Test Group Summary Report C02C Metals in Water – Total March 2025 PT Round

Issued: May 9, 2025

PTC | Proficiency Testing Canada

Table of Contents

1.0 The Proficiency Testing Report

The Proficiency Testing Report consists of two parts.

- *PTC Proficiency Testing Report*: This report contains participant-specific data and other confidential information. This report is emailed to participants at the end of the PT round.
- *Test Group Summary Report*: A Test Group Summary Report is created for each quantified test group at the end of the PT round. These reports contain more detailed information on the round than is found in the participant-specific PTC Proficiency Testing Report. These reports do not contain any confidential information and are made available on the PTC web site.

2.0 Definitions

The participant-specific PTC Proficiency Testing Report contains some terms that new participants may not be familiar with.

Code:	The registration code that is unique to each analyte that a participant is registered for.
App:	If a participant is accredited by CALA, this three-digit number is the appendix number that the accredited method is assigned to.
N:	The number of participants results that were used to calculate the summary statistics. This excludes qualified data (e.g., <) and any results that were flagged as outliers.
Assigned:	The Assigned Value is the robust mean of the reported results, outliers excluded. This is often referred to as the "target" value.
± u:	The uncertainty of the assigned value.
Reported:	The result reported by the participant.
s:	The Standard Deviation of Proficiency Assessment (SDPA). This value is used to determine the acceptance limits for the PT evaluation.
z-Score:	A value assigned to each reported result that is a measure of the degree to which it deviates from the Assigned Value.
Score:	The composite score of the four results reported for each analyte. It is normalized to a score out of 100.
Bias:	A flag assigned if bias is detected using the re-scaled *z*-score procedure.

3.0 Scoring System

Participant performance is evaluated for each proficiency testing sample by a quantitative method that is consistent with ISO/IEC 17043 - *Conformity assessment- General requirements for the competence of proficiency testing providers*, the *International Harmonized Protocol for Proficiency Testing of (Chemical) Analytical Laboratories* (2006), and ISO 13528:2015 *Statistical methods for use in proficiency testing by interlaboratory comparisons*.

The following is a brief description of the evaluation procedure used by PTC. The detailed evaluation procedure is described in PROC09 – PT Evaluation *Procedure*, which is available on the PTC website www.PTCanada.org).

3.1 HOMOGENEITY AND STABILITY ASSESSMENT

Homogeneity and stability are assessed using participant data. Regression analysis is performed on reported result against order of sample production (Homogeneity) and reported result against date of analysis (Stability). If the slope is significantly different than zero for either then the Standard Deviation of Proficiency Assessment (s) is increased to minimize the impact.

3.2 THE Z SCORE

A "z-score" is calculated for each reported result as follows:

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

where: x = participant result;
$\overline{X}$ = the Assigned Value;
SDPA = the Standard Deviation for Proficiency Assessment.

The assigned value $\overline{X}$ is generally estimated from the inter-laboratory Robust mean after outliers due to obvious gross errors (e.g., reported in wrong units) have been removed.

The Standard Deviation for Proficiency Assessment, s, is determined as follows:

- The inter-laboratory Robust standard deviation ($Stdev_{rob}$) is calculated using reported results, obvious outliers removed;
- The regression equation standard deviation ($Stdev_{reg}$) is estimated from regression equations derived from previous studies (see PROC11- *PT Regression Equations* for details);
- The SDPA is the higher of $Stdev_{rob}$ and $Stdev_{reg}$;
- When a laboratory reports its detection limit, s will be estimated using a pooled variance procedure that uses both the inter-laboratory data and the reported detection limit.

3.2 COMPOSITE (PT) SCORE

Since each PT round involves four or two separate samples of distinct concentration for each test, it is necessary to calculate a composite PT score for each test to determine overall performance. The composite score is calculated by first averaging the absolute *z*-scores for the four results and then calculating a final score as 100 + (-15 x avg |z|).

Acceptable PT Scores equal or exceed 70.

3.3 IDENTIFYING BIAS

The proficiency testing report provides flags for bias. These are determined using the re-scaled *z*-score procedure.

$$RSZ = \frac{\check{a}\, z}{\sqrt{N}}$$

where *z* = the *z*- score
N = the number of samples

Flags are assigned for each test group/parameter combination as follows:

RSZ ≥ -2 and ≤ 2	no flag assigned
RSZ > 2	H (High)
RSZ > 3	VH (Very High)
RSZ < -2	L (LOW)
RSZ < -3	VL (Very Low)

3.4 DEVIATIONS FROM EVALUATION PROCEDURE

Other than changes to the Standard Deviation of Proficiency Assessment due to homogeneity or stability flags, any deviation from the published evaluation procedure is described on the cover page(s) of the final *PTC Proficiency Testing Report*.

4.0 PT Round Specific Data Summary

The following pages provide more detailed information about the PT round indicated in the cover page of this report than is found in the participant-specific PTC Proficiency Testing Report. The graphical representations and the statistical summaries are based upon the data after outliers have been removed.

4.1 SUMMARY STATISTICS

In addition to some of the statistics found in the customer reports, this table includes additional summary statistics such as Median, different measures of dispersion, the number of outliers removed, the number of results in the Questionable range (|z| between 2 and 3) and the Unacceptable range (z > 3), and whether a data set was flagged for Homogeneity or Stability. This section also includes sorted scatter plots of the data for each sample.

4.2 *z* - SCORE PLOTS

The z -scores for each sample are ranked in increasing order and plotted. When the data is normally distributed, the plot should show a slight sigmoidal curve, with an equal number of points above zero as below. Each bar in these plots is colour-coded to indicate the analytical method used by the participant.

4.3 KERNEL DENSITY PLOTS

Kernel density plots are generated for each data set. These plots are a graphical way to represent the overall data distribution and are used to visualize possible deviations from normality and unimodality.

4.4 STABILITY AND HOMOGENEITY PLOTS

Plots of reported result against analysis date, and reported result against order of bottling are displayed, along with the regression line. These regression analyses are used to determine if the SDPA should be adjusted due to homogeneity or stability.

4.5 BOX-AND-WHISKER PLOTS

Box-and-Whisker plots are another way to display the distribution of the data. The box denotes the first and third quartile and the whiskers are the 5th and 95th percentile.

4.6 HISTORIC COMPARISON PLOT

The Historic Comparison Plot is a plot of robust mean against robust standard deviation for the previous ten PT rounds as well as the current PT round. This plot can be used to identify possible changes in the sample formulation.

ALUMINUM

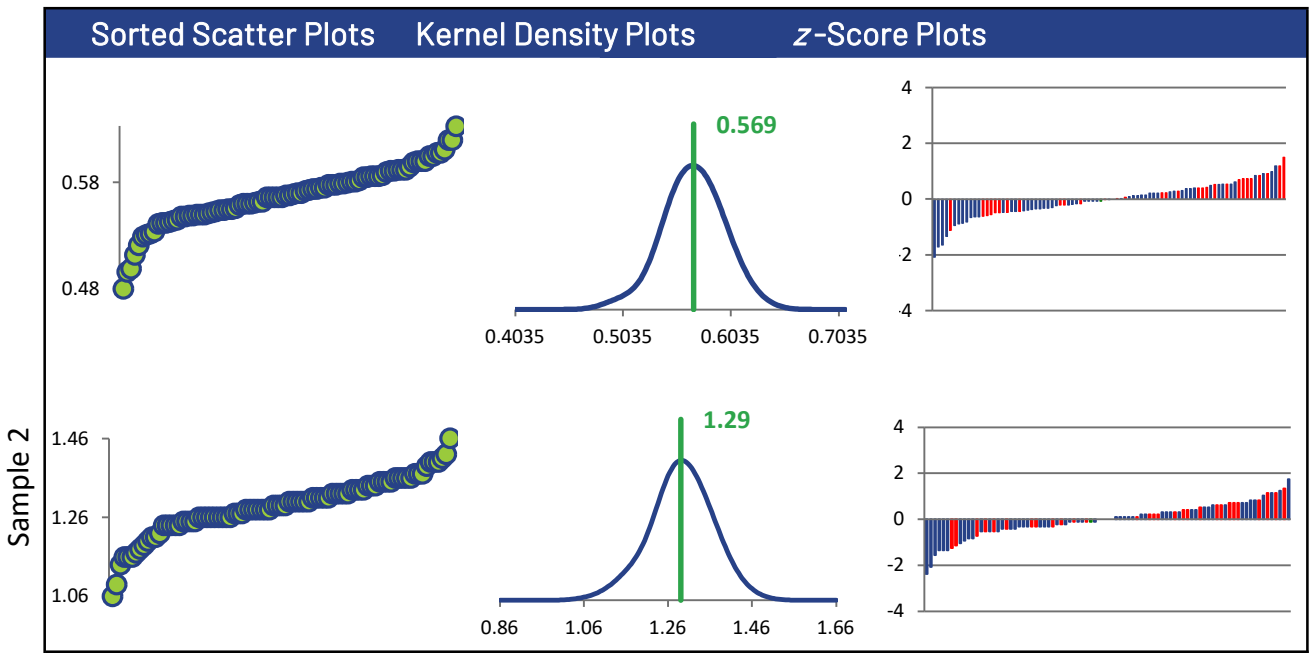
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	87	87	87	87
Median mg/L	0.568	1.29	0.547	1.12
Robust Mean mg/L	0.569	1.29	0.545	1.12
U mg/L	0.00342	0.00874	0.00364	0.00756
Robust Standard Deviation mg/L	0.0257	0.0656	0.0273	0.0567
Regression Standard Deviation mg/L	0.0427	0.0969	0.0409	0.0839
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0427	0.0969	0.0409	0.0839
Outliers	1	1	1	1
|z|>3.0	0	0	0	0
2<|z|<3	1	2	0	2

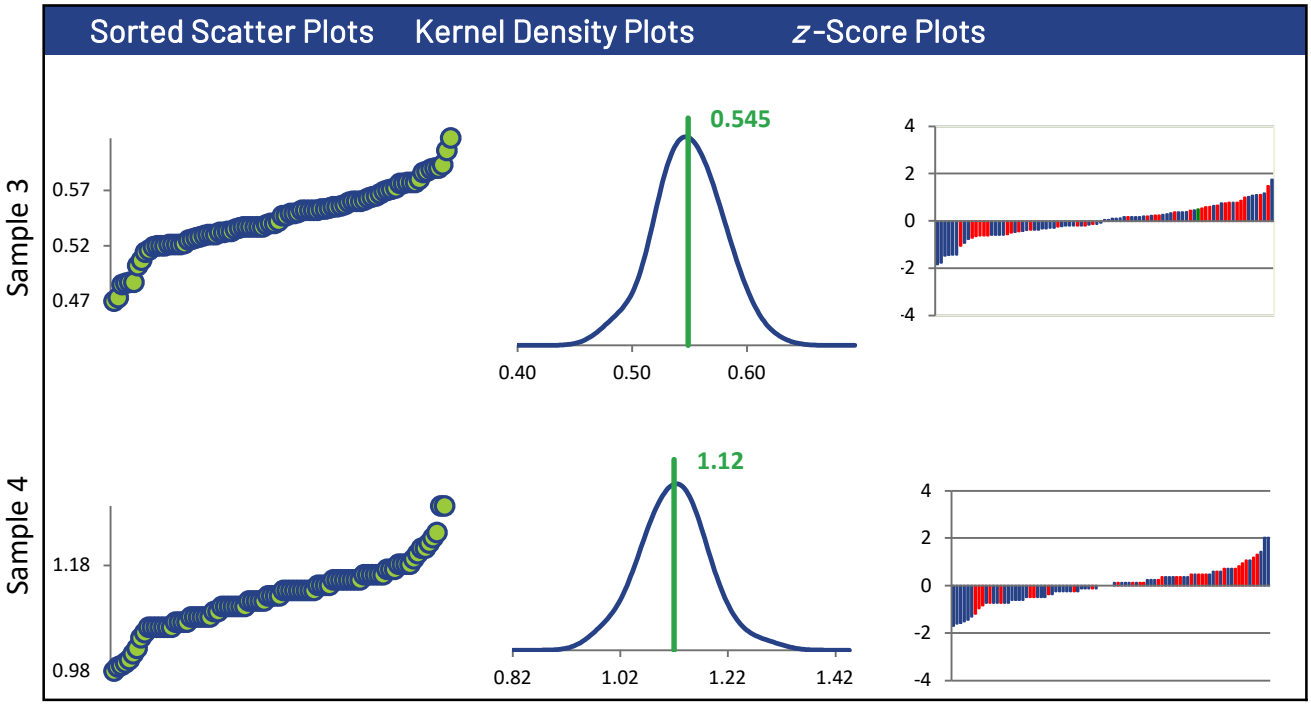
Methods Used

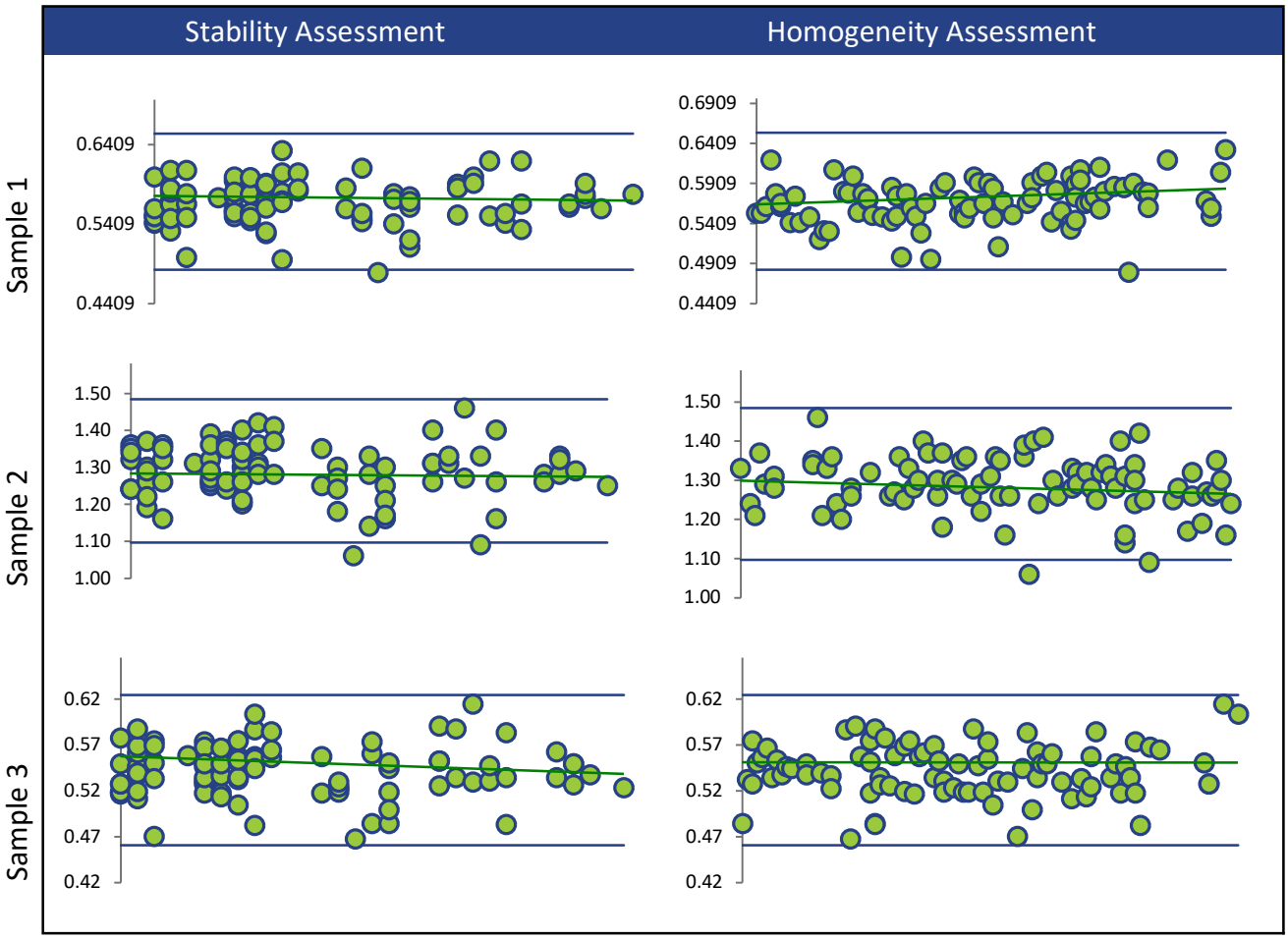
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	55	55	55	55
ICP/OES (Red)	31	31	31	31
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



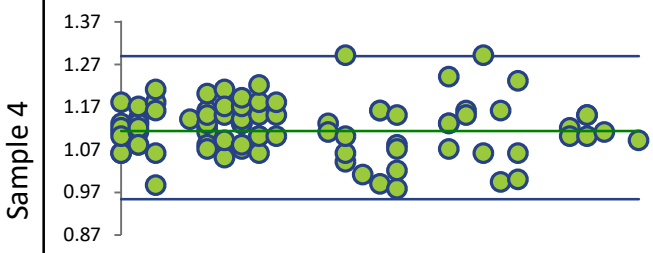
ALUMINUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.57
0.52
0.47
0.545
0.40
0.50
0.60
4
2
0
-2
-4
Sample 4
1.18
0.98
1.12
0.82
1.02
1.22
1.42
4
2
0
-2
-4

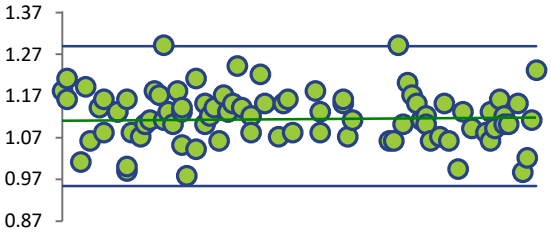

Stability Assessment
Homogeneity Assessment
Sample 1
0.6409
0.5409
0.4409
0.6909
0.6409
0.5909
0.5409
0.4909
0.4409
Sample 2
1.50
1.40
1.30
1.20
1.10
1.00
Sample 3
0.62
0.57
0.52
0.47
0.42

ALUMINUM

Stability Assessment



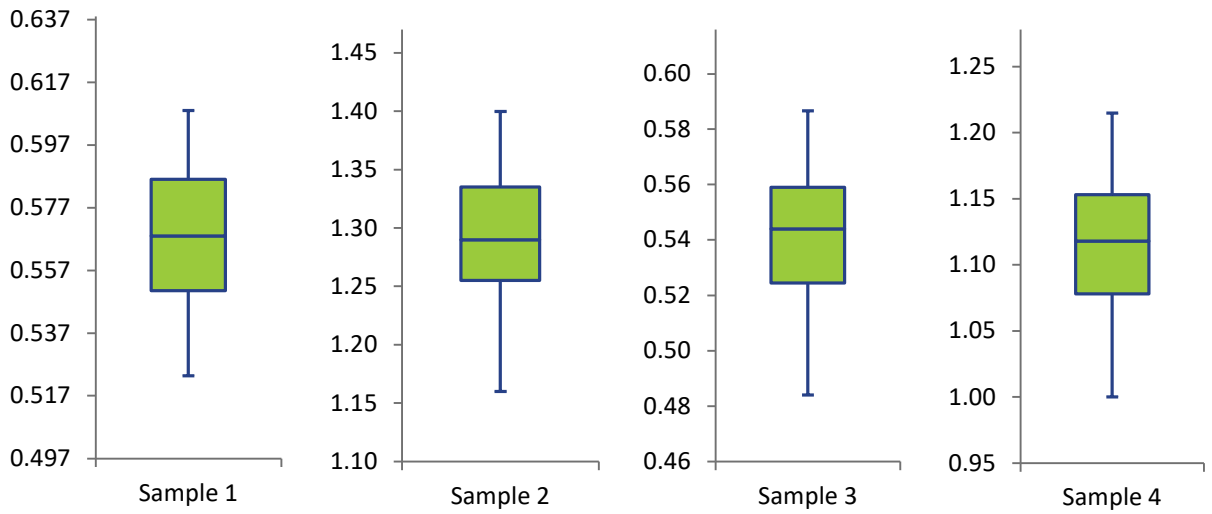
Homogeneity Assessment



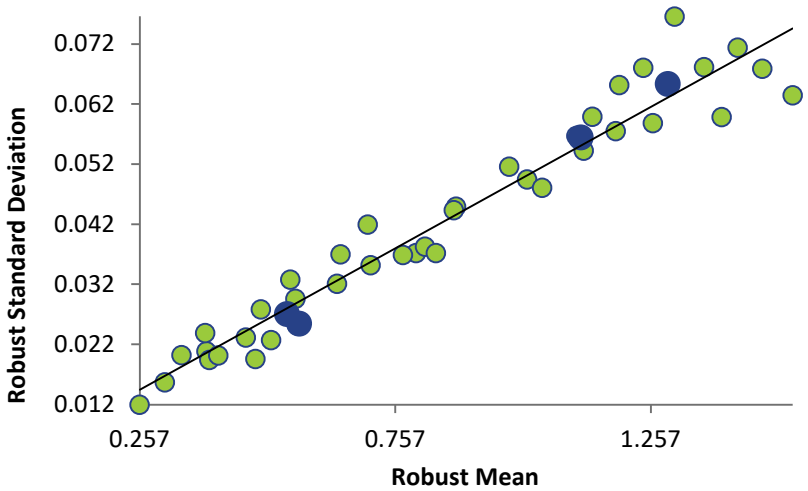
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



