 to 44000	87.5

Comments

The test material contained *Leuconostoc mesenteroides* at an assigned value of 2,624 cfu/ml.

Lactic acid bacteria are important in the food, brewing, and dairy industries, where they are used in fermentations due to the production of lactic and acetic acids. Lactic acid bacteria can also cause spoilage; high levels can cause off flavours and odours and lead to reduced shelf life.

Sample: 501 - Soft Drink

Analyte: *Escherichia coli*

Lab ID	Method	Result
BV6021	Other	Detected
BV6026	Other	Detected
BV6033	Other	Detected
BV6442	Other	Detected
BV6451	TBX PP 37-44	Detected
BV6508	Other	Detected
BV6716	Other	Detected
BV6717	Other	Detected
BV6738	Other	Detected
BV6859	Chromogenic agar	Detected
BV6893	Chromogenic agar	Detected
BV6963	MPN	Detected
BV7008	Other	Not Detected
BV7023	Other	Detected
BV7045	Other	Detected
BV7352	Other	Detected
BV7383	Other	Detected
BV7384	TBX PP 37-44	Detected
BV7390	Other	Detected
BV7440	Other	Detected
BV7441	Other	Detected
BV7442	Other	Detected
BV7652	MPN	Detected

Data Statistics

	Result
Assigned Value	Detected
Number of Results	23
Satisfactory	96%

Methodology Summary

Method	% Satisfactory
Chromogenic agar	100%
MPN	100%
TBX PP 37-44	100%
Other	94%

Comments

The test material contained *Escherichia coli* at an approximate inoculum level of 3,820 cfu/ml. The assigned value is therefore *Escherichia coli* 'detected'.

Escherichia coli is found in human and animal intestines, and, therefore, the presence of the organism in foods is thought to indicate faecal contamination although it is also widespread throughout the environment. It is historically used as an 'indicator' organism, to indicate whether more serious pathogens, such as *Salmonella* are also likely to be present.

Sample: 505 - Filtration

Analyte: Total aerobic mesophilic count

Lab ID	Method	Result (cfu/100ml)	z score
BV6164	Other	146	0.03
BV6182	MEMF TSA 30	230	0.60
BV6182	MEMF PCA 30	160	0.15
BV6282	MEMF PCA 30	132	-0.09
BV6652	MEMF TSA 30	290	0.89
BV6738	MEMF PCA 30	104	-0.39
BV6871	MEMF PCA 30	138	-0.04
BV6930	MEMF PCA 30	185	0.33
BV6960	Other	200	0.42
BV7048	MEMF PCA 30	80	-0.71
BV7281	Other	241	0.66
BV7292	Other	163	0.17
BV7333	m-TGE	125	-0.16
BV7336	m-TGE	82	-0.68
BV7544	MEMF PCA 30	110	-0.32
BV7605	m-TGE	107	-0.35

Data Statistics

	Value
Number of Results	16
Number of Excluded Results	0
Mean	2.16 log10
Median	2.15 log10
Standard Deviation	0.16 log10
Robust Standard Deviation	0.18 log10
Result Range	80 to 290 cfu/100ml

Performance Statistics

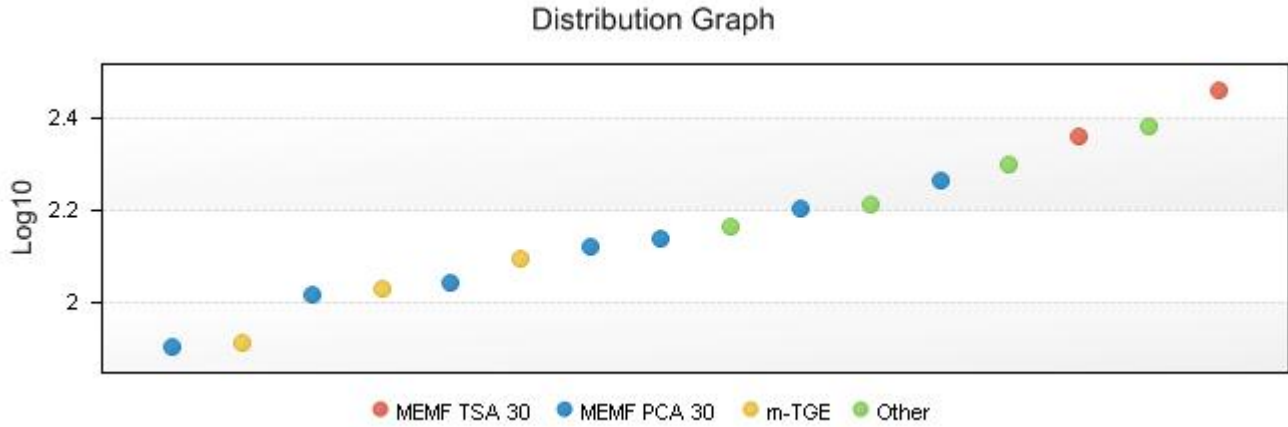
	Value
Assigned Value	142 cfu/100ml
Uncertainty of Assigned Value	0.06 log10
SDPA	0.35 log10
Satisfactory Range	28 to 712 cfu/100ml
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%

z score Histogram



Sample: 505 - Filtration

Analyte: Total aerobic mesophilic count



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
MEMF TSA 30	2	0	12.5	2.41	0.07	230 to 290	100.0
MEMF PCA 30	7	0	43.75	2.12	0.12	80 to 185	100.0
m-TGE	3	0	18.75	2.03	0.10	82 to 125	100.0
Other	4	0	25	2.26	0.10	146 to 241	100.0
All	16	0	100	2.15	0.18	80 to 290	100.0

Comments

The test material contained *Escherichia coli*, *Leuconostoc citreum* and *Penicillium chrysogenum*. The assigned value for total aerobic mesophilic count is 142 cfu/100ml.

Total aerobic mesophilic counts are used to determine the general microbial population of a sample.

Sample: 505 - Filtration

Analyte: Yeast

Lab ID	Method	Result (cfu/100ml)
BV6164	MEMF PDA 25	<1
BV6182	Other	<1
BV6182	MEMF OGYE 25	<1
BV6282	MEMF OSA 25	<1
BV6652	MEMF OSA 25	<1
BV6738	Other	<1
BV6871	MEMF MEA 25	68
BV6930	Other	<1
BV6960	Other	<1
BV7048	MEMF OSA 25	<1
BV7281	MEMF MEA 25	<1
BV7292	MEMF PDA 25	<1
BV7333	m-Green	50
BV7336	m-Green	102
BV7424	Other	<1
BV7480	Other	29
BV7482	MEMF PDA 25	<1
BV7485	Other	<1
BV7488	Other	<1
BV7489	Other	<1
BV7490	MEMF MEA 25	<1
BV7494	Other	2
BV7495	MEMF MEA 25	<1
BV7496	Other	<1
BV7497	Other	<1
BV7498	Other	<1
BV7499	Other	<1
BV7500	Other	<1
BV7501	Other	<1
BV7502	MEMF PDA 25	<10
BV7503	MEMF PDA 25	<1
BV7504	MEMF PDA 25	<1
BV7507	Other	<1
BV7508	Other	<1
BV7510	Other	<1
BV7515	Other	<1
BV7517	Other	<1
BV7518	Other	<1
BV7519	Other	<1
BV7520	Other	<1
BV7521	Other	<1
BV7522	Other	<1
BV7523	Other	<1
BV7524	Other	<1
BV7525	Other	<1
BV7526	Other	<1
BV7544	Other	<1
BV7586	Other	<1
BV7605	m-Green	<1
BV7662	Other	16

Data Statistics

	Value
Number of Results	50
Number of Excluded Results	N/A
Mean	N/A
Median	N/A
Standard Deviation	N/A
Robust Standard Deviation	N/A
Result Range	2 to 102 cfu/100ml

Sample: 505 - Filtration**Analyte: Yeast****Performance Statistics**

	Value
Assigned Value	Absent
Uncertainty of Assigned Value	N/A
SDPA	N/A
Satisfactory Range	N/A
Satisfactory z scores	N/A
Questionable z scores	N/A
Unsatisfactory z scores	N/A

Comments

The test material did not contain Yeast; therefore the assigned value is 'absent'. Using a detection limit of <1 cfu/100ml

Fungi, including yeast and moulds, are ubiquitous throughout the environment. They can survive adverse conditions by the production of spores. Yeasts are simply fungi whose main growth form is unicellular and which usually replicate by budding.

Sample: 505 - Filtration

Analyte: Mould

Lab ID	Method	Result (cfu/100ml)	z score
BV6164	MEMF PDA 25	32	0.00
BV6182	Other	31	-0.04
BV6182	MEMF OGYE 25	29	-0.12
BV6282	MEMF OSA 25	22	-0.46
BV6652	MEMF OSA 25	16	-0.86
BV6738	Other	37	0.18
BV6871	MEMF MEA 25	29	-0.12
BV6930	Other	40	0.28
BV6960	Other	35	0.11
BV7048	MEMF OSA 25	35	0.11
BV7281	MEMF MEA 25	25	-0.31
BV7292	MEMF PDA 25	18	-0.71
BV7333	m-Green	60	0.78
BV7336	m-Green	29	-0.12
BV7424	Other	48	0.50
BV7480	Other	28	-0.17
BV7481	MEMF OGYE 25	8	-1.72
BV7482	MEMF PDA 25	34	0.08
BV7485	Other	30	-0.08
BV7488	Other	30	-0.08
BV7489	Other	27	-0.21
BV7490	MEMF MEA 25	21	-0.52
BV7494	Other	46	0.45
BV7495	MEMF MEA 25	56	0.69
BV7496	Other	33	0.04
BV7497	Other	24	-0.36
BV7498	Other	29	-0.12
BV7499	Other	22	-0.46
BV7500	Other	26	-0.26
BV7501	Other	27	-0.21
BV7502	MEMF PDA 25	51	0.58
BV7503	MEMF PDA 25	30	-0.08
BV7504	MEMF PDA 25	54	0.65
BV7505	MEMF PDA 25	40	0.28
BV7506	Other	18	-0.71
BV7507	Other	26	-0.26
BV7508	Other	32	0.00
BV7510	Other	28	-0.17
BV7515	Other	41	0.31
BV7517	Other	43	0.37
BV7518	Other	41	0.31
BV7519	Other	42	0.34
BV7520	Other	45	0.42
BV7521	Other	41	0.31
BV7522	Other	41	0.31
BV7523	Other	46	0.45
BV7524	Other	47	0.48
BV7525	Other	42	0.34
BV7526	Other	49	0.53
BV7544	Other	14	-1.03
BV7586	Other	36	0.15
BV7605	m-Green	45	0.42
BV7662	Other	9	-1.57

Sample: 505 - Filtration

Analyte: Mould

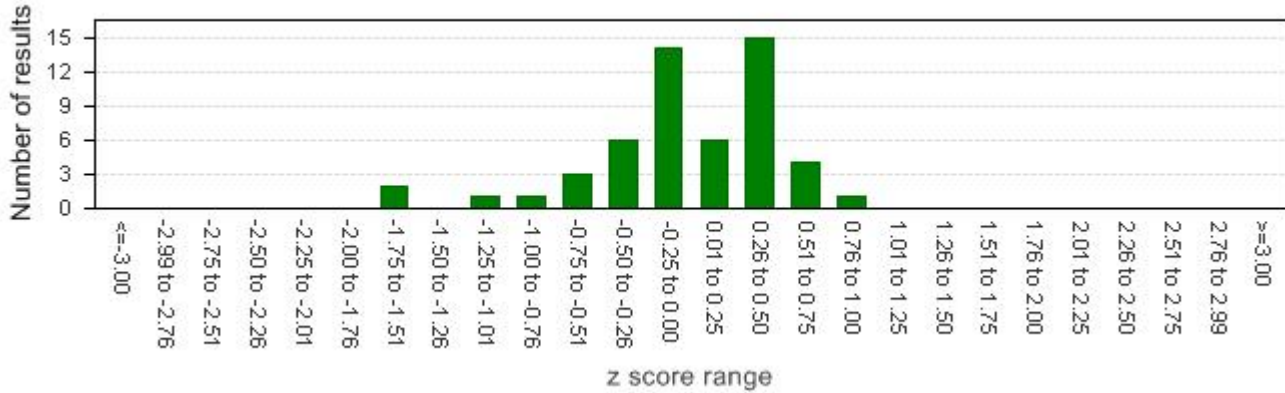
Data Statistics

	Value
Number of Results	53
Number of Excluded Results	0
Mean	1.50 log10
Median	1.51 log10
Standard Deviation	0.18 log10
Robust Standard Deviation	0.16 log10
Result Range	8 to 60 cfu/100ml

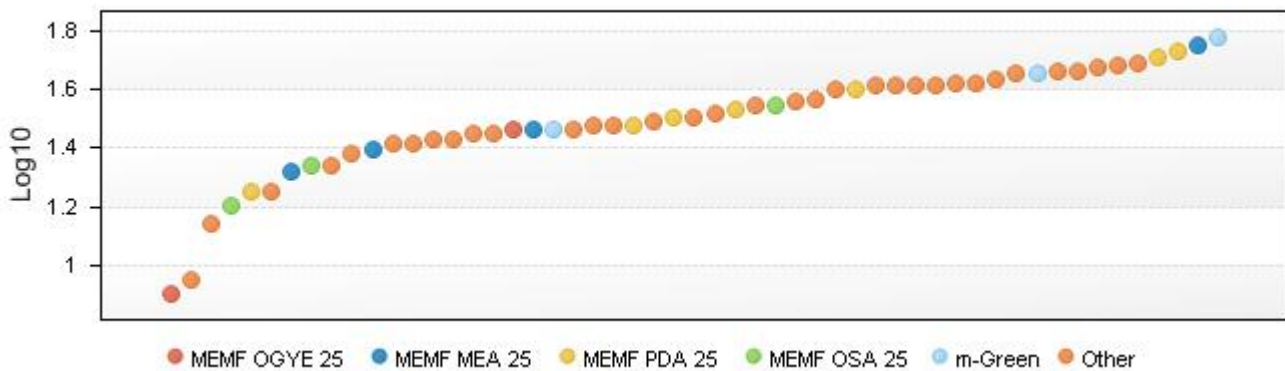
Performance Statistics

	Value
Assigned Value	32 cfu/100ml
Uncertainty of Assigned Value	0.03 log10
SDPA	0.35 log10
Satisfactory Range	6 to 160 cfu/100ml
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
MEMF OGYE 25	2	0	3.77	1.18	0.41	8 to 29	100.0
MEMF MEA 25	4	0	7.55	1.43	0.10	21 to 56	100.0
MEMF PDA 25	7	0	13.21	1.53	0.10	18 to 54	100.0
MEMF OSA 25	3	0	5.66	1.34	0.21	16 to 35	100.0
m-Green	3	0	5.66	1.65	0.19	29 to 60	100.0
Other	34	0	64.15	1.53	0.14	9 to 49	100.0
All	53	0	100	1.51	0.16	8 to 60	100.0

Sample: 505 - Filtration

Analyte: Mould

Comments

The test material contained *Penicillium chrysogenum* at an assigned value of 32 cfu/100ml.

Fungi, including yeast and moulds, are ubiquitous throughout the environment. They can survive adverse conditions by the production of spores.

Sample: 505 - Filtration

Analyte: Lactic acid bacteria

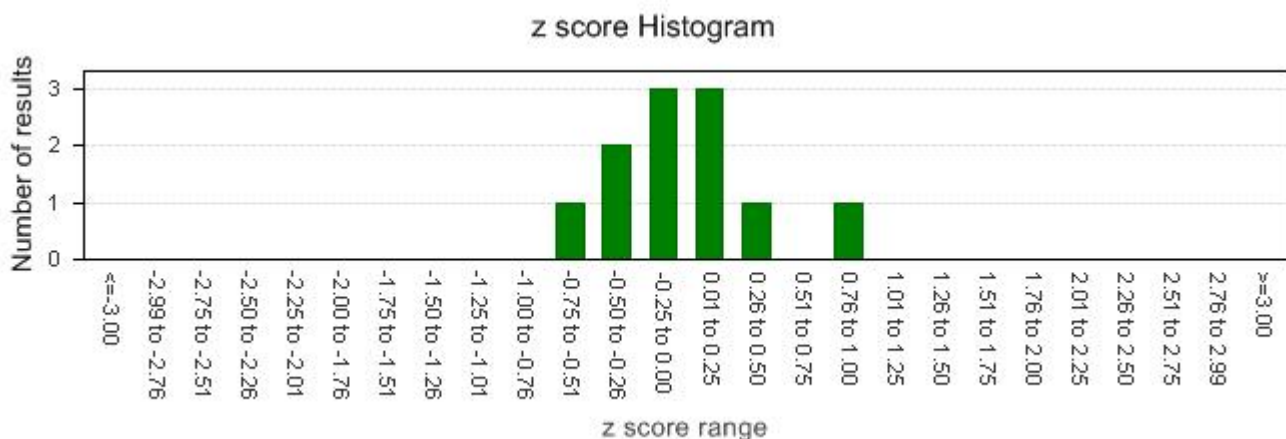
Lab ID	Method	Result (cfu/100ml)	z score
BV6164	Other	104	0.44
BV6182	MEMF MRS 30	82	0.14
BV6282	Other	65	-0.14
BV6652	MEMF MRS 30	140	0.81
BV6871	MEMF MRS 30	51	-0.45
BV6871	Other	73	0.00
BV6960	Other	85	0.19
BV7048	Other	<1	
BV7281	MEMF MRS 30	68	-0.09
BV7333	MEMF MRS 30	45	-0.60
BV7424	MEMF MRS 30	87	0.22
BV7544	MEMF MRS 30	52	-0.42

Data Statistics

	Value
Number of Results	12
Number of Excluded Results	1
Mean	1.87 log10
Median	1.86 log10
Standard Deviation	0.14 log10
Robust Standard Deviation	0.11 log10
Result Range	45 to 140 cfu/100ml

Performance Statistics

	Value
Assigned Value	73 cfu/100ml
Uncertainty of Assigned Value	0.04 log10
SDPA	0.35 log10
Satisfactory Range	15 to 366 cfu/100ml
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				Log10			%
MEMF MRS 30	7	0	58.33	1.83	0.17	45 to 140	100.0
Other	5	1	41.67	1.90	0.09	65 to 104	100.0
All	12	1	100	1.86	0.11	45 to 140	100.0

Comments

The test material contained *Leuconostoc citreum* at an assigned value of 73 cfu/100ml.

Lactic acid bacteria are important in the food, brewing, and dairy industries, where they are used in fermentations due to the production of lactic and acetic acids. Lactic acid bacteria can also cause spoilage; high levels can cause off flavours and odours and lead to reduced shelf life.

Sample: 505 - Filtration**Analyte: Escherichia coli**

Lab ID	Method	Result
BV6182	Other	Detected
BV6182	MPN	Detected
BV6282	Chromogenic agar 37	Detected
BV6652	ML 37	Detected
BV6738	Other	Detected
BV6871	Chromogenic agar 37	Detected
BV6930	Chromogenic agar 37	Detected
BV6960	Chromogenic agar 37	Detected
BV7048	Chromogenic agar 37	Detected
BV7281	Chromogenic agar 37	Detected
BV7292	Chromogenic agar 37	Detected
BV7333	Other	Not Detected
BV7544	TBX 37-44	Detected

Data Statistics

	Result
Assigned Value	Detected
Number of Results	13
Satisfactory	92%

Methodology Summary

Method	% Satisfactory
Chromogenic agar 37	100%
MPN	100%
ML 37	100%
TBX 37-44	100%
Other	67%

Comments

The test material contained *Escherichia coli* at an approximate inoculum level of 118 cfu/100ml. The assigned value is therefore *Escherichia coli* 'detected'.

Escherichia coli is found in human and animal intestines, and, therefore, the presence of the organism in foods is thought to indicate faecal contamination although it is also widespread throughout the environment. It is historically used as an 'indicator' organism, to indicate whether more serious pathogens, such as Salmonella are also likely to be present.

Sample: 510 - Fruit Juice

Analyte: Brix

Lab ID	Method	Result (°Brix)	z score
BV6003	Refractometer	10.15	-0.50
BV6022	Refractometer	10.18	0.00
BV6023	Refractometer	10.16	-0.33
BV6026	Refractometer	10.28	1.67
BV6166	Refractometer	10.29	1.83
BV6178	Refractometer	10.17	-0.17
BV6180	Refractometer	10.15	-0.50
BV6205	Refractometer	10.18	0.00
BV6246	Refractometer	10.14	-0.67
BV6263	Refractometer	10.15	-0.50
BV6278	Refractometer	10.18	0.00
BV6335	Refractometer	10.20	0.33
BV6337	Refractometer	9.90	-4.67
BV6338	Refractometer	10.15	-0.50
BV6372	Refractometer	10.29	1.83
BV6509	Refractometer	10.18	0.00
BV6565	Refractometer	10.39	3.50
BV6635	Refractometer	10.10	-1.33
BV6743	Refractometer	10.20	0.33
BV6769	Refractometer	10.18	0.00
BV6870	Refractometer	10.10	-1.33
BV7005	Refractometer	10.16	-0.33
BV7030	Refractometer	10.15	-0.50
BV7255	Refractometer	9.75	-7.17
BV7369	Refractometer	10.20	0.33
BV7393	Refractometer	10.07	-1.83
BV7394	Refractometer	10.23	0.83
BV7395	Refractometer	10.08	-1.67
BV7396	Refractometer	10.09	-1.50
BV7414	Refractometer	10.03	-2.50
BV7434	Refractometer	10.00	-3.00
BV7455	Refractometer	10.21	0.50
BV7477	Refractometer	10.21	0.50
BV7492	Refractometer	10.18	0.00
BV7514	Refractometer	10.29	1.83
BV7534	Refractometer	10.23	0.83
BV7558	Refractometer	10.90	12.00
BV7597	Refractometer	10.20	0.33
BV7598	Refractometer	10.19	0.17
BV7599	Refractometer	10.20	0.33
BV7600	Refractometer	10.13	-0.83
BV7651	Refractometer	10.20	0.33
BV7660	Refractometer	10.20	0.33
BV7668	Refractometer	10.00	-3.00
BV7670	Other	10.24	1.00

Data Statistics

	Value
Number of Results	45
Number of Excluded Results	2
Mean	10.17 °Brix
Median	10.18 °Brix
Standard Deviation	0.087 °Brix
Robust Standard Deviation	0.044 °Brix
Result Range	9.90 to 10.39 °Brix

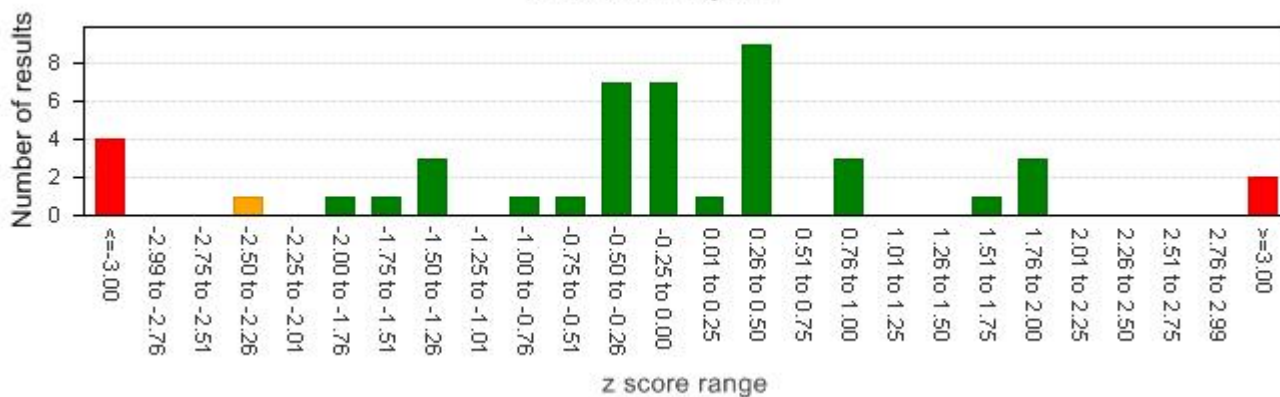
Sample: 510 - Fruit Juice

Analyte: Brix

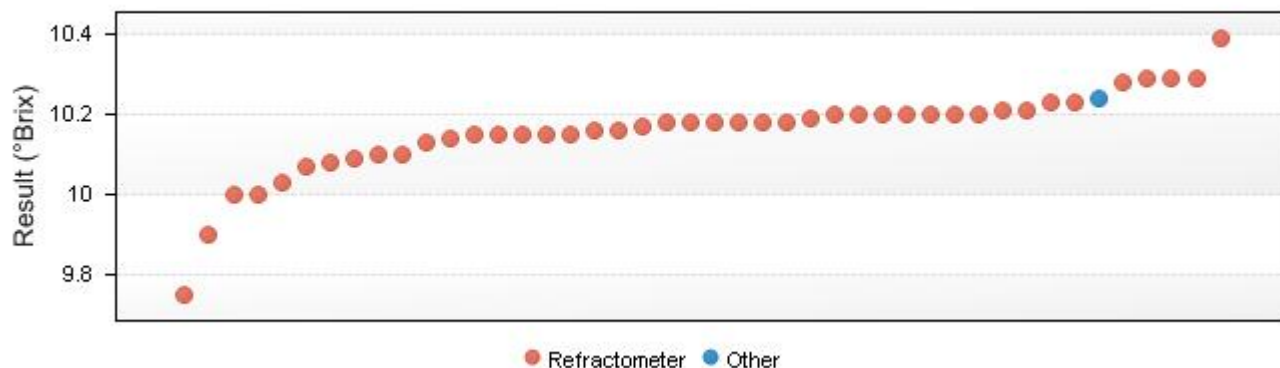
Performance Statistics

	Value
Assigned Value	10.18 °Brix
Uncertainty of Assigned Value	0.01 °Brix
SDPA	0.06 °Brix
Satisfactory Range	10.06 to 10.30 °Brix
Satisfactory z scores	84.4%
Questionable z scores	2.2%
Unsatisfactory z scores	13.3%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				°Brix			%
Refractometer	44	2	97.78	10.18	0.044	9.90 to 10.39	84.1
Other	1	0	2.22	10.24	0.000	10.24 to 10.24	100.0
All	45	2	100	10.18	0.044	9.90 to 10.39	84.4

Comments

Sample: 510 - Fruit Juice

Analyte: Acidity (as Citric Acid Monohydrate)