ANTIMONY

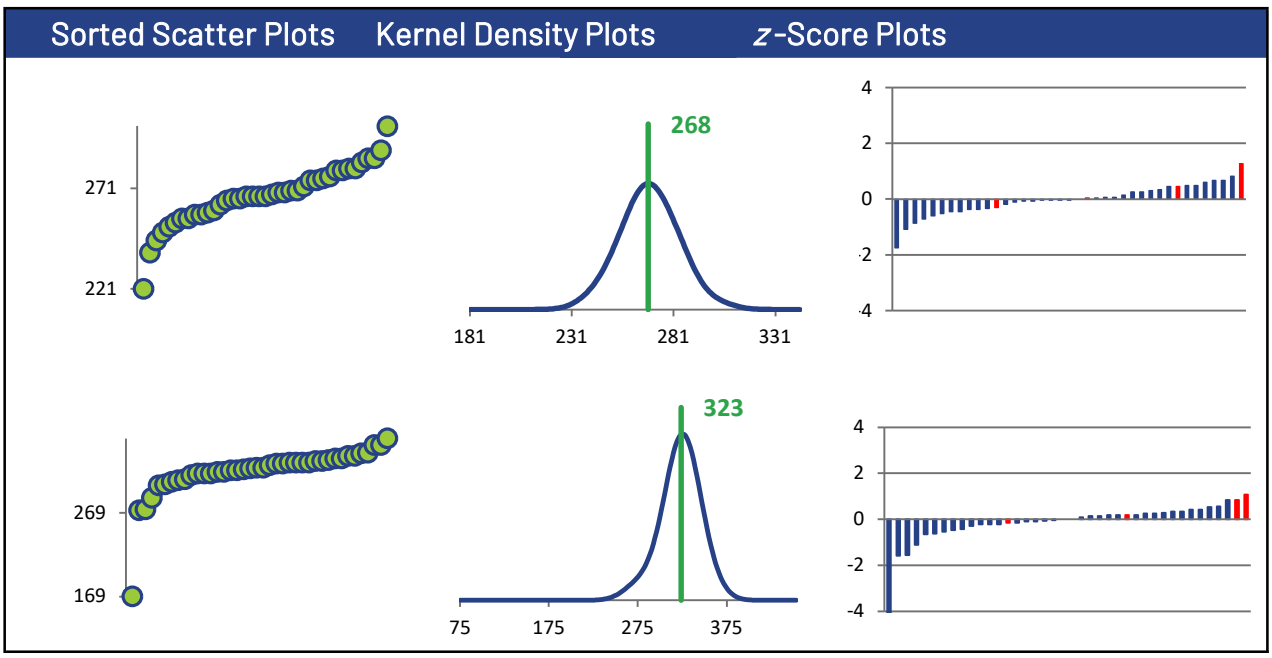
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	39	40	36	40
Median mg/L	267	323	20.7	474
Robust Mean mg/L	268	323	20.7	472
U mg/L	2.58	2.99	0.268	4.96
Robust Standard Deviation mg/L	13.4	15.5	1.34	25.7
Regression Standard Deviation mg/L	26.8	32.3	2.07	47.2
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	26.8	32.3	2.07	47.2
Outliers	2	2	2	2
|z|>3.0	0	1	0	2
2<|z|<3	0	0	1	0

Methods Used

Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	34	35	34	34
ICP/OES (Red)	5	5	2	6

All summary stats and the plots below are based on the data excluding any flagged outliers



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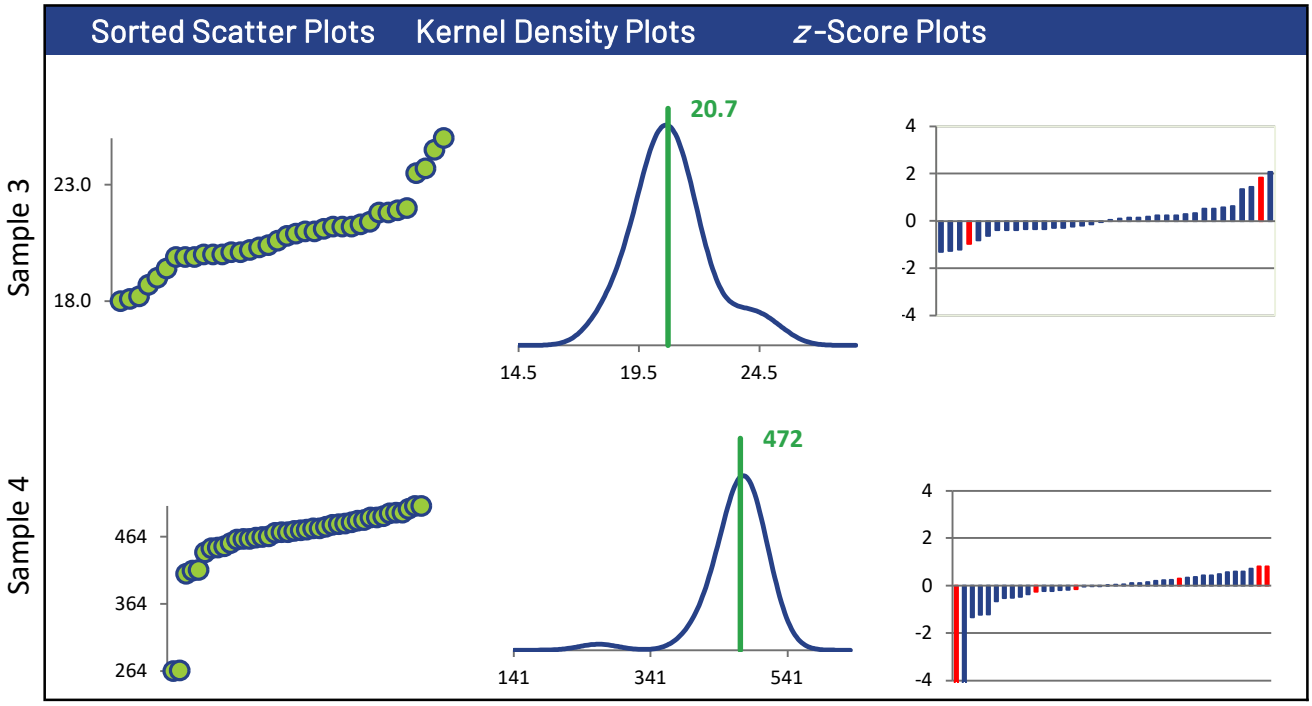
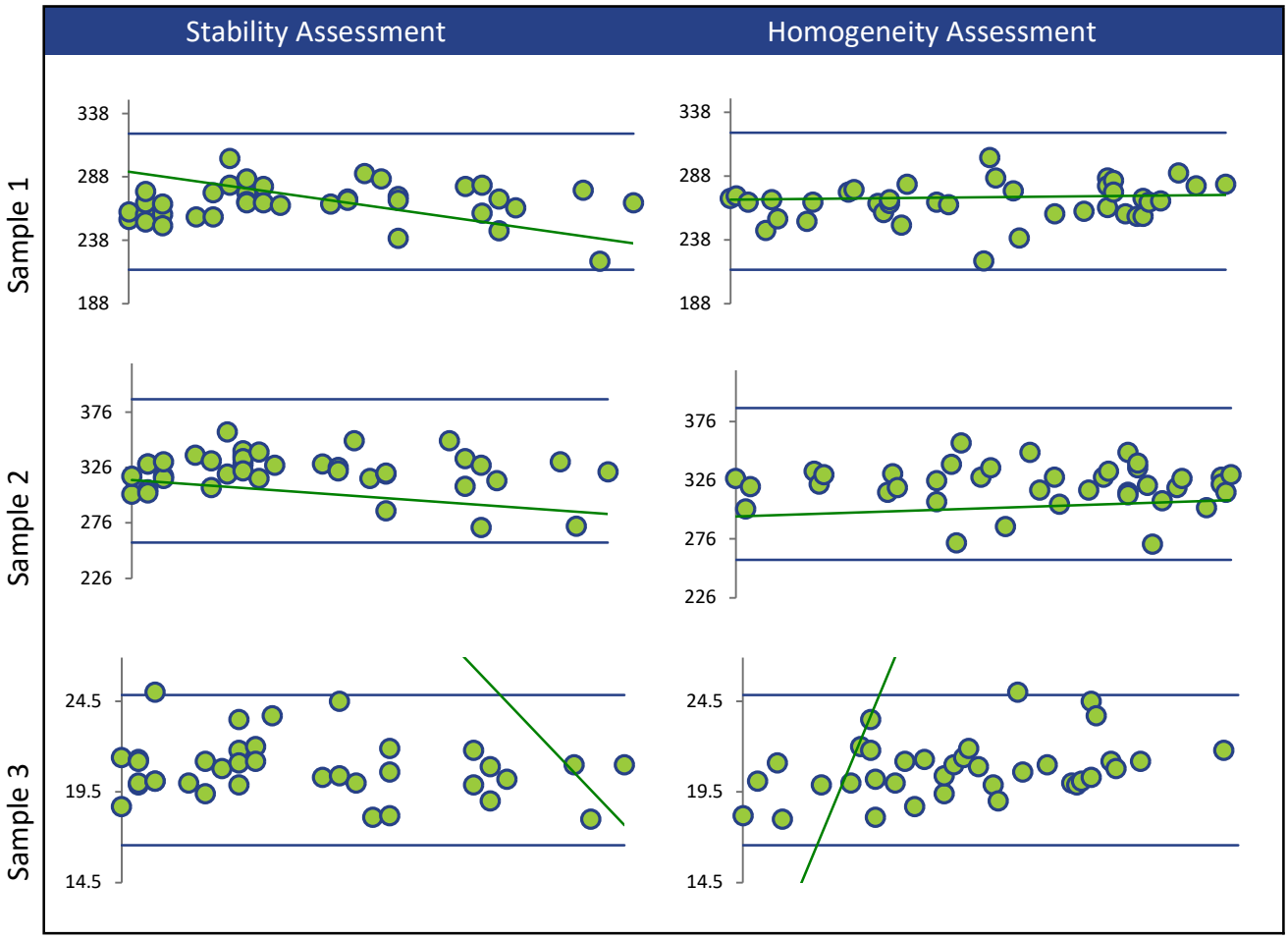
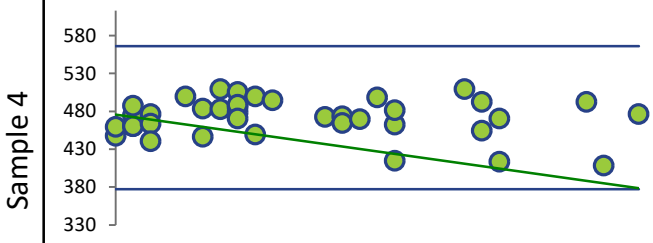

Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
23.0
18.0
20.7
14.5
19.5
24.5
4
2
0
-2
-4
Sample 4
464
364
264
472
141
341
541

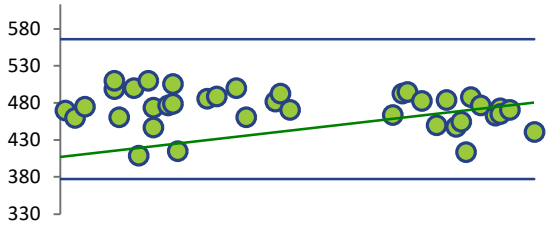

Stability Assessment
Homogeneity Assessment
Sample 1
338
288
238
188
Sample 2
376
326
276
226
Sample 3
24.5
19.5
14.5

ANTIMONY

Stability Assessment



Homogeneity Assessment



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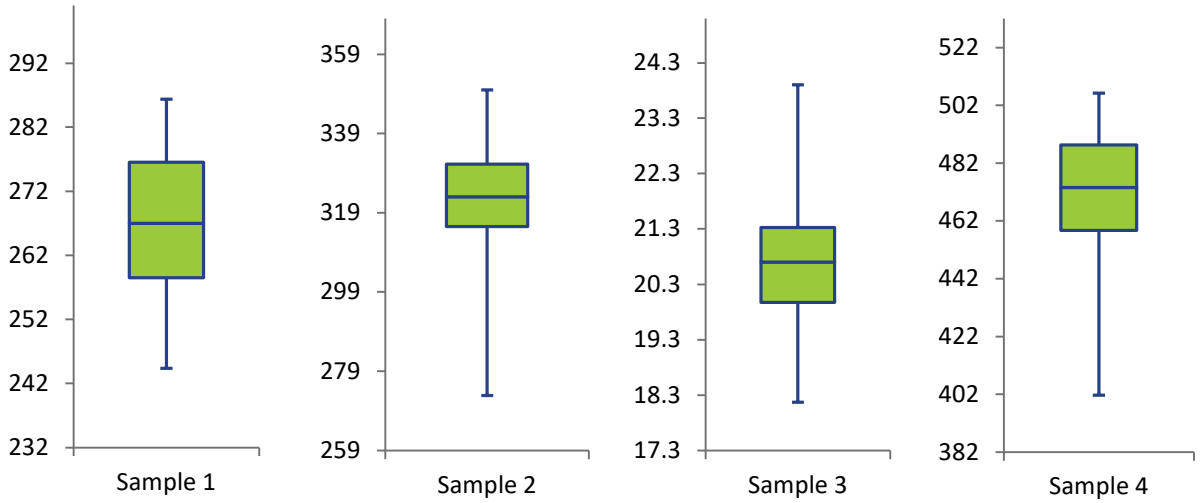
Box and Whisker Plots



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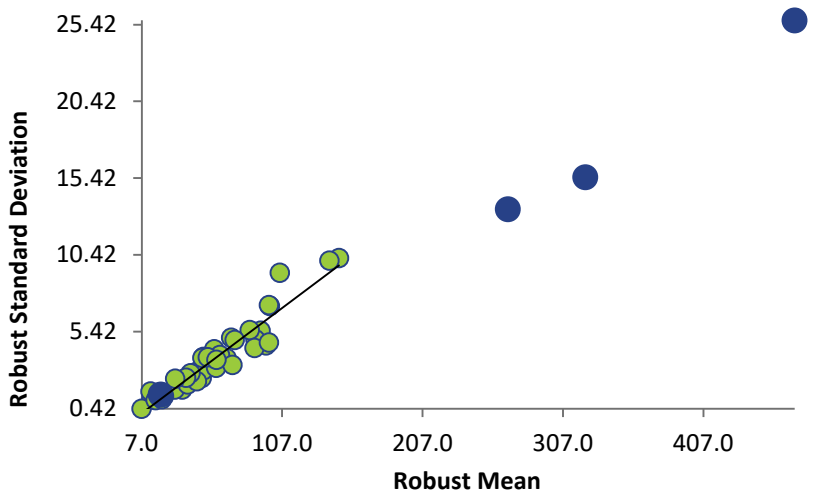


ARSENIC

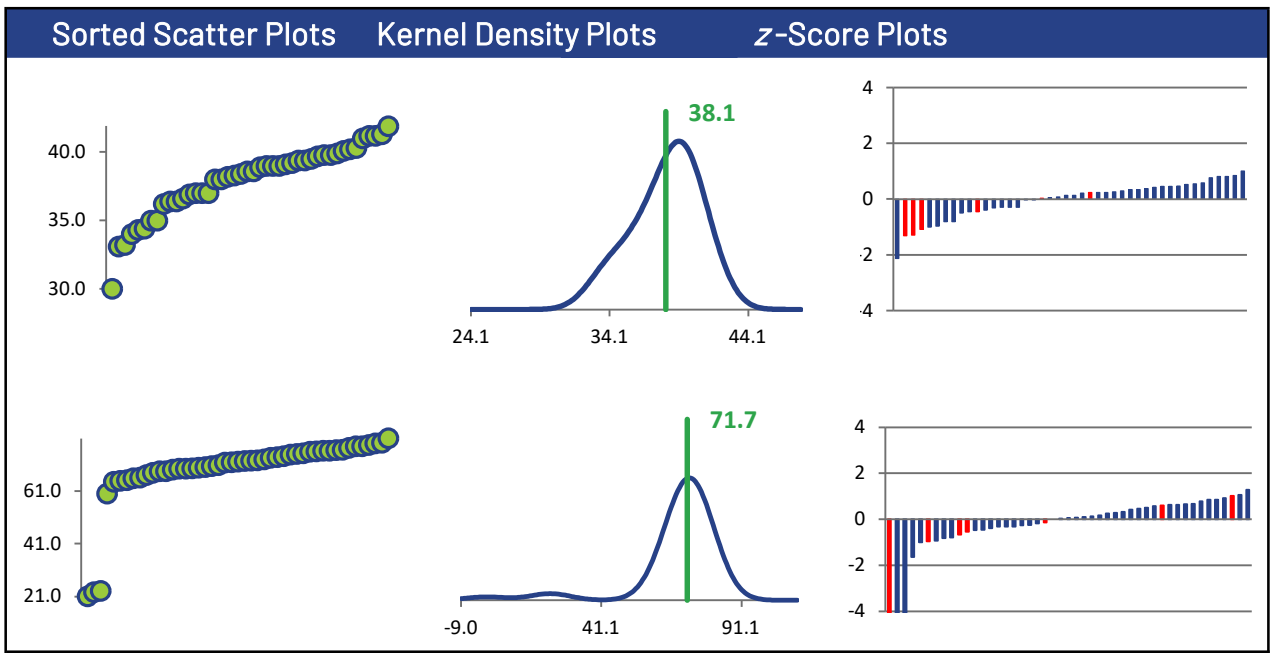
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	44	47	44	45
Median mg/L	38.6	72.1	22.9	100
Robust Mean mg/L	38.1	71.7	22.6	99.6
U mg/L	0.449	0.980	0.336	1.26
Robust Standard Deviation mg/L	2.49	5.49	1.86	7.05
Regression Standard Deviation mg/L	3.81	7.17	2.26	9.96
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	3.81	7.17	2.26	9.96
Outliers	2	2	2	3
|z|>3.0	0	3	1	0
2<|z|<3	1	0	1	0

Methods Used

Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	38	40	38	38
ICP/OES (Red)	6	7	6	7

All summary stats and the plots below are based on the data excluding any flagged outliers



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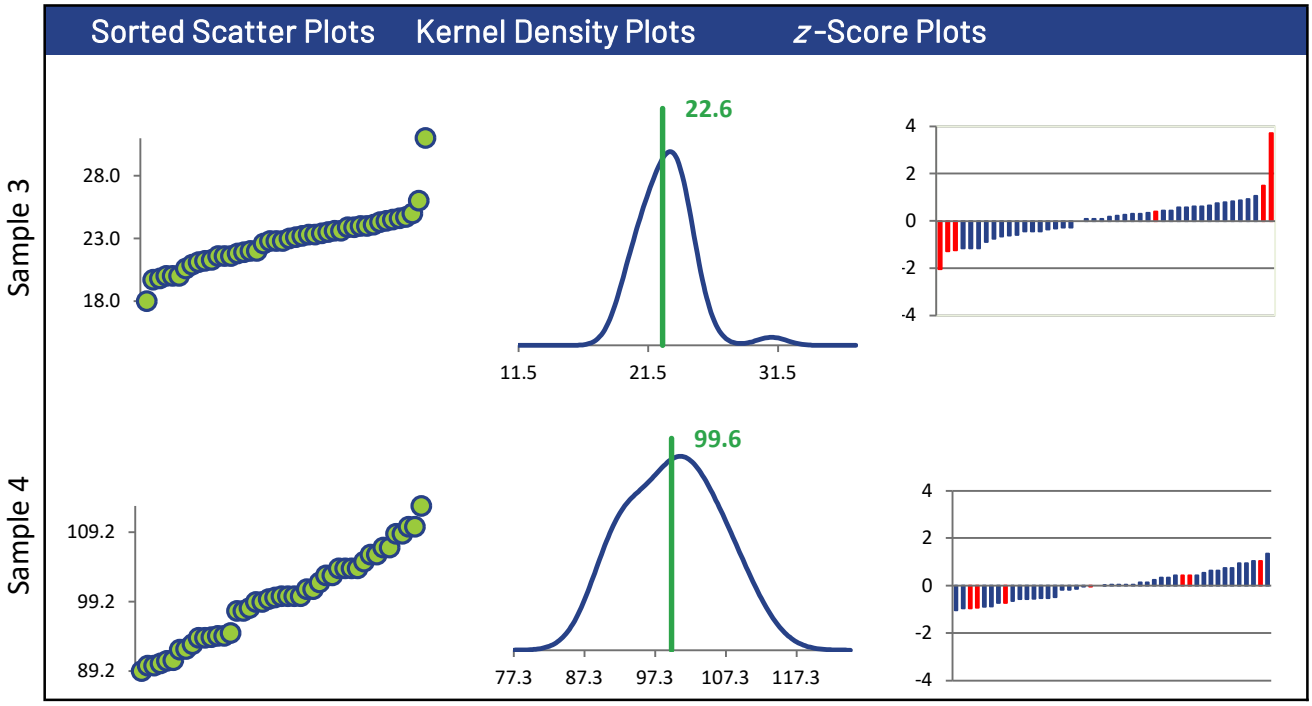
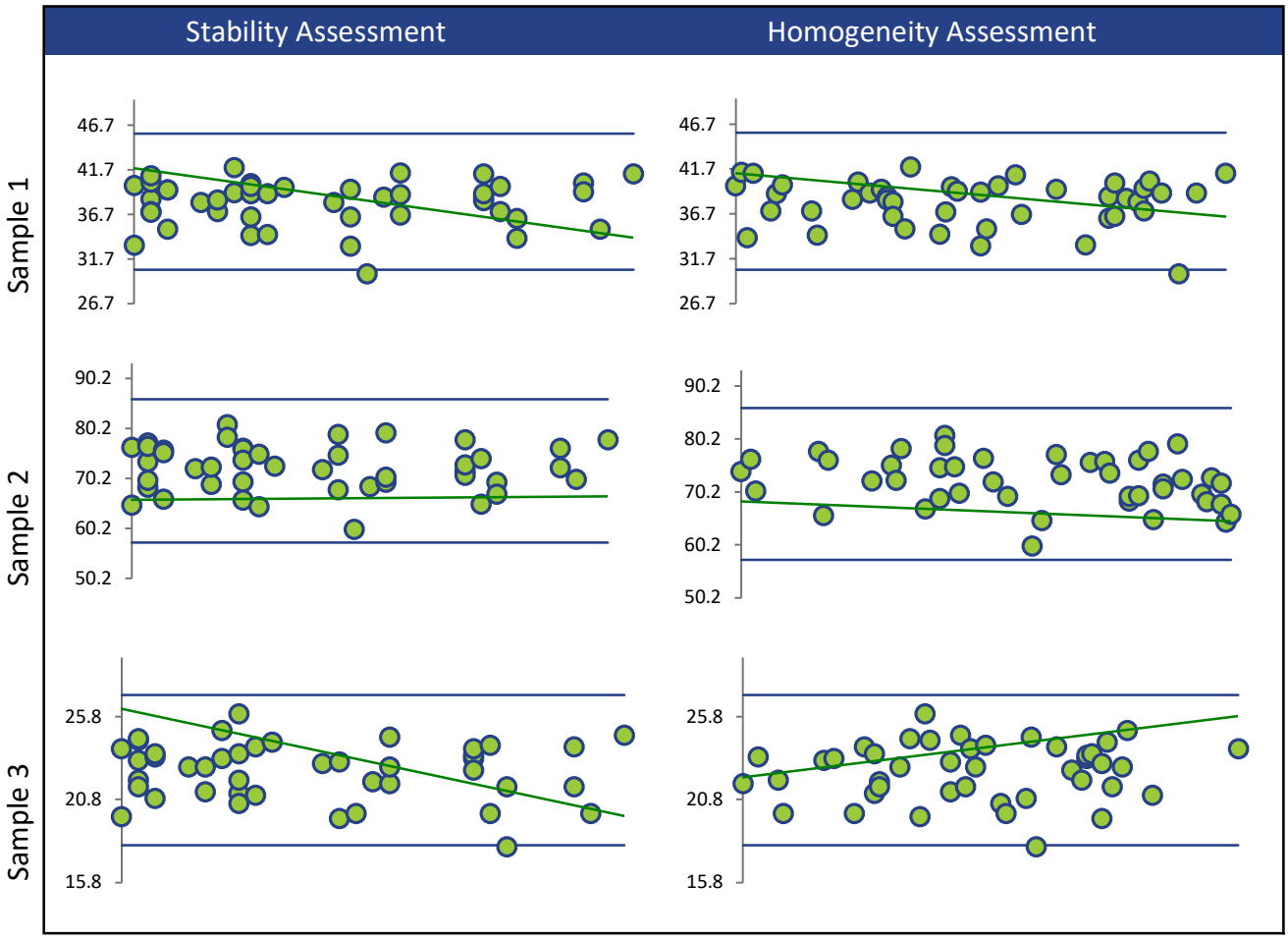
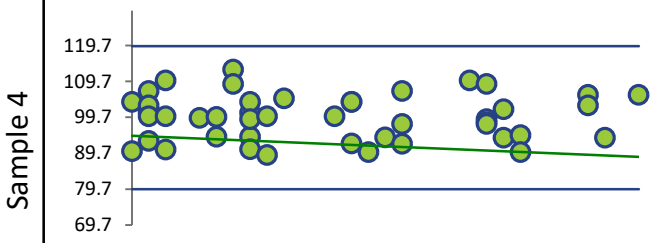

Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
28.0
23.0
18.0
22.6
11.5
21.5
31.5
4
2
0
-2
-4
Sample 4
109.2
99.2
89.2
99.6
77.3
87.3
97.3
107.3
117.3
4
2
0
-2
-4

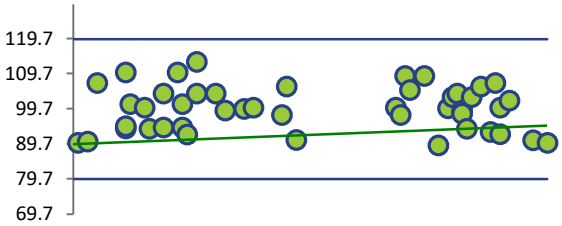

Stability Assessment
Homogeneity Assessment
Sample 1
46.7
41.7
36.7
31.7
26.7
46.7
41.7
36.7
31.7
26.7
Sample 2
90.2
80.2
70.2
60.2
50.2
90.2
80.2
70.2
60.2
50.2
Sample 3
25.8
20.8
15.8
25.8
20.8
15.8

ARSENIC

Stability Assessment



Homogeneity Assessment



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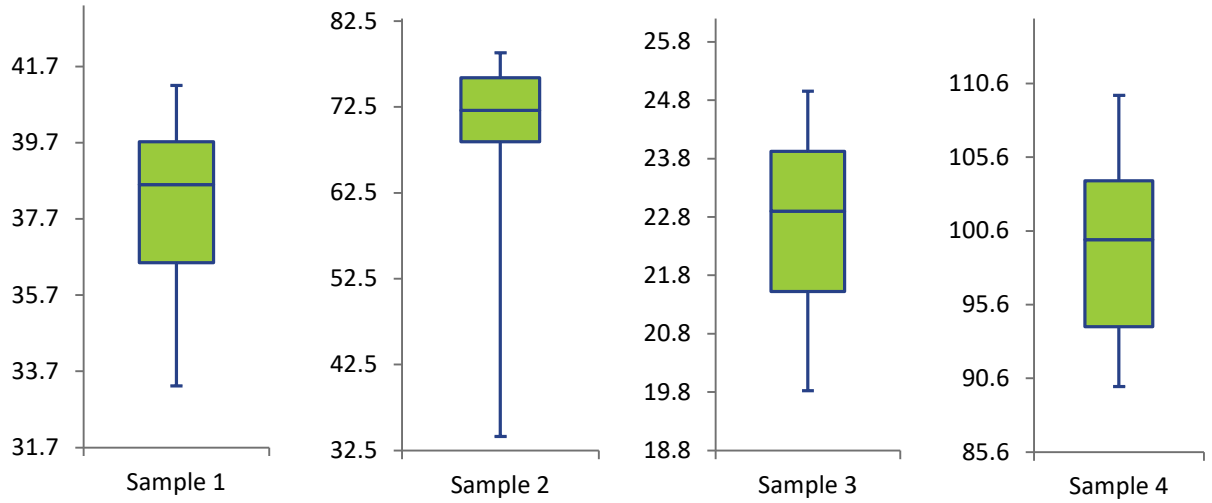
Box and Whisker Plots



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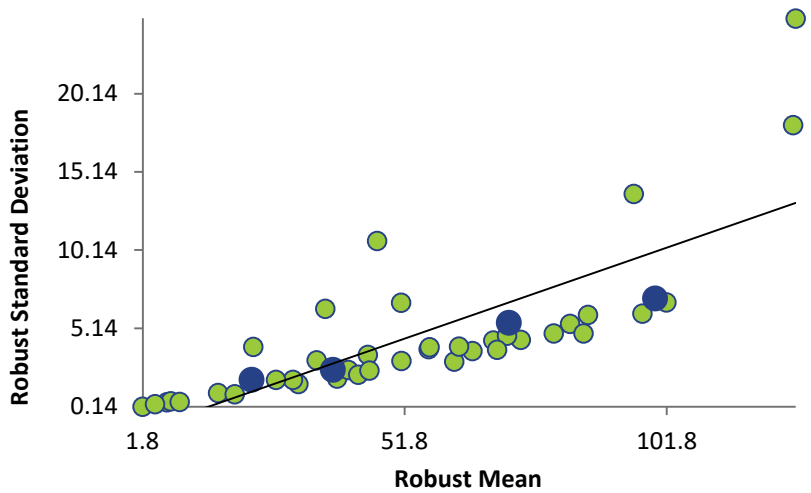


BARIUM

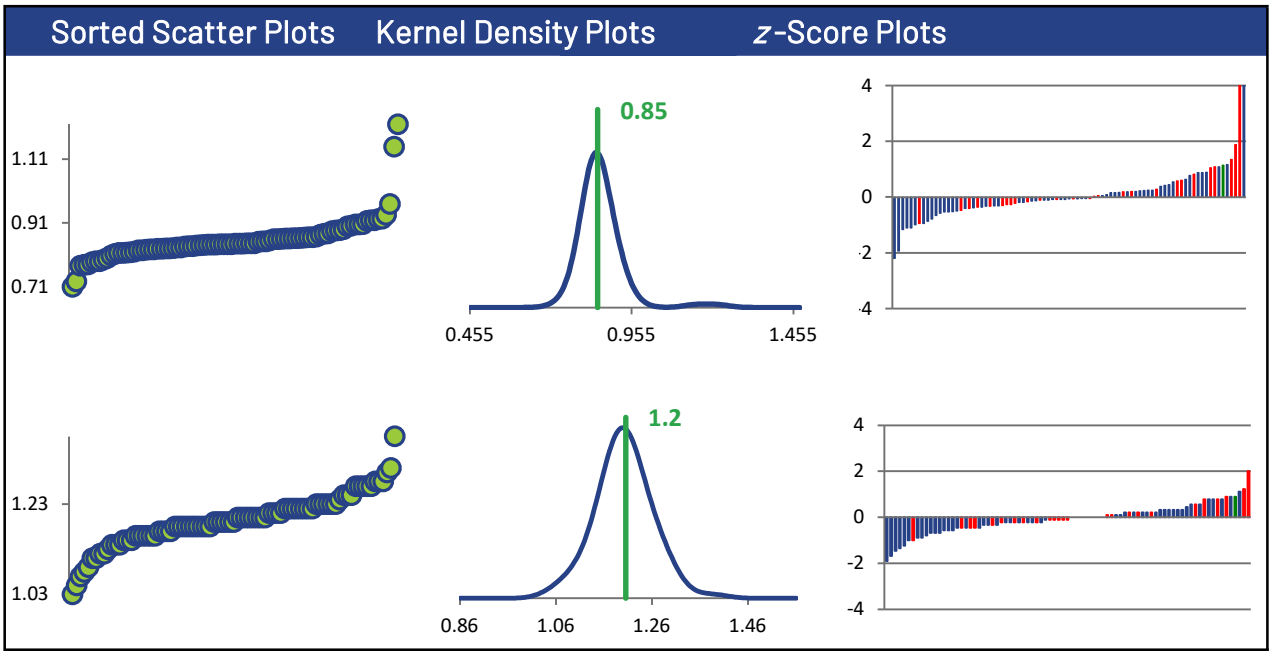
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	85	83	82	85
Median mg/L	0.846	1.19	0.392	1.18
Robust Mean mg/L	0.850	1.20	0.393	1.17
U mg/L	0.00555	0.00717	0.00261	0.00755
Robust Standard Deviation mg/L	0.0409	0.0526	0.0190	0.0557
Regression Standard Deviation mg/L	0.0638	0.0896	0.0295	0.0881
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0638	0.0896	0.0295	0.0881
Outliers	0	1	2	0
|z|>3.0	2	0	0	2
2<|z|<3	1	1	2	1

Methods Used

Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	57	56	55	57
ICP/OES (Red)	27	26	26	27
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



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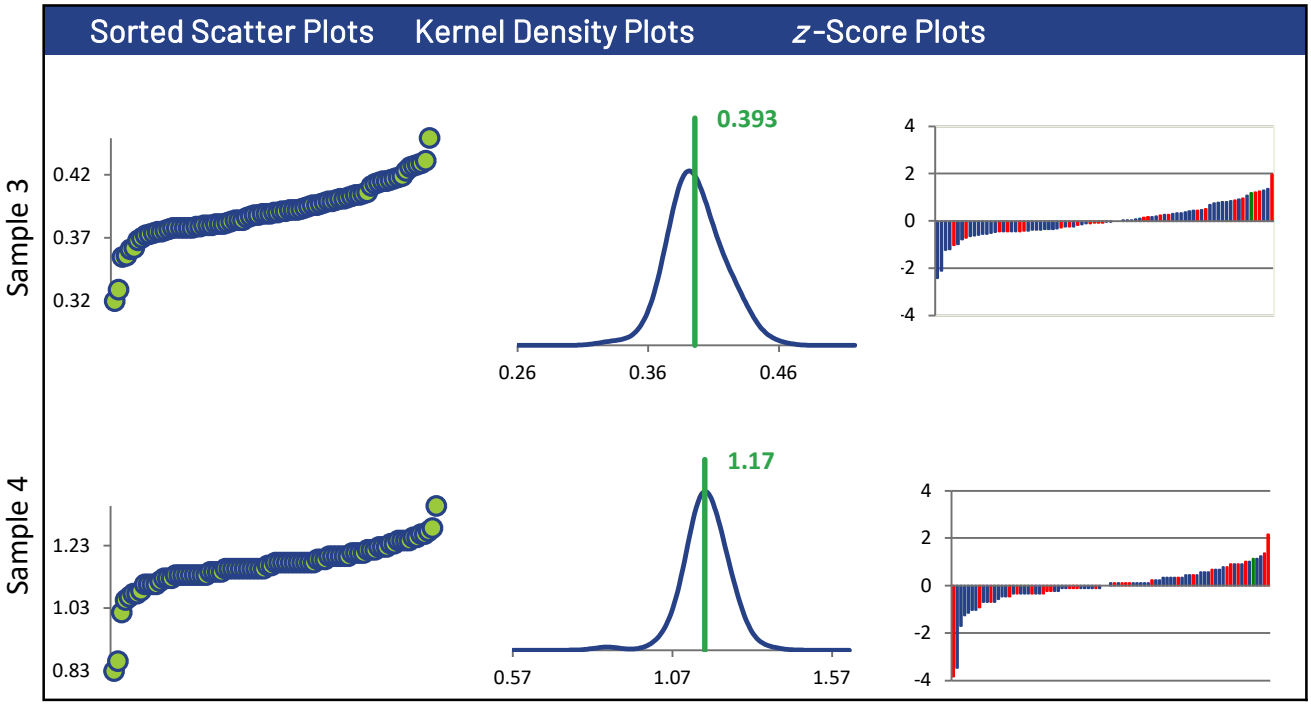
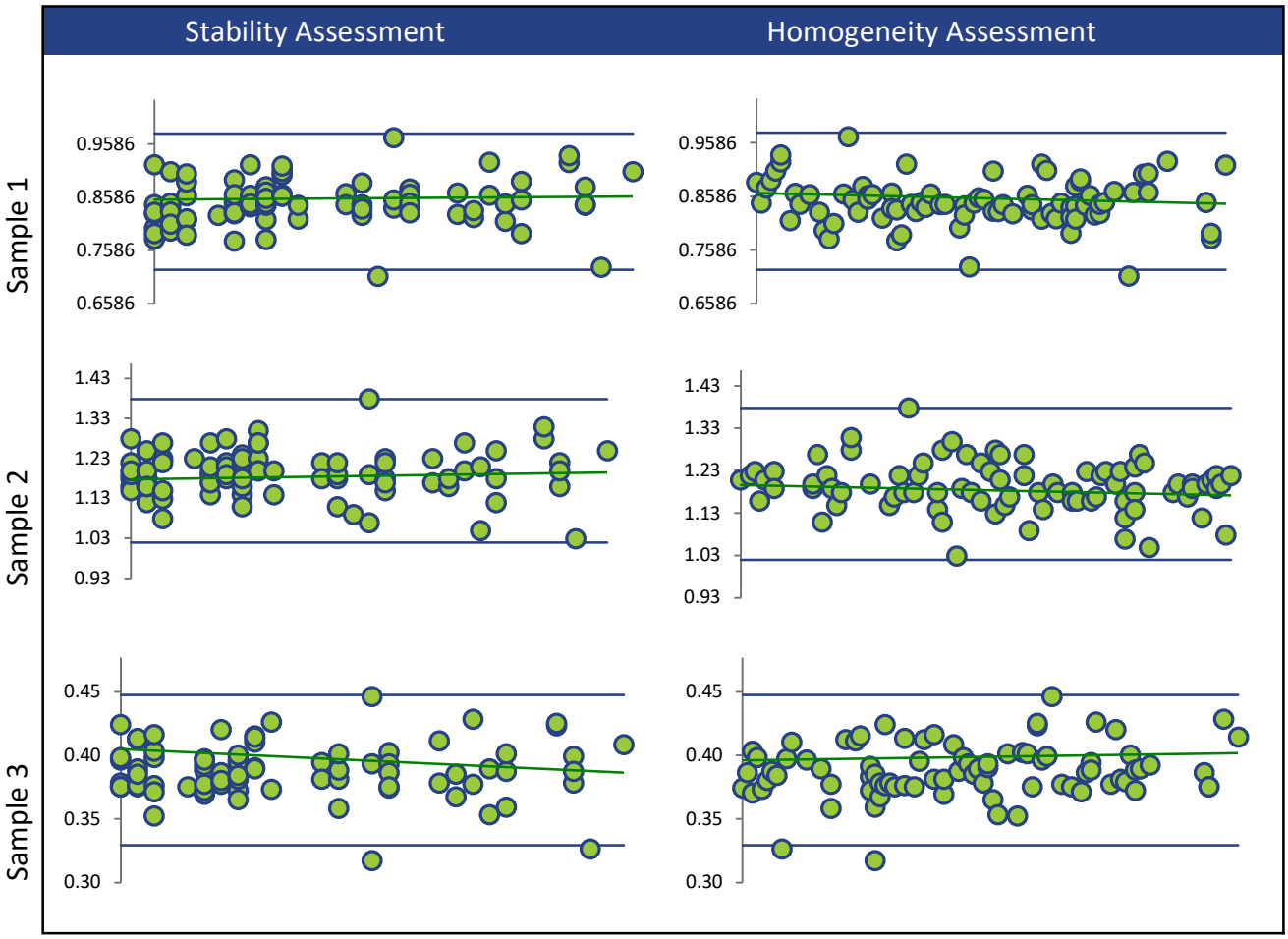
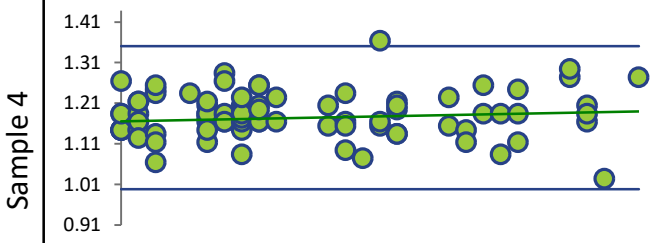

Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.42
0.37
0.32
0.393
0.26
0.36
0.46
4
2
0
-2
-4
Sample 4
1.23
1.03
0.83
1.17
0.57
1.07
1.57
4
2
0
-2
-4

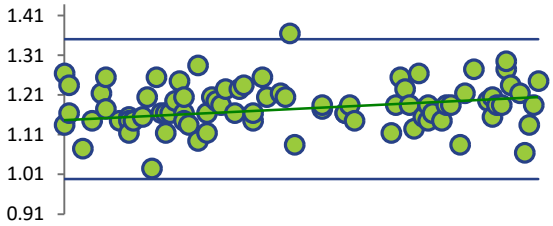

Stability Assessment
Homogeneity Assessment
Sample 1
0.9586
0.8586
0.7586
0.6586
Sample 2
1.43
1.33
1.23
1.13
1.03
0.93
Sample 3
0.45
0.40
0.35
0.30

BARIUM

Stability Assessment



Homogeneity Assessment



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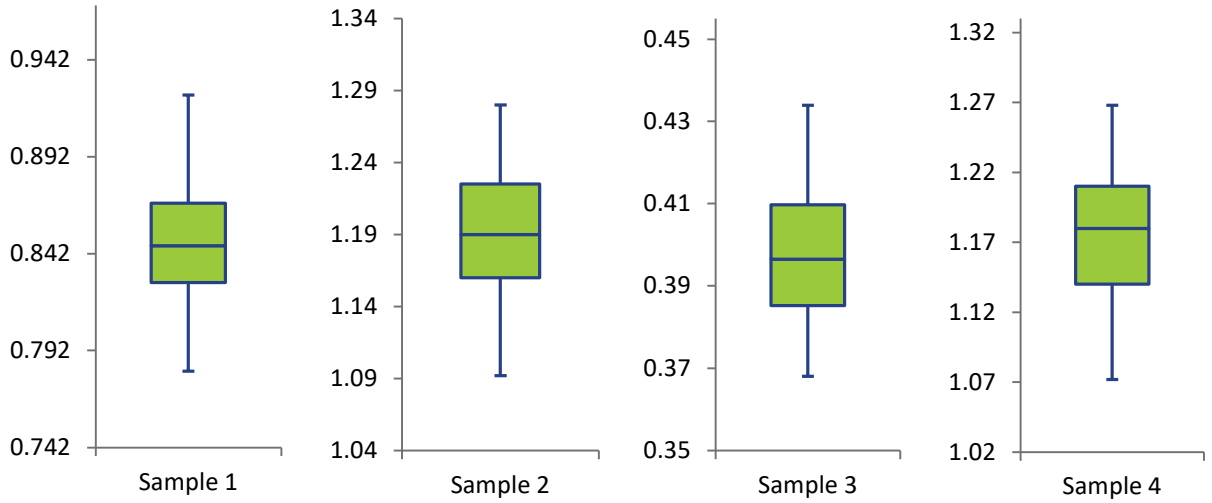
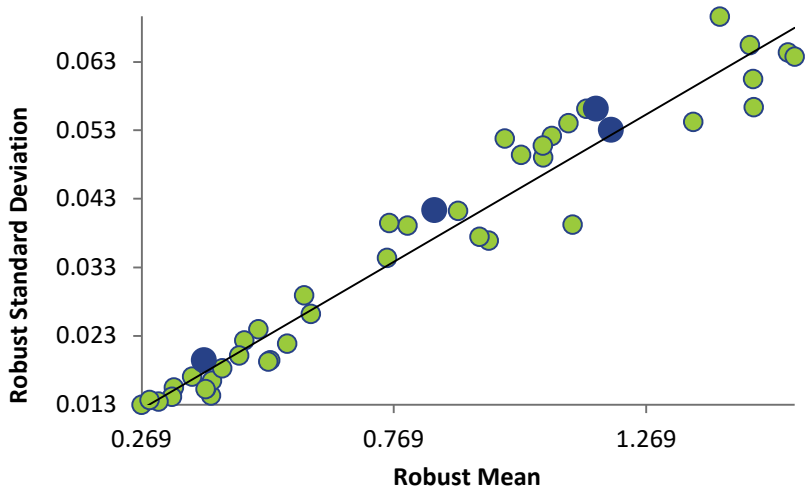
Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



BERYLLIUM

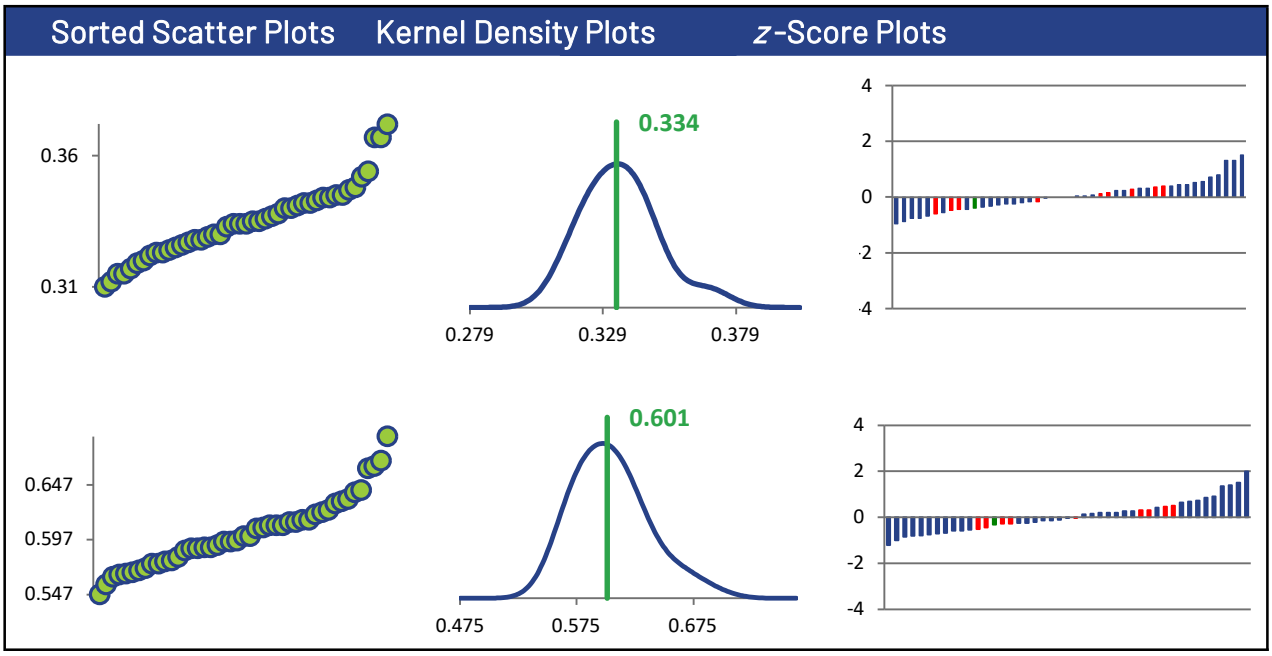
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	45	45	44	45
Median mg/L	0.334	0.600	0.0380	0.634
Robust Mean mg/L	0.334	0.601	0.0378	0.637
U mg/L	0.00247	0.00562	0.000425	0.00575
Robust Standard Deviation mg/L	0.0134	0.0305	0.00228	0.0312
Regression Standard Deviation mg/L	0.0251	0.0451	0.00284	0.0478
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0251	0.0451	0.00284	0.0478
Outliers	1	1	1	1
|z|>3.0	0	0	1	0
2<|z|<3	0	0	3	2

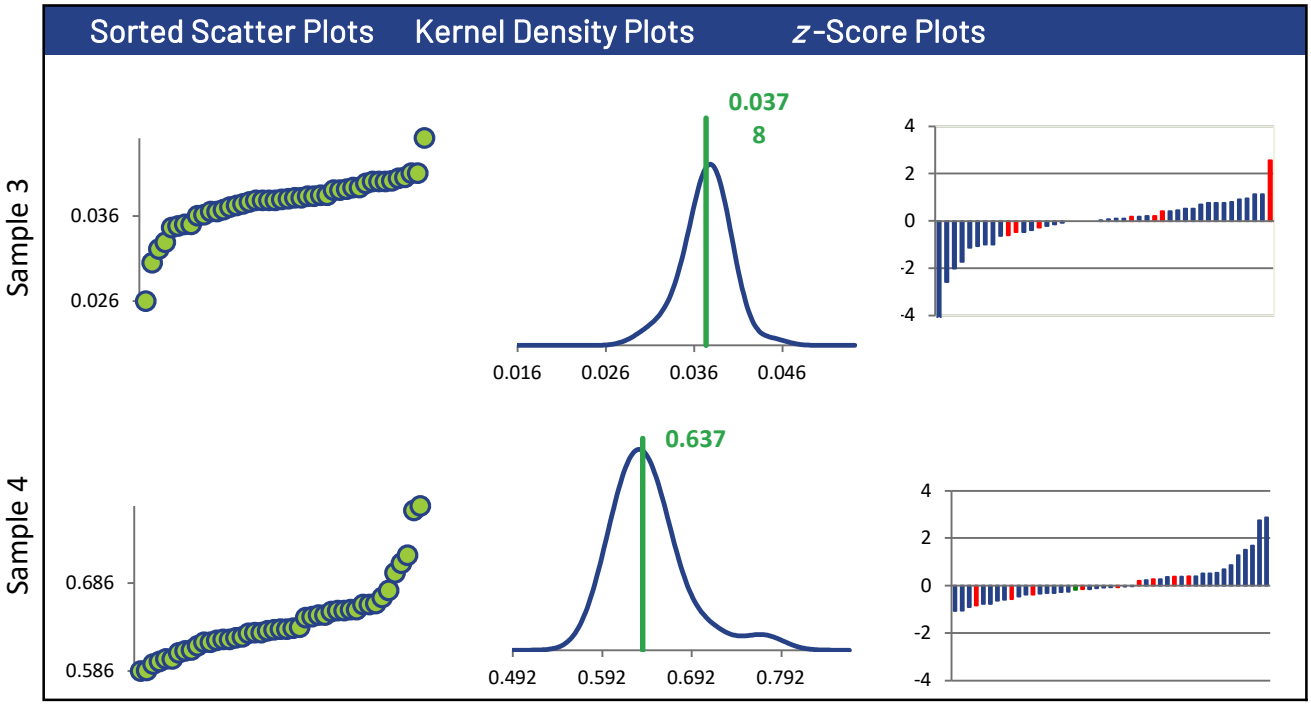
Methods Used

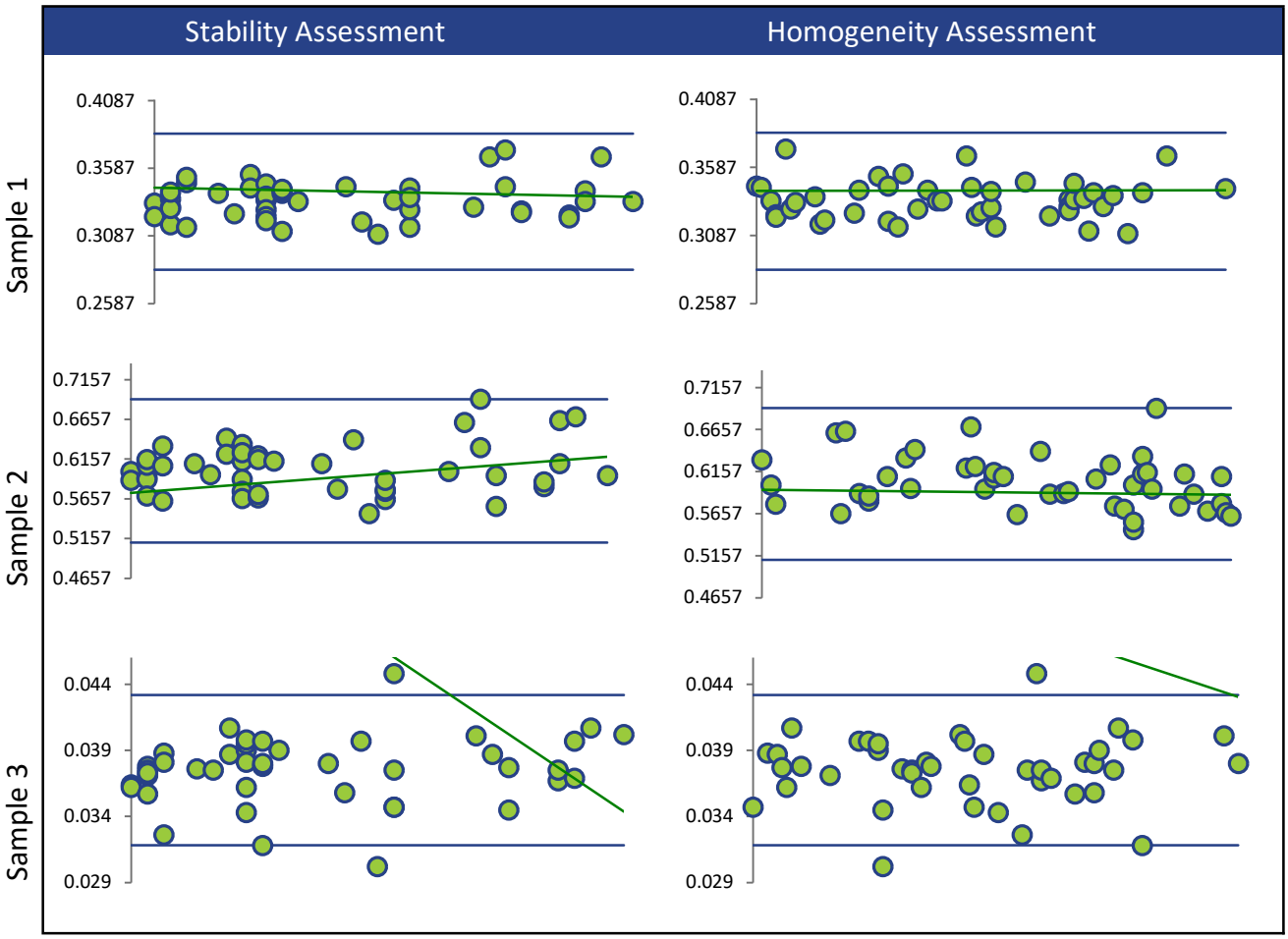
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	35	35	35	35
ICP/OES (Red)	9	9	8	9
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



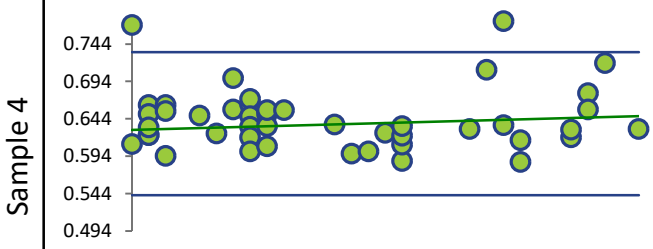
BERYLLIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.036
0.026
0.037
8
0.016
0.026
0.036
0.046
4
2
0
-2
-4
Sample 4
0.686
0.586
0.637
0.492
0.592
0.692
0.792
4
2
0
-2
-4

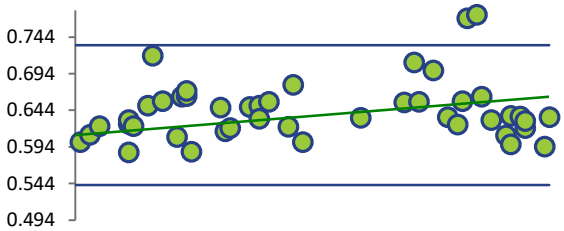

Stability Assessment
Homogeneity Assessment
Sample 1
0.4087
0.3587
0.3087
0.2587
Sample 2
0.7157
0.6657
0.6157
0.5657
0.5157
0.4657
Sample 3
0.044
0.039
0.034
0.029

BERYLLIUM

Stability Assessment



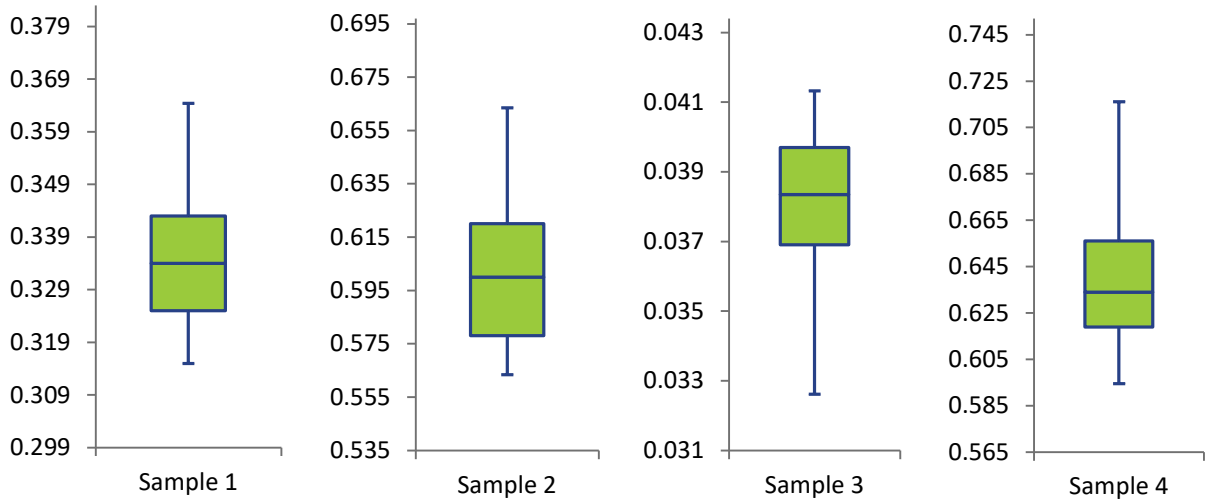
Homogeneity Assessment



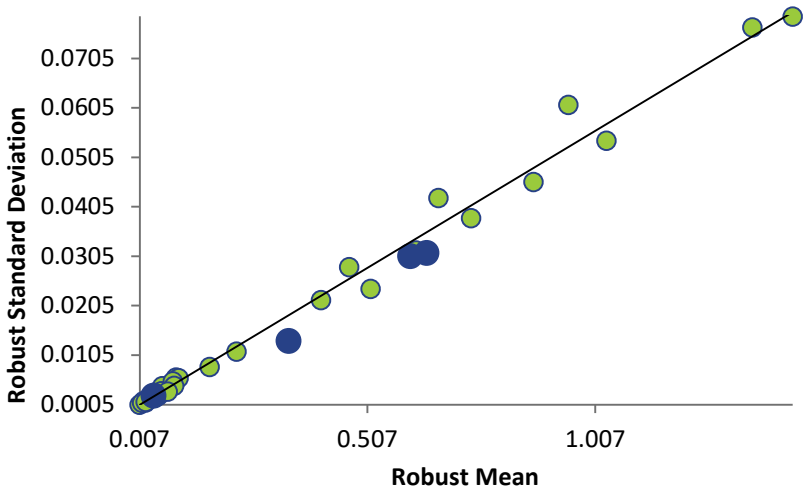
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