Lab ID	Method	Result (%w/w)	z score
BV6003	Colorimetric Titration	0.592	-0.67
BV6022	Potentiometric Titration	0.650	1.27
BV6023	Potentiometric Titration	0.670	1.93
BV6026	Colorimetric Titration	0.660	1.60
BV6166	Potentiometric Titration	0.676	2.13
BV6178	Potentiometric Titration	0.573	-1.30
BV6180	Potentiometric Titration	0.620	0.27
BV6205	Potentiometric Titration	0.616	0.13
BV6246	Other	0.580	-1.07
BV6263	Other	0.623	0.37
BV6278	Potentiometric Titration	0.770	5.27
BV6335	Colorimetric Titration	0.630	0.60
BV6337	Potentiometric Titration	0.666	1.80
BV6338	Colorimetric Titration	0.590	-0.73
BV6372	Potentiometric Titration	0.669	1.90
BV6509	Potentiometric Titration	0.630	0.60
BV6565	Potentiometric Titration	0.580	-1.07
BV6635	Potentiometric Titration	0.590	-0.73
BV6769	Potentiometric Titration	0.600	-0.40
BV7005	Other	0.590	-0.73
BV7030	Potentiometric Titration	0.610	-0.07
BV7255	Potentiometric Titration	0.613	0.03
BV7369	Other	0.586	-0.87
BV7393	Potentiometric Titration	0.589	-0.77
BV7394	Potentiometric Titration	0.649	1.23
BV7395	Potentiometric Titration	0.558	-1.80
BV7396	Potentiometric Titration	0.594	-0.60
BV7414	Colorimetric Titration	0.635	0.77
BV7455	Colorimetric Titration	0.615	0.10
BV7477	Potentiometric Titration	0.647	1.17
BV7492	Potentiometric Titration	0.615	0.10
BV7514	Other	0.540	-2.40
BV7534	Other	0.599	-0.43
BV7558	Other	0.240	-12.40
BV7597	Other	0.538	-2.47
BV7670	Other	0.600	-0.40

Data Statistics

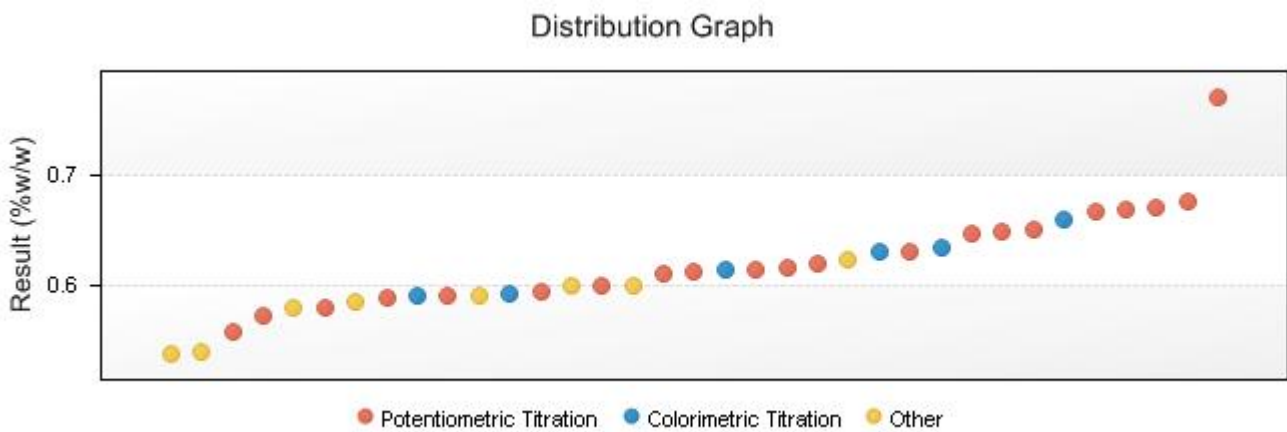
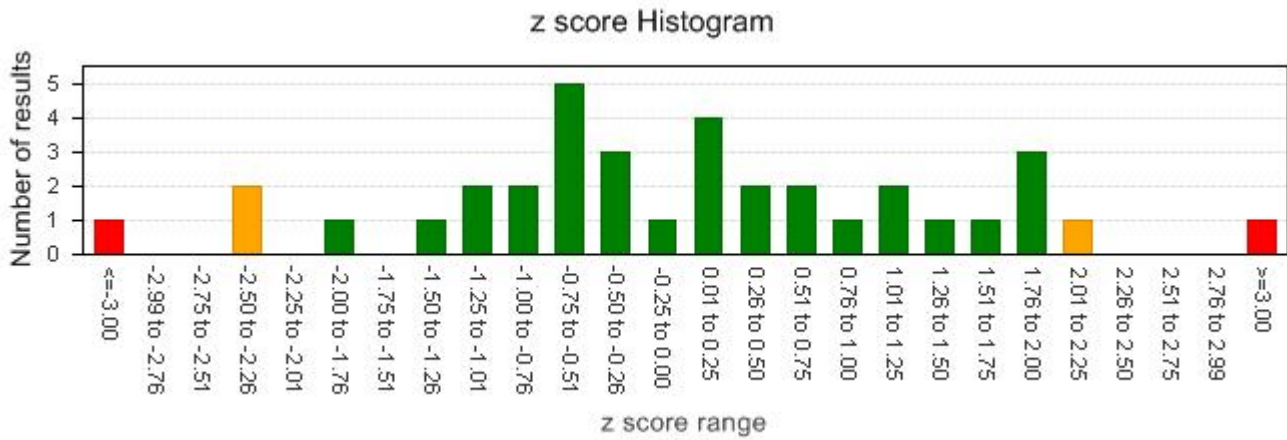
	Value
Number of Results	36
Number of Excluded Results	2
Mean	0.612 %w/w
Median	0.612 %w/w
Standard Deviation	0.0358 %w/w
Robust Standard Deviation	0.0326 %w/w
Result Range	0.538 to 0.676 %w/w

Performance Statistics

	Value
Assigned Value	0.612 %w/w
Uncertainty of Assigned Value	0.007 %w/w
SDPA	0.03 %w/w
Satisfactory Range	0.552 to 0.672 %w/w
Satisfactory z scores	86.1%
Questionable z scores	8.3%
Unsatisfactory z scores	5.6%

Sample: 510 - Fruit Juice

Analyte: Acidity (as Citric Acid Monohydrate)



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				%w/w			%
Potentiometric Titration	21	1	58.33	0.616	0.0430	0.558 to 0.676	90.5
Colorimetric Titration	6	0	16.67	0.623	0.0319	0.590 to 0.660	100.0
Other	9	1	25	0.588	0.0171	0.538 to 0.623	66.7
All	36	2	100	0.612	0.0326	0.538 to 0.676	86.1

Comments

Sample: 510 - Fruit Juice

Analyte: pH

Lab ID	Method	Result (pH)	z score
BV6003	pH Meter	2.70	0.20
BV6022	pH Meter	2.57	-1.10
BV6023	pH Meter	2.68	0.00
BV6026	pH Meter	2.70	0.20
BV6166	pH Meter	2.74	0.60
BV6178	pH Meter	2.52	-1.60
BV6180	pH Meter	2.69	0.10
BV6205	pH Meter	2.68	0.00
BV6246	pH Meter	2.83	1.50
BV6263	pH Meter	2.69	0.10
BV6278	pH Meter	2.72	0.40
BV6335	pH Meter	2.60	-0.80
BV6337	pH Meter	2.53	-1.50
BV6338	pH Meter	2.64	-0.40
BV6372	pH Meter	3.11	4.30
BV6509	pH Meter	2.70	0.20
BV6543	pH Meter	2.65	-0.30
BV6565	pH Meter	2.60	-0.80
BV6635	pH Meter	2.59	-0.90
BV6766	pH Meter	2.68	0.00
BV6769	pH Meter	2.61	-0.70
BV6870	pH Meter	2.80	1.20
BV7005	pH Meter	2.68	0.00
BV7030	pH Meter	2.56	-1.20
BV7139	pH Meter	2.78	1.00
BV7255	pH Meter	2.67	-0.10
BV7286	pH Meter	2.76	0.80
BV7369	pH Meter	2.75	0.70
BV7393	pH Meter	2.61	-0.70
BV7394	pH Meter	2.71	0.30
BV7395	pH Meter	2.61	-0.70
BV7396	pH Meter	2.68	0.00
BV7414	pH Meter	2.79	1.10
BV7434	pH Meter	2.49	-1.90
BV7455	pH Meter	2.63	-0.50
BV7477	pH Meter	2.74	0.60
BV7492	pH Meter	2.68	0.00
BV7514	pH Meter	2.64	-0.40
BV7534	pH Meter	2.69	0.10
BV7558	pH Meter	2.59	-0.90
BV7597	pH Meter	2.61	-0.70
BV7598	pH Meter	2.72	0.40
BV7599	pH Meter	2.45	-2.30
BV7650	pH Meter	2.80	1.20
BV7651	pH Meter	2.87	1.90
BV7668	pH Meter	2.63	-0.50
BV7670	Other	2.70	0.20

Data Statistics

	Value
Number of Results	47
Number of Excluded Results	0
Mean	2.68 pH
Median	2.68 pH
Standard Deviation	0.108 pH
Robust Standard Deviation	0.089 pH
Result Range	2.45 to 3.11 pH

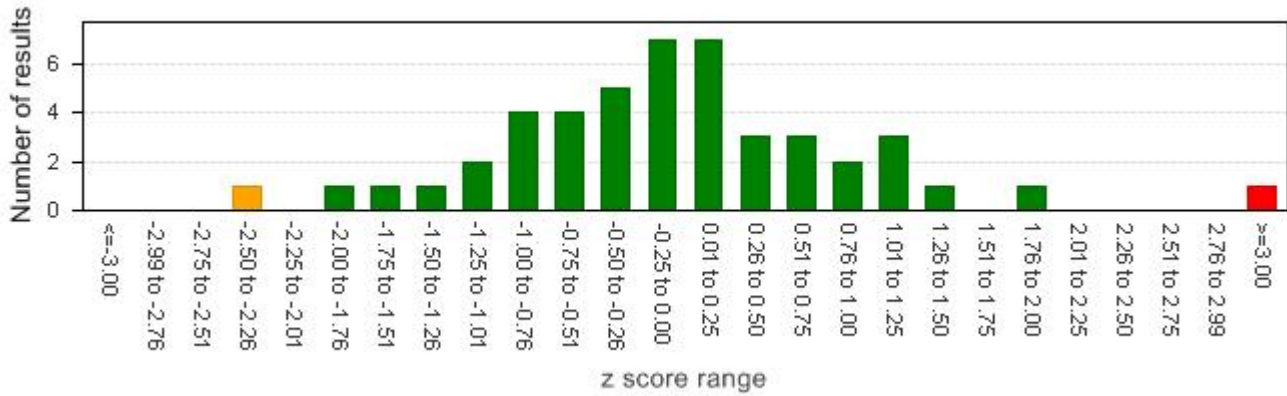
Sample: 510 - Fruit Juice

Analyte: pH

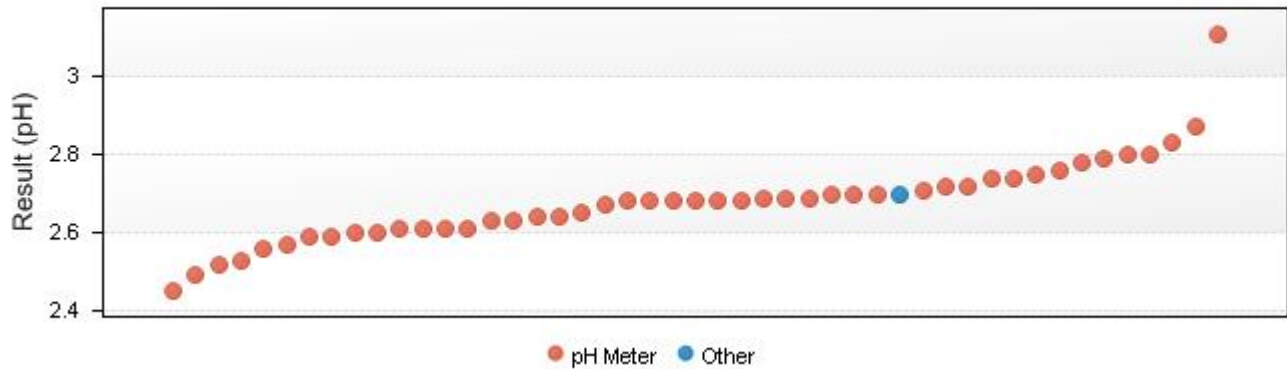
Performance Statistics

	Value
Assigned Value	2.68 pH
Uncertainty of Assigned Value	0.02 pH
SDPA	0.1 pH
Satisfactory Range	2.48 to 2.88 pH
Satisfactory z scores	95.7%
Questionable z scores	2.1%
Unsatisfactory z scores	2.1%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				pH			%
pH Meter	46	0	97.87	2.68	0.096	2.45 to 3.11	95.7
Other	1	0	2.13	2.70	0.000	2.70 to 2.70	100.0
All	47	0	100	2.68	0.089	2.45 to 3.11	95.7

Comments

Sample: 510 - Fruit Juice

Analyte: Fructose

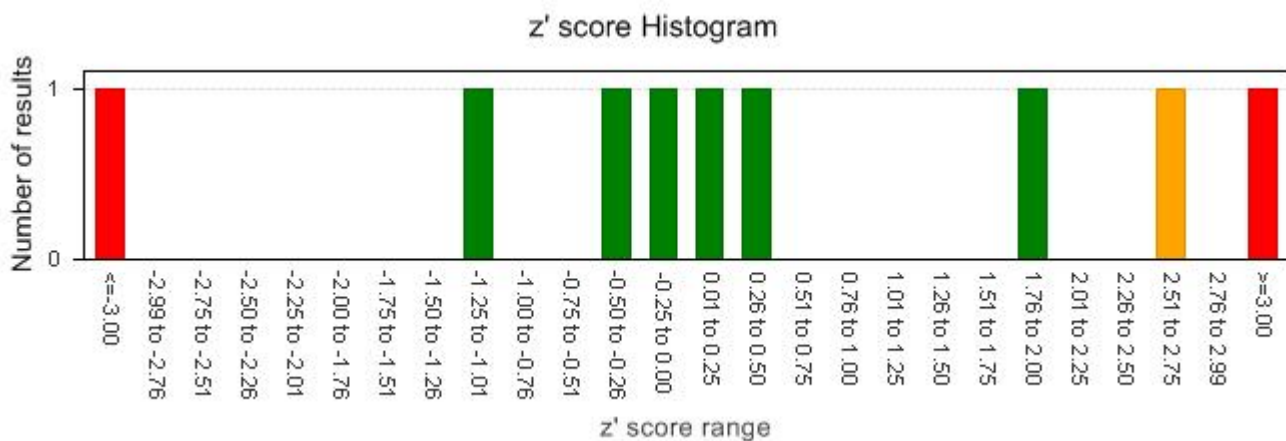
Lab ID	Method	Result (g/L)	z' score*
BV6372	Other	55.0	12.14
BV6769	HPLC	37.5	2.70
BV6825	HPLC	30.6	-1.03
BV7254	HPLC	35.8	1.78
BV7455	HPLC	31.7	-0.43
BV7514	Other	33.4	0.49
BV7558	HPLC	32.3	-0.11
BV7660	HPLC	32.6	0.05
BV7670	Other	26.4	-3.29

Data Statistics

	Value
Number of Results	9
Number of Excluded Results	1
Mean	32.5 g/L
Median	32.5 g/L
Standard Deviation	3.34 g/L
Robust Standard Deviation	2.08 g/L
Result Range	26.4 to 37.5 g/L

Performance Statistics

	Value
Assigned Value	32.5 g/L
Uncertainty of Assigned Value	0.9 g/L
SDPA	1.62 g/L
Expanded SDPA	1.85 g/L
Satisfactory Range	28.8 to 36.2 g/L
Satisfactory z' scores	66.7%
Questionable z' scores	11.1%
Unsatisfactory z' scores	22.2%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				g/L			%
HPLC	6	0	66.67	32.5	1.93	30.6 to 37.5	83.3
Other	3	1	33.33	29.9	5.19	26.4 to 33.4	33.3
All	9	1	100	32.5	2.08	26.4 to 37.5	66.7

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 510 - Fruit Juice

Analyte: Glucose

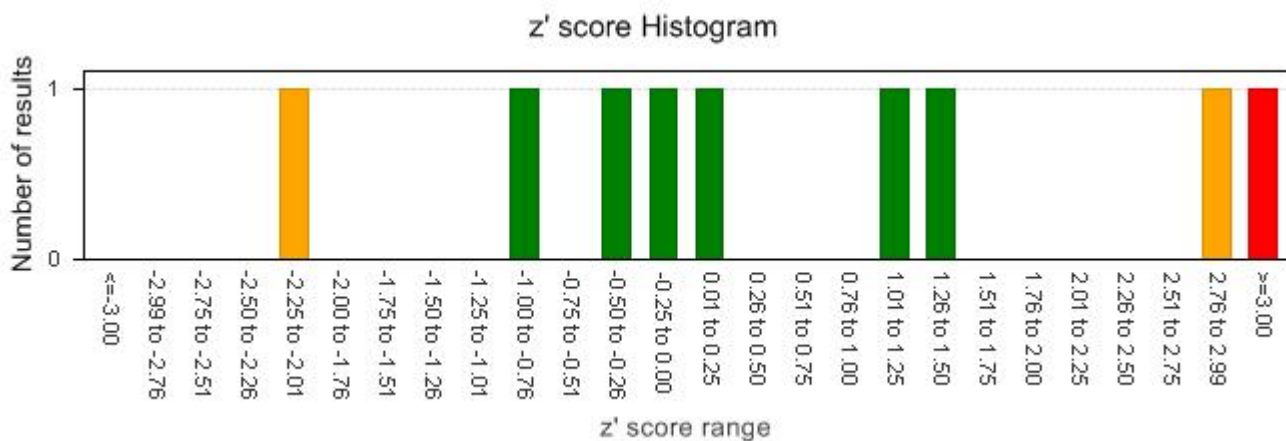
Lab ID	Method	Result (g/L)	z' score*
BV6372	Other	35.0	-0.22
BV6769	HPLC	50.4	6.60
BV6825	HPLC	35.9	0.18
BV7254	HPLC	42.2	2.97
BV7455	HPLC	37.9	1.06
BV7514	Other	30.9	-2.04
BV7558	HPLC	33.5	-0.89
BV7660	HPLC	38.5	1.33
BV7670	Other	34.5	-0.44

Data Statistics

	Value
Number of Results	9
Number of Excluded Results	1
Mean	36.1 g/L
Median	35.5 g/L
Standard Deviation	3.46 g/L
Robust Standard Deviation	3.26 g/L
Result Range	30.9 to 42.2 g/L

Performance Statistics

	Value
Assigned Value	35.5 g/L
Uncertainty of Assigned Value	1.4 g/L
SDPA	1.77 g/L
Expanded SDPA	2.26 g/L
Satisfactory Range	31.0 to 40.0 g/L
Satisfactory z' scores	66.7%
Questionable z' scores	22.2%
Unsatisfactory z' scores	11.1%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				g/L			%
HPLC	6	1	66.67	37.9	2.97	33.5 to 42.2	66.7
Other	3	0	33.33	34.5	0.74	30.9 to 35.0	66.7
All	9	1	100	35.5	3.26	30.9 to 42.2	66.7

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 510 - Fruit Juice**Analyte: Calcium**

Lab ID	Method	Result (mg/L)	z' score*
BV7455	ICP-OES	79.84	0.44
BV7514	IC	140.20	7.43
BV7651	ICP-OES	71.60	-0.51
BV7670	Other	76.00	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	4
Number of Excluded Results	1
Mean	75.81 mg/L
Median	76.00 mg/L
Standard Deviation	4.123 mg/L
Robust Standard Deviation	5.695 mg/L
Result Range	71.60 to 79.84 mg/L

Performance Statistics

	Value
Assigned Value	76.00 mg/L
Uncertainty of Assigned Value	4.11 mg/L
SDPA	7.600 mg/L
Expanded SDPA	8.640 mg/L
Satisfactory Range	58.72 to 93.28 mg/L
Satisfactory z' scores	75.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	25.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
IC	1	1	25	N/A	N/A	140.20 to	0.0
ICP-OES	2	0	50	75.72	6.110	71.60 to 79.84	100.0
Other	1	0	25	76.00	0.000	76.00 to 76.00	100.0
All	4	1	100	76.00	5.695	71.60 to 79.84	75.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 510 - Fruit Juice**Analyte: Phosphorus**

Lab ID	Method	Result (mg/L)	z' score*
BV7455	ICP-OES	134.52	0.66
BV7514	Other	124.64	0.00
BV7670	Other	116.82	-0.52

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	3
Number of Excluded Results	0
Mean	125.33 mg/L
Median	124.64 mg/L
Standard Deviation	8.870 mg/L
Robust Standard Deviation	11.597 mg/L
Result Range	116.82 to 134.52 mg/L

Performance Statistics

	Value
Assigned Value	124.64 mg/L
Uncertainty of Assigned Value	8.37 mg/L
SDPA	12.464 mg/L
Expanded SDPA	15.014 mg/L
Satisfactory Range	94.61 to 154.67 mg/L
Satisfactory z' scores	100.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
ICP-OES	1	0	33.33	134.52	0.000	134.52 to 134.52	100.0
Other	2	0	66.67	120.73	5.799	116.82 to 124.64	100.0
All	3	0	100	124.64	11.597	116.82 to 134.52	100.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 510 - Fruit Juice**Analyte: Potassium**

Lab ID	Method	Result (mg/L)	z' score*
BV7455	ICP-OES	331.75	-0.20
BV7514	IC	448.55	2.81
BV7651	ICP-OES	306.00	-0.86
BV7670	Other	346.95	0.20

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	4
Number of Excluded Results	0
Mean	358.31 mg/L
Median	339.35 mg/L
Standard Deviation	62.488 mg/L
Robust Standard Deviation	30.364 mg/L
Result Range	306.00 to 448.55 mg/L

Performance Statistics

	Value
Assigned Value	339.35 mg/L
Uncertainty of Assigned Value	18.98 mg/L
SDPA	33.935 mg/L
Expanded SDPA	38.882 mg/L
Satisfactory Range	261.59 to 417.11 mg/L
Satisfactory z' scores	75.0%
Questionable z' scores	25.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
IC	1	0	25	448.55	0.000	448.55 to 448.55	0.0
ICP-OES	2	0	50	318.88	19.094	306.00 to 331.75	100.0
Other	1	0	25	346.95	0.000	346.95 to 346.95	100.0
All	4	0	100	339.35	30.364	306.00 to 448.55	75.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 510 - Fruit Juice**Analyte: Magnesium**

Lab ID	Method	Result (mg/L)	z' score*
BV7455	ICP-OES	56.53	0.15
BV7514	IC	63.30	1.21
BV7651	ICP-OES	49.70	-0.92
BV7670	Other	54.60	-0.15

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	4
Number of Excluded Results	0
Mean	56.03 mg/L
Median	55.57 mg/L
Standard Deviation	5.634 mg/L
Robust Standard Deviation	5.064 mg/L
Result Range	49.70 to 63.30 mg/L

Performance Statistics

	Value
Assigned Value	55.57 mg/L
Uncertainty of Assigned Value	3.17 mg/L
SDPA	5.557 mg/L
Expanded SDPA	6.398 mg/L
Satisfactory Range	42.77 to 68.37 mg/L
Satisfactory z' scores	100.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
IC	1	0	25	63.30	0.000	63.30 to 63.30	100.0
ICP-OES	2	0	50	53.12	5.064	49.70 to 56.53	100.0
Other	1	0	25	54.60	0.000	54.60 to 54.60	100.0
All	4	0	100	55.57	5.064	49.70 to 63.30	100.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 510 - Fruit Juice**Analyte: Sodium**

Lab ID	Method	Result (mg/L)	z' score*
BV7455	ICP-OES	64.01	0.21
BV7514	IC	87.79	3.79
BV7651	ICP-OES	59.20	-0.51
BV7670	Other	61.18	-0.21

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	4
Number of Excluded Results	0
Mean	68.05 mg/L
Median	62.60 mg/L
Standard Deviation	13.311 mg/L
Robust Standard Deviation	3.567 mg/L
Result Range	59.20 to 87.79 mg/L

Performance Statistics

	Value
Assigned Value	62.60 mg/L
Uncertainty of Assigned Value	2.23 mg/L
SDPA	6.260 mg/L
Expanded SDPA	6.645 mg/L
Satisfactory Range	49.31 to 75.89 mg/L
Satisfactory z' scores	75.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	25.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
IC	1	0	25	87.79	0.000	87.79 to 87.79	0.0
ICP-OES	2	0	50	61.61	3.567	59.20 to 64.01	100.0
Other	1	0	25	61.18	0.000	61.18 to 61.18	100.0
All	4	0	100	62.60	3.567	59.20 to 87.79	75.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 514 - Vitamin C

Analyte: Ascorbic Acid (Vitamin C)

Lab ID	Method	Result (mg/L)	z score
BV6003	Titration	79	1.40
BV6008	Titration	6	-13.20
BV6021	Titration	76	0.80
BV6022	Titration	73	0.20
BV6032	Other	81	1.80
BV6050	HPLC	66	-1.20
BV6164	Titration	76	0.80
BV6180	Test Strip	69	-0.60
BV6209	Titration	66	-1.20
BV6241	HPLC	73	0.20
BV6263	HPLC	70	-0.40
BV6372	Test Strip	48	-4.80
BV6437	HPLC	71	-0.20
BV6493	Titration	75	0.60
BV6529	HPLC	75	0.60
BV6529	Titration	69	-0.60
BV6635	Titration	79	1.40
BV6708	Titration	71	-0.20
BV6708	HPLC	71	-0.20
BV6738	HPLC	66	-1.20
BV6769	HPLC	63	-1.80
BV6780	Test Strip	70	-0.40
BV6784	Enzymatic	77	1.00
BV6785	HPLC	68	-0.80
BV6786	Titration	72	0.00
BV6789	Titration	68	-0.80
BV6792	HPLC	73	0.20
BV6793	Titration	72	0.00
BV6794	Enzymatic	69	-0.60
BV6795	Titration	70	-0.40
BV6797	Titration	78	1.20
BV6798	Titration	63	-1.80
BV6801	Titration	79	1.40
BV6805	Titration	67	-1.00
BV6808	Titration	83	2.20
BV6809	Titration	70	-0.40
BV6810	Titration	76	0.80
BV6811	Titration	81	1.80
BV6812	Titration	93	4.20
BV6813	Titration	83	2.20
BV6814	Titration	75	0.60
BV6870	Titration	70	-0.40
BV6894	Titration	74	0.40
BV6916	HPLC	74	0.40
BV6967	HPLC	70	-0.40
BV6972	Titration	81	1.80
BV7043	HPLC	7	-13.00
BV7100	Titration	85	2.60
BV7113	Other	90	3.60
BV7128	HPLC	69	-0.60
BV7177	HPLC	75	0.60
BV7181	Titration	62	-2.00
BV7255	Titration	96	4.80
BV7280	HPLC	71	-0.20
BV7432	HPLC	69	-0.60
BV7435	Titration	1	-14.20
BV7597	Titration	72	0.00
BV7599	Titration	87	3.00
BV7625	Titration	61	-2.20
BV7636	HPLC	568	99.20
BV7639	Other	202	26.00

Sample: 514 - Vitamin C

Analyte: Ascorbic Acid (Vitamin C)

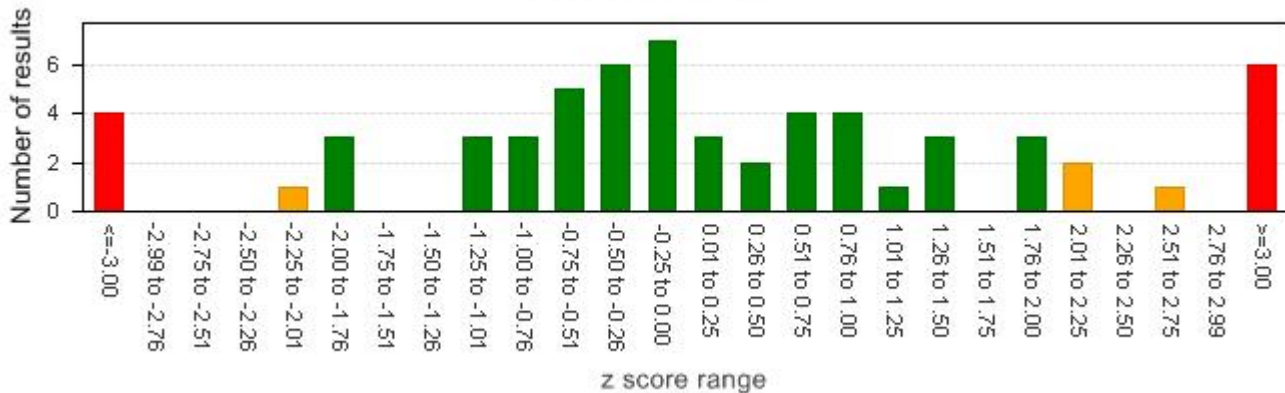
Data Statistics

	Value
Number of Results	61
Number of Excluded Results	5
Mean	73 mg/L
Median	72 mg/L
Standard Deviation	8.1 mg/L
Robust Standard Deviation	5.9 mg/L
Result Range	48 to 96 mg/L

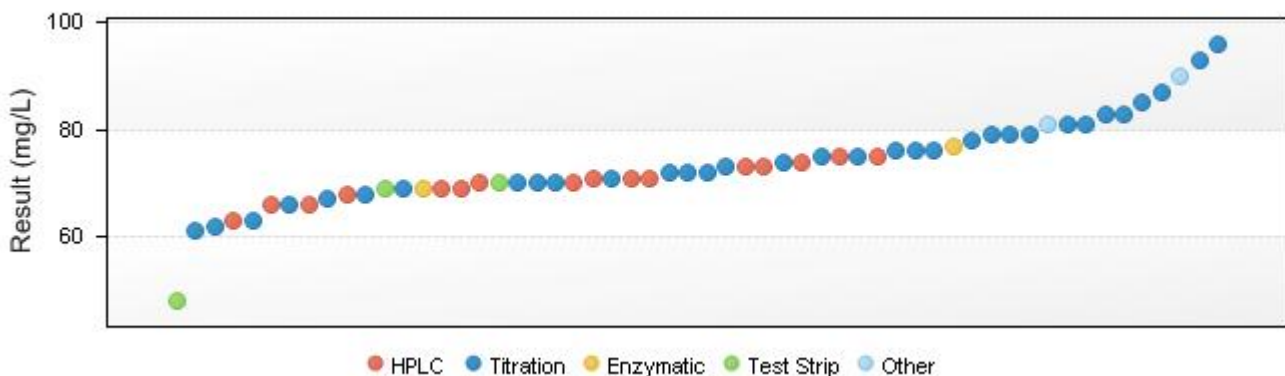
Performance Statistics

	Value
Assigned Value	72 mg/L
Uncertainty of Assigned Value	1 mg/L
SDPA	5 mg/L
Satisfactory Range	62 to 82 mg/L
Satisfactory z scores	77.0%
Questionable z scores	6.6%
Unsatisfactory z scores	16.4%

z score Histogram



Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	18	2	29.51	71	3.7	63 to 75	88.9
Titration	35	2	57.38	75	7.4	61 to 96	74.3
Enzymatic	2	0	3.28	73	5.9	69 to 77	100.0
Test Strip	3	0	4.92	69	1.5	48 to 70	66.7
Other	3	1	4.92	86	6.7	81 to 90	33.3
All	61	5	100	72	5.9	48 to 96	77.0

Comments

Sample: 514 - Vitamin C

Analyte: Ascorbic Acid (Vitamin C)

Some participants have reported a result which is not consistent with the assigned value. Participants are reminded that reporting results in the correct format and in the requested units is a key part of the proficiency testing process.

Sample: 515 - Carbonated Drinks

Analyte: Brix

Lab ID	Method	Result (°Brix)	z' score*
BV6008	Refractometer	12.26	-0.63
BV6021	Refractometer	12.25	-0.79
BV6209	Refractometer	12.24	-0.95
BV6263	Refractometer	12.33	0.47
BV6282	Refractometer	12.35	0.79
BV6312	Refractometer	12.30	0.00
BV6420	Refractometer	12.60	4.74
BV6571	Refractometer	12.28	-0.32
BV6862	Refractometer	12.26	-0.63
BV6893	Density Meter	12.44	0.17
BV6894	Refractometer	12.30	0.00
BV6916	Refractometer	12.21	-1.42
BV6960	Refractometer	12.40	1.58
BV7008	Refractometer	12.32	0.32
BV7048	Refractometer	12.39	1.42
BV7117	Refractometer	12.24	-0.95
BV7352	Refractometer	12.30	0.00
BV7368	Refractometer	12.09	-3.32
BV7383	Density Meter	12.42	-0.17
BV7384	Density Meter	12.43	0.00

Due to the low number of results returned, some performance scores are shown for information purposes only

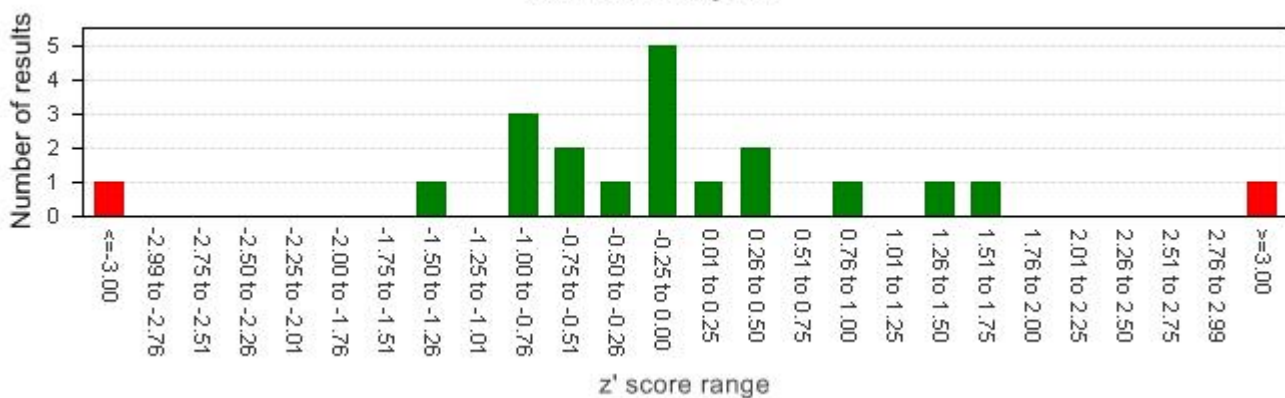
Data Statistics

	Density Meter	Refractometer
Number of Results	3	17
Number of Excluded Results	0	0
Mean	12.43	12.30
Median	12.43	12.30
Standard Deviation	0.010	0.105
Robust Standard Deviation	0.015	0.074
Result Range	12.42 to 12.44	12.09 to 12.60

Performance Statistics

	Density Meter	Refractometer
Assigned Value	12.43	12.30
Uncertainty of Assigned Value	0.01	0.02
SDPA	0.06	0.06
Expanded SPDA	N/A	0.063
Satisfactory Range	12.31 to 12.55	12.17 to 12.43
Satisfactory z' scores	100.0%	88.2%
Questionable z' scores	0.0%	0.0%
Unsatisfactory z' scores	0.0%	11.8%

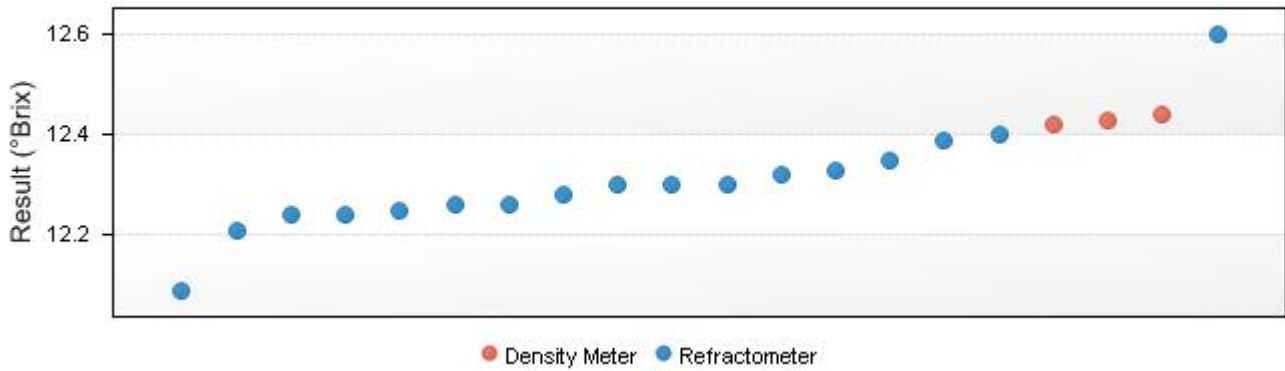
z' score Histogram



Sample: 515 - Carbonated Drinks

Analyte: Brix

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				°Brix			%
Density Meter	3	0	15	12.43	0.015	12.42 to 12.44	100.0
Refractometer	17	0	85	12.30	0.074	12.09 to 12.60	88.2
All	20	0	100	12.30	0.082	12.09 to 12.60	90.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 515 - Carbonated Drinks

Analyte: Acidity (as Citric Acid Monohydrate)

Lab ID	Method	Result (%w/v)	z score
BV6008	Potentiometric Titration	0.170	0.73
BV6021	Other	0.149	0.03
BV6209	Colorimetric Titration	0.460	10.40
BV6263	Potentiometric Titration	0.146	-0.07
BV6282	Potentiometric Titration	0.145	-0.10
BV6312	Colorimetric Titration	0.140	-0.27
BV6420	Potentiometric Titration	0.151	0.10
BV6571	Other	0.156	0.27
BV6862	Potentiometric Titration	0.136	-0.40
BV6894	Potentiometric Titration	0.162	0.47
BV6916	Potentiometric Titration	0.156	0.27
BV6960	Potentiometric Titration	0.170	0.73
BV7048	Potentiometric Titration	0.131	-0.57
BV7117	Potentiometric Titration	0.257	3.63
BV7352	Potentiometric Titration	1.380	41.07
BV7368	Potentiometric Titration	0.135	-0.43
BV7383	Colorimetric Titration	0.140	-0.27
BV7384	Colorimetric Titration	0.140	-0.27

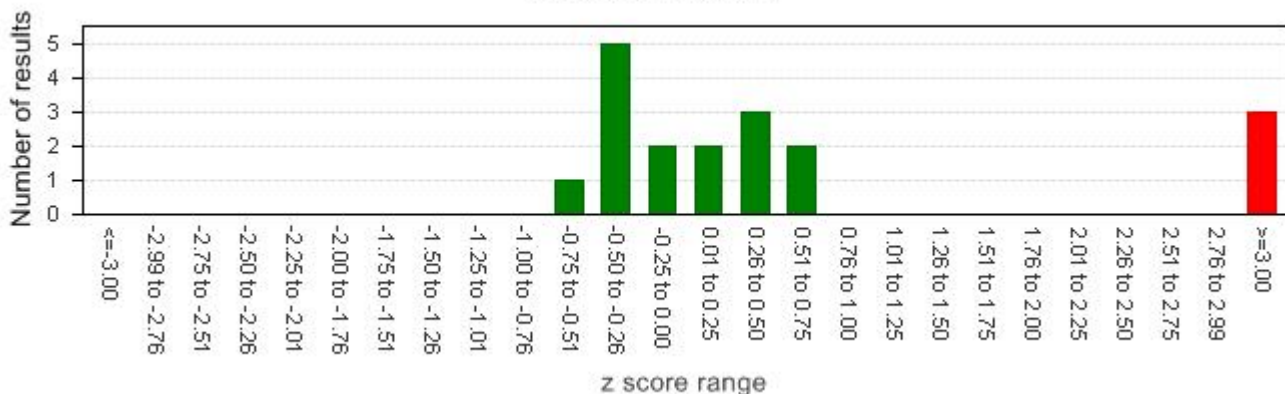
Data Statistics

	Value
Number of Results	18
Number of Excluded Results	2
Mean	0.155 %w/v
Median	0.148 %w/v
Standard Deviation	0.0296 %w/v
Robust Standard Deviation	0.0126 %w/v
Result Range	0.131 to 0.257 %w/v

Performance Statistics

	Value
Assigned Value	0.148 %w/v
Uncertainty of Assigned Value	0.004 %w/v
SDPA	0.03 %w/v
Satisfactory Range	0.088 to 0.208 %w/v
Satisfactory z scores	83.3%
Questionable z scores	0.0%
Unsatisfactory z scores	16.7%

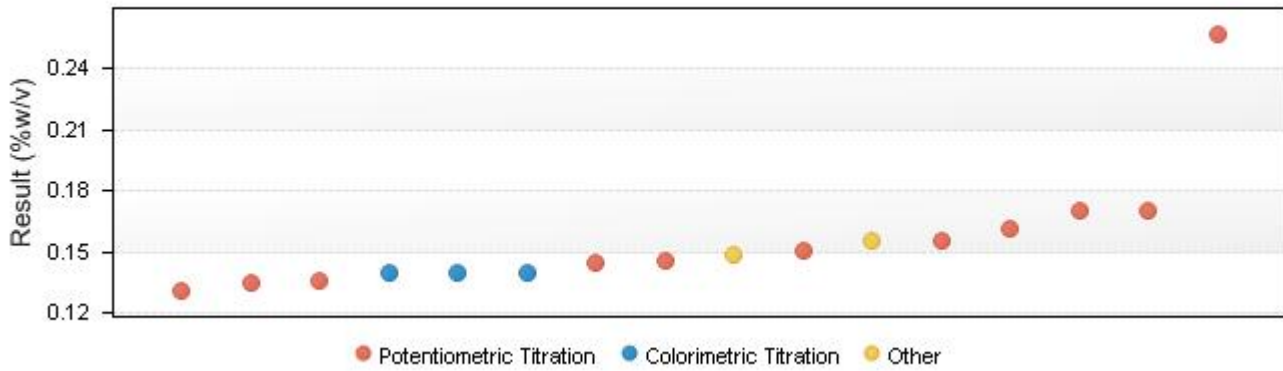
z score Histogram



Sample: 515 - Carbonated Drinks

Analyte: Acidity (as Citric Acid Monohydrate)

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				%w/v			%
Potentiometric Titration	12	1	66.67	0.151	0.0222	0.131 to 0.257	83.3
Colorimetric Titration	4	1	22.22	0.140	0.0000	0.140 to 0.140	75.0
Other	2	0	11.11	0.153	0.0052	0.149 to 0.156	100.0
All	18	2	100	0.148	0.0126	0.131 to 0.257	83.3

Comments

Sample: 515 - Carbonated Drinks

Analyte: pH

Lab ID	Method	Result (pH)	z' score*
BV6008	pH Meter	2.75	-0.93
BV6021	pH Meter	2.74	-1.02
BV6263	pH Meter	2.71	-1.30
BV6282	pH Meter	2.94	0.84
BV6312	pH Meter	2.92	0.65
BV6420	pH Meter	2.91	0.56
BV6571	pH Meter	3.16	2.88
BV6862	pH Meter	2.82	-0.28
BV6894	pH Meter	3.00	1.39
BV6916	pH Meter	2.64	-1.95
BV6960	Other	3.08	2.14
BV7008	pH Meter	2.94	0.84
BV7048	pH Meter	2.82	-0.28
BV7117	pH Meter	2.86	0.09
BV7352	pH Meter	3.04	1.76
BV7368	pH Meter	2.70	-1.39
BV7383	pH Meter	2.83	-0.19
BV7384	pH Meter	2.83	-0.19

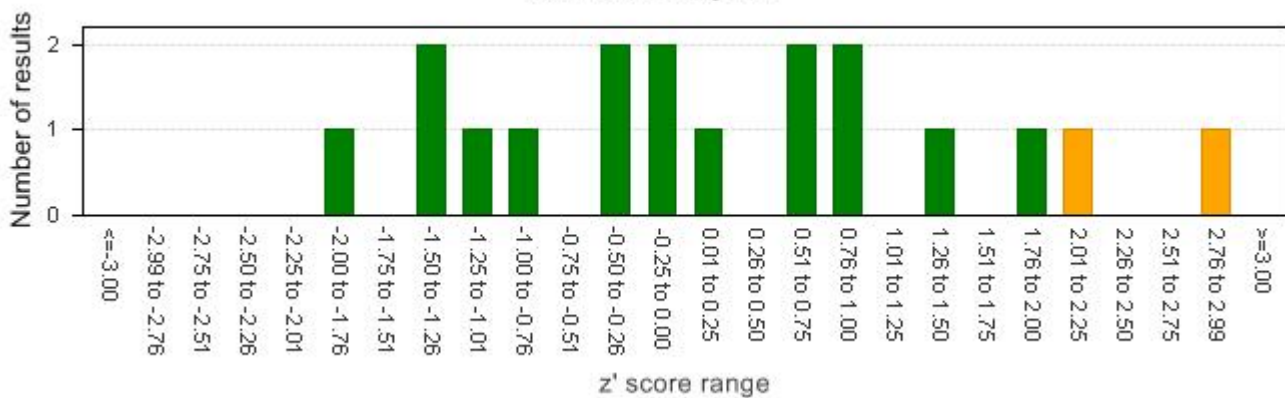
Data Statistics

	Value
Number of Results	18
Number of Excluded Results	0
Mean	2.87 pH
Median	2.85 pH
Standard Deviation	0.140 pH
Robust Standard Deviation	0.141 pH
Result Range	2.64 to 3.16 pH

Performance Statistics

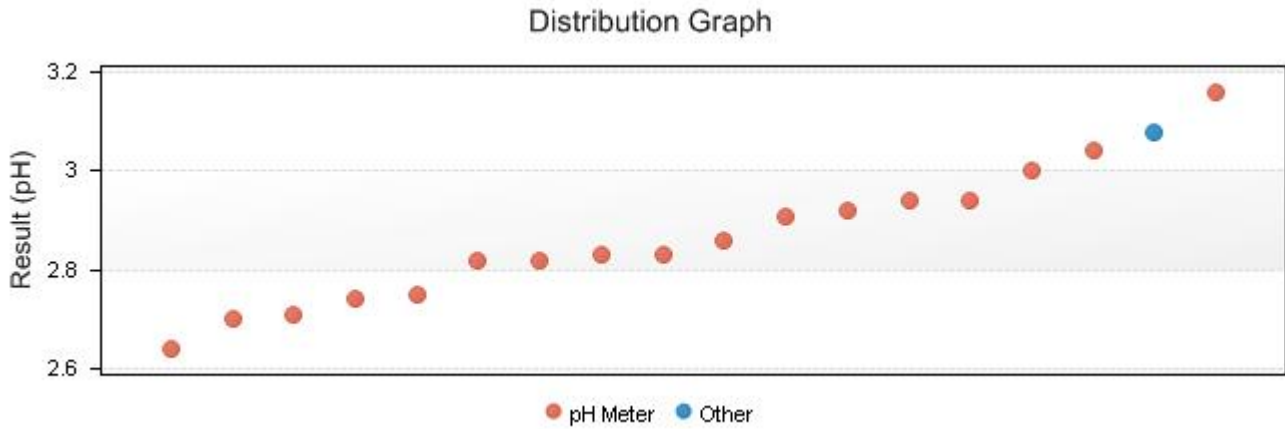
	Value
Assigned Value	2.85 pH
Uncertainty of Assigned Value	0.04 pH
SDPA	0.1 pH
Expanded SDPA	0.108 pH
Satisfactory Range	2.63 to 3.07 pH
Satisfactory z' scores	88.9%
Questionable z' scores	11.1%
Unsatisfactory z' scores	0.0%

z' score Histogram



Sample: 515 - Carbonated Drinks

Analyte: pH



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				pH			%
pH Meter	17	0	94.44	2.83	0.133	2.64 to 3.16	94.1
Other	1	0	5.56	3.08	0.000	3.08 to 3.08	0.0
All	18	0	100	2.85	0.141	2.64 to 3.16	88.9

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 515 - Carbonated Drinks

Analyte: Carbon Dioxide

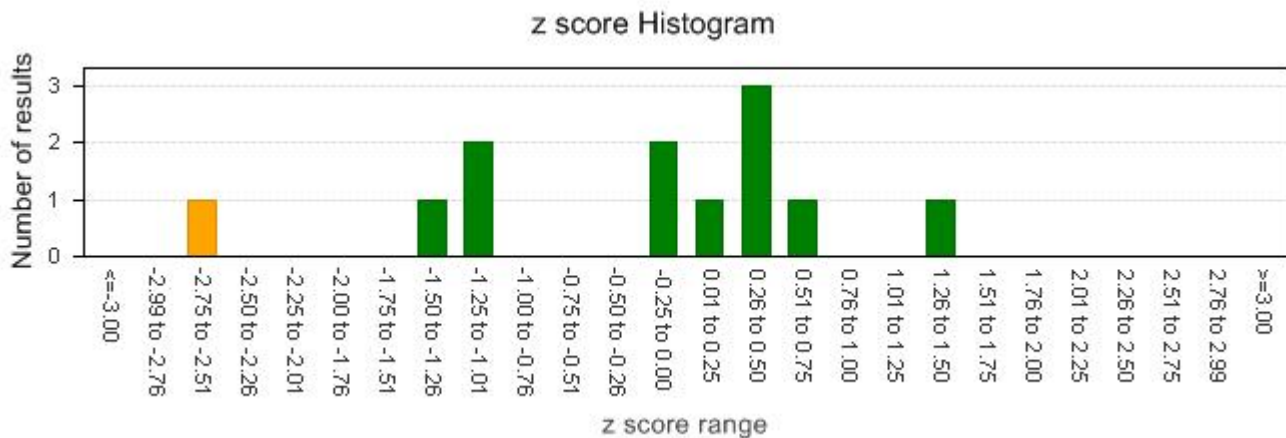
Lab ID	Method	Result (vol/vol @ 20°C)	z score
BV6021	Other	1.80	-2.65
BV6263	Other	2.41	0.40
BV6282	Other	2.30	-0.15
BV6571	Carbo QC	2.10	-1.15
BV6886	Mechanical shaker	2.30	-0.15
BV6893	Zahm & Nagel	2.59	1.30
BV6894	Other	2.40	0.35
BV7048	Other	2.35	0.10
BV7117	Carbo QC	2.04	-1.45
BV7368	Carbo QC	2.10	-1.15
BV7383	Zahm & Nagel	2.45	0.60
BV7384	Zahm & Nagel	2.40	0.35

Data Statistics

	Value
Number of Results	12
Number of Excluded Results	0
Mean	2.27 vol/vol @ 20°C
Median	2.33 vol/vol @ 20°C
Standard Deviation	0.219 vol/vol @ 20°C
Robust Standard Deviation	0.156 vol/vol @ 20°C
Result Range	1.80 to 2.59 vol/vol @ 20°C

Performance Statistics

	Value
Assigned Value	2.33 vol/vol @ 20°C
Uncertainty of Assigned Value	0.06 vol/vol @ 20°C
SDPA	0.2 vol/vol @ 20°C
Satisfactory Range	1.93 to 2.73 vol/vol @ 20°C
Satisfactory z scores	91.7%
Questionable z scores	8.3%
Unsatisfactory z scores	0.0%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				vol/vol @ 20°C			%
Zahm & Nagel	3	0	25	2.45	0.074	2.40 to 2.59	100.0
Mechanical shaker	1	0	8.33	2.30	0.000	2.30 to 2.30	100.0
Carbo QC	3	0	25	2.10	0.025	2.04 to 2.10	100.0
Other	5	0	41.67	2.35	0.074	1.80 to 2.41	80.0
All	12	0	100	2.33	0.156	1.80 to 2.59	91.7

Comments

Sample: 516 - Carbonated Drink (degassed)

Analyte: Benzoic Acid

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	181.9	-1.09
BV6263	HPLC	194.0	0.17
BV6297	UPLC	190.8	-0.17
BV6300	UPLC	188.9	-0.36
BV6371	UPLC	190.4	-0.21
BV6503	HPLC	148.4	-4.57
BV6514	HPLC	192.9	0.05
BV6695	HPLC	189.0	-0.35
BV6738	HPLC	195.3	0.30
BV6763	HPLC	190.6	-0.19
BV6769	HPLC	196.4	0.42
BV6832	HPLC	189.4	-0.31
BV6833	HPLC	188.0	-0.46
BV6834	HPLC	189.8	-0.27
BV6836	HPLC	191.5	-0.09
BV6894	HPLC	192.7	0.03
BV6906	HPLC	189.3	-0.32
BV6916	HPLC	191.0	-0.15
BV6960	HPLC	183.1	-0.97
BV6983	HPLC	198.8	0.67
BV7083	HPLC	186.0	-0.67
BV7117	HPLC	204.8	1.29
BV7122	HPLC	191.0	-0.15
BV7171	HPLC	191.0	-0.15
BV7177	HPLC	196.0	0.37
BV7179	HPLC	216.6	2.52
BV7254	HPLC	188.7	-0.38
BV7280	HPLC	193.0	0.06
BV7342	Other	192.1	-0.03
BV7402	HPLC	195.1	0.28
BV7550	HPLC	200.8	0.87
BV7580	HPLC	191.7	-0.07
BV7635	HPLC	196.5	0.43