BISMUTH

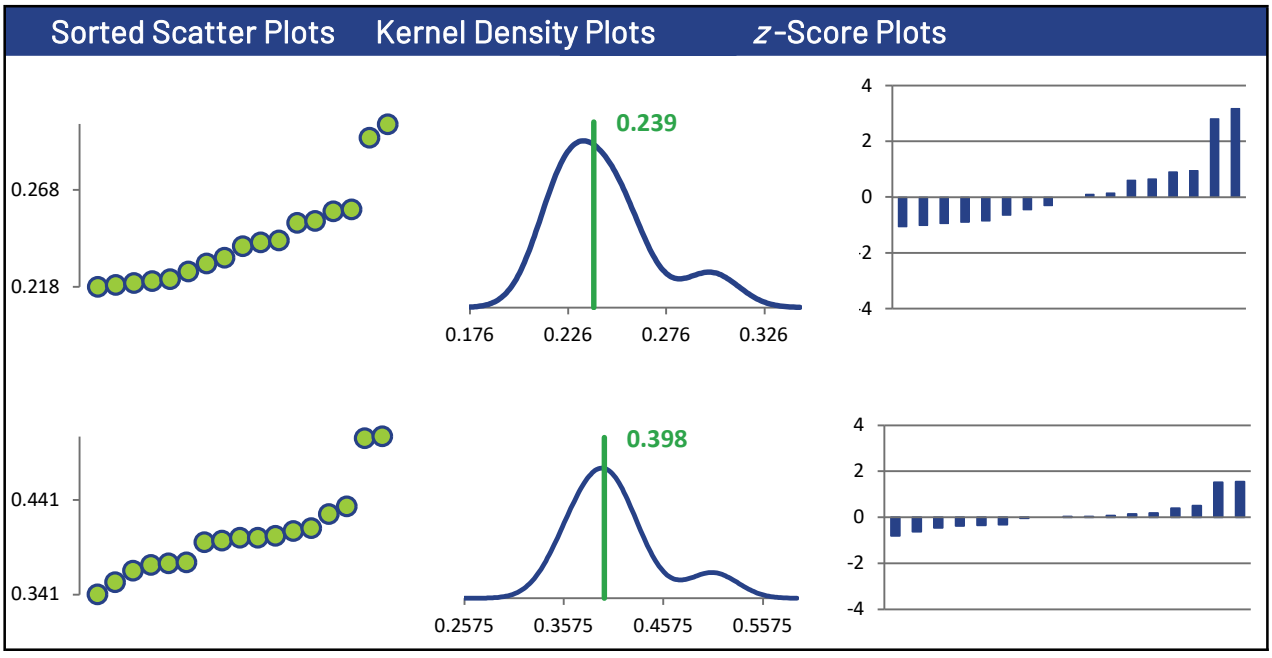
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	17	17	17	16
Median mg/L	0.239	0.401	0.0771	0.427
Robust Mean mg/L	0.239	0.398	0.0767	0.430
U mg/L	0.00603	0.0107	0.00166	0.0114
Robust Standard Deviation mg/L	0.0199	0.0354	0.00549	0.0365
Regression Standard Deviation mg/L				
Stability Flag				
Homogeneity Flag		Homogeneity		
Standard Deviation Used (SDPA) mg/L	0.0199	0.0711	0.00549	0.0365
Outliers	0	0	0	1
|z|>3.0	1	0	1	1
2<|z|<3	1	0	1	1

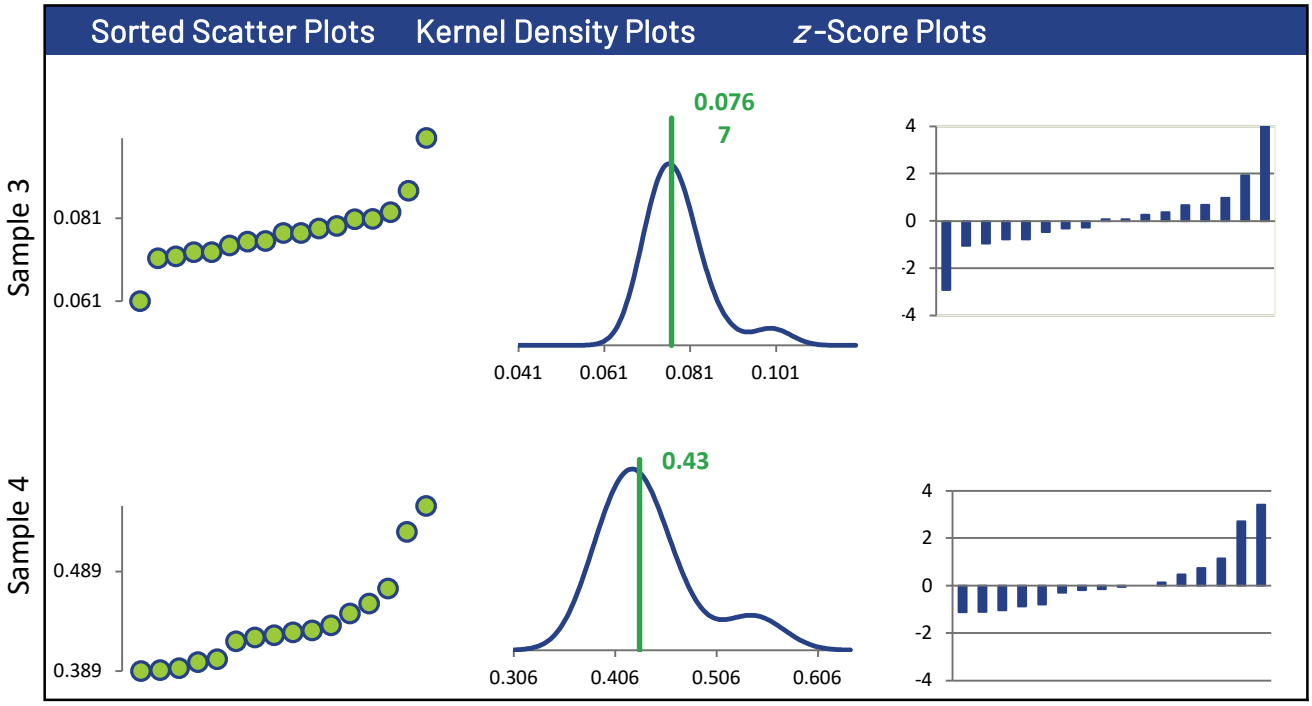
Methods Used

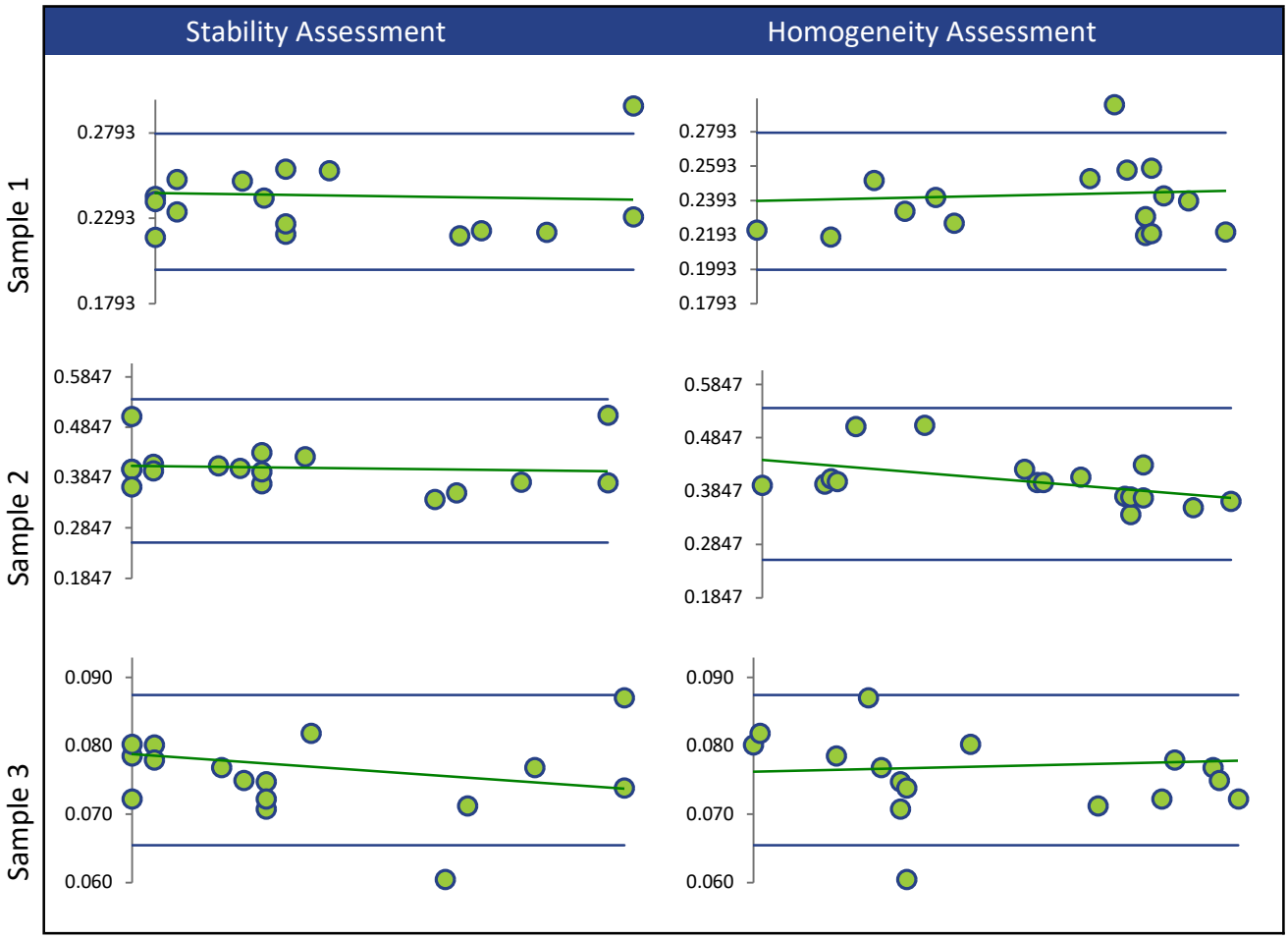
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	17	17	17	16

All summary stats and the plots below are based on the data excluding any flagged outliers



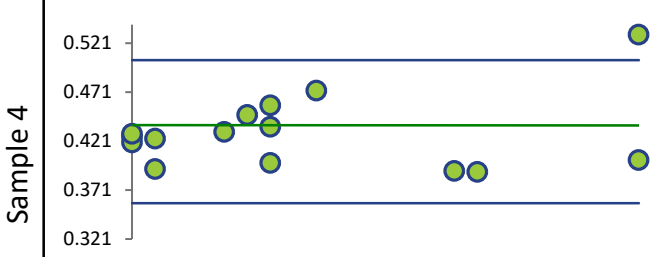
BISMUTH


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.081
0.061
0.076
7
0.041
0.061
0.081
0.101
4
2
0
-2
-4
Sample 4
0.489
0.389
0.43
0.306
0.406
0.506
0.606
4
2
0
-2
-4

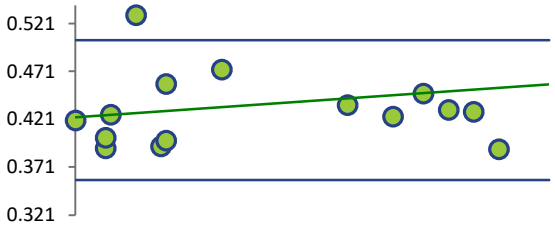

Stability Assessment
Homogeneity Assessment
Sample 1
0.2793
0.2293
0.1793
0.2793
0.2593
0.2393
0.2193
0.1993
0.1793
Sample 2
0.5847
0.4847
0.3847
0.2847
0.1847
0.5847
0.4847
0.3847
0.2847
0.1847
Sample 3
0.090
0.080
0.070
0.060
0.090
0.080
0.070
0.060

BISMUTH

Stability Assessment



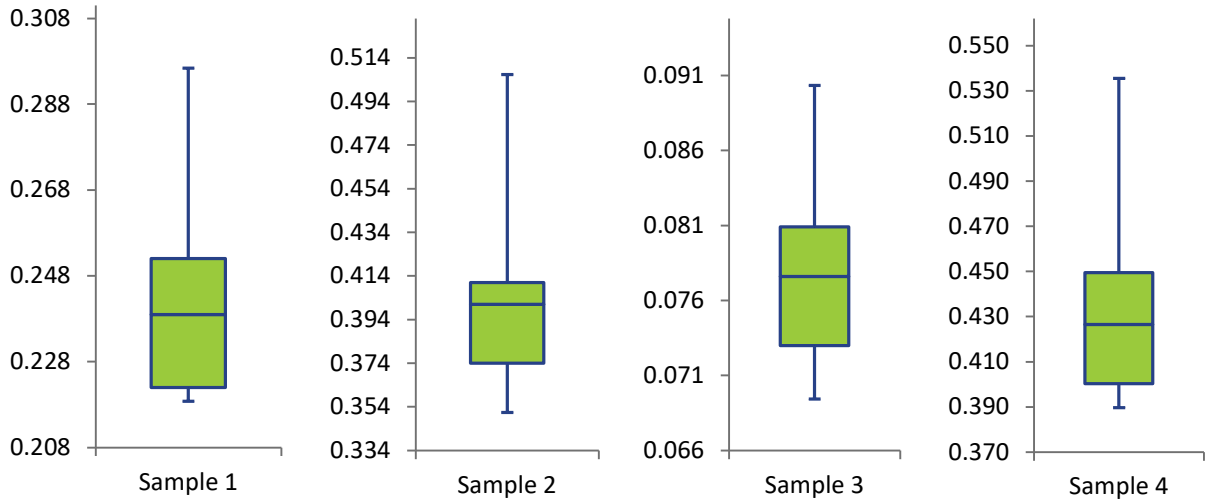
Homogeneity Assessment



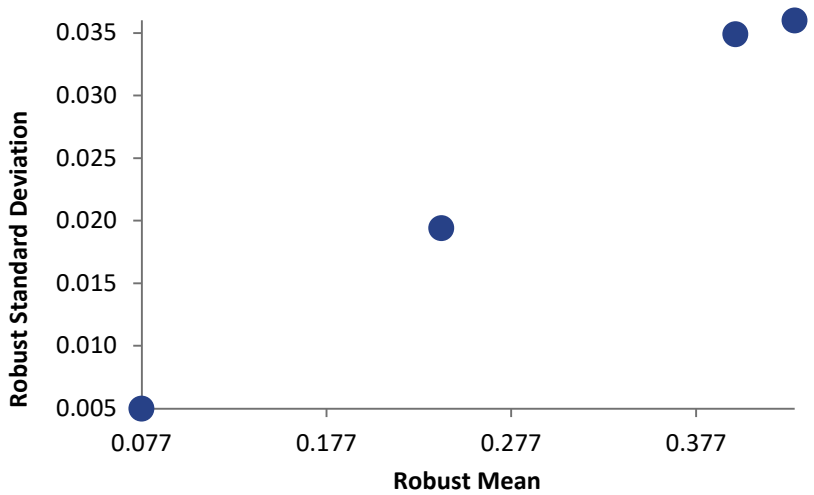
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



BORON

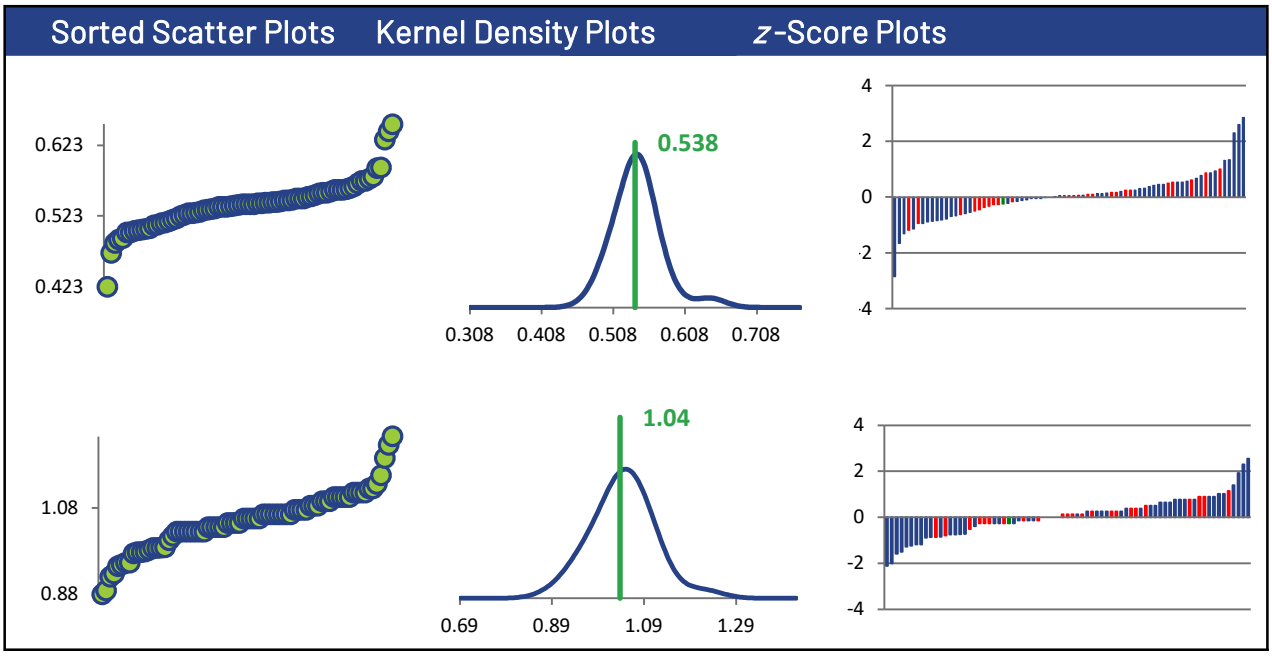
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	75	75	74	75
Median mg/L	0.540	1.05	0.392	1.58
Robust Mean mg/L	0.538	1.04	0.392	1.57
U mg/L	0.00390	0.00885	0.00345	0.0102
Robust Standard Deviation mg/L	0.0272	0.0617	0.0239	0.0708
Regression Standard Deviation mg/L	0.0404	0.0783	0.0294	0.118
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0404	0.0783	0.0294	0.118
Outliers	1	1	1	1
|z|>3.0	0	0	1	1
2<|z|<3	4	3	6	3