Data Statistics

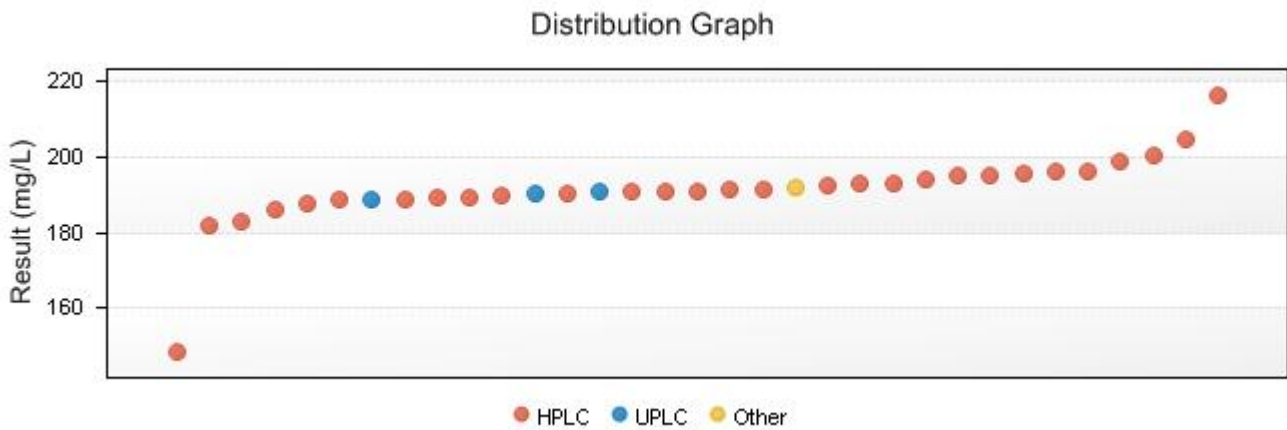
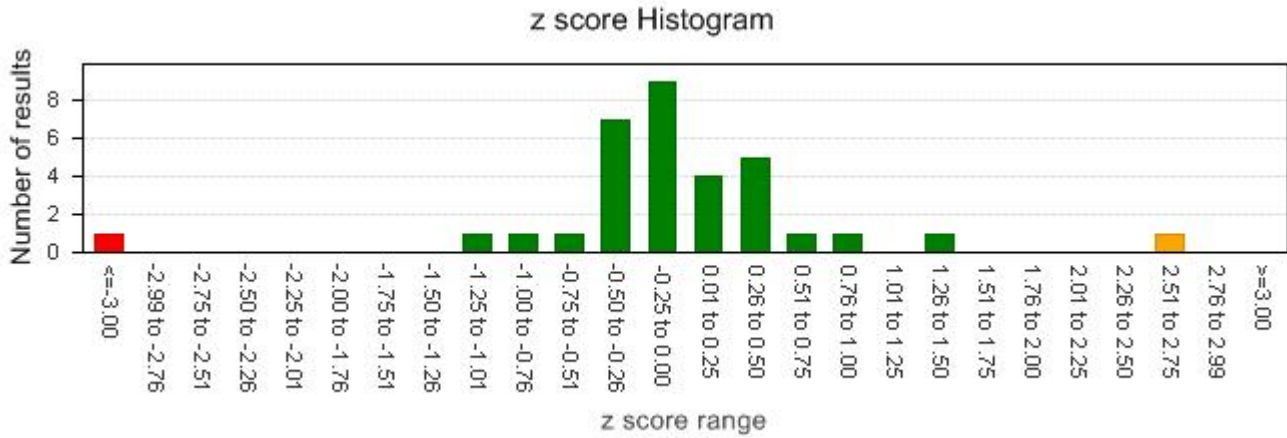
	Value
Number of Results	33
Number of Excluded Results	0
Mean	191.4 mg/L
Median	191.0 mg/L
Standard Deviation	9.93 mg/L
Robust Standard Deviation	3.11 mg/L
Result Range	148.4 to 216.6 mg/L

Performance Statistics

	Value
Assigned Value	192.4 mg/L
Uncertainty of Assigned Value	0.48 mg/L
SDPA	9.62 mg/L
Satisfactory Range	173.2 to 211.6 mg/L
Satisfactory z scores	93.9%
Questionable z scores	3.0%
Unsatisfactory z scores	3.0%

Sample: 516 - Carbonated Drink (degassed)

Analyte: Benzoic Acid



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	29	0	87.88	191.5	4.15	148.4 to 216.6	93.1
UPLC	3	0	9.09	190.4	0.59	188.9 to 190.8	100.0
Other	1	0	3.03	192.1	0.00	192.1 to 192.1	100.0
All	33	0	100	191.0	3.11	148.4 to 216.6	93.9

Comments

Sample: 516 - Carbonated Drink (degassed)

Analyte: Caffeine

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	189.0	-0.95
BV6263	HPLC	202.0	0.36
BV6297	UPLC	198.1	-0.03
BV6300	UPLC	196.5	-0.19
BV6371	UPLC	198.3	-0.01
BV6503	HPLC	201.8	0.34
BV6514	HPLC	198.2	-0.02
BV6695	HPLC	194.0	-0.44
BV6738	HPLC	193.4	-0.50
BV6763	HPLC	198.7	0.03
BV6769	HPLC	194.5	-0.39
BV6832	HPLC	190.9	-0.76
BV6833	HPLC	193.0	-0.54
BV6834	HPLC	198.8	0.04
BV6836	HPLC	197.9	-0.05
BV6894	HPLC	188.2	-1.03
BV6916	HPLC	205.5	0.72
BV6932	HPLC	194.9	-0.35
BV6960	HPLC	206.0	0.77
BV6983	HPLC	207.5	0.92
BV7083	HPLC	190.0	-0.85
BV7117	HPLC	209.8	1.15
BV7122	HPLC	196.2	-0.22
BV7171	HPLC	200.0	0.16
BV7177	HPLC	190.0	-0.85
BV7254	HPLC	189.8	-0.87
BV7280	HPLC	198.4	0.00
BV7342	Other	197.7	-0.07
BV7402	HPLC	199.3	0.09
BV7580	HPLC	198.9	0.05
BV7622	HPLC	200.3	0.19
BV7635	HPLC	204.0	0.56
BV7658	HPLC	197.2	-0.12

Data Statistics

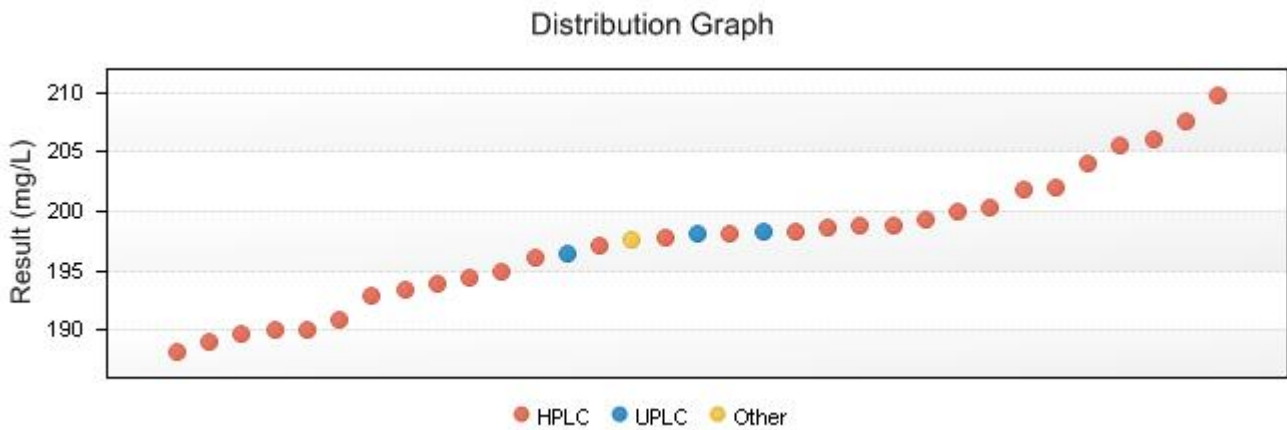
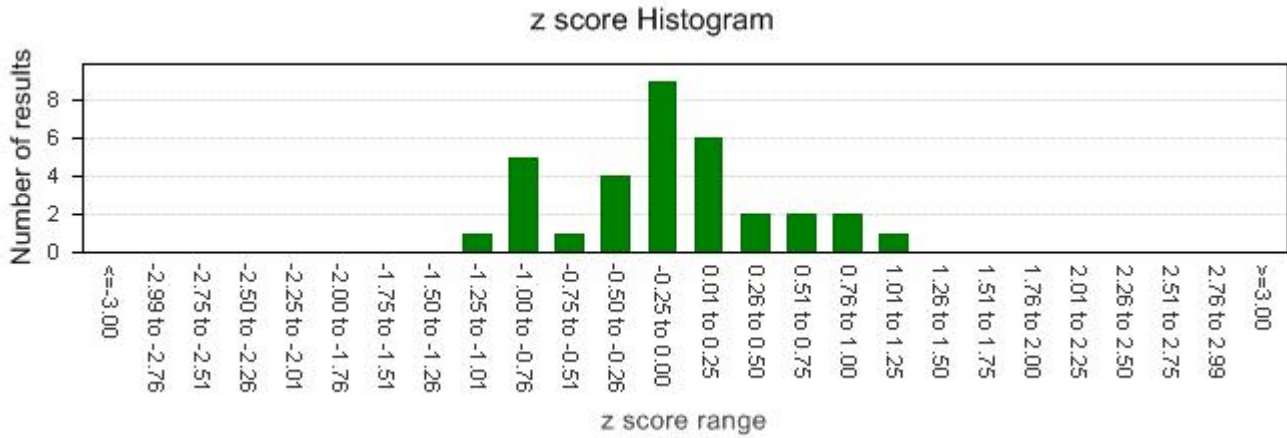
	Value
Number of Results	33
Number of Excluded Results	0
Mean	197.5 mg/L
Median	198.1 mg/L
Standard Deviation	5.41 mg/L
Robust Standard Deviation	5.34 mg/L
Result Range	188.2 to 209.8 mg/L

Performance Statistics

	Value
Assigned Value	198.4 mg/L
Uncertainty of Assigned Value	0.50 mg/L
SDPA	9.92 mg/L
Satisfactory Range	178.6 to 218.2 mg/L
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%

Sample: 516 - Carbonated Drink (degassed)

Analyte: Caffeine



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	29	0	87.88	198.2	5.64	188.2 to 209.8	100.0
UPLC	3	0	9.09	198.1	0.30	196.5 to 198.3	100.0
Other	1	0	3.03	197.7	0.00	197.7 to 197.7	100.0
All	33	0	100	198.1	5.34	188.2 to 209.8	100.0

Comments

Sample: 516 - Carbonated Drink (degassed)**Analyte: Free Sulfur Dioxide**

Lab ID	Method	Result (mg/L)	z score
BV6932	Other	76.00	
BV6983	Distillation	4.20	

Data Statistics

	Value
Number of Results	2
Number of Excluded Results	0
Mean	N/A
Median	N/A
Standard Deviation	N/A
Robust Standard Deviation	N/A
Result Range	4.20 to 76.00 mg/L

Comments

Performance scores were removed as only 2 varied results reported.

Sample: 516 - Carbonated Drink (degassed)

Analyte: Sorbic Acid (as free acid)

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	98.4	-3.20
BV6263	HPLC	117.0	-0.02
BV6297	UPLC	118.3	0.21
BV6300	UPLC	106.2	-1.86
BV6371	UPLC	113.0	-0.70
BV6503	HPLC	118.5	0.24
BV6514	HPLC	132.0	2.55
BV6695	HPLC	117.0	-0.02
BV6738	HPLC	114.9	-0.38
BV6763	HPLC	105.9	-1.91
BV6769	HPLC	120.8	0.63
BV6832	HPLC	115.1	-0.34
BV6833	HPLC	124.0	1.18
BV6834	HPLC	123.8	1.15
BV6836	HPLC	123.6	1.11
BV6894	HPLC	115.7	-0.24
BV6906	HPLC	109.3	-1.33
BV6916	HPLC	117.1	0.00
BV6932	HPLC	120.0	0.50
BV6960	HPLC	105.6	-1.97
BV6983	HPLC	120.2	0.53
BV7083	HPLC	115.0	-0.36
BV7117	HPLC	147.8	5.25
BV7122	HPLC	122.2	0.87
BV7171	HPLC	121.0	0.67
BV7177	HPLC	111.0	-1.04
BV7179	HPLC	124.4	1.25
BV7254	HPLC	109.8	-1.25
BV7280	HPLC	118.0	0.15
BV7342	Other	114.9	-0.38
BV7402	HPLC	119.7	0.44
BV7550	HPLC	123.2	1.04
BV7635	HPLC	110.0	-1.21

Data Statistics

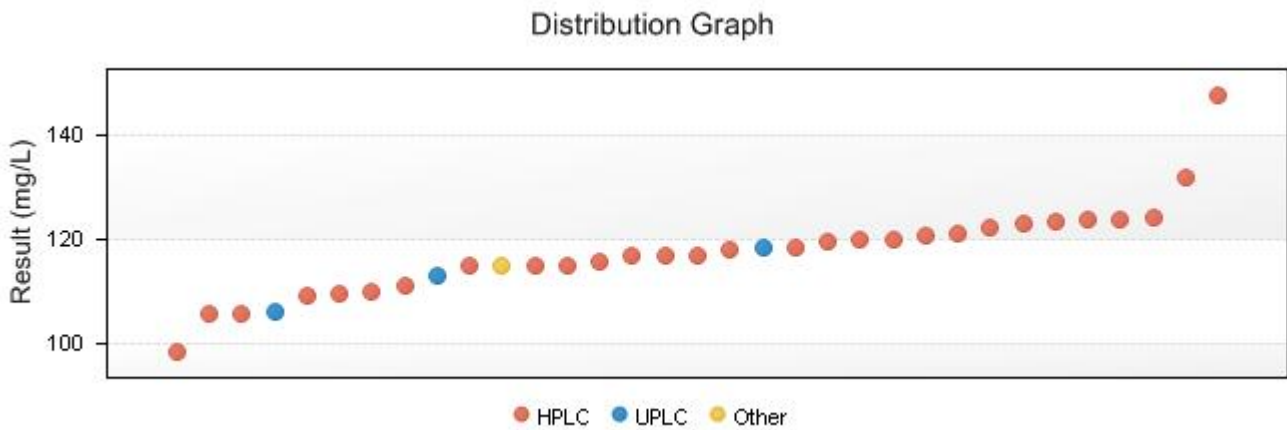
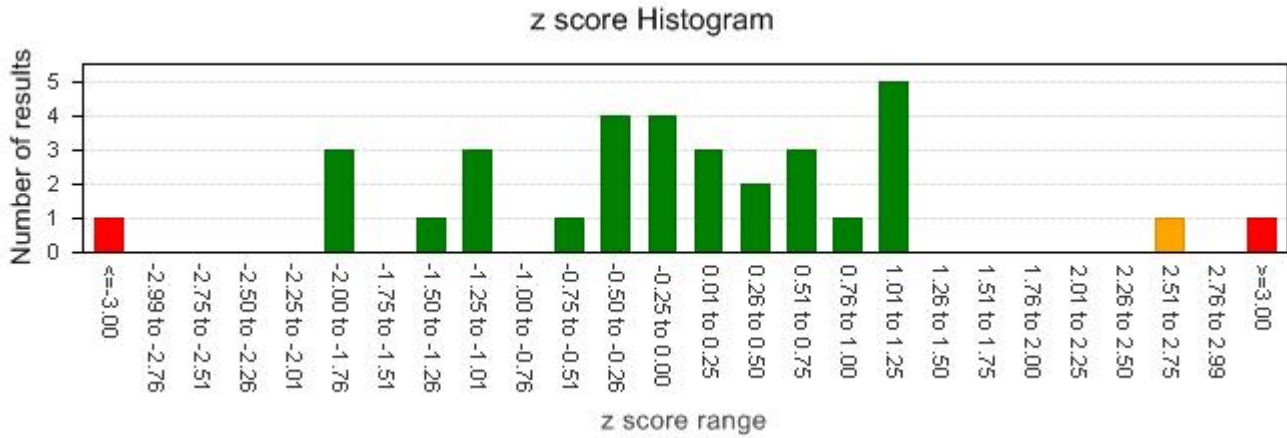
	Value
Number of Results	33
Number of Excluded Results	1
Mean	116.4 mg/L
Median	117.1 mg/L
Standard Deviation	6.91 mg/L
Robust Standard Deviation	5.93 mg/L
Result Range	98.4 to 132.0 mg/L

Performance Statistics

	Value
Assigned Value	117.1 mg/L
Uncertainty of Assigned Value	1.3 mg/L
SDPA	5.85 mg/L
Satisfactory Range	105.4 to 128.8 mg/L
Satisfactory z scores	90.9%
Questionable z scores	3.0%
Unsatisfactory z scores	6.1%

Sample: 516 - Carbonated Drink (degassed)

Analyte: Sorbic Acid (as free acid)



Sample: 516 - Carbonated Drink (degassed)

Analyte: Total Sulfur Dioxide

Lab ID	Method	Result (mg/L)	z score
BV6021	Distillation	40.00	-2.18
BV6514	Distillation	62.80	-0.58
BV6883	Distillation	58.00	-0.92
BV6916	Distillation	55.10	-1.12
BV6932	Other	65.70	-0.37
BV6983	Titration	5.12	-4.64
BV7580	Other	50.00	-1.48
BV7635	Titration	53.00	-1.27

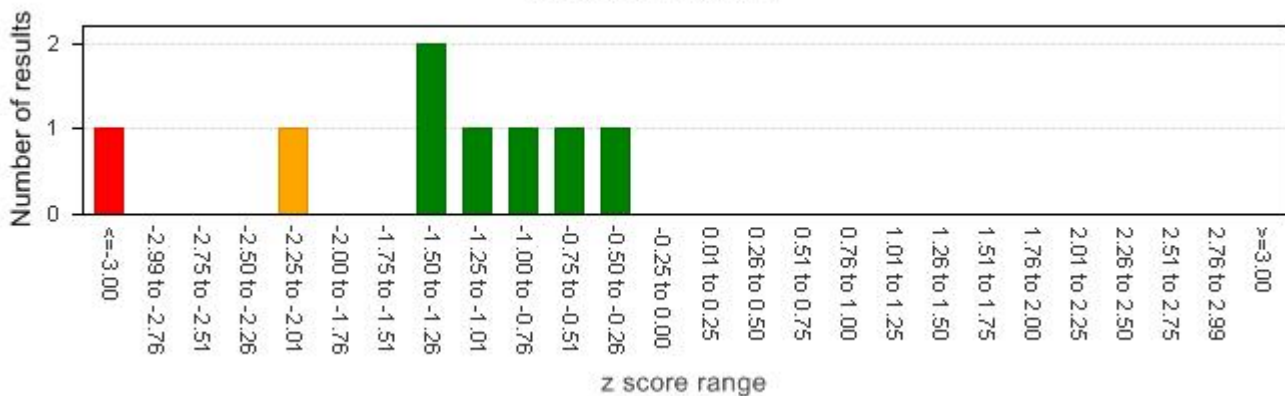
Data Statistics

	Value
Number of Results	8
Number of Excluded Results	0
Mean	48.72 mg/L
Median	54.05 mg/L
Standard Deviation	19.311 mg/L
Robust Standard Deviation	9.491 mg/L
Result Range	5.12 to 65.70 mg/L

Performance Statistics

	Value
Assigned Value	71.00 mg/L
Uncertainty of Assigned Value	0.178 mg/L
SDPA	14.200 mg/L
Satisfactory Range	42.60 to 99.40 mg/L
Satisfactory z scores	75.0%
Questionable z scores	12.5%
Unsatisfactory z scores	12.5%

z score Histogram



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Distillation	4	0	50	56.55	5.710	40.00 to 62.80	75.0
Titration	2	0	25	29.06	35.503	5.12 to 53.00	50.0
Other	2	0	25	57.85	11.642	50.00 to 65.70	100.0
All	8	0	100	54.05	9.491	5.12 to 65.70	75.0

Comments

Sample: 516 - Carbonated Drink (degassed)

Analyte: Acesulfame K

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	101.0	-0.22
BV6263	HPLC	107.0	0.96
BV6297	UPLC	103.2	0.22
BV6300	UPLC	102.9	0.16
BV6371	UPLC	102.3	0.04
BV6503	HPLC	104.0	0.37
BV6514	HPLC	106.6	0.88
BV6695	HPLC	101.0	-0.22
BV6738	HPLC	103.7	0.31
BV6832	HPLC	103.9	0.35
BV6833	HPLC	105.0	0.57
BV6834	HPLC	104.4	0.45
BV6836	HPLC	99.7	-0.47
BV6894	HPLC	101.6	-0.10
BV6906	HPLC	104.2	0.41
BV6916	HPLC	103.9	0.35
BV6932	HPLC	102.0	-0.02
BV6960	HPLC	104.5	0.47
BV6983	HPLC	104.0	0.37
BV7083	HPLC	94.2	-1.55
BV7117	HPLC	102.8	0.14
BV7122	HPLC	103.2	0.22
BV7177	HPLC	99.7	-0.47
BV7179	HPLC	142.7	7.95
BV7254	HPLC	97.6	-0.88
BV7280	HPLC	104.5	0.47
BV7342	Other	105.1	0.59
BV7402	HPLC	103.5	0.27
BV7550	HPLC	104.0	0.37
BV7580	HPLC	103.5	0.27
BV7622	HPLC	103.3	0.23

Data Statistics

	Value
Number of Results	31
Number of Excluded Results	1
Mean	102.9 mg/L
Median	103.5 mg/L
Standard Deviation	2.56 mg/L
Robust Standard Deviation	1.41 mg/L
Result Range	94.2 to 107.0 mg/L

Performance Statistics

	Value
Assigned Value	102.1 mg/L
Uncertainty of Assigned Value	0.26 mg/L
SDPA	5.11 mg/L
Satisfactory Range	91.9 to 112.3 mg/L
Satisfactory z scores	96.8%
Questionable z scores	0.0%
Unsatisfactory z scores	3.2%

Sample: 516 - Carbonated Drink (degassed)

Analyte: Aspartame

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	289.0	-0.55
BV6263	HPLC	328.0	2.07
BV6297	UPLC	302.6	0.36
BV6300	UPLC	288.4	-0.59
BV6371	UPLC	301.4	0.28
BV6503	HPLC	293.8	-0.23
BV6514	HPLC	341.7	2.99
BV6695	HPLC	299.0	0.12
BV6738	HPLC	297.5	0.02
BV6769	HPLC	340.8	2.93
BV6832	HPLC	340.5	2.91
BV6833	HPLC	274.0	-1.56
BV6834	HPLC	298.5	0.09
BV6836	HPLC	295.2	-0.13
BV6894	HPLC	302.6	0.36
BV6906	HPLC	298.5	0.09
BV6916	HPLC	313.0	1.06
BV6932	HPLC	307.0	0.66
BV6960	HPLC	308.6	0.77
BV6983	HPLC	300.5	0.22
BV7083	HPLC	316.0	1.27
BV7117	HPLC	688.7	26.35
BV7122	HPLC	312.3	1.02
BV7177	HPLC	307.9	0.72
BV7179	HPLC	483.2	12.52
BV7254	HPLC	293.7	-0.24
BV7280	HPLC	306.5	0.63
BV7342	Other	299.5	0.15
BV7402	HPLC	308.6	0.77
BV7580	HPLC	311.2	0.94
BV7622	HPLC	343.2	3.10

Data Statistics

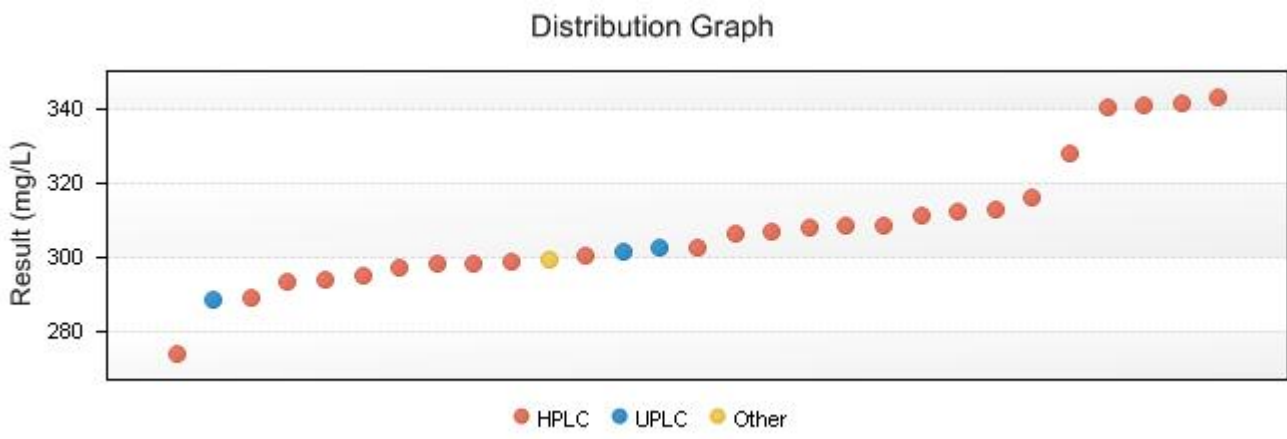
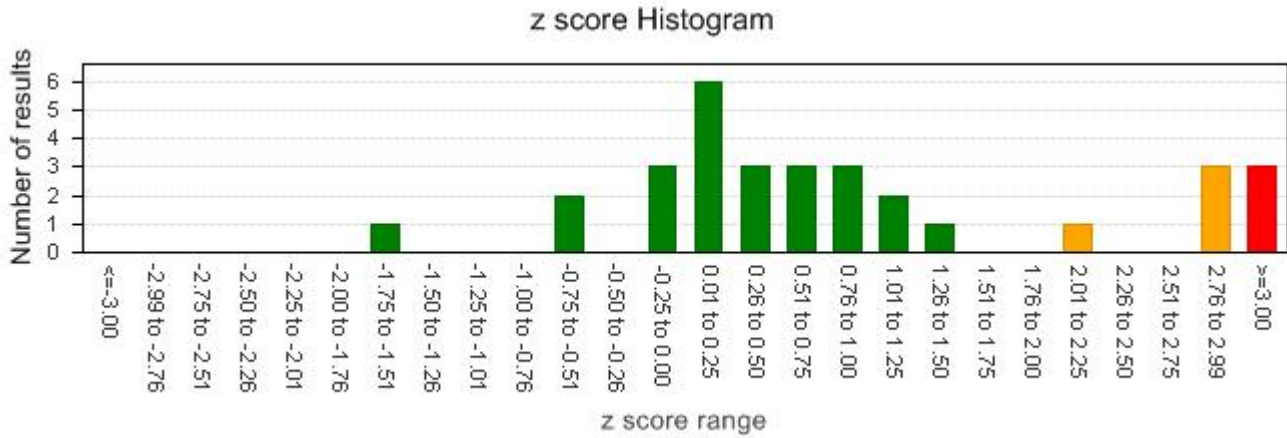
	Value
Number of Results	31
Number of Excluded Results	2
Mean	307.6 mg/L
Median	302.6 mg/L
Standard Deviation	17.00 mg/L
Robust Standard Deviation	10.97 mg/L
Result Range	274.0 to 343.2 mg/L

Performance Statistics

	Value
Assigned Value	297.2 mg/L
Uncertainty of Assigned Value	0.74 mg/L
SDPA	14.86 mg/L
Satisfactory Range	267.5 to 326.9 mg/L
Satisfactory z scores	77.4%
Questionable z scores	12.9%
Unsatisfactory z scores	9.7%

Sample: 516 - Carbonated Drink (degassed)

Analyte: Aspartame



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	27	2	87.1	307.0	12.61	274.0 to 343.2	74.1
UPLC	3	0	9.68	301.4	1.78	288.4 to 302.6	100.0
Other	1	0	3.23	299.5	0.00	299.5 to 299.5	100.0
All	31	2	100	302.6	10.97	274.0 to 343.2	77.4

Comments

Sample: 516 - Carbonated Drink (degassed)**Analyte: Cyclamic acid (as free acid)**

Lab ID	Method	Result (mg/L)	z score
BV6263	HPLC	257.0	5.51
BV6514	HPLC	199.8	-0.17
BV6932	Other	210.0	0.84
BV7083	Ion chromatography	200.0	-0.15
BV7622	HPLC	227.2	2.55

Data Statistics

	Value
Number of Results	5
Number of Excluded Results	1
Mean	209.3 mg/L
Median	205.0 mg/L
Standard Deviation	12.88 mg/L
Robust Standard Deviation	7.56 mg/L
Result Range	199.8 to 227.2 mg/L

Performance Statistics

	Value
Assigned Value	201.5 mg/L
Uncertainty of Assigned Value	0.50 mg/L
SDPA	10.08 mg/L
Satisfactory Range	181.3 to 221.7 mg/L
Satisfactory z scores	60.0%
Questionable z scores	20.0%
Unsatisfactory z scores	20.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Ion chromatography	1	0	20	200.0	0.00	200.0 to 200.0	100.0
HPLC	3	1	60	213.5	20.32	199.8 to 227.2	33.3
Other	1	0	20	210.0	0.00	210.0 to 210.0	100.0
All	5	1	100	205.0	7.56	199.8 to 227.2	60.0

Comments

Sample: 516 - Carbonated Drink (degassed)

Analyte: Saccharin (as free imide)

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	58.5	-0.08
BV6263	HPLC	63.0	0.43
BV6297	UPLC	57.8	-0.16
BV6300	UPLC	57.9	-0.15
BV6371	UPLC	56.2	-0.34
BV6503	HPLC	60.1	0.10
BV6514	HPLC	66.6	0.83
BV6695	HPLC	56.6	-0.29
BV6738	HPLC	60.7	0.17
BV6833	HPLC	62.0	0.32
BV6834	HPLC	57.9	-0.15
BV6836	HPLC	76.8	1.98
BV6894	HPLC	57.3	-0.21
BV6906	HPLC	58.8	-0.05
BV6916	HPLC	54.7	-0.51
BV6932	HPLC	64.0	0.54
BV6960	HPLC	70.9	1.32
BV6983	HPLC	53.8	-0.61
BV7083	HPLC	56.8	-0.27
BV7122	HPLC	66.4	0.81
BV7177	HPLC	56.4	-0.32
BV7179	HPLC	87.5	3.19
BV7254	HPLC	48.9	-1.16
BV7342	Other	57.7	-0.17
BV7580	HPLC	60.3	0.12
BV7622	HPLC	76.4	1.94

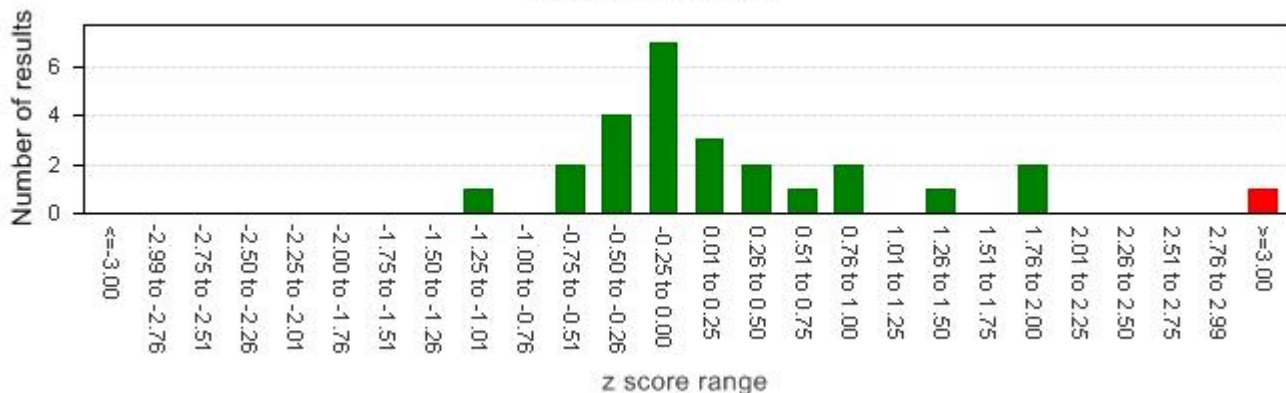
Data Statistics

	Value
Number of Results	26
Number of Excluded Results	0
Mean	61.7 mg/L
Median	58.7 mg/L
Standard Deviation	8.33 mg/L
Robust Standard Deviation	3.49 mg/L
Result Range	48.9 to 87.5 mg/L

Performance Statistics

	Value
Assigned Value	59.2 mg/L
Uncertainty of Assigned Value	0.15 mg/L
SDPA	8.88 mg/L
Satisfactory Range	41.4 to 77.0 mg/L
Satisfactory z scores	96.2%
Questionable z scores	0.0%
Unsatisfactory z scores	3.8%

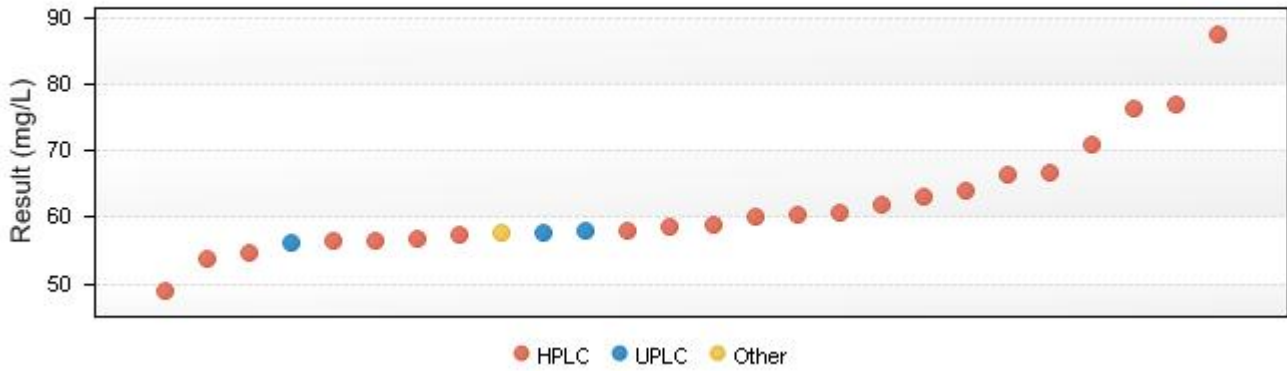
z score Histogram



Sample: 516 - Carbonated Drink (degassed)

Analyte: Saccharin (as free imide)

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	22	0	84.62	60.2	5.49	48.9 to 87.5	95.5
UPLC	3	0	11.54	57.8	0.15	56.2 to 57.9	100.0
Other	1	0	3.85	57.7	0.00	57.7 to 57.7	100.0
All	26	0	100	58.7	3.49	48.9 to 87.5	96.2

Comments

Sample: 516 - Carbonated Drink (degassed)**Analyte: Sucralose**

Lab ID	Method	Result (mg/L)	z score
BV6021	HPLC	363.0	66.02
BV6263	Other	36.0	0.62
BV6514	HPLC	31.9	-0.20
BV6916	HPLC	30.4	-0.50
BV6932	Other	<5.0	
BV7083	LC-MS/MS	3.6	-5.86
BV7402	HPLC	34.4	0.30
BV7622	HPLC	33.4	0.10

Data Statistics

	Value
Number of Results	8
Number of Excluded Results	3
Mean	33.2 mg/L
Median	33.4 mg/L
Standard Deviation	2.17 mg/L
Robust Standard Deviation	2.22 mg/L
Result Range	30.4 to 36.0 mg/L

Performance Statistics

	Value
Assigned Value	32.9 mg/L
Uncertainty of Assigned Value	0.08 mg/L
SDPA	5 mg/L
Satisfactory Range	22.9 to 42.9 mg/L
Satisfactory z scores	71.4%
Questionable z scores	0.0%
Unsatisfactory z scores	28.6%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
LC-MS/MS	1	1	12.5	N/A	N/A	to 3.6	0.0
HPLC	5	1	62.5	32.7	1.85	30.4 to 34.4	80.0
Other	2	1	25	36.0	0.00	36.0 to 36.0	100.0
All	8	3	100	33.4	2.22	30.4 to 36.0	71.4

Comments

Two participants have reported a result which is not consistent with the assigned value. One participant has reported a 'less than' value which is not consistent with the satisfactory range. As a result this result has been colour-coded red and should be considered unsatisfactory.

Participants are reminded that reporting results in the correct format and in the requested units is a key part of the proficiency testing process.

Sample: 517 - Dilutable/Ready to drink

Analyte: Acidity (as Citric Acid Monohydrate)

Lab ID	Method	Result (%w/v)	z score
BV6008	Potentiometric Titration	0.463	1.53
BV6017	Colorimetric Titration	4.210	126.43
BV6021	Other	0.411	-0.20
BV6050	Potentiometric Titration	0.430	0.43
BV6156	Colorimetric Titration	0.350	-2.23
BV6571	Other	0.420	0.10
BV6738	Potentiometric Titration	0.374	-1.43
BV6776	Potentiometric Titration	0.430	0.43
BV6886	Potentiometric Titration	0.408	-0.30
BV7011	Colorimetric Titration	0.278	-4.63
BV7111	Potentiometric Titration	0.540	4.10
BV7147	Potentiometric Titration	0.426	0.30
BV7234	Potentiometric Titration	0.430	0.43
BV7280	Potentiometric Titration	0.416	-0.03
BV7394	Potentiometric Titration	0.417	0.00
BV7455	Colorimetric Titration	0.417	0.00
BV7464	Potentiometric Titration	4.000	119.43
BV7589	Potentiometric Titration	0.410	-0.23
BV7640	Colorimetric Titration	0.420	0.10

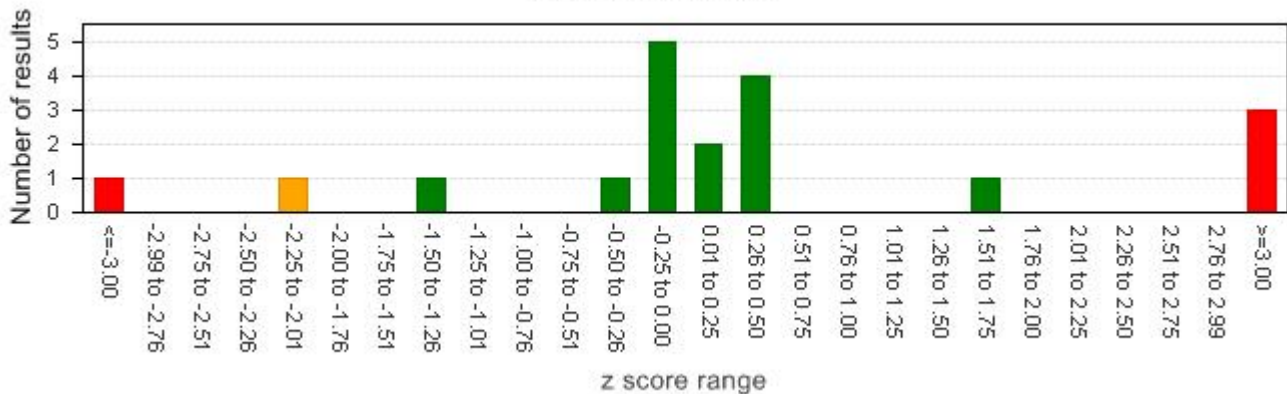
Data Statistics

	Value
Number of Results	19
Number of Excluded Results	2
Mean	0.414 %w/v
Median	0.417 %w/v
Standard Deviation	0.0522 %w/v
Robust Standard Deviation	0.0133 %w/v
Result Range	0.278 to 0.540 %w/v

Performance Statistics

	Value
Assigned Value	0.417 %w/v
Uncertainty of Assigned Value	0.004 %w/v
SDPA	0.03 %w/v
Satisfactory Range	0.357 to 0.477 %w/v
Satisfactory z scores	73.7%
Questionable z scores	5.3%
Unsatisfactory z scores	21.1%

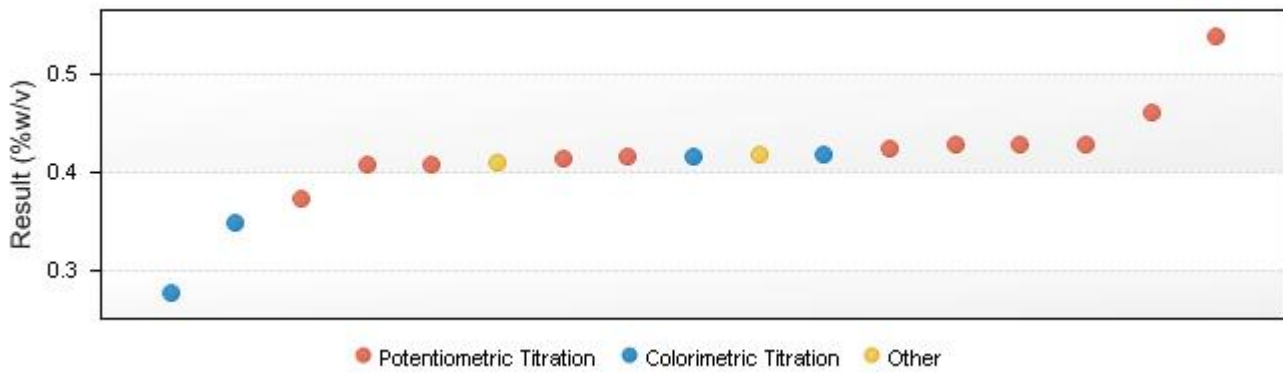
z score Histogram



Sample: 517 - Dilutable/Ready to drink

Analyte: Acidity (as Citric Acid Monohydrate)

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				%w/v			%
Potentiometric Titration	12	1	63.16	0.426	0.0148	0.374 to 0.540	83.3
Colorimetric Titration	5	1	26.32	0.384	0.0519	0.278 to 0.420	40.0
Other	2	0	10.53	0.416	0.0067	0.411 to 0.420	100.0
All	19	2	100	0.417	0.0133	0.278 to 0.540	73.7

Comments

Sample: 517 - Dilutable/Ready to drink

Analyte: Benzoic Acid

Lab ID	Method	Result (mg/L)	z score
BV6008	HPLC	85.5	2.72
BV6021	HPLC	63.0	-1.78
BV6050	HPLC	71.9	0.00
BV6236	HPLC	71.9	0.00
BV6241	HPLC	70.4	-0.30
BV6542	HPLC	79.0	1.42
BV6720	HPLC	74.3	0.48
BV6738	HPLC	70.5	-0.28
BV6776	HPLC	71.8	-0.02
BV6886	HPLC	67.9	-0.80
BV7011	Spectrophotometric	73.2	0.26
BV7111	HPLC	64.7	-1.44
BV7251	HPLC	64.7	-1.44
BV7280	HPLC	72.3	0.08
BV7455	HPLC	112.6	8.14
BV7589	HPLC	76.0	0.82

Data Statistics

	Value
Number of Results	16
Number of Excluded Results	1
Mean	71.8 mg/L
Median	71.9 mg/L
Standard Deviation	5.75 mg/L
Robust Standard Deviation	3.56 mg/L
Result Range	63.0 to 85.5 mg/L

Performance Statistics

	Value
Assigned Value	71.9 mg/L
Uncertainty of Assigned Value	1.1 mg/L
SDPA	5 mg/L
Satisfactory Range	61.9 to 81.9 mg/L
Satisfactory z scores	87.5%
Questionable z scores	6.3%
Unsatisfactory z scores	6.3%

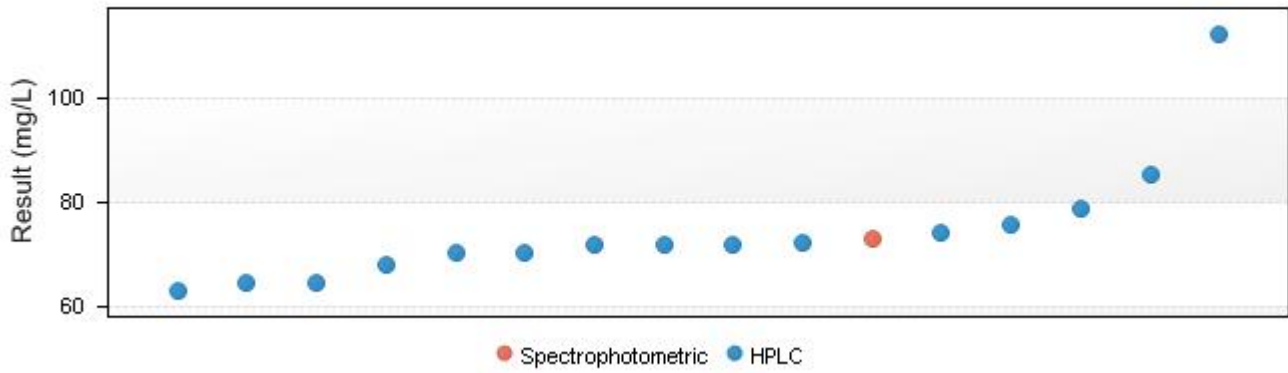
z score Histogram



Sample: 517 - Dilutable/Ready to drink

Analyte: Benzoic Acid

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Spectrophotometric	1	0	6.25	73.2	0.00	73.2 to 73.2	100.0
HPLC	15	1	93.75	71.9	4.75	63.0 to 85.5	86.7
All	16	1	100	71.9	3.56	63.0 to 85.5	87.5

Comments

Sample: 517 - Dilutable/Ready to drink

Analyte: Brix

Lab ID	Method	Result (°Brix)	z score
BV6008	Refractometer	0.53	-0.50
BV6021	Refractometer	0.59	0.50
BV6050	Refractometer	0.56	0.00
BV6542	Refractometer	0.53	-0.50
BV6571	Refractometer	0.53	-0.50
BV6732	Refractometer	0.57	0.17
BV6738	Refractometer	0.56	0.00
BV6776	Refractometer	0.56	0.00
BV6886	Refractometer	0.57	0.17
BV6972	Refractometer	0.55	-0.17
BV7011	Refractometer	0.50	-1.00
BV7021	Refractometer	0.60	0.67
BV7111	Refractometer	0.54	-0.33
BV7147	Refractometer	0.50	-1.00
BV7234	Refractometer	0.51	-0.83
BV7280	Refractometer	0.56	0.00
BV7394	Refractometer	0.56	0.00
BV7455	Refractometer	0.57	0.17
BV7464	Refractometer	0.80	4.00
BV7589	Refractometer	0.50	-1.00
BV7640	Refractometer	1.10	9.00

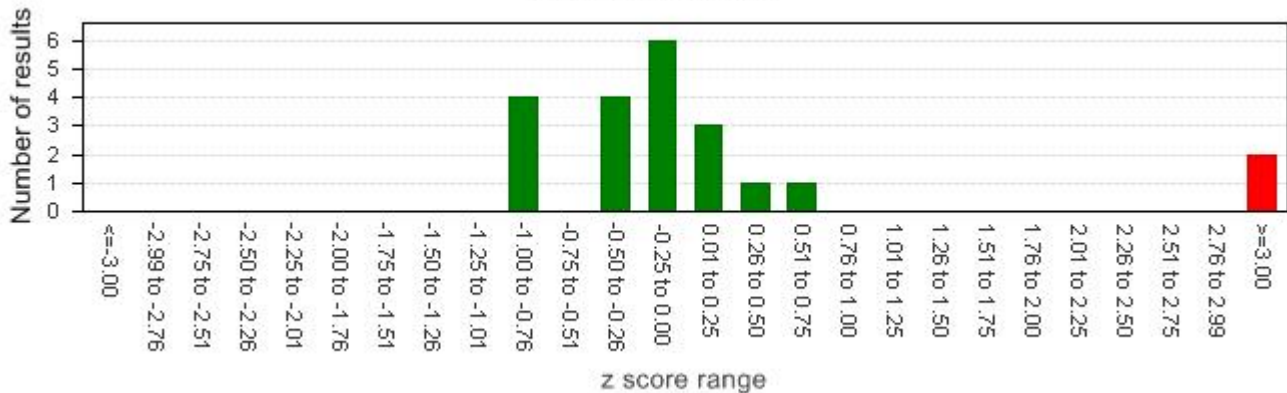
Data Statistics

	Value
Number of Results	21
Number of Excluded Results	1
Mean	0.56 °Brix
Median	0.56 °Brix
Standard Deviation	0.064 °Brix
Robust Standard Deviation	0.037 °Brix
Result Range	0.50 to 0.80 °Brix

Performance Statistics

	Value
Assigned Value	0.56 °Brix
Uncertainty of Assigned Value	0.01 °Brix
SDPA	0.06 °Brix
Satisfactory Range	0.44 to 0.68 °Brix
Satisfactory z scores	90.5%
Questionable z scores	0.0%
Unsatisfactory z scores	9.5%

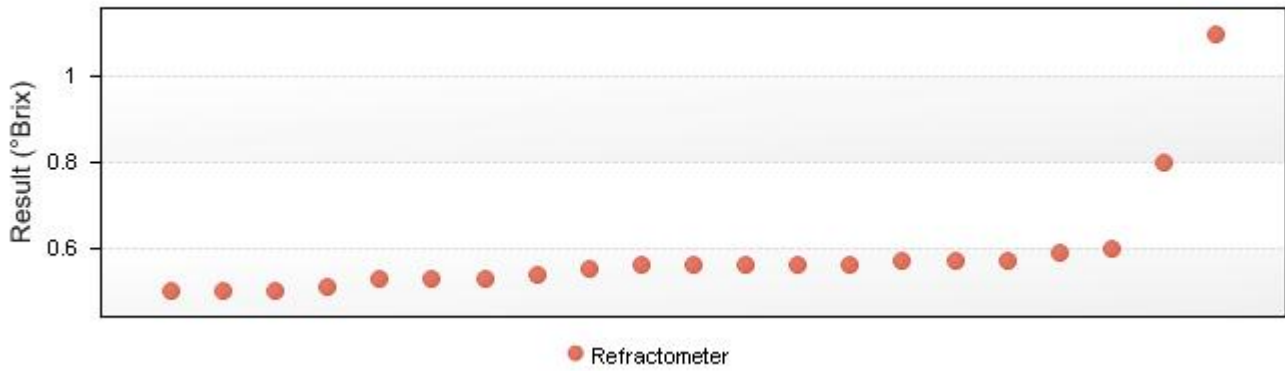
z score Histogram



Sample: 517 - Dilutable/Ready to drink

Analyte: Brix

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				°Brix			%
Refractometer	21	1	100	0.56	0.037	0.50 to 0.80	90.5
All	21	1	100	0.56	0.037	0.50 to 0.80	90.5

Comments

Sample: 517 - Dilutable/Ready to drink

Analyte: Caffeine

Lab ID	Method	Result (mg/L)	z score
BV6008	HPLC	186.4	0.79
BV6021	HPLC	180.0	0.08
BV6241	HPLC	177.2	-0.23
BV6542	HPLC	178.6	-0.08
BV6720	HPLC	186.0	0.75
BV6738	HPLC	176.0	-0.37
BV6776	HPLC	184.6	0.59
BV6886	HPLC	175.4	-0.43
BV7011	Spectrophotometric	155.0	-2.71
BV7021	HPLC	174.1	-0.58
BV7111	HPLC	163.5	-1.76
BV7280	HPLC	181.2	0.21
BV7455	HPLC	193.9	1.63
BV7589	HPLC	182.0	0.30

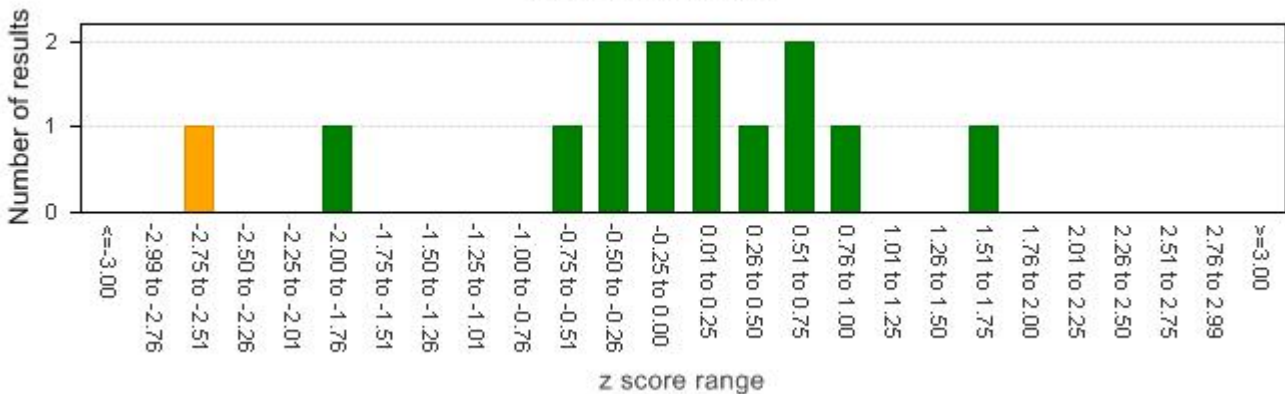
Data Statistics

	Value
Number of Results	14
Number of Excluded Results	0
Mean	178.1 mg/L
Median	179.3 mg/L
Standard Deviation	9.72 mg/L
Robust Standard Deviation	6.75 mg/L
Result Range	155.0 to 193.9 mg/L