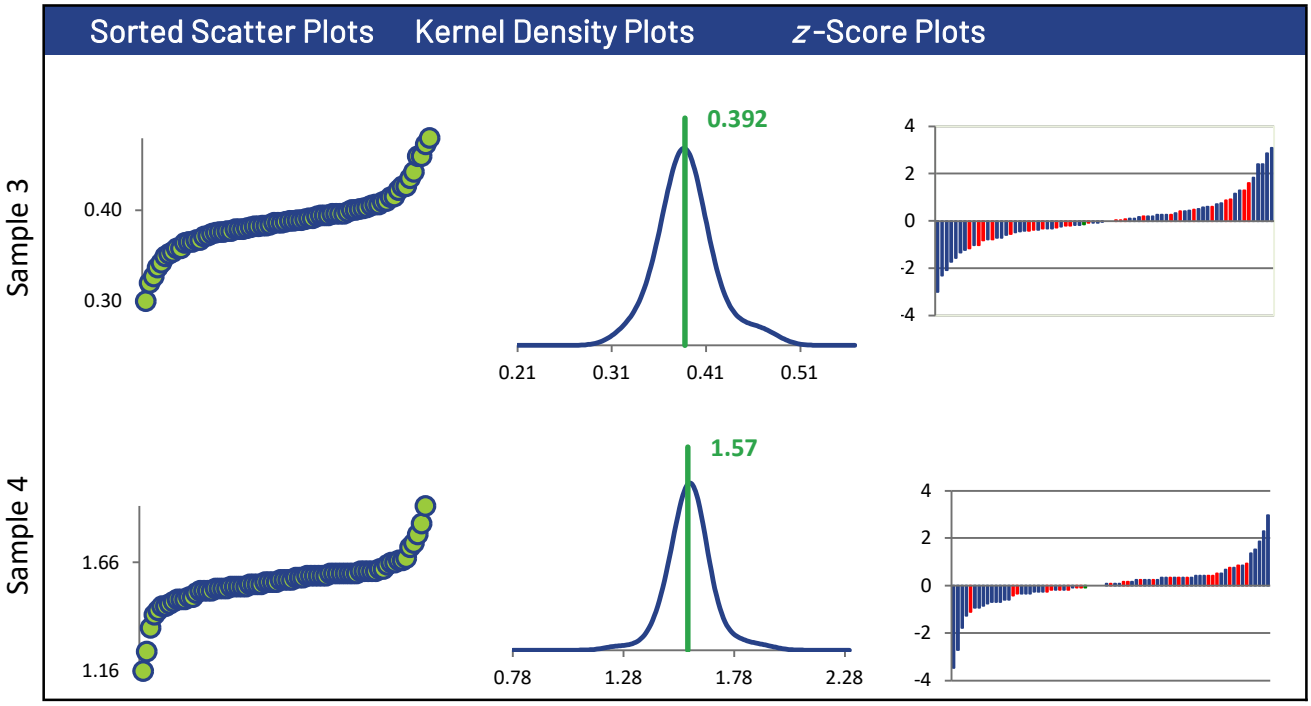
Methods Used

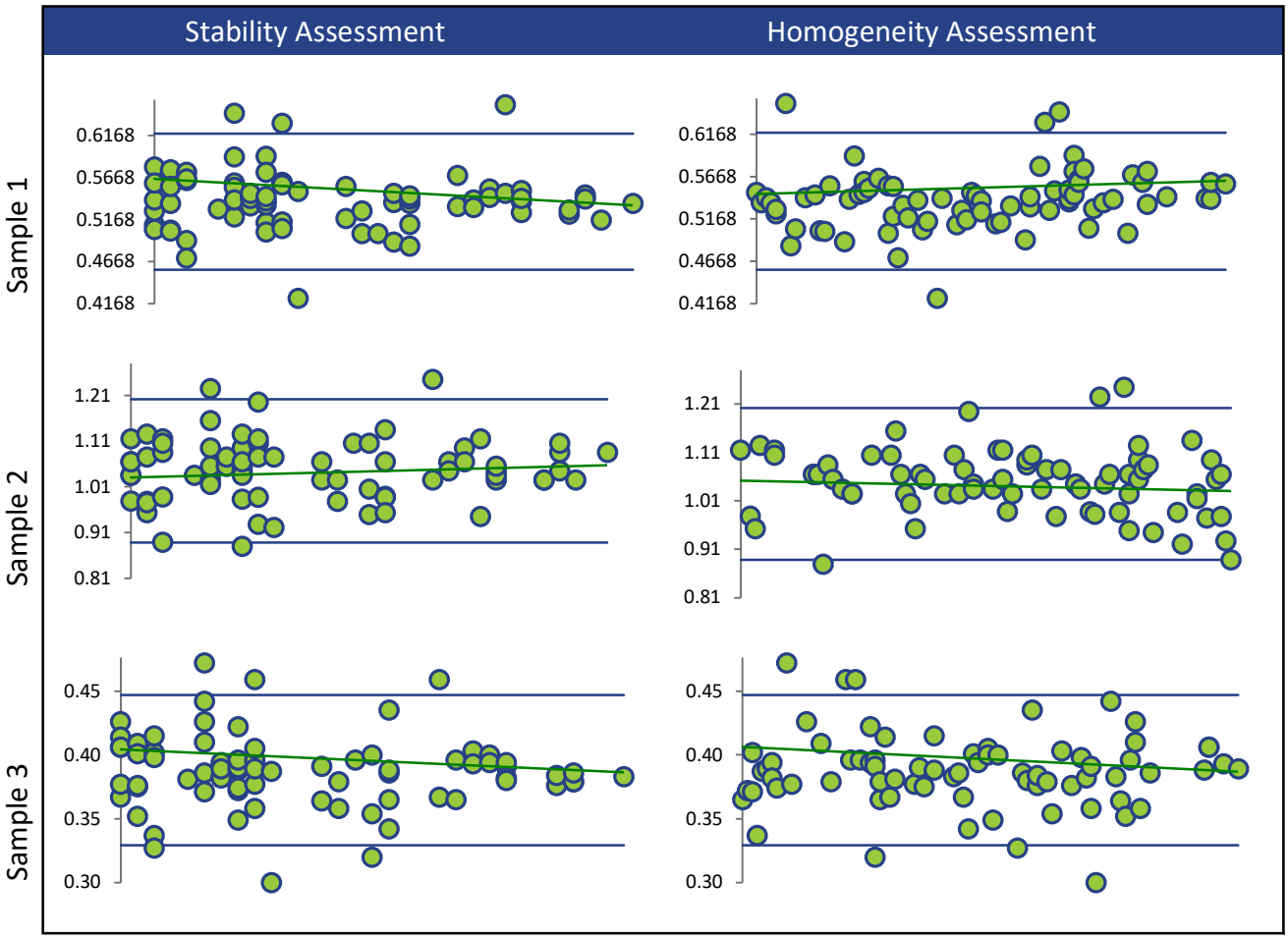
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	49	49	48	49
ICP/OES (Red)	25	25	25	25
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



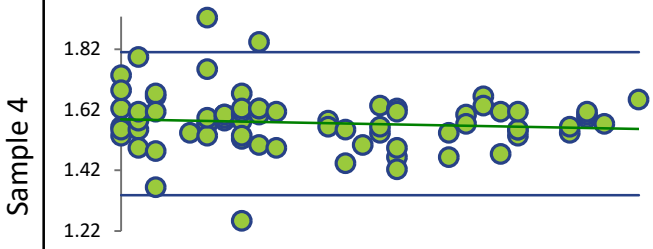
BORON


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.40
0.30
0.392
0.21
0.31
0.41
0.51
4
2
0
-2
-4
Sample 4
1.66
1.16
1.57
0.78
1.28
1.78
2.28
4
2
0
-2
-4

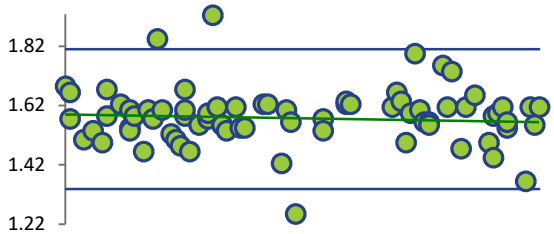

Stability Assessment
Homogeneity Assessment
Sample 1
0.6168
0.5668
0.5168
0.4668
0.4168
Sample 2
1.21
1.11
1.01
0.91
0.81
Sample 3
0.45
0.40
0.35
0.30

BORON

Stability Assessment



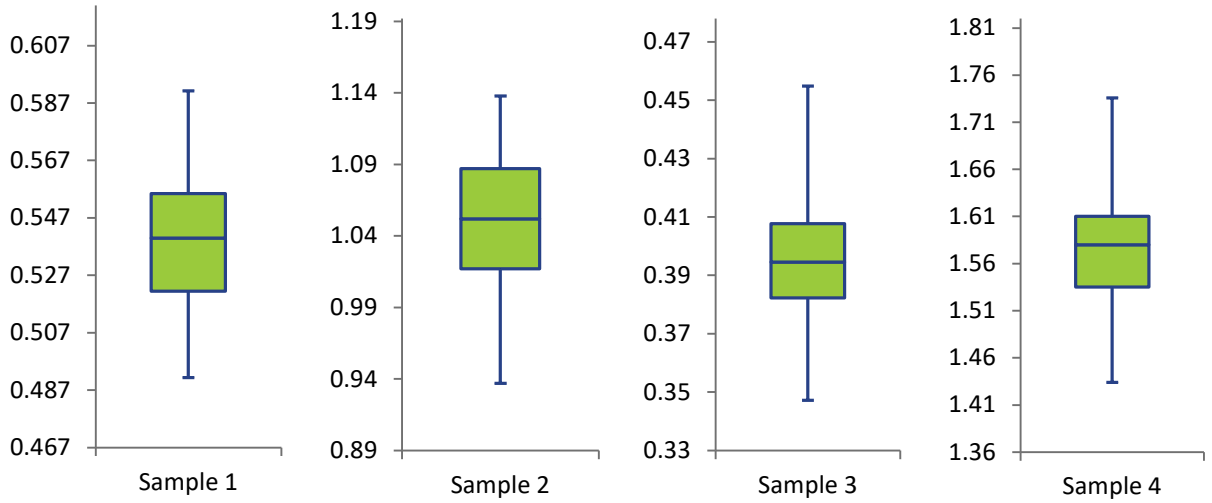
Homogeneity Assessment



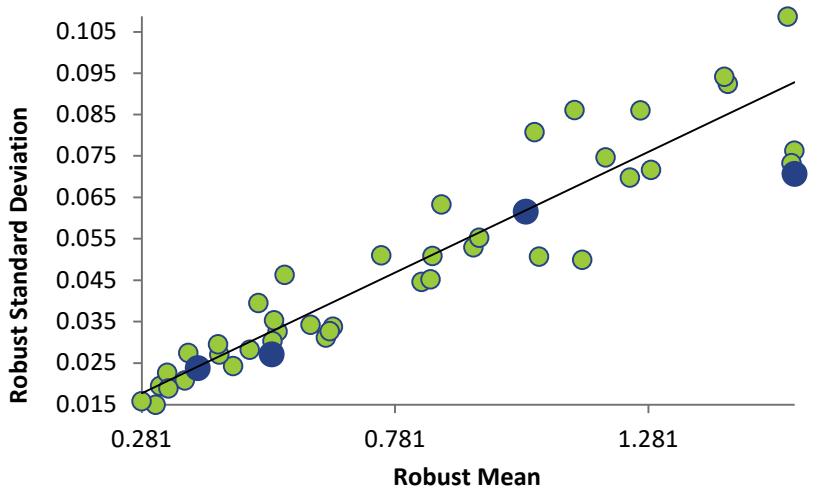
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



CADMIUM

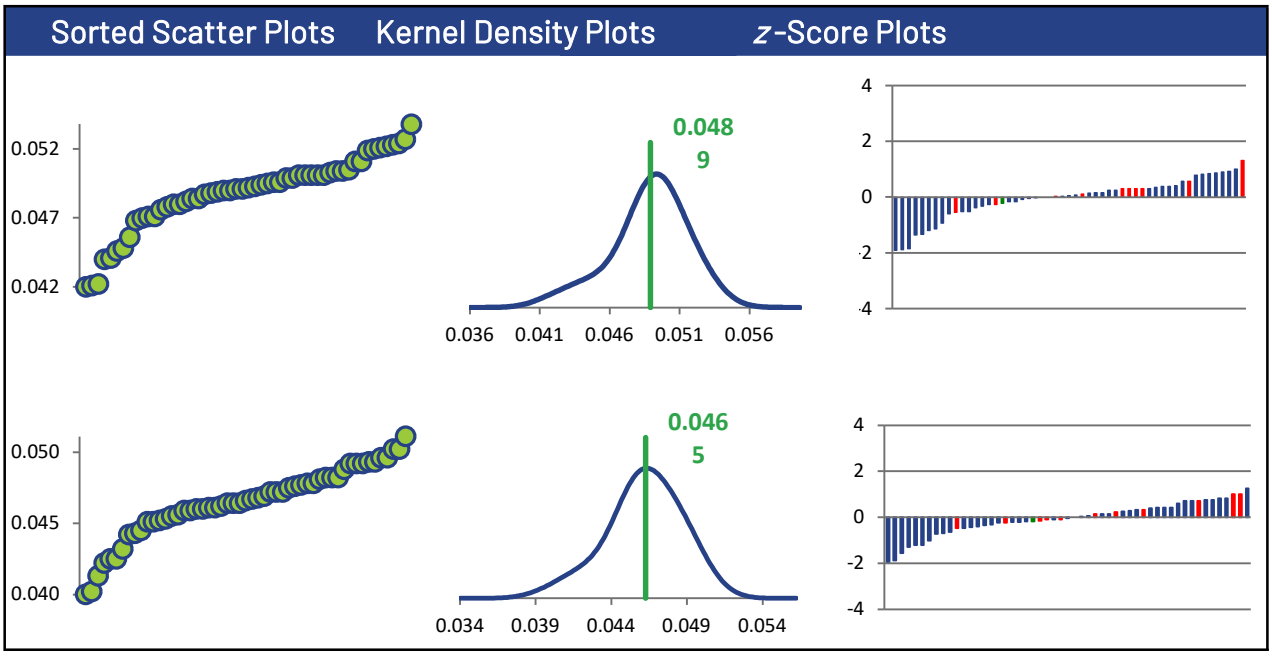
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	53	53	53	53
Median mg/L	0.0491	0.0464	0.0180	0.0986
Robust Mean mg/L	0.0489	0.0465	0.0180	0.0981
U mg/L	0.000412	0.000403	0.000185	0.000786
Robust Standard Deviation mg/L	0.00242	0.00237	0.00109	0.00462
Regression Standard Deviation mg/L	0.00367	0.00348	0.00135	0.00735
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.00367	0.00348	0.00135	0.00735
Outliers	1	1	1	1
|z|>3.0	0	0	1	0
2<|z|<3	0	0	1	0

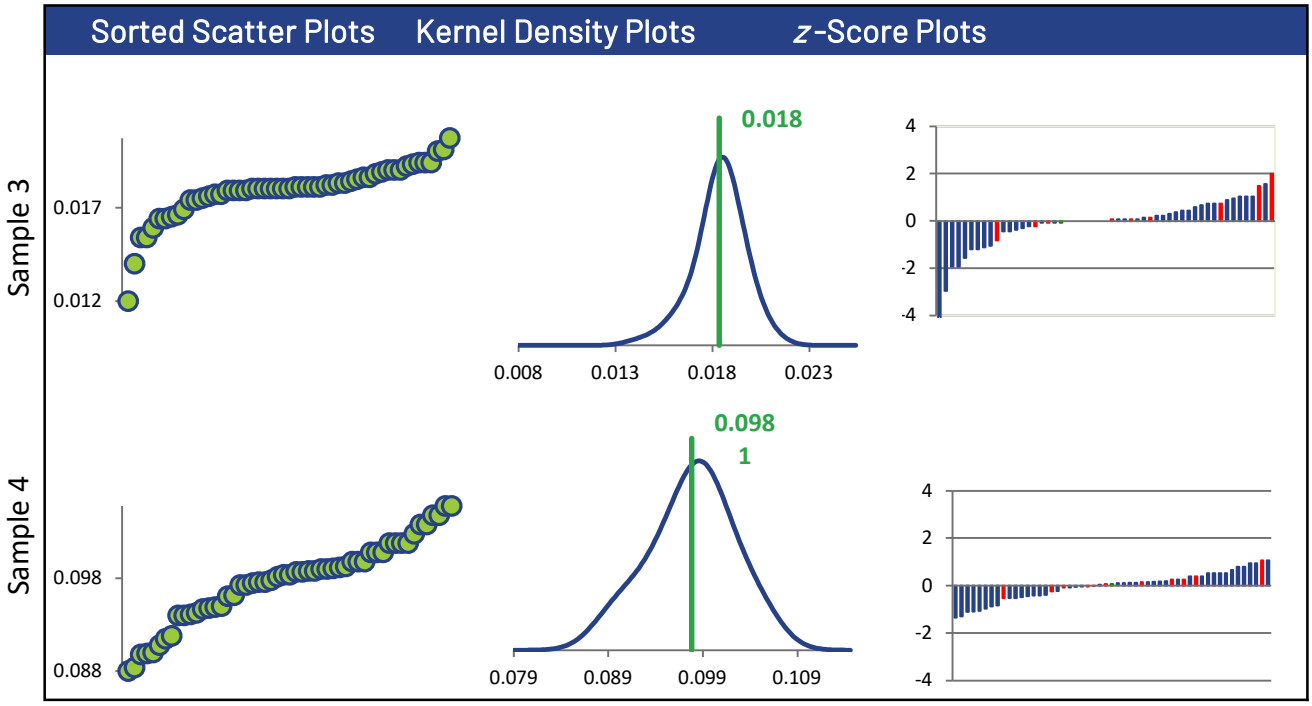
Methods Used

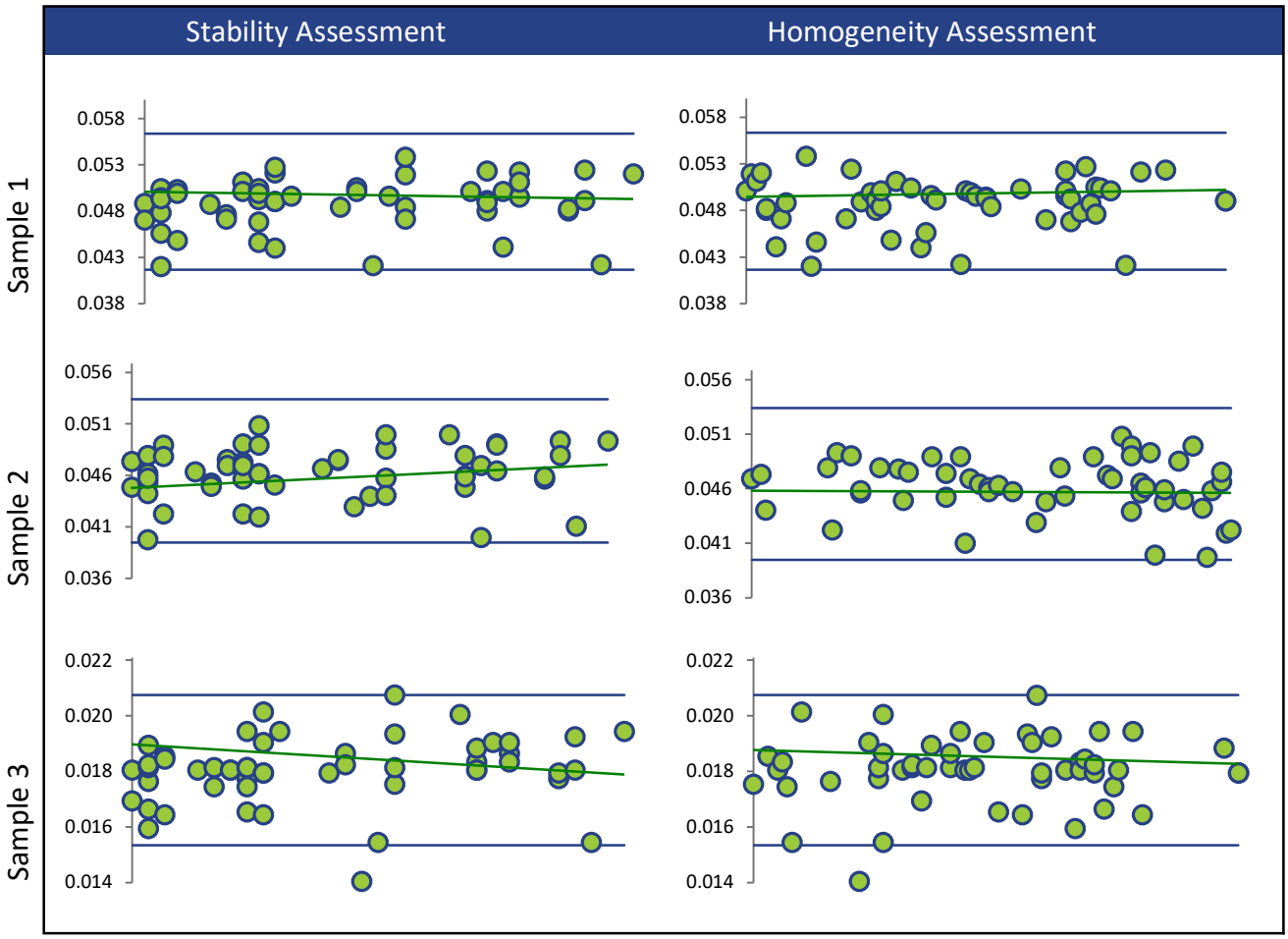
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	41	41	41	41
ICP/OES (Red)	11	11	11	11
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



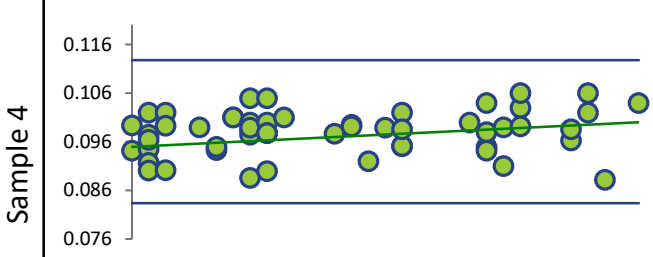
CADMIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.017
0.012
0.018
0.008
0.013
0.018
0.023
4
2
0
-2
-4
Sample 4
0.098
0.088
0.098
1
0.079
0.089
0.099
0.109
4
2
0
-2
-4

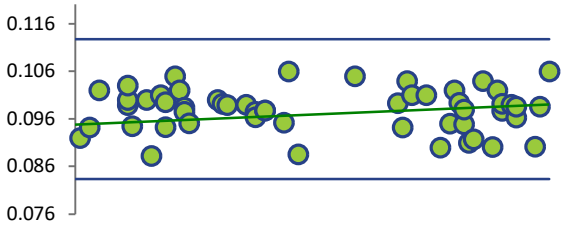

Stability Assessment
Homogeneity Assessment
Sample 1
0.058
0.053
0.048
0.043
0.038
Sample 2
0.056
0.051
0.046
0.041
0.036
Sample 3
0.022
0.020
0.018
0.016
0.014

CADMIUM

Stability Assessment



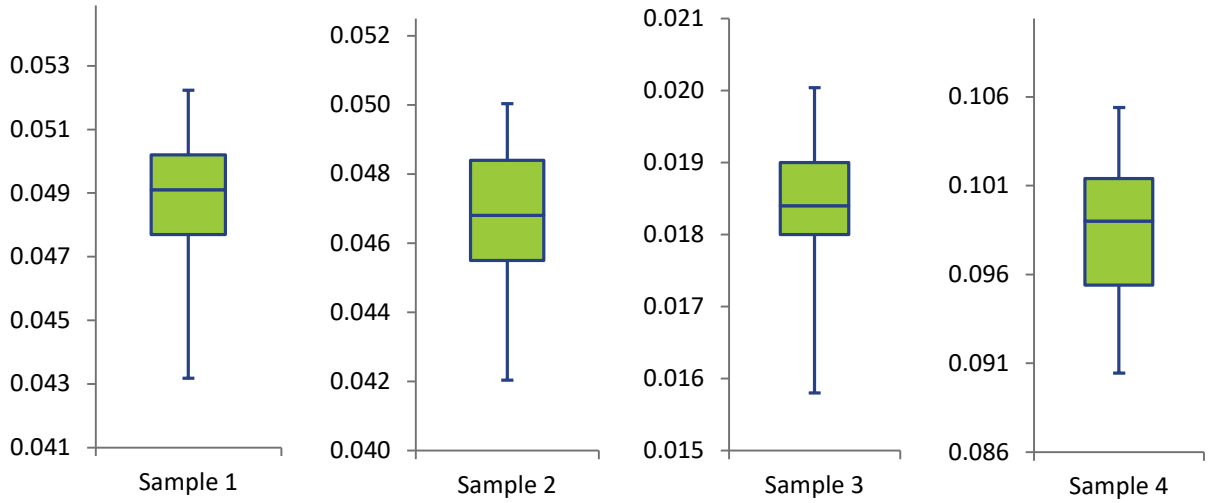
Homogeneity Assessment



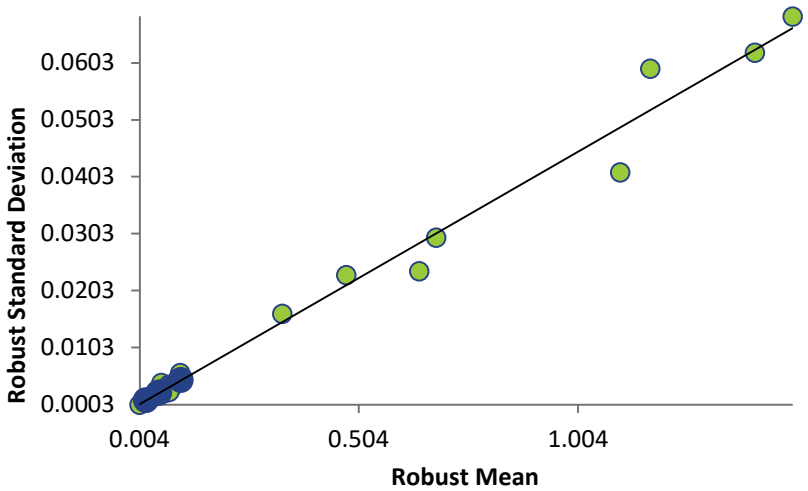
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



CHROMIUM

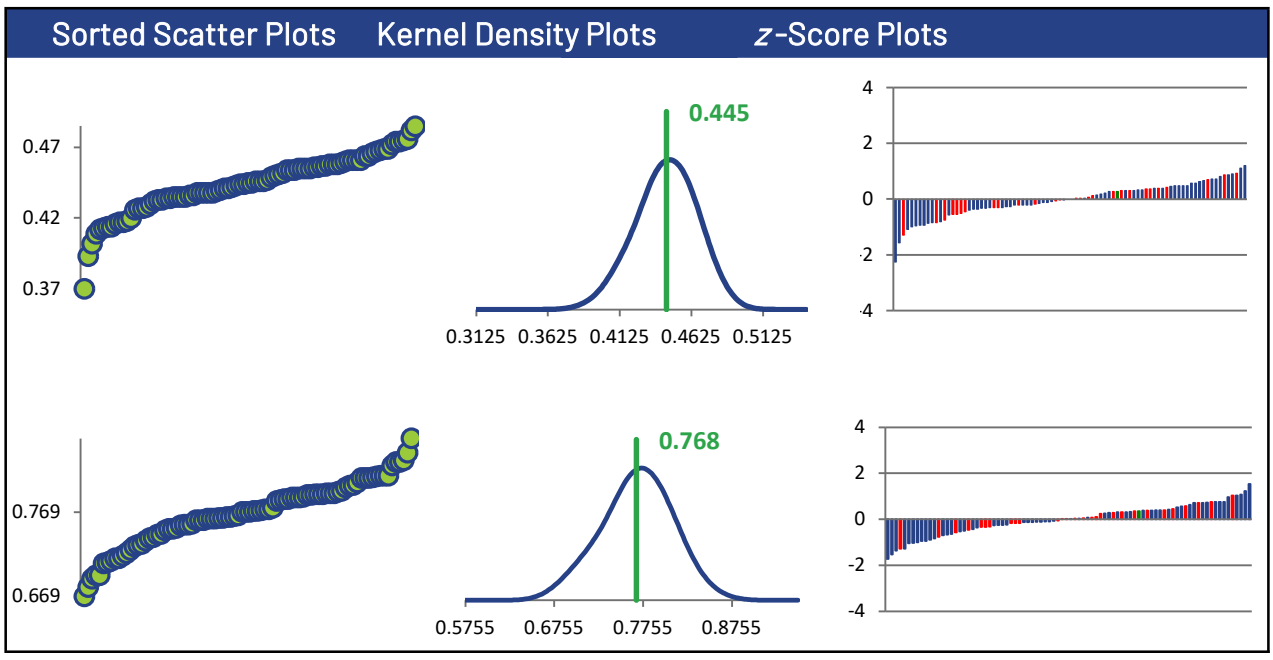
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	86	86	86	86
Median mg/L	0.445	0.769	0.309	1.25
Robust Mean mg/L	0.445	0.768	0.310	1.24
U mg/L	0.00271	0.00511	0.00220	0.00860
Robust Standard Deviation mg/L	0.0202	0.0381	0.0164	0.0642
Regression Standard Deviation mg/L	0.0334	0.0576	0.0232	0.0933
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0334	0.0576	0.0232	0.0933
Outliers	1	1	1	1
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

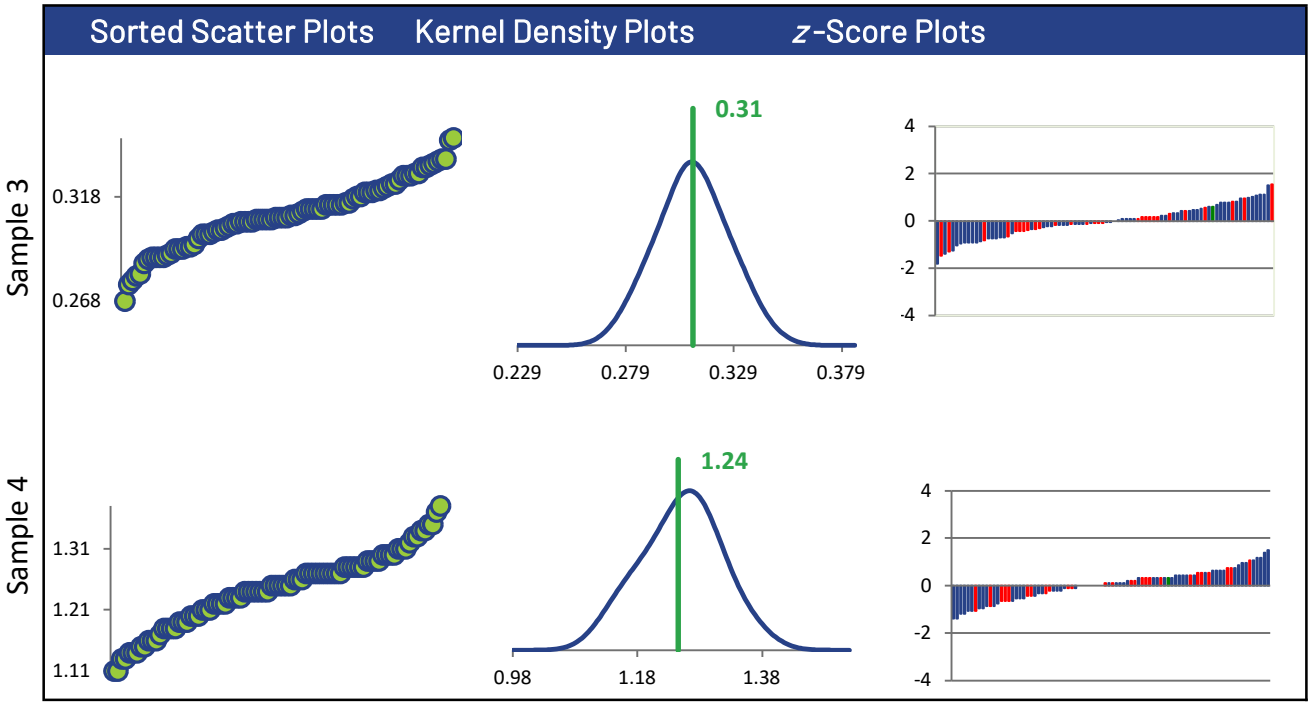
Methods Used

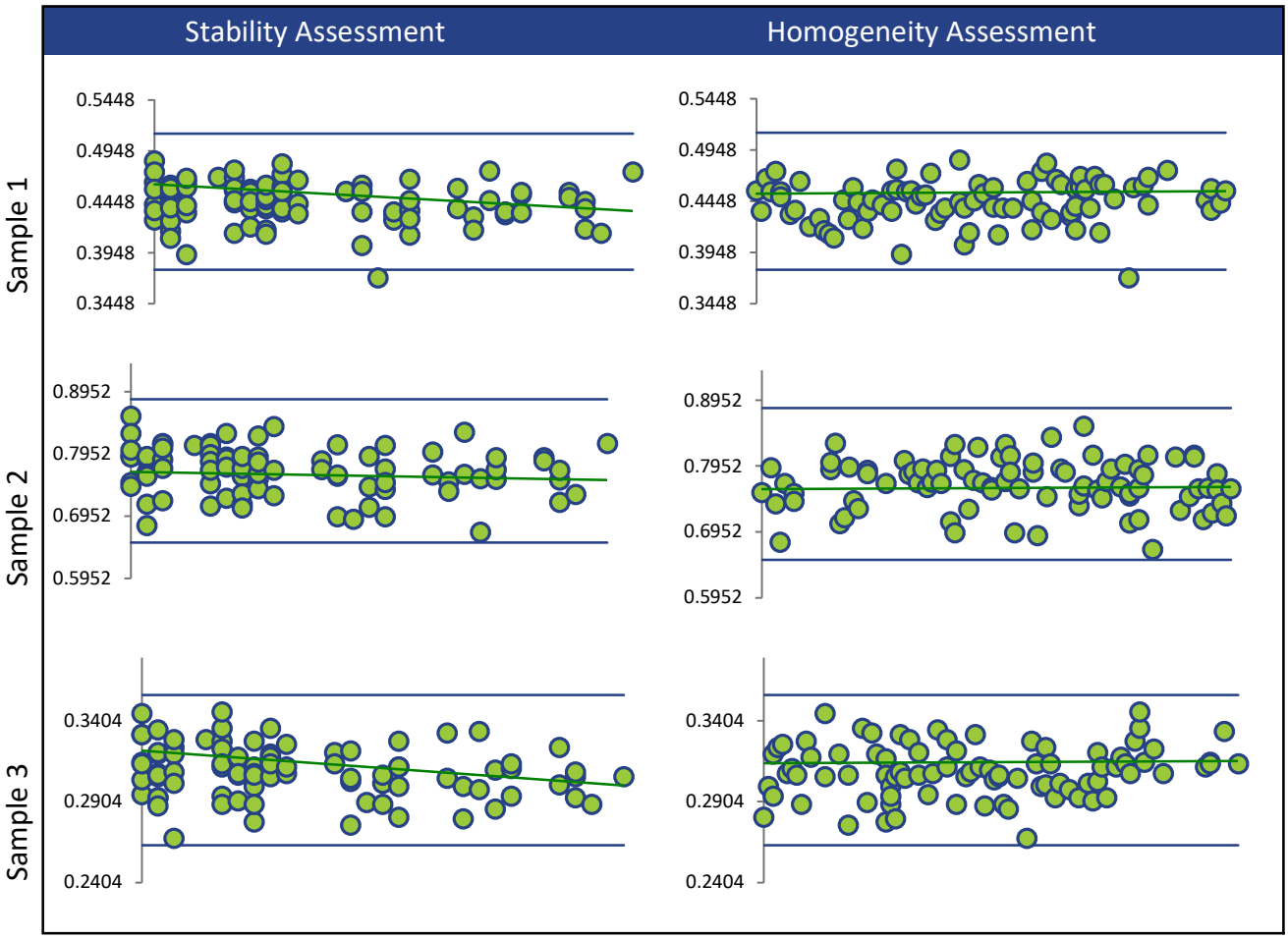
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	57	57	57	57
ICP/OES (Red)	28	28	28	28
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



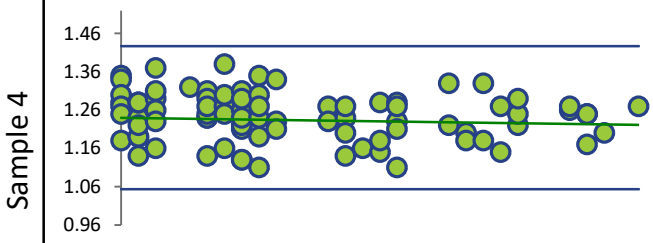
CHROMIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.318
0.268
0.31
0.229
0.279
0.329
0.379
4
2
0
-2
-4
Sample 4
1.31
1.21
1.11
1.24
0.98
1.18
1.38
4
2
0
-2
-4

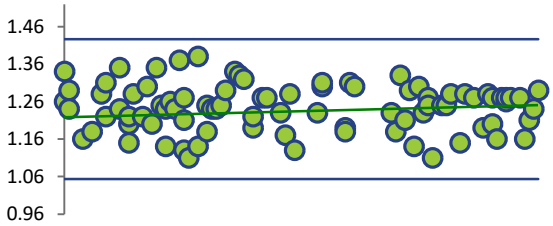

Stability Assessment
Homogeneity Assessment
Sample 1
0.5448
0.4948
0.4448
0.3948
0.3448
Sample 2
0.8952
0.7952
0.6952
0.5952
Sample 3
0.3404
0.2904
0.2404

CHROMIUM

Stability Assessment



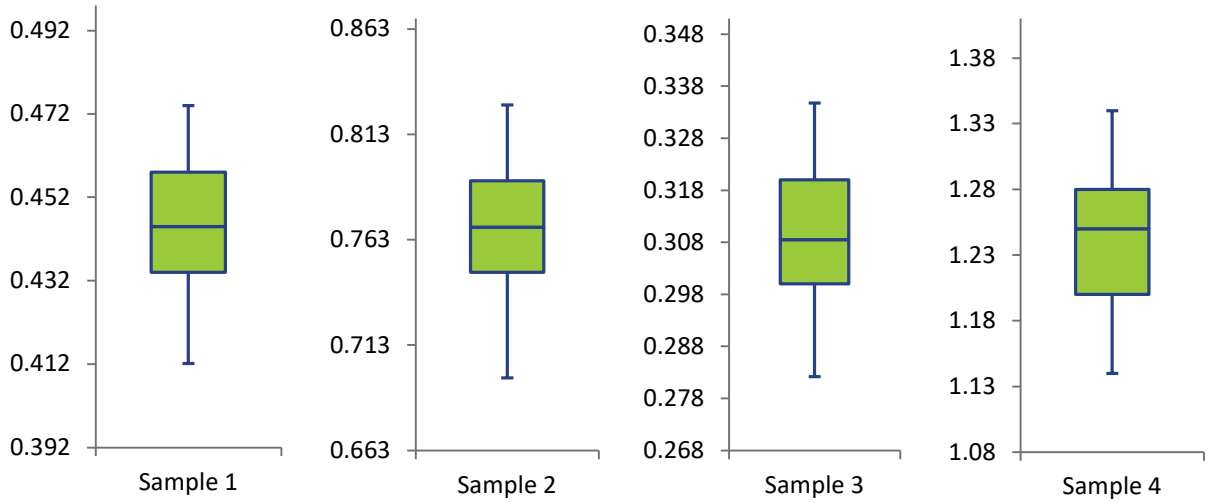
Homogeneity Assessment



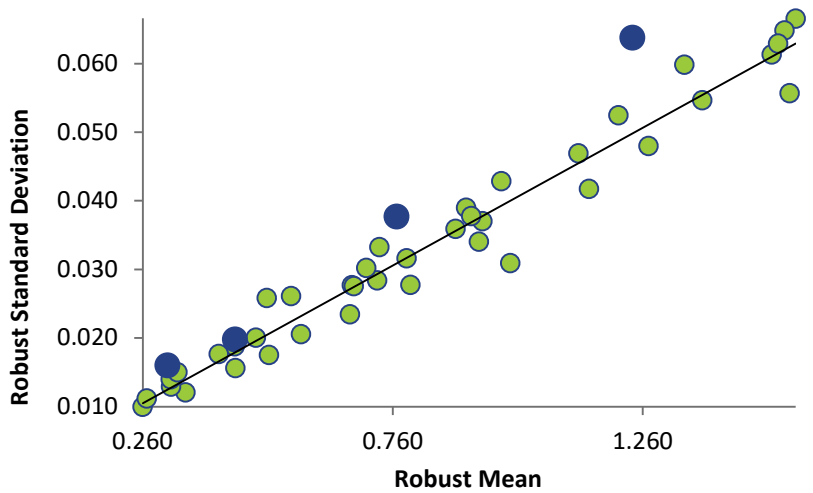
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