Performance Statistics

	Value
Assigned Value	179.3 mg/L
Uncertainty of Assigned Value	2.3 mg/L
SDPA	8.97 mg/L
Satisfactory Range	161.4 to 197.2 mg/L
Satisfactory z scores	92.9%
Questionable z scores	7.1%
Unsatisfactory z scores	0.0%

z score Histogram



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Spectrophotometric	1	0	7.14	155.0	0.00	155.0 to 155.0	0.0
HPLC	13	0	92.86	180.0	6.82	163.5 to 193.9	100.0
All	14	0	100	179.3	6.75	155.0 to 193.9	92.9

Comments

Sample: 517 - Dilutable/Ready to drink**Analyte: Free Sulfur Dioxide**

Lab ID	Method	Result (mg/L)	z' score*
BV6017	Other	22.00	-0.55
BV6156	Distillation	24.48	0.00
BV7455	Other	32.09	1.68

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	3
Number of Excluded Results	0
Mean	26.19 mg/L
Median	24.48 mg/L
Standard Deviation	5.258 mg/L
Robust Standard Deviation	3.678 mg/L
Result Range	22.00 to 32.09 mg/L

Performance Statistics

	Value
Assigned Value	24.48 mg/L
Uncertainty of Assigned Value	2.65 mg/L
SDPA	3.678 mg/L
Expanded SDPA	4.533 mg/L
Satisfactory Range	15.41 to 33.55 mg/L
Satisfactory z' scores	100.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Distillation	1	0	33.33	24.48	0.000	24.48 to 24.48	100.0
Other	2	0	66.67	27.05	7.482	22.00 to 32.09	100.0
All	3	0	100	24.48	3.678	22.00 to 32.09	100.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink

Analyte: pH

Lab ID	Method	Result (pH)	z score
BV6008	pH Meter	2.73	-1.80
BV6017	pH Meter	2.76	-1.50
BV6021	Other	2.83	-0.80
BV6050	pH Meter	2.91	0.00
BV6156	pH Meter	3.05	1.40
BV6241	pH Meter	2.97	0.60
BV6542	pH Meter	2.95	0.40
BV6571	pH Meter	2.51	-4.00
BV6738	pH Meter	2.98	0.70
BV6886	pH Meter	2.73	-1.80
BV7011	pH Meter	2.88	-0.30
BV7021	pH Meter	2.91	0.00
BV7111	pH Meter	2.84	-0.70
BV7147	pH Meter	2.89	-0.20
BV7234	pH Meter	2.92	0.10
BV7280	pH Meter	2.92	0.10
BV7394	pH Meter	2.91	0.00
BV7455	pH Meter	2.90	-0.10
BV7464	Other	3.57	6.60
BV7640	pH Meter	2.97	0.60

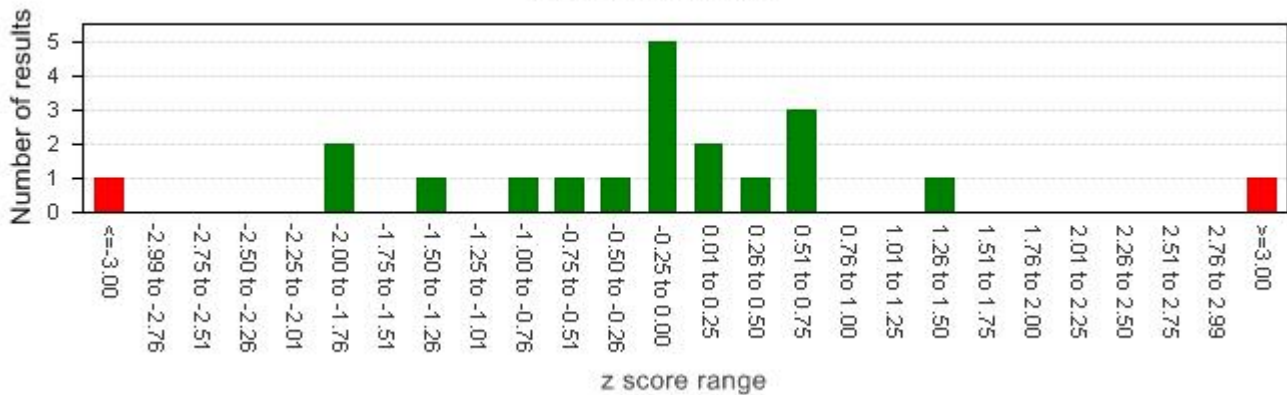
Data Statistics

	Value
Number of Results	20
Number of Excluded Results	1
Mean	2.87 pH
Median	2.91 pH
Standard Deviation	0.121 pH
Robust Standard Deviation	0.089 pH
Result Range	2.51 to 3.05 pH

Performance Statistics

	Value
Assigned Value	2.91 pH
Uncertainty of Assigned Value	0.03 pH
SDPA	0.1 pH
Satisfactory Range	2.71 to 3.11 pH
Satisfactory z scores	90.0%
Questionable z scores	0.0%
Unsatisfactory z scores	10.0%

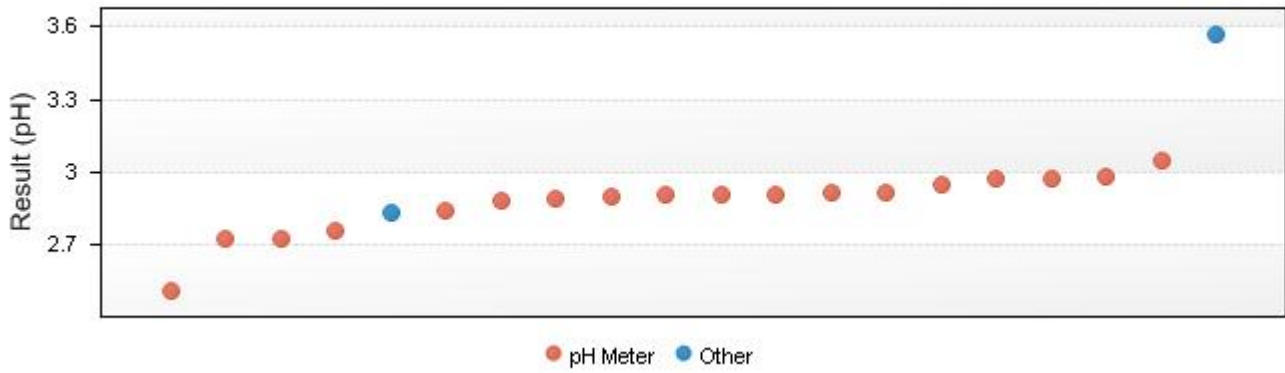
z score Histogram



Sample: 517 - Dilutable/Ready to drink

Analyte: pH

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				pH			%
pH Meter	18	0	90	2.91	0.074	2.51 to 3.05	94.4
Other	2	1	10	2.83	0.000	2.83 to 2.83	50.0
All	20	1	100	2.91	0.089	2.51 to 3.05	90.0

Comments

Sample: 517 - Dilutable/Ready to drink

Analyte: Sorbic Acid (as free acid)

Lab ID	Method	Result (mg/L)	z' score*
BV6008	HPLC	198.1	7.83
BV6021	HPLC	162.0	2.96
BV6050	HPLC	136.1	-0.54
BV6236	HPLC	140.2	0.01
BV6241	HPLC	123.4	-2.25
BV6720	HPLC	146.0	0.80
BV6738	HPLC	139.3	-0.11
BV6776	HPLC	145.7	0.76
BV6886	HPLC	151.8	1.58
BV7011	Spectrophotometric	182.6	5.74
BV7021	HPLC	136.3	-0.51
BV7111	HPLC	137.3	-0.38
BV7251	HPLC	131.0	-1.23
BV7280	HPLC	140.0	-0.01
BV7455	HPLC	143.4	0.45
BV7589	HPLC	150.0	1.34

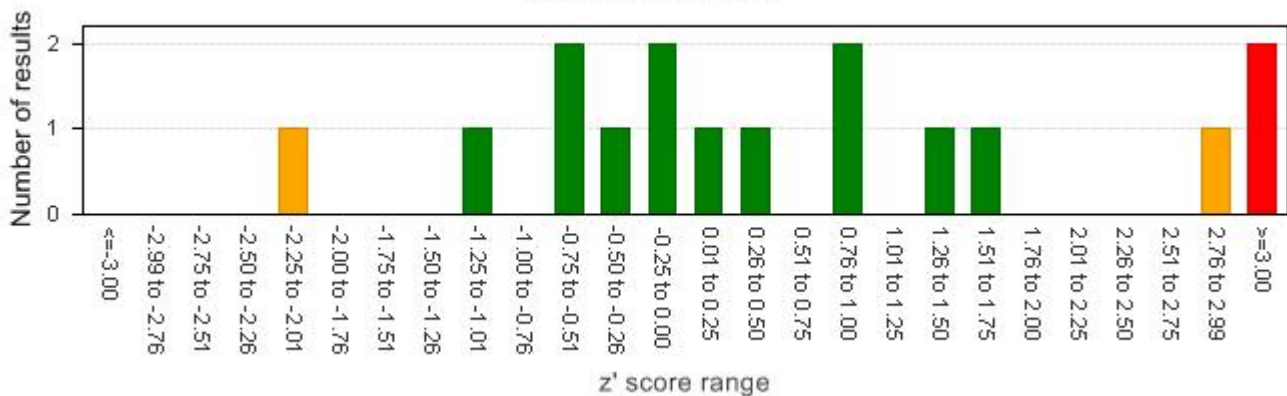
Data Statistics

	Value
Number of Results	16
Number of Excluded Results	2
Mean	141.6 mg/L
Median	140.1 mg/L
Standard Deviation	9.45 mg/L
Robust Standard Deviation	7.12 mg/L
Result Range	123.4 to 162.0 mg/L

Performance Statistics

	Value
Assigned Value	140.1 mg/L
Uncertainty of Assigned Value	2.4 mg/L
SDPA	7.01 mg/L
Expanded SDPA	7.41 mg/L
Satisfactory Range	125.3 to 154.9 mg/L
Satisfactory z' scores	75.0%
Questionable z' scores	12.5%
Unsatisfactory z' scores	12.5%

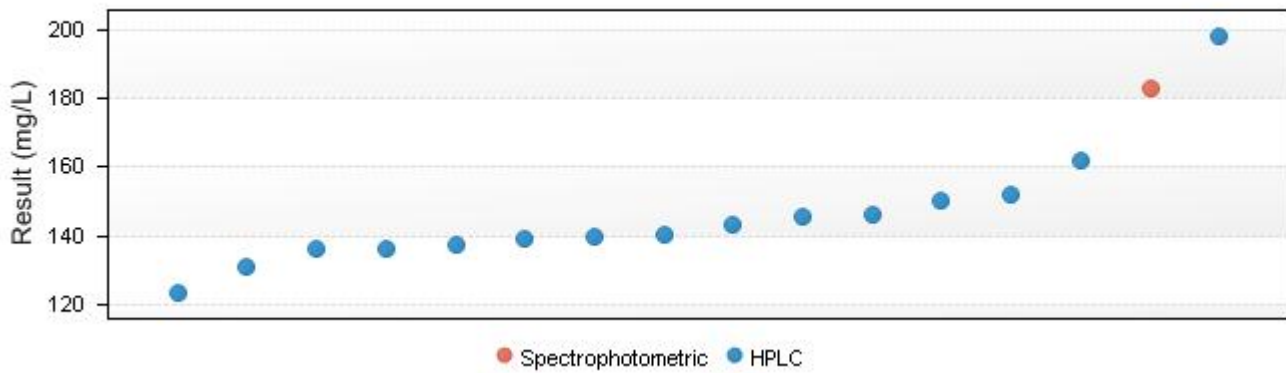
z' score Histogram



Sample: 517 - Dilutable/Ready to drink

Analyte: Sorbic Acid (as free acid)

Distribution Graph



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Spectrophotometric	1	1	6.25	N/A	N/A	182.6 to	0.0
HPLC	15	1	93.75	140.1	7.12	123.4 to 162.0	80.0
All	16	2	100	140.1	7.12	123.4 to 162.0	75.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink

Analyte: Total Sulfur Dioxide

Lab ID	Method	Result (mg/L)	z' score*
BV6017	Distillation	45.28	1.26
BV6021	Distillation	44.00	1.12
BV6050	Distillation	34.00	0.05
BV6236	Distillation	46.00	1.33
BV7011	Distillation	22.91	-1.13
BV7021	Distillation	236.08	21.60
BV7147	Distillation	20.80	-1.35
BV7234	Distillation	15.20	-1.95
BV7464	Distillation	10.00	-2.51
BV7589	Distillation	44.10	1.13
BV7640	Distillation	33.00	-0.05

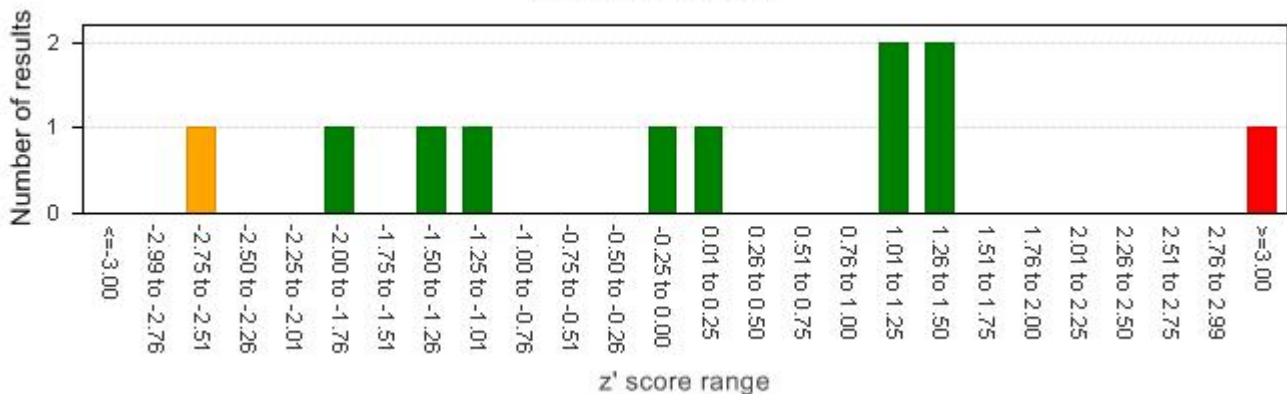
Data Statistics

	Value
Number of Results	11
Number of Excluded Results	1
Mean	31.53 mg/L
Median	33.50 mg/L
Standard Deviation	13.498 mg/L
Robust Standard Deviation	16.595 mg/L
Result Range	10.00 to 46.00 mg/L

Performance Statistics

	Value
Assigned Value	33.50 mg/L
Uncertainty of Assigned Value	6.56 mg/L
SDPA	6.700 mg/L
Expanded SDPA	9.377 mg/L
Satisfactory Range	14.75 to 52.25 mg/L
Satisfactory z' scores	81.8%
Questionable z' scores	9.1%
Unsatisfactory z' scores	9.1%

z' score Histogram



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
Distillation	11	1	100	33.50	16.595	10.00 to 46.00	81.8
All	11	1	100	33.50	16.595	10.00 to 46.00	81.8

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink

Analyte: Acesulfame K

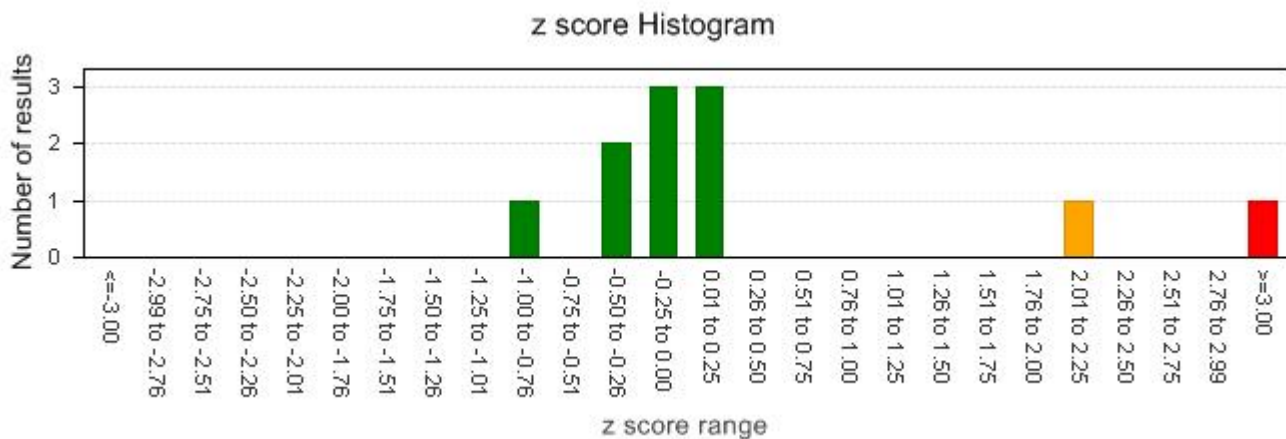
Lab ID	Method	Result (mg/L)	z score
BV6008	HPLC	38.1	-0.32
BV6021	HPLC	50.0	2.06
BV6571	HPLC	35.5	-0.84
BV6720	HPLC	40.4	0.14
BV6738	HPLC	39.3	-0.08
BV6776	HPLC	39.7	0.00
BV6886	HPLC	54.7	3.00
BV7111	HPLC	40.1	0.08
BV7280	HPLC	40.0	0.06
BV7455	HPLC	39.7	0.00
BV7589	HPLC	38.0	-0.34

Data Statistics

	Value
Number of Results	11
Number of Excluded Results	0
Mean	41.4 mg/L
Median	39.7 mg/L
Standard Deviation	5.68 mg/L
Robust Standard Deviation	1.04 mg/L
Result Range	35.5 to 54.7 mg/L

Performance Statistics

	Value
Assigned Value	39.7 mg/L
Uncertainty of Assigned Value	0.4 mg/L
SDPA	5 mg/L
Satisfactory Range	29.7 to 49.7 mg/L
Satisfactory z scores	81.8%
Questionable z scores	9.1%
Unsatisfactory z scores	9.1%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	11	0	100	39.7	1.04	35.5 to 54.7	81.8
All	11	0	100	39.7	1.04	35.5 to 54.7	81.8

Comments

Sample: 517 - Dilutable/Ready to drink

Analyte: Aspartame

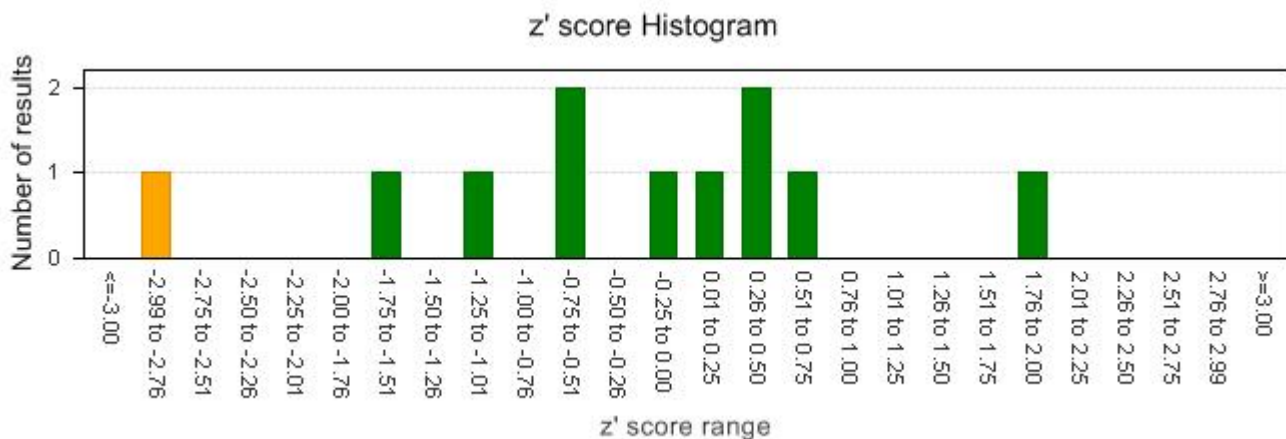
Lab ID	Method	Result (mg/L)	z' score*
BV6008	HPLC	428.5	1.99
BV6021	HPLC	395.0	0.38
BV6571	HPLC	401.2	0.68
BV6720	HPLC	387.0	0.00
BV6738	HPLC	325.8	-2.93
BV6776	HPLC	351.5	-1.70
BV6886	HPLC	364.3	-1.09
BV7111	HPLC	396.9	0.47
BV7280	HPLC	372.6	-0.69
BV7455	HPLC	390.0	0.14
BV7589	HPLC	376.0	-0.53

Data Statistics

	Value
Number of Results	11
Number of Excluded Results	0
Mean	380.8 mg/L
Median	387.0 mg/L
Standard Deviation	27.43 mg/L
Robust Standard Deviation	21.06 mg/L
Result Range	325.8 to 428.5 mg/L

Performance Statistics

	Value
Assigned Value	387.0 mg/L
Uncertainty of Assigned Value	7.9 mg/L
SDPA	19.35 mg/L
Expanded SDPA	20.90 mg/L
Satisfactory Range	345.2 to 428.8 mg/L
Satisfactory z' scores	90.9%
Questionable z' scores	9.1%
Unsatisfactory z' scores	0.0%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	11	0	100	387.0	21.06	325.8 to 428.5	90.9
All	11	0	100	387.0	21.06	325.8 to 428.5	90.9

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink**Analyte: Cyclamic acid (as free acid)**

Lab ID	Method	Result (mg/L)	z' score*
BV6720	HPLC	108.0	0.66
BV7589	HPLC	95.0	-0.66

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	2
Number of Excluded Results	0
Mean	101.5 mg/L
Median	101.5 mg/L
Standard Deviation	9.19 mg/L
Robust Standard Deviation	9.64 mg/L
Result Range	95.0 to 108.0 mg/L

Performance Statistics

	Value
Assigned Value	101.5 mg/L
Uncertainty of Assigned Value	8.5 mg/L
SDPA	5.08 mg/L
Expanded SDPA	9.90 mg/L
Satisfactory Range	81.7 to 121.3 mg/L
Satisfactory z' scores	100.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	2	0	100	101.5	9.64	95.0 to 108.0	100.0
All	2	0	100	101.5	9.64	95.0 to 108.0	100.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink**Analyte: Fructose**

Lab ID	Method	Result (g/L)	z' score*
BV6720	HPLC	3.4	0.51
BV6776	HPLC	3.3	0.00
BV7011	Volumetric	2.6	-3.55
BV7455	HPLC	3.0	-1.52
BV7464	Enzymatic	1.5	-9.13
BV7589	Enzymatic	3.3	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	6
Number of Excluded Results	1
Mean	3.1 g/L
Median	3.3 g/L
Standard Deviation	0.33 g/L
Robust Standard Deviation	0.15 g/L
Result Range	2.6 to 3.4 g/L

Performance Statistics

	Value
Assigned Value	3.3 g/L
Uncertainty of Assigned Value	0.1 g/L
SDPA	0.17 g/L
Expanded SDPA	0.20 g/L
Satisfactory Range	2.9 to 3.7 g/L
Satisfactory z' scores	66.7%
Questionable z' scores	0.0%
Unsatisfactory z' scores	33.3%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				g/L			%
HPLC	3	0	50	3.3	0.15	3.0 to 3.4	100.0
Enzymatic	2	1	33.33	3.3	0.00	3.3 to 3.3	50.0
Volumetric	1	0	16.67	2.6	0.00	2.6 to 2.6	0.0
All	6	1	100	3.3	0.15	2.6 to 3.4	66.7

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink**Analyte: Glucose**

Lab ID	Method	Result (g/L)	z' score*
BV6720	HPLC	2.3	0.00
BV6776	HPLC	2.3	0.00
BV7011	Volumetric	2.6	1.92
BV7455	HPLC	2.5	1.28
BV7464	Enzymatic	4.9	16.64
BV7589	Enzymatic	2.3	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	6
Number of Excluded Results	1
Mean	2.4 g/L
Median	2.3 g/L
Standard Deviation	0.14 g/L
Robust Standard Deviation	0.13 g/L
Result Range	2.3 to 2.6 g/L

Performance Statistics

	Value
Assigned Value	2.3 g/L
Uncertainty of Assigned Value	0.1 g/L
SDPA	0.12 g/L
Expanded SDPA	0.16 g/L
Satisfactory Range	2.0 to 2.6 g/L
Satisfactory z' scores	83.3%
Questionable z' scores	0.0%
Unsatisfactory z' scores	16.7%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				g/L			%
HPLC	3	0	50	2.3	0.08	2.3 to 2.5	100.0
Enzymatic	2	1	33.33	2.3	0.00	2.3 to 2.3	50.0
Volumetric	1	0	16.67	2.6	0.00	2.6 to 2.6	100.0
All	6	1	100	2.3	0.13	2.3 to 2.6	83.3

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink

Analyte: Saccharin (as free imide)

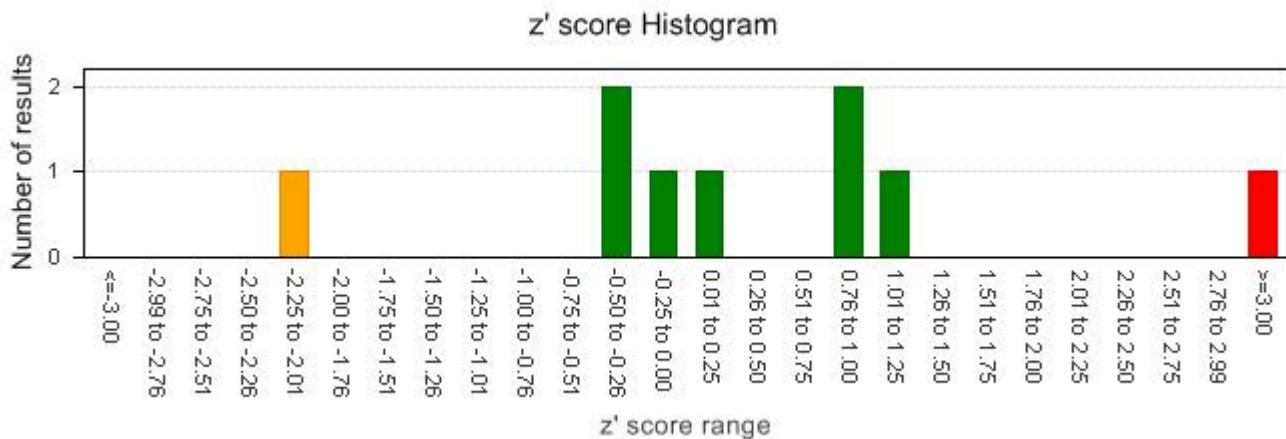
Lab ID	Method	Result (mg/L)	z' score*
BV6008	HPLC	24.0	1.02
BV6021	HPLC	21.0	0.15
BV6571	HPLC	12.8	-2.25
BV6738	HPLC	23.7	0.93
BV6776	HPLC	18.8	-0.50
BV6886	HPLC	53.1	9.52
BV7111	HPLC	19.4	-0.32
BV7455	HPLC	23.4	0.85
BV7589	HPLC	20.0	-0.15

Data Statistics

	Value
Number of Results	9
Number of Excluded Results	1
Mean	20.4 mg/L
Median	20.5 mg/L
Standard Deviation	3.68 mg/L
Robust Standard Deviation	3.41 mg/L
Result Range	12.8 to 24.0 mg/L

Performance Statistics

	Value
Assigned Value	20.5 mg/L
Uncertainty of Assigned Value	1.5 mg/L
SDPA	3.08 mg/L
Expanded SDPA	3.43 mg/L
Satisfactory Range	13.6 to 27.4 mg/L
Satisfactory z' scores	77.8%
Questionable z' scores	11.1%
Unsatisfactory z' scores	11.1%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
HPLC	9	1	100	20.5	3.41	12.8 to 24.0	77.8
All	9	1	100	20.5	3.41	12.8 to 24.0	77.8

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 517 - Dilutable/Ready to drink**Analyte: Sucrose**

Lab ID	Method	Result (g/L)	z score
BV6720	HPLC	1.3	0.00
BV6776	HPLC	1.2	-1.43
BV7011	Volumetric	0.5	-11.43
BV7455	HPLC	1.4	1.43
BV7464	Enzymatic	4.4	44.29
BV7589	Enzymatic	1.3	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	6
Number of Excluded Results	2
Mean	1.3 g/L
Median	1.3 g/L
Standard Deviation	0.08 g/L
Robust Standard Deviation	0.07 g/L
Result Range	1.2 to 1.4 g/L

Performance Statistics

	Value
Assigned Value	1.3 g/L
Uncertainty of Assigned Value	0.0 g/L
SDPA	0.07 g/L
Satisfactory Range	1.2 to 1.4 g/L
Satisfactory z scores	66.7%
Questionable z scores	0.0%
Unsatisfactory z scores	33.3%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				g/L			%
HPLC	3	0	50	1.3	0.15	1.2 to 1.4	100.0
Enzymatic	2	1	33.33	1.3	0.00	1.3 to 1.3	50.0
Volumetric	1	1	16.67	N/A	N/A	to 0.5	0.0
All	6	2	100	1.3	0.07	1.2 to 1.4	66.7

Comments

Sample: 519 - Heavy Metals and Minerals**Analyte: Antimony**

Lab ID	Method	Result (µg/L)	z score
BV6506	ICP-MS	10.70	
BV6569	ICP-MS	<50.00	
BV6914	ICP-MS	98.00	
BV7132	ICP-OES	<40.00	
BV7554	ICP-MS	17.00	
BV7659	ICP-MS	<0.50	
BV7670	Other	9.44	

Data Statistics

	Value
Number of Results	7
Number of Excluded Results	0
Mean	N/A
Median	N/A
Standard Deviation	N/A
Robust Standard Deviation	N/A
Result Range	9.44 to 98.00 µg/L

Comments

The data for Antimony is varied and the uncertainty of the assigned value is too large for an acceptable consensus assigned value to be calculated. As a result performance scores have not been calculated for this measurand and the data is provided for information only.

Sample: 519 - Heavy Metals and Minerals

Analyte: Cadmium

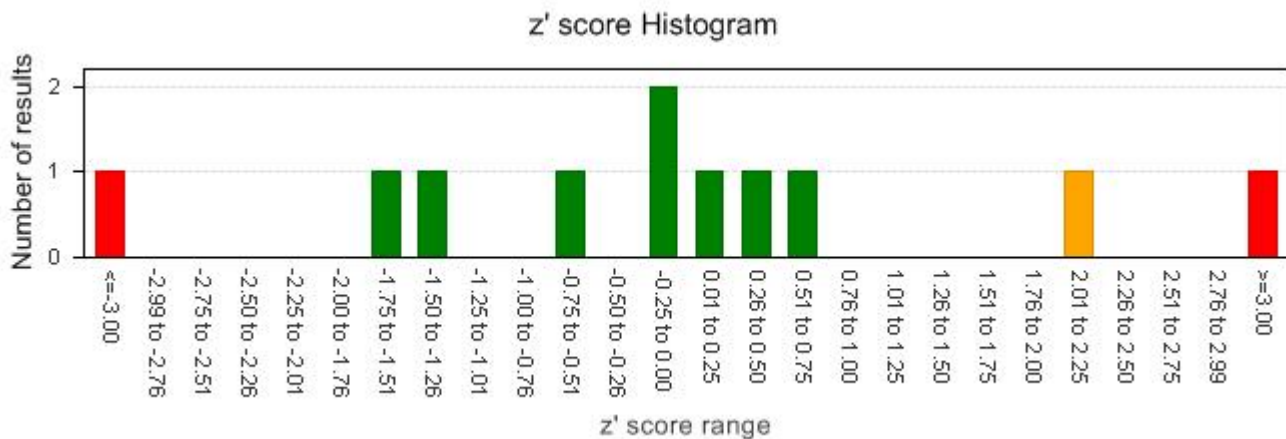
Lab ID	Method	Result (µg/L)	z' score*
BV6506	ICP-MS	11.30	0.34
BV6682	GFAAS	10.70	0.00
BV6908	ICP-MS	14.46	2.15
BV6914	ICP-MS	109.00	56.14
BV7119	ICP-MS	11.83	0.65
BV7127	AAS	0.01	-6.11
BV7132	ICP-OES	<20.00	
BV7532	AAS	8.00	-1.54
BV7554	ICP-MS	11.00	0.17
BV7659	ICP-MS	8.29	-1.38
BV7661	GFAAS	9.50	-0.69
BV7670	Other	10.62	-0.05

Data Statistics

	Value
Number of Results	12
Number of Excluded Results	3
Mean	10.63 µg/L
Median	10.70 µg/L
Standard Deviation	1.948 µg/L
Robust Standard Deviation	1.676 µg/L
Result Range	8.00 to 14.46 µg/L

Performance Statistics

	Value
Assigned Value	10.70 µg/L
Uncertainty of Assigned Value	0.70 µg/L
SDPA	1.605 µg/L
Expanded SDPA	1.751 µg/L
Satisfactory Range	7.20 to 14.20 µg/L
Satisfactory z' scores	72.7%
Questionable z' scores	9.1%
Unsatisfactory z' scores	18.2%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				µg/L			%
AAS	2	1	16.67	8.00	0.000	8.00 to 8.00	50.0
GFAAS	2	0	16.67	10.10	0.890	9.50 to 10.70	100.0
ICP-MS	6	1	50	11.30	0.786	8.29 to 14.46	66.7
ICP-OES	1	1	8.33	N/A	N/A	to	0.0
Other	1	0	8.33	10.62	0.000	10.62 to 10.62	100.0
All	12	3	100	10.70	1.676	8.00 to 14.46	72.7

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to

Sample: 519 - Heavy Metals and Minerals

Analyte: Cadmium

account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 519 - Heavy Metals and Minerals

Analyte: Iron

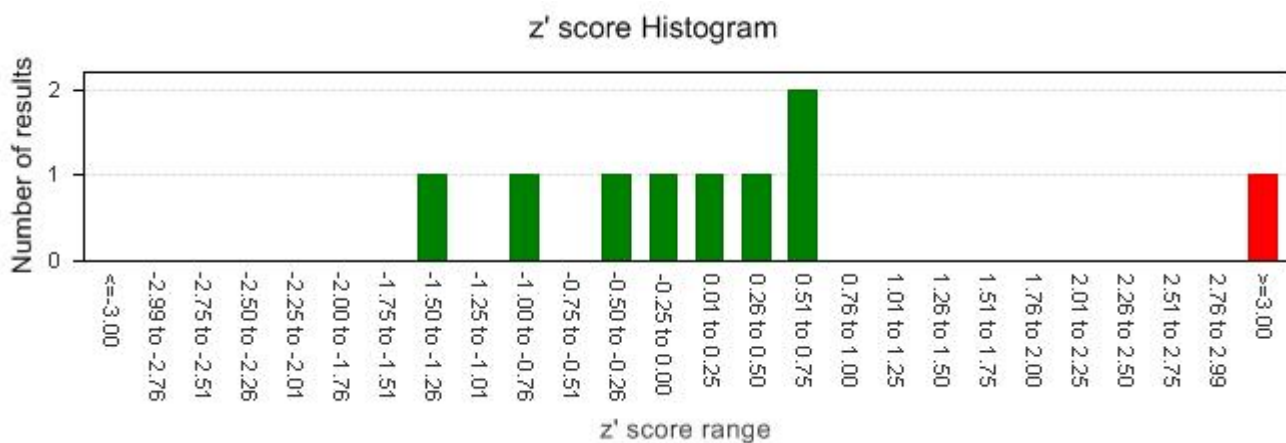
Lab ID	Method	Result (mg/L)	z' score*
BV6506	ICP-OES	0.91	0.07
BV6682	AAS	0.69	-1.47
BV6914	ICP-OES	<10.00	
BV7127	ICP-OES	11.68	75.37
BV7132	ICP-OES	0.78	-0.84
BV7532	AAS	0.85	-0.35
BV7554	ICP-MS	0.98	0.56
BV7659	ICP-MS	0.95	0.35
BV7661	ICP-MS	1.00	0.70
BV7670	Other	0.88	-0.14

Data Statistics

	Value
Number of Results	10
Number of Excluded Results	2
Mean	0.88 mg/L
Median	0.90 mg/L
Standard Deviation	0.105 mg/L
Robust Standard Deviation	0.104 mg/L
Result Range	0.69 to 1.00 mg/L

Performance Statistics

	Value
Assigned Value	0.90 mg/L
Uncertainty of Assigned Value	0.05 mg/L
SDPA	0.134 mg/L
Expanded SDPA	0.143 mg/L
Satisfactory Range	0.61 to 1.19 mg/L
Satisfactory z' scores	88.9%
Questionable z' scores	0.0%
Unsatisfactory z' scores	11.1%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	2	0	20	0.77	0.119	0.69 to 0.85	100.0
ICP-MS	3	0	30	0.98	0.030	0.95 to 1.00	100.0
ICP-OES	4	2	40	0.85	0.096	0.78 to 0.91	66.7
Other	1	0	10	0.88	0.000	0.88 to 0.88	100.0
All	10	2	100	0.90	0.104	0.69 to 1.00	88.9

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 519 - Heavy Metals and Minerals**Analyte: Lead**

Lab ID	Method	Result (µg/L)	z score
BV6506	ICP-MS	8.88	
BV6682	GFAAS	11.30	
BV6908	ICP-MS	10.50	
BV6914	ICP-MS	87.00	
BV7119	ICP-MS	12.48	
BV7127	AAS	0.02	
BV7132	ICP-OES	<40.00	
BV7447	ICP-MS	2.08	
BV7532	AAS	3.50	
BV7554	ICP-MS	9.30	
BV7659	ICP-MS	<12.00	
BV7670	Other	9.11	

Data Statistics

	Value
Number of Results	12
Number of Excluded Results	0
Mean	N/A
Median	N/A
Standard Deviation	N/A
Robust Standard Deviation	N/A
Result Range	0.02 to 87.00 µg/L

Comments

The data for Lead is varied and the uncertainty of the assigned value is too large compared to the spike value of 2.35 µg/L for an acceptable consensus assigned value to be calculated. As a result performance scores have not been calculated for this measurand and the data is provided for information only.

Sample: 519 - Heavy Metals and Minerals

Analyte: Tin

Lab ID	Method	Result (mg/L)	z score
BV6452	AAS	51.40	0.05
BV6452	ICP-MS	51.00	0.00
BV6506	ICP-MS	51.40	0.05
BV6569	ICP-MS	45.00	-0.78
BV6682	GFAAS	40.40	-1.39
BV6914	ICP-MS	515.70	60.75
BV7119	ICP-OES	46.85	-0.54
BV7132	ICP-OES	51.34	0.04
BV7554	ICP-MS	50.00	-0.13
BV7659	ICP-MS	53.01	0.26
BV7661	ICP-OES	49.36	-0.21
BV7670	Other	51.84	0.11

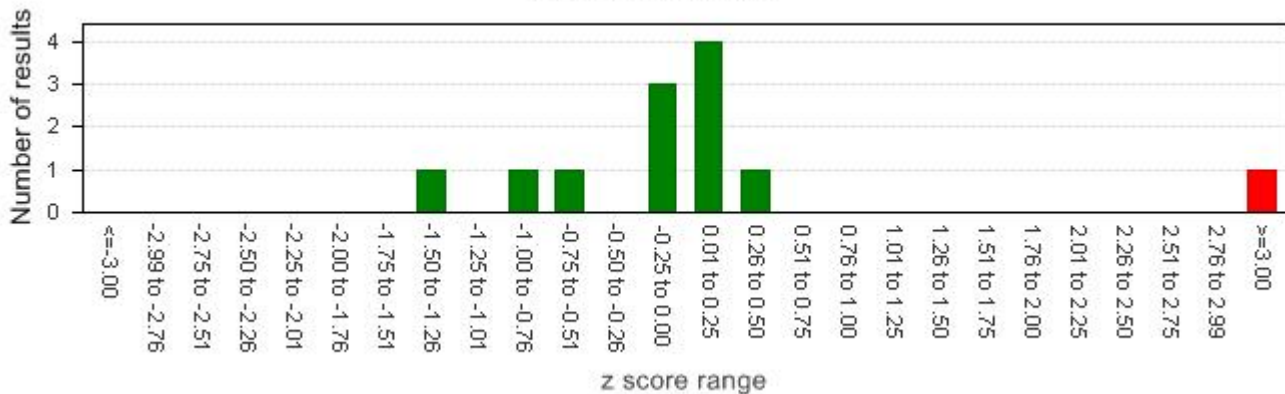
Data Statistics

	Value
Number of Results	12
Number of Excluded Results	1
Mean	49.24 mg/L
Median	51.00 mg/L
Standard Deviation	3.745 mg/L
Robust Standard Deviation	1.483 mg/L
Result Range	40.40 to 53.01 mg/L

Performance Statistics

	Value
Assigned Value	51.00 mg/L
Uncertainty of Assigned Value	0.56 mg/L
SDPA	7.650 mg/L
Satisfactory Range	35.70 to 66.30 mg/L
Satisfactory z scores	91.7%
Questionable z scores	0.0%
Unsatisfactory z scores	8.3%

z score Histogram



Sample: 519 - Heavy Metals and Minerals**Analyte: Tin****Methodology Summary**

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	1	0	8.33	51.40	0.000	51.40 to 51.40	100.0
GFAAS	1	0	8.33	40.40	0.000	40.40 to 40.40	100.0
ICP-MS	6	1	50	51.00	1.483	45.00 to 53.01	83.3
ICP-OES	3	0	25	49.36	2.936	46.85 to 51.34	100.0
Other	1	0	8.33	51.84	0.000	51.84 to 51.84	100.0
All	12	1	100	51.00	1.483	40.40 to 53.01	91.7

Comments

Sample: 519 - Heavy Metals and Minerals

Analyte: Zinc

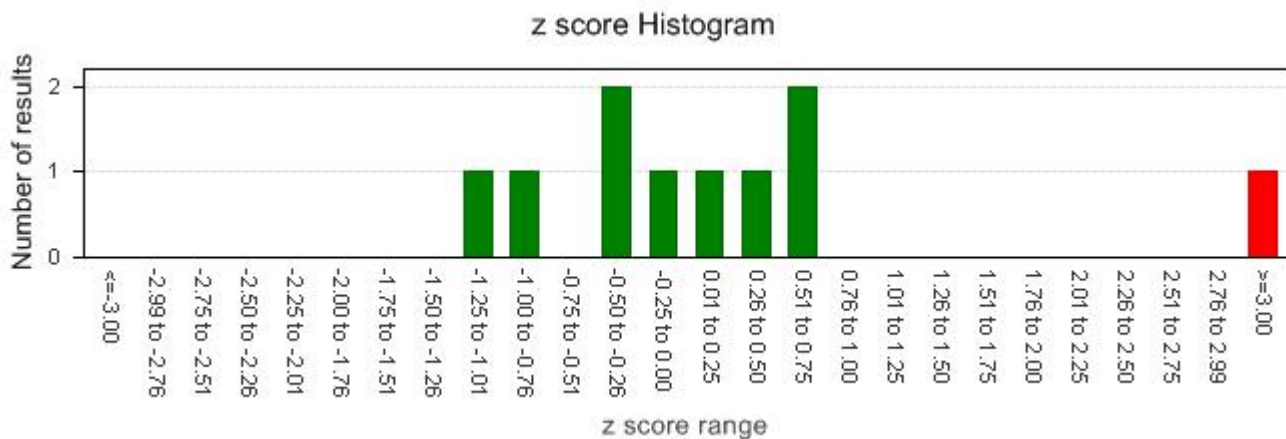
Lab ID	Method	Result (mg/L)	z score
BV6506	ICP-OES	3.19	0.54
BV6682	AAS	2.77	-0.41
BV7119	ICP-OES	2.60	-0.79
BV7127	ICP-OES	10.98	18.13
BV7132	ICP-OES	2.78	-0.38
BV7532	AAS	3.00	0.11
BV7554	ICP-MS	2.95	0.00
BV7659	ICP-MS	2.50	-1.02
BV7661	ICP-MS	3.26	0.70
BV7670	Other	3.08	0.29

Data Statistics

	Value
Number of Results	10
Number of Excluded Results	1
Mean	2.90 mg/L
Median	2.95 mg/L
Standard Deviation	0.260 mg/L
Robust Standard Deviation	0.267 mg/L
Result Range	2.50 to 3.26 mg/L

Performance Statistics

	Value
Assigned Value	2.95 mg/L
Uncertainty of Assigned Value	0.11 mg/L
SDPA	0.443 mg/L
Satisfactory Range	2.06 to 3.84 mg/L
Satisfactory z scores	90.0%
Questionable z scores	0.0%
Unsatisfactory z scores	10.0%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	2	0	20	2.89	0.171	2.77 to 3.00	100.0
ICP-MS	3	0	30	2.95	0.460	2.50 to 3.26	100.0
ICP-OES	4	1	40	2.78	0.267	2.60 to 3.19	75.0
Other	1	0	10	3.08	0.000	3.08 to 3.08	100.0
All	10	1	100	2.95	0.267	2.50 to 3.26	90.0

Comments

Sample: 519 - Heavy Metals and Minerals

Analyte: Calcium

Lab ID	Method	Result (mg/L)	z' score*
BV6506	ICP-OES	14.30	-0.17
BV6682	AAS	17.40	1.81
BV6755	IC	12.00	-1.63
BV6914	ICP-OES	14.60	0.03
BV7119	ICP-OES	12.14	-1.54
BV7127	ICP-OES	50.80	23.07
BV7132	ICP-OES	6.86	-4.90
BV7532	AAS	13.60	-0.61
BV7554	ICP-OES	14.90	0.22
BV7659	ICP-MS	16.08	0.97
BV7661	ICP-OES	14.56	0.00
BV7670	Other	26.00	7.28

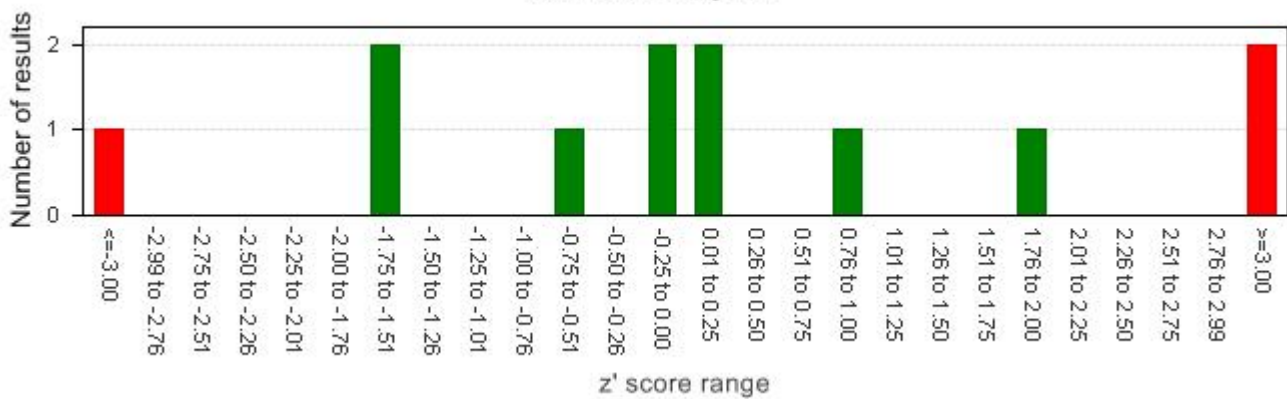
Data Statistics

	Value
Number of Results	12
Number of Excluded Results	3
Mean	14.40 mg/L
Median	14.56 mg/L
Standard Deviation	1.720 mg/L
Robust Standard Deviation	1.424 mg/L
Result Range	12.00 to 17.40 mg/L

Performance Statistics

	Value
Assigned Value	14.56 mg/L
Uncertainty of Assigned Value	0.59 mg/L
SDPA	1.456 mg/L
Expanded SDPA	1.571 mg/L
Satisfactory Range	11.42 to 17.70 mg/L
Satisfactory z' scores	75.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	25.0%

z' score Histogram



Sample: 519 - Heavy Metals and Minerals**Analyte: Calcium****Methodology Summary**

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	2	0	16.67	15.50	2.818	13.60 to 17.40	100.0
IC	1	0	8.33	12.00	0.000	12.00 to 12.00	100.0
ICP-MS	1	0	8.33	16.08	0.000	16.08 to 16.08	100.0
ICP-OES	7	2	58.33	14.56	0.386	12.14 to 14.90	71.4
Other	1	1	8.33	N/A	N/A	26.00 to	0.0
All	12	3	100	14.56	1.424	12.00 to 17.40	75.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 519 - Heavy Metals and Minerals

Analyte: Phosphorus

Lab ID	Method	Result (mg/L)	z' score*
BV6506	ICP-OES	262.00	0.96
BV6908	ICP-MS	237.30	0.00
BV6914	ICP-OES	221.00	-0.63
BV7127	ICP-OES	4,367.26	160.21
BV7132	ICP-OES	245.09	0.30
BV7532	AAS	248.00	0.42
BV7554	ICP-OES	221.00	-0.63
BV7659	ICP-MS	211.99	-0.98
BV7661	ICP-OES	212.00	-0.98
BV7670	Other	239.74	0.09

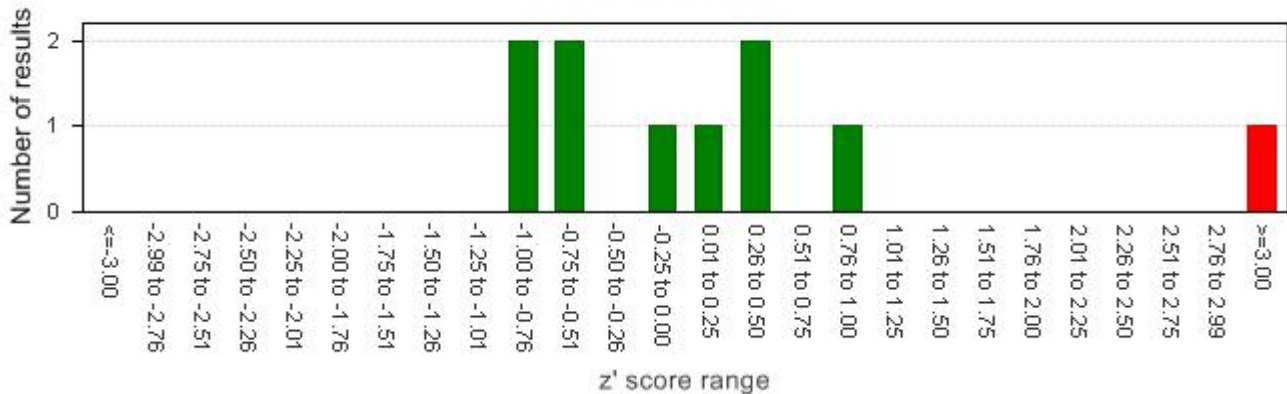
Data Statistics

	Value
Number of Results	10
Number of Excluded Results	1
Mean	233.12 mg/L
Median	237.30 mg/L
Standard Deviation	17.487 mg/L
Robust Standard Deviation	24.173 mg/L
Result Range	211.99 to 262.00 mg/L

Performance Statistics

	Value
Assigned Value	237.30 mg/L
Uncertainty of Assigned Value	10.07 mg/L
SDPA	23.730 mg/L
Expanded SDPA	25.778 mg/L
Satisfactory Range	185.74 to 288.86 mg/L
Satisfactory z' scores	90.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	10.0%

z' score Histogram



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	1	0	10	248.00	0.000	248.00 to 248.00	100.0
ICP-MS	2	0	20	224.65	18.767	211.99 to 237.30	100.0
ICP-OES	6	1	60	221.00	13.347	212.00 to 262.00	83.3
Other	1	0	10	239.74	0.000	239.74 to 239.74	100.0
All	10	1	100	237.30	24.173	211.99 to 262.00	90.0

Comments

Sample: 519 - Heavy Metals and Minerals

Analyte: Phosphorus

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 519 - Heavy Metals and Minerals

Analyte: Potassium

Lab ID	Method	Result (mg/L)	z score
BV6506	ICP-OES	312.00	-0.05
BV6682	AAS	304.00	-0.30
BV6755	IC	318.00	0.15
BV6908	ICP-MS	320.20	0.22
BV6914	ICP-OES	334.00	0.66
BV7119	ICP-OES	281.97	-1.00
BV7127	ICP-OES	324.15	0.34
BV7132	ICP-OES	225.31	-2.81
BV7532	AAS	312.00	-0.05
BV7554	ICP-OES	307.00	-0.21
BV7640	AAS	344.00	0.97
BV7659	ICP-MS	320.71	0.23
BV7661	AAS	288.00	-0.81
BV7670	Other	314.90	0.05

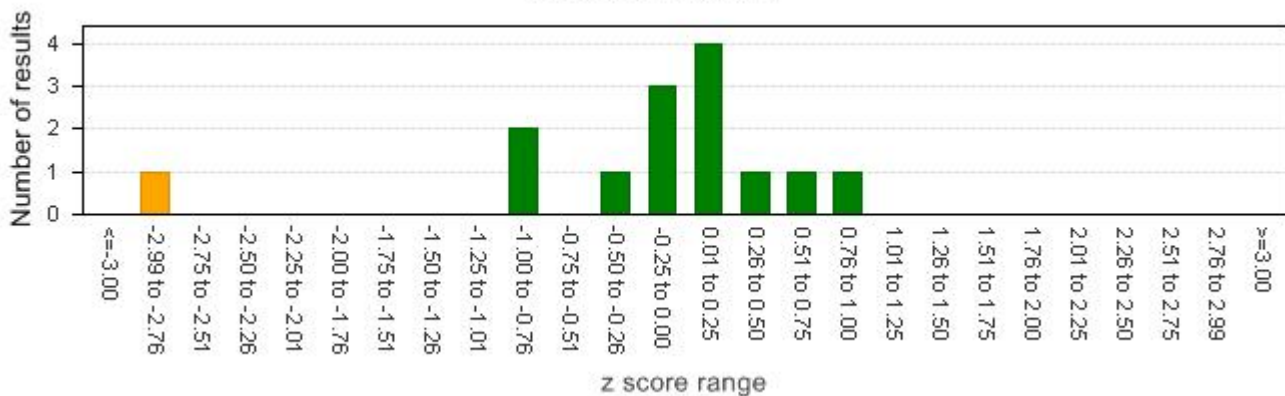
Data Statistics

	Value
Number of Results	14
Number of Excluded Results	0
Mean	307.59 mg/L
Median	313.45 mg/L
Standard Deviation	28.626 mg/L
Robust Standard Deviation	12.390 mg/L
Result Range	225.31 to 344.00 mg/L

Performance Statistics

	Value
Assigned Value	313.45 mg/L
Uncertainty of Assigned Value	4.14 mg/L
SDPA	31.345 mg/L
Satisfactory Range	250.76 to 376.14 mg/L
Satisfactory z scores	92.9%
Questionable z scores	7.1%
Unsatisfactory z scores	0.0%

z score Histogram



Sample: 519 - Heavy Metals and Minerals**Analyte: Potassium****Methodology Summary**

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	4	0	28.57	308.00	17.796	288.00 to 344.00	100.0
IC	1	0	7.14	318.00	0.000	318.00 to 318.00	100.0
ICP-MS	2	0	14.29	320.46	0.378	320.20 to 320.71	100.0
ICP-OES	6	0	42.86	309.50	29.030	225.31 to 334.00	83.3
Other	1	0	7.14	314.90	0.000	314.90 to 314.90	100.0
All	14	0	100	313.45	12.390	225.31 to 344.00	92.9

Comments

Sample: 519 - Heavy Metals and Minerals

Analyte: Magnesium

Lab ID	Method	Result (mg/L)	z score
BV6506	ICP-OES	62.90	-0.02
BV6682	AAS	58.90	-0.65
BV6755	IC	74.00	1.75
BV6908	ICP-MS	63.10	0.02
BV6914	ICP-OES	64.30	0.21
BV7119	ICP-OES	55.47	-1.20
BV7127	ICP-OES	71.36	1.33
BV7132	ICP-OES	62.75	-0.04
BV7532	AAS	62.00	-0.16
BV7554	ICP-OES	63.00	0.00
BV7659	ICP-MS	65.22	0.35
BV7661	ICP-OES	55.63	-1.17
BV7670	Other	66.00	0.48

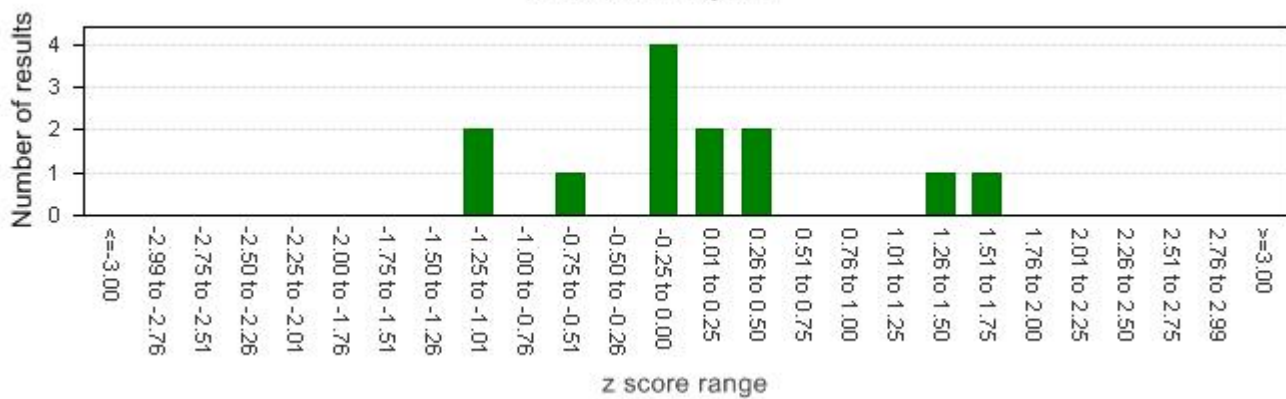
Data Statistics

	Value
Number of Results	13
Number of Excluded Results	0
Mean	63.43 mg/L
Median	63.00 mg/L
Standard Deviation	5.268 mg/L
Robust Standard Deviation	3.292 mg/L
Result Range	55.47 to 74.00 mg/L

Performance Statistics

	Value
Assigned Value	63.00 mg/L
Uncertainty of Assigned Value	1.14 mg/L
SDPA	6.300 mg/L
Satisfactory Range	50.40 to 75.60 mg/L
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%

z score Histogram



Sample: 519 - Heavy Metals and Minerals**Analyte: Magnesium****Methodology Summary**

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	2	0	15.38	60.45	2.299	58.90 to 62.00	100.0
IC	1	0	7.69	74.00	0.000	74.00 to 74.00	100.0
ICP-MS	2	0	15.38	64.16	1.572	63.10 to 65.22	100.0
ICP-OES	7	0	53.85	62.90	2.076	55.47 to 71.36	100.0
Other	1	0	7.69	66.00	0.000	66.00 to 66.00	100.0
All	13	0	100	63.00	3.292	55.47 to 74.00	100.0

Comments

Sample: 519 - Heavy Metals and Minerals

Analyte: Sodium

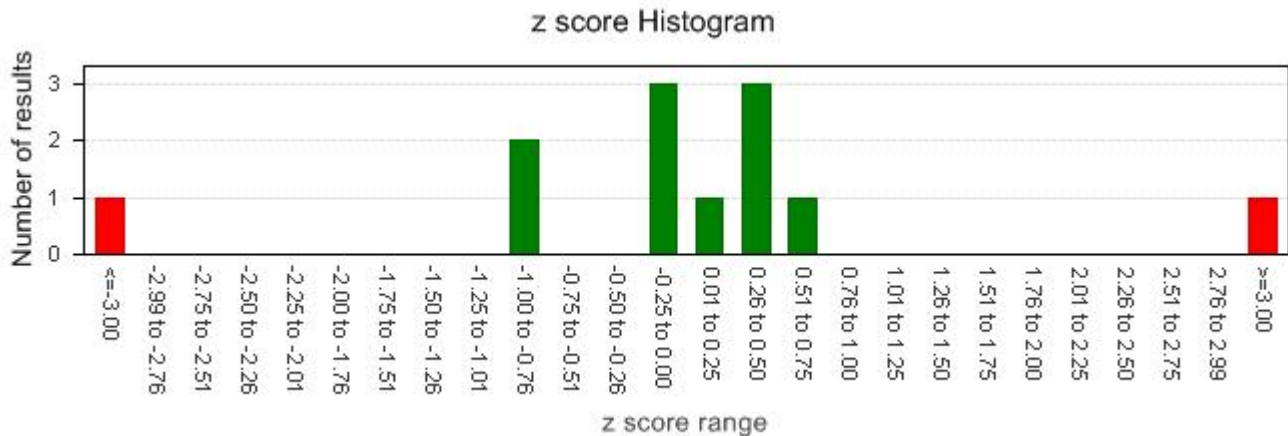
Lab ID	Method	Result (mg/L)	z score
BV6506	ICP-OES	102.00	-0.10
BV6682	AAS	93.80	-0.89
BV6755	IC	95.00	-0.78
BV6908	ICP-MS	105.70	0.26
BV6914	ICP-OES	109.00	0.58
BV7132	ICP-OES	69.58	-3.24
BV7532	AAS	105.00	0.19
BV7554	ICP-OES	103.00	0.00
BV7640	AAS	173.00	6.80
BV7659	ICP-MS	108.16	0.50
BV7661	ICP-MS	102.00	-0.10
BV7670	Other	106.17	0.31

Data Statistics

	Value
Number of Results	12
Number of Excluded Results	1
Mean	99.95 mg/L
Median	103.00 mg/L
Standard Deviation	11.176 mg/L
Robust Standard Deviation	4.701 mg/L
Result Range	69.58 to 109.00 mg/L

Performance Statistics

	Value
Assigned Value	103.00 mg/L
Uncertainty of Assigned Value	1.77 mg/L
SDPA	10.300 mg/L
Satisfactory Range	82.40 to 123.60 mg/L
Satisfactory z scores	83.3%
Questionable z scores	0.0%
Unsatisfactory z scores	16.7%



Sample: 519 - Heavy Metals and Minerals**Analyte: Sodium****Methodology Summary**

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	3	1	25	99.40	8.305	93.80 to 105.00	66.7
IC	1	0	8.33	95.00	0.000	95.00 to 95.00	100.0
ICP-MS	3	0	25	105.70	3.648	102.00 to 108.16	100.0
ICP-OES	4	0	33.33	102.50	5.191	69.58 to 109.00	75.0
Other	1	0	8.33	106.17	0.000	106.17 to 106.17	100.0
All	12	1	100	103.00	4.701	69.58 to 109.00	83.3

Comments

Sample: 524 - Carbonated water#

Analyte: Carbon dioxide#

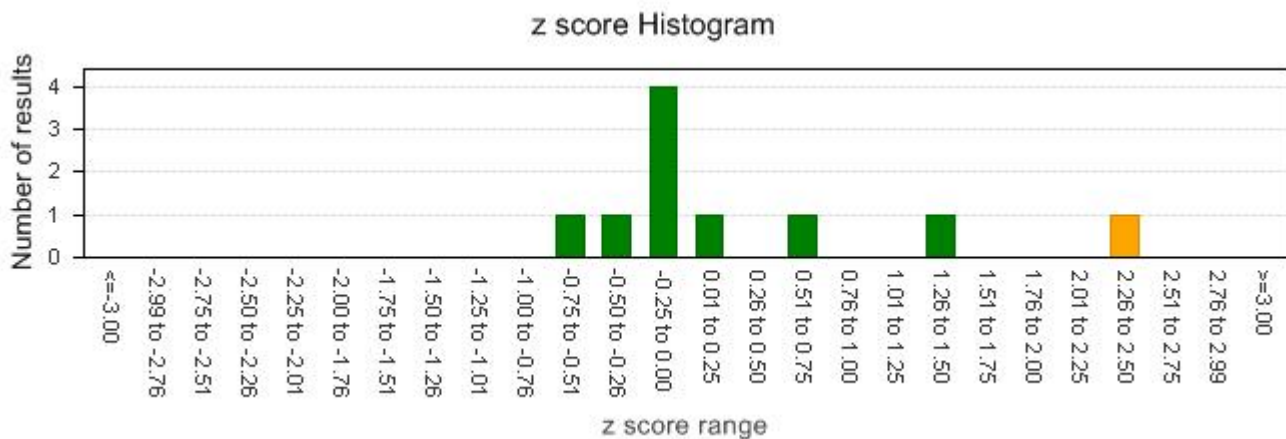
Lab ID	Method	Result (vol/vol @ 20°C)	z score
BV7563	Carbo QC	2.03	0.75
BV7564	Other	1.88	0.00
BV7565	Carbo QC	1.91	0.15
BV7566	Other	1.82	-0.30
BV7567	Carbo QC	1.88	0.00
BV7568	Carbo QC	1.88	0.00
BV7569	Other	2.35	2.35
BV7570	Other	2.16	1.40
BV7574	Carbo QC	1.77	-0.55
BV7576	Carbo QC	1.85	-0.15

Data Statistics

	Value
Number of Results	10
Number of Excluded Results	0
Mean	1.95 vol/vol @ 20°C
Median	1.88 vol/vol @ 20°C
Standard Deviation	0.178 vol/vol @ 20°C
Robust Standard Deviation	0.067 vol/vol @ 20°C
Result Range	1.77 to 2.35 vol/vol @ 20°C

Performance Statistics

	Value
Assigned Value	1.88 vol/vol @ 20°C
Uncertainty of Assigned Value	0.03 vol/vol @ 20°C
SDPA	0.2 vol/vol @ 20°C
Satisfactory Range	1.48 to 2.28 vol/vol @ 20°C
Satisfactory z scores	90.0%
Questionable z scores	10.0%
Unsatisfactory z scores	0.0%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				vol/vol @ 20°C			%
Carbo QC	6	0	60	1.88	0.044	1.77 to 2.03	100.0
Other	4	0	40	2.02	0.252	1.82 to 2.35	75.0
All	10	0	100	1.88	0.067	1.77 to 2.35	90.0

Comments

This is not included in our UKAS scope of accreditation

Sample: 524 - Carbonated water#

Analyte: Conductivity (20°)#

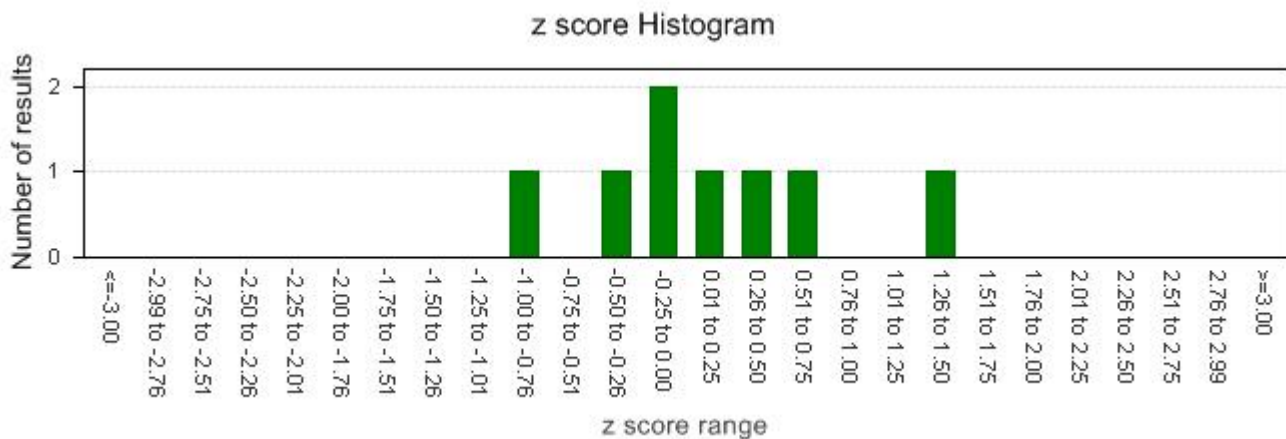
Lab ID	Method	Result (µS/cm)	z score
BV7563	Conductivity Meter	326.00	0.70
BV7564	Conductivity Meter	309.30	-0.02
BV7565	Conductivity Meter	305.20	-0.19
BV7566	Conductivity Meter	310.00	0.02
BV7567	Conductivity Meter	288.00	-0.93
BV7570	Conductivity Meter	317.96	0.36
BV7574	Conductivity Meter	303.00	-0.29
BV7576	Conductivity Meter	339.00	1.26

Data Statistics

	Value
Number of Results	8
Number of Excluded Results	0
Mean	312.31 µS/cm
Median	309.65 µS/cm
Standard Deviation	15.466 µS/cm
Robust Standard Deviation	11.093 µS/cm
Result Range	288.00 to 339.00 µS/cm

Performance Statistics

	Value
Assigned Value	309.65 µS/cm
Uncertainty of Assigned Value	4.90 µS/cm
SDPA	23.224 µS/cm
Satisfactory Range	263.20 to 356.10 µS/cm
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%



Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				µS/cm			%
Conductivity Meter	8	0	100	309.65	11.093	288.00 to 339.00	100.0
All	8	0	100	309.65	11.093	288.00 to 339.00	100.0

Comments

Sample: 524 - Carbonated water#**Analyte: pH#**

Lab ID	Method	Result	z score
BV7563	pH Meter	5.19	1.30
BV7564	pH Meter	5.06	0.00
BV7565	pH Meter	5.13	0.70
BV7566	pH Meter	5.02	-0.40
BV7567	pH Meter	5.04	-0.20
BV7569	pH Meter	6.22	11.60
BV7570	pH Meter	5.31	2.50
BV7574	pH Meter	5.02	-0.40
BV7576	pH Meter	6.17	11.10

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	9
Number of Excluded Results	2
Mean	5.11
Median	5.06
Standard Deviation	0.108
Robust Standard Deviation	0.059
Result Range	5.02 to 5.31

Performance Statistics

	Value
Assigned Value	5.06
Uncertainty of Assigned Value	0.03
SDPA	0.1
Satisfactory Range	4.86 to 5.26
Satisfactory z scores	66.7%
Questionable z scores	11.1%
Unsatisfactory z scores	22.2%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
							%
pH Meter	9	2	100	5.06	0.059	5.02 to 5.31	66.7
All	9	2	100	5.06	0.059	5.02 to 5.31	66.7

Comments

Sample: 524 - Carbonated water#**Analyte: Dry residue (180°)#**

Lab ID	Method	Result (mg/L)	z score
BV7566	Gravimetry	172	

Data Statistics

	Value
Number of Results	1
Number of Excluded Results	0
Mean	N/A
Median	N/A
Standard Deviation	N/A
Robust Standard Deviation	N/A
Result Range	172 to 172 mg/L

Comments

Performance scores for dry residue have been removed as only one result was reported.

Sample: 524 - Carbonated water#**Analyte: Calcium#**

Lab ID	Method	Result (mg/L)	z' score*
BV7566	AAS	44.0	0.13
BV7568	Other	52.0	1.83
BV7569	Other	40.1	-0.70
BV7574	ICP-OES	42.8	-0.13

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	4
Number of Excluded Results	0
Mean	44.7 mg/L
Median	43.4 mg/L
Standard Deviation	5.12 mg/L
Robust Standard Deviation	2.89 mg/L
Result Range	40.1 to 52.0 mg/L

Performance Statistics

	Value
Assigned Value	43.4 mg/L
Uncertainty of Assigned Value	1.8 mg/L
SDPA	4.34 mg/L
Expanded SDPA	4.70 mg/L
Satisfactory Range	34.0 to 52.8 mg/L
Satisfactory z' scores	100.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	1	0	25	44.0	0.00	44.0 to 44.0	100.0
ICP-OES	1	0	25	42.8	0.00	42.8 to 42.8	100.0
Other	2	0	50	46.1	8.82	40.1 to 52.0	100.0
All	4	0	100	43.4	2.89	40.1 to 52.0	100.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 524 - Carbonated water#**Analyte: Magnesium#**

Lab ID	Method	Result (mg/L)	z' score*
BV7566	AAS	13.0	0.30
BV7568	Other	11.0	-1.21
BV7569	Other	24.3	8.85
BV7574	ICP-OES	12.6	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	4
Number of Excluded Results	1
Mean	12.2 mg/L
Median	12.6 mg/L
Standard Deviation	1.06 mg/L
Robust Standard Deviation	0.59 mg/L
Result Range	11.0 to 13.0 mg/L

Performance Statistics

	Value
Assigned Value	12.6 mg/L
Uncertainty of Assigned Value	0.4 mg/L
SDPA	1.26 mg/L
Expanded SDPA	1.32 mg/L
Satisfactory Range	10.0 to 15.2 mg/L
Satisfactory z' scores	75.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	25.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	1	0	25	13.0	0.00	13.0 to 13.0	100.0
ICP-OES	1	0	25	12.6	0.00	12.6 to 12.6	100.0
Other	2	1	50	11.0	0.00	11.0 to 11.0	50.0
All	4	1	100	12.6	0.59	11.0 to 13.0	75.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 524 - Carbonated water#**Analyte: Potassium#**

Lab ID	Method	Result (mg/L)	z' score*
BV7566	AAS	7.10	44.20
BV7569	Flame Photometry	1.10	-0.37
BV7574	ICP-OES	1.20	0.37

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	3
Number of Excluded Results	1
Mean	1.15 mg/L
Median	1.15 mg/L
Standard Deviation	0.071 mg/L
Robust Standard Deviation	0.074 mg/L
Result Range	1.10 to 1.20 mg/L

Performance Statistics

	Value
Assigned Value	1.15 mg/L
Uncertainty of Assigned Value	0.07 mg/L
SDPA	0.115 mg/L
Expanded SDPA	0.135 mg/L
Satisfactory Range	0.88 to 1.42 mg/L
Satisfactory z' scores	66.7%
Questionable z' scores	0.0%
Unsatisfactory z' scores	33.3%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	1	1	33.33	N/A	N/A	7.10 to	0.0
Flame Photometry	1	0	33.33	1.10	0.000	1.10 to 1.10	100.0
ICP-OES	1	0	33.33	1.20	0.000	1.20 to 1.20	100.0
All	3	1	100	1.15	0.074	1.10 to 1.20	66.7

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 524 - Carbonated water#**Analyte: Sodium#**

Lab ID	Method	Result (mg/L)	z score
BV7566	AAS	1.1	-8.41
BV7569	Flame Photometry	7.0	0.14
BV7574	ICP-OES	6.7	-0.29

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	3
Number of Excluded Results	1
Mean	6.9 mg/L
Median	6.9 mg/L
Standard Deviation	0.21 mg/L
Robust Standard Deviation	0.22 mg/L
Result Range	6.7 to 7.0 mg/L

Performance Statistics

	Value
Assigned Value	6.9 mg/L
Uncertainty of Assigned Value	0.2 mg/L
SDPA	0.69 mg/L
Satisfactory Range	5.5 to 8.3 mg/L
Satisfactory z scores	66.7%
Questionable z scores	0.0%
Unsatisfactory z scores	33.3%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
AAS	1	1	33.33	N/A	N/A	to 1.1	0.0
Flame Photometry	1	0	33.33	7.0	0.00	7.0 to 7.0	100.0
ICP-OES	1	0	33.33	6.7	0.00	6.7 to 6.7	100.0
All	3	1	100	6.9	0.22	6.7 to 7.0	66.7

Comments

Sample: 524 - Carbonated water#**Analyte: Bicarbonate#**

Lab ID	Method	Result (mgCa/L)	z score
BV7564	Other	173	-0.85
BV7566	Other	218	1.53
BV7567	Other	191	0.11
BV7569	Other	183	-0.32
BV7574	Other	189	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	5
Number of Excluded Results	0
Mean	191 mgCa/L
Median	189 mgCa/L
Standard Deviation	16.7 mgCa/L
Robust Standard Deviation	8.9 mgCa/L
Result Range	173 to 218 mgCa/L

Performance Statistics

	Value
Assigned Value	189 mgCa/L
Uncertainty of Assigned Value	5 mgCa/L
SDPA	18.9 mgCa/L
Satisfactory Range	151 to 227 mgCa/L
Satisfactory z scores	100.0%
Questionable z scores	0.0%
Unsatisfactory z scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mgCa/L			%
Other	5	0	100	189	8.9	173 to 218	100.0
All	5	0	100	189	8.9	173 to 218	100.0

Comments

Sample: 524 - Carbonated water#**Analyte: Chloride#**

Lab ID	Method	Result (mg/L)	z' score*
BV7569	Other	9.9	1.72
BV7570	Other	6.6	-0.75
BV7574	IC	7.6	0.00

Due to the low number of results returned, performance scores are shown for information purposes only

Data Statistics

	Value
Number of Results	3
Number of Excluded Results	0
Mean	8.0 mg/L
Median	7.6 mg/L
Standard Deviation	1.69 mg/L
Robust Standard Deviation	1.48 mg/L
Result Range	6.6 to 9.9 mg/L

Performance Statistics

	Value
Assigned Value	7.6 mg/L
Uncertainty of Assigned Value	1.1 mg/L
SDPA	0.76 mg/L
Expanded SDPA	1.34 mg/L
Satisfactory Range	4.9 to 10.3 mg/L
Satisfactory z' scores	100.0%
Questionable z' scores	0.0%
Unsatisfactory z' scores	0.0%

Methodology Summary

Method	Number of Results	Excluded Results	% of Total	Median	Robust SD	Range	Sat.
				mg/L			%
IC	1	0	33.33	7.6	0.00	7.6 to 7.6	100.0
Other	2	0	66.67	8.3	2.45	6.6 to 9.9	100.0
All	3	0	100	7.6	1.48	6.6 to 9.9	100.0

Comments

*Please note, participant performance for this analyte has been assessed using a z' score, rather than a z score, in order to account for the measurement uncertainty of the assigned value which is not negligible when compared to the SDPA.

Sample: 524 - Carbonated water#**Analyte: Sulfate#**

Lab ID	Method	Result (mgSO4/L)	z score
BV7574	IC	5.3	

Data Statistics

	Value
Number of Results	1
Number of Excluded Results	0
Mean	N/A
Median	N/A
Standard Deviation	N/A
Robust Standard Deviation	N/A
Result Range	5.3 to 5.3 mgSO4/L

Comments

Performance scores for sulfate have been removed as only one result was reported.