COBALT

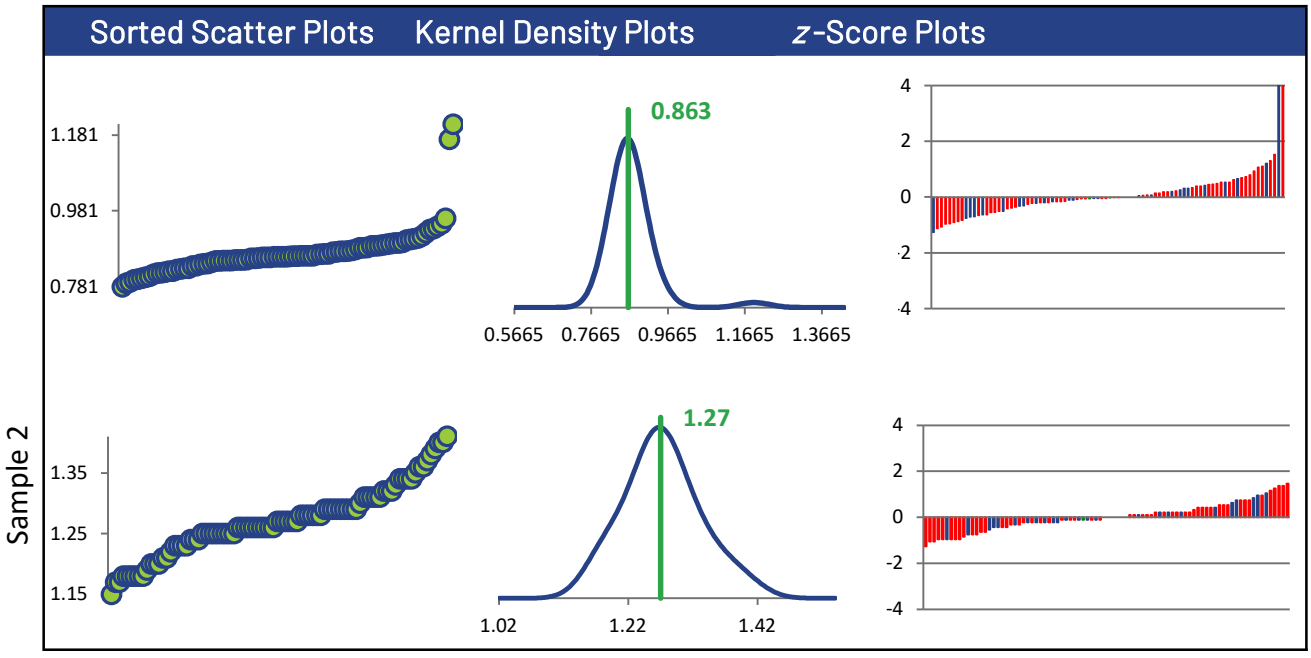
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	86	86	86	86
Median mg/L	0.861	1.27	1.27	1.20
Robust Mean mg/L	0.863	1.27	1.27	1.20
U mg/L	0.00504	0.00786	0.00780	0.00749
Robust Standard Deviation mg/L	0.0374	0.0583	0.0579	0.0556
Regression Standard Deviation mg/L	0.0647	0.0952	0.0953	0.0897
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0647	0.0952	0.0953	0.0897
Outliers	0	0	0	0
|z|>3.0	2	0	0	2
2<|z|<3	0	0	0	1

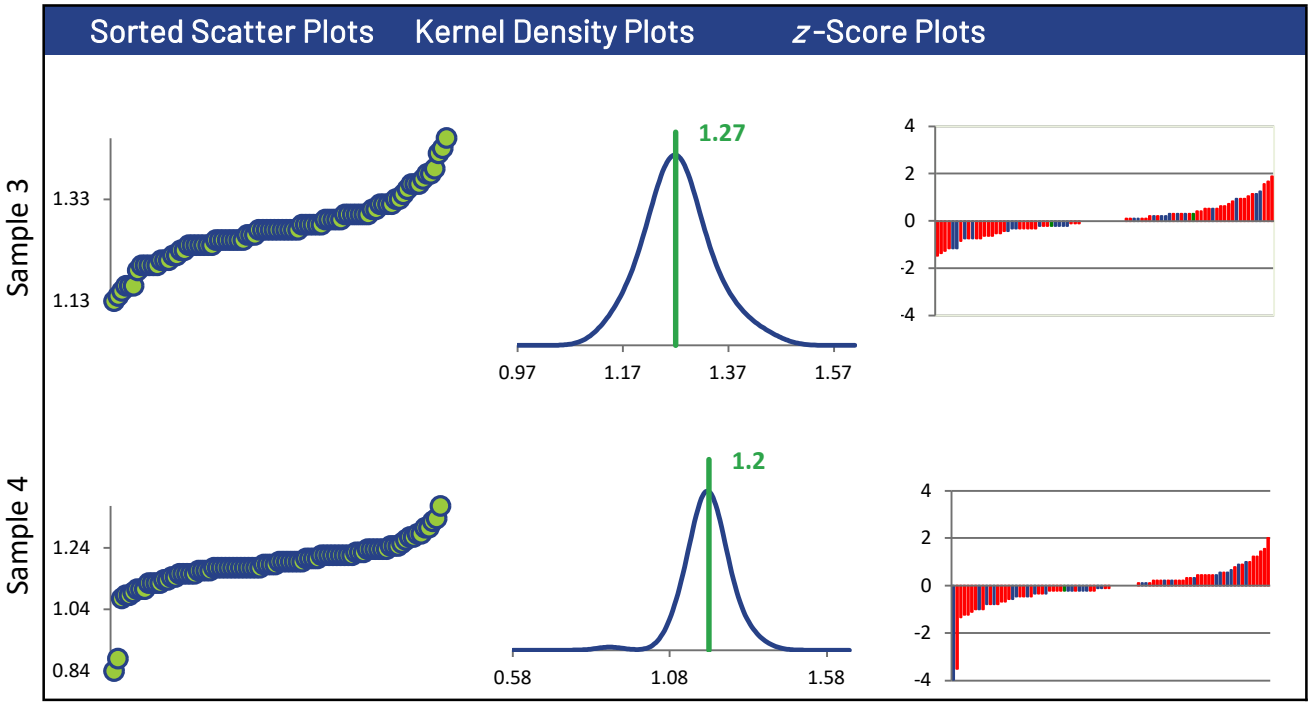
Methods Used

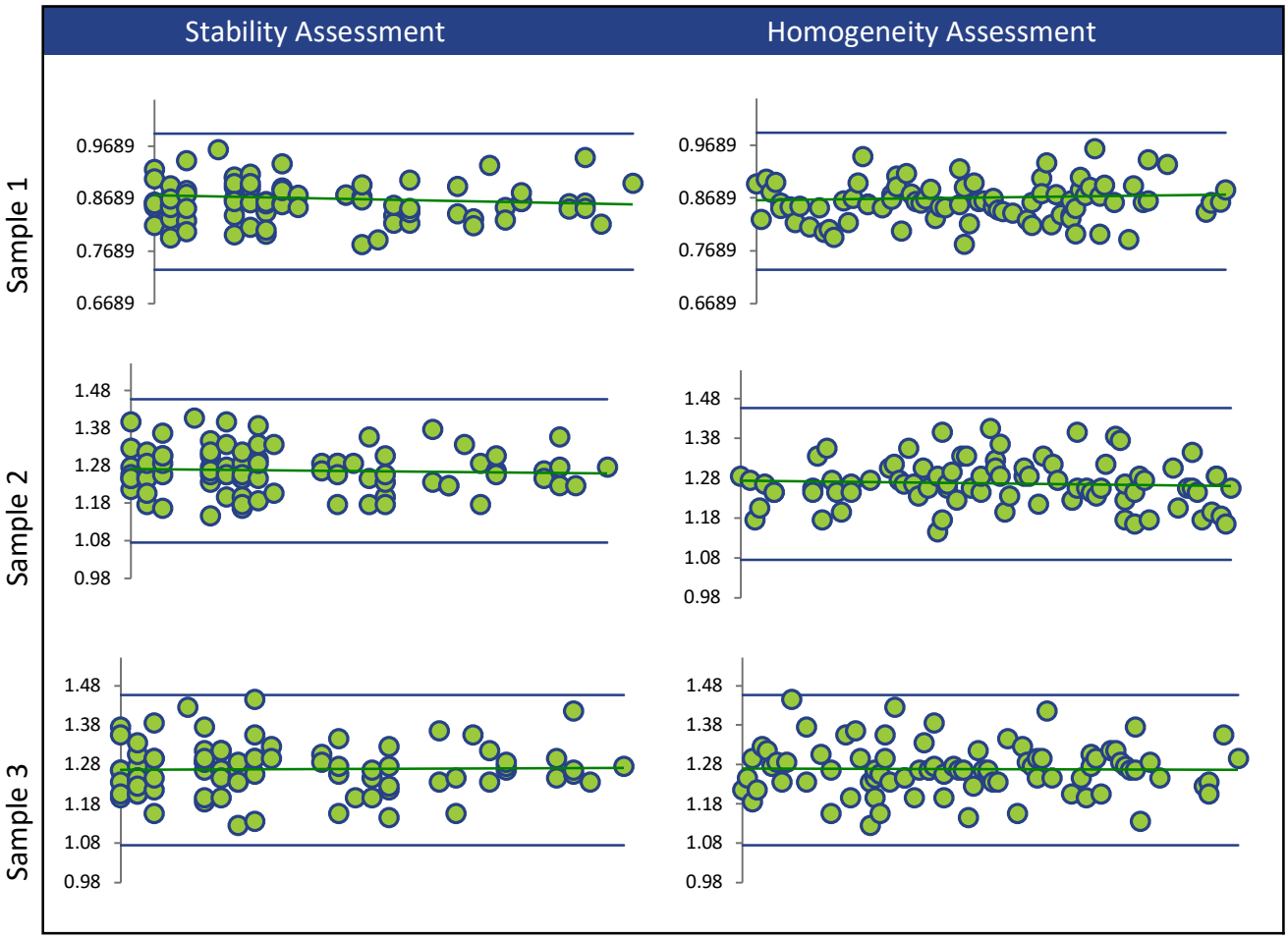
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/OES (Blue)	27	27	27	27
ICP/MS (Red)	57	57	57	57
AA FLAME (Green)	2	2	2	2

All summary stats and the plots below are based on the data excluding any flagged outliers



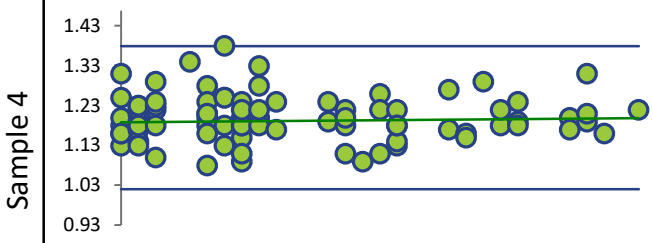
COBALT


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
1.33
1.13
1.27
0.97
1.17
1.37
1.57
4
2
0
-2
-4
Sample 4
1.24
1.04
0.84
1.2
0.58
1.08
1.58
4
2
0
-2
-4

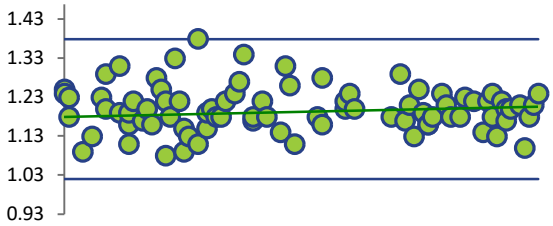

Stability Assessment
Homogeneity Assessment
Sample 1
0.9689
0.8689
0.7689
0.6689
Sample 2
1.48
1.38
1.28
1.18
1.08
0.98
Sample 3
1.48
1.38
1.28
1.18
1.08
0.98

COBALT

Stability Assessment



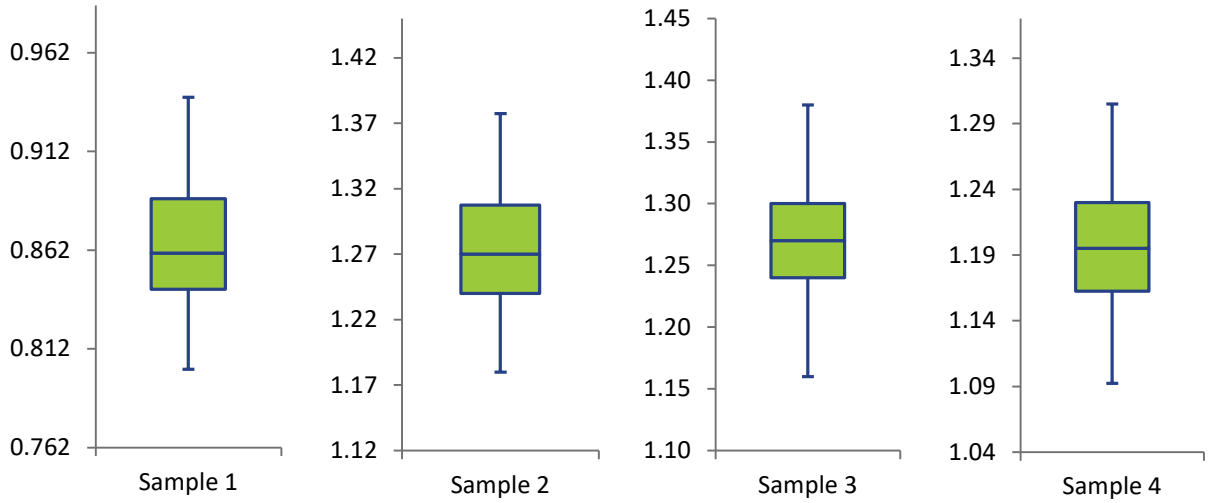
Homogeneity Assessment



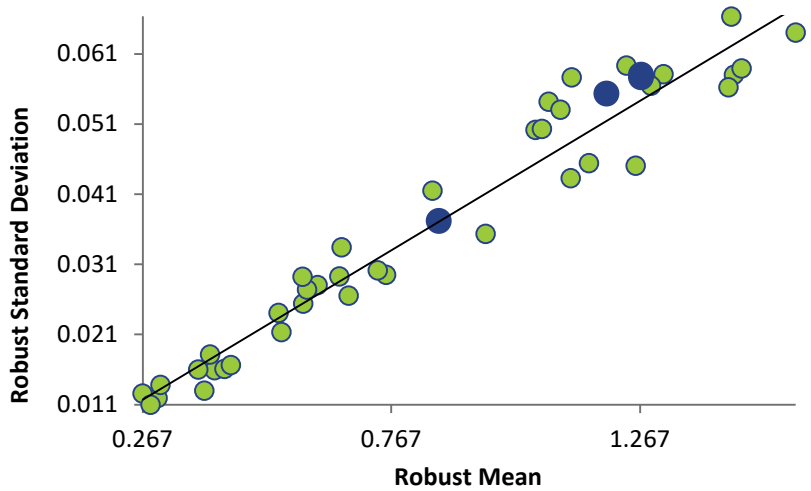
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



COPPER

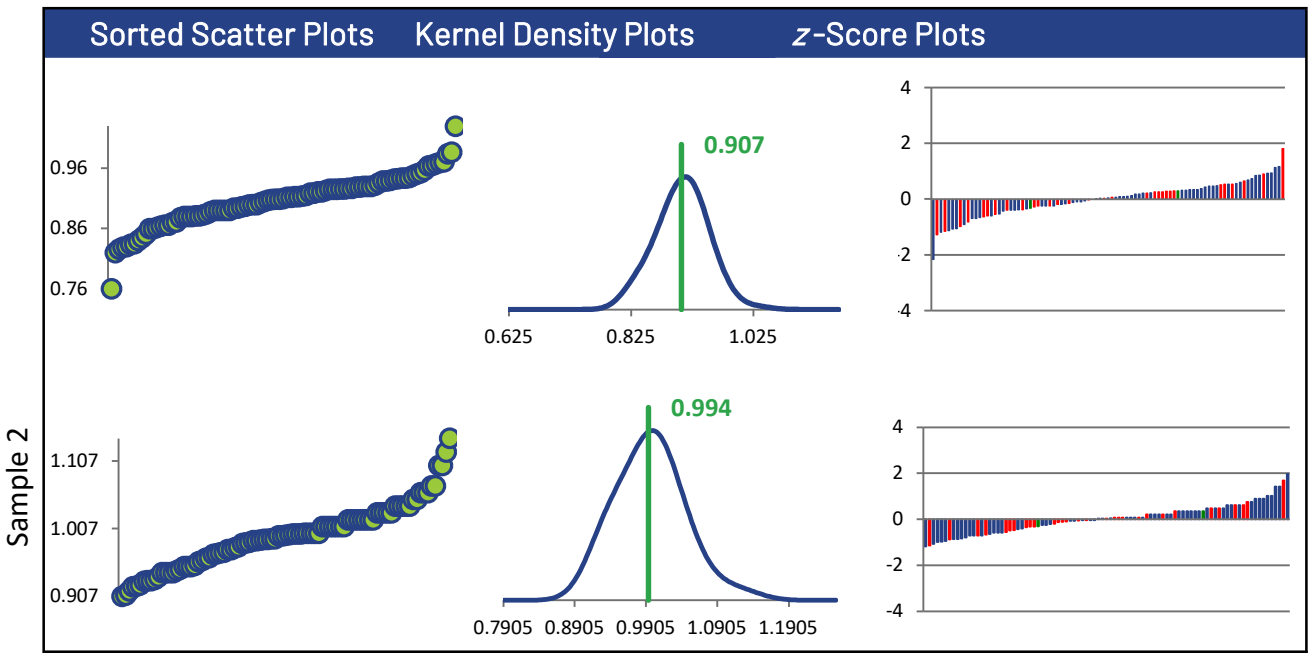
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	91	91	90	91
Median mg/L	0.910	0.997	0.380	1.59
Robust Mean mg/L	0.907	0.994	0.379	1.59
U mg/L	0.00520	0.00610	0.00242	0.00953
Robust Standard Deviation mg/L	0.0399	0.0468	0.0185	0.0731
Regression Standard Deviation mg/L	0.0681	0.0745	0.0284	0.119
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0681	0.0745	0.0284	0.119
Outliers	1	1	2	1
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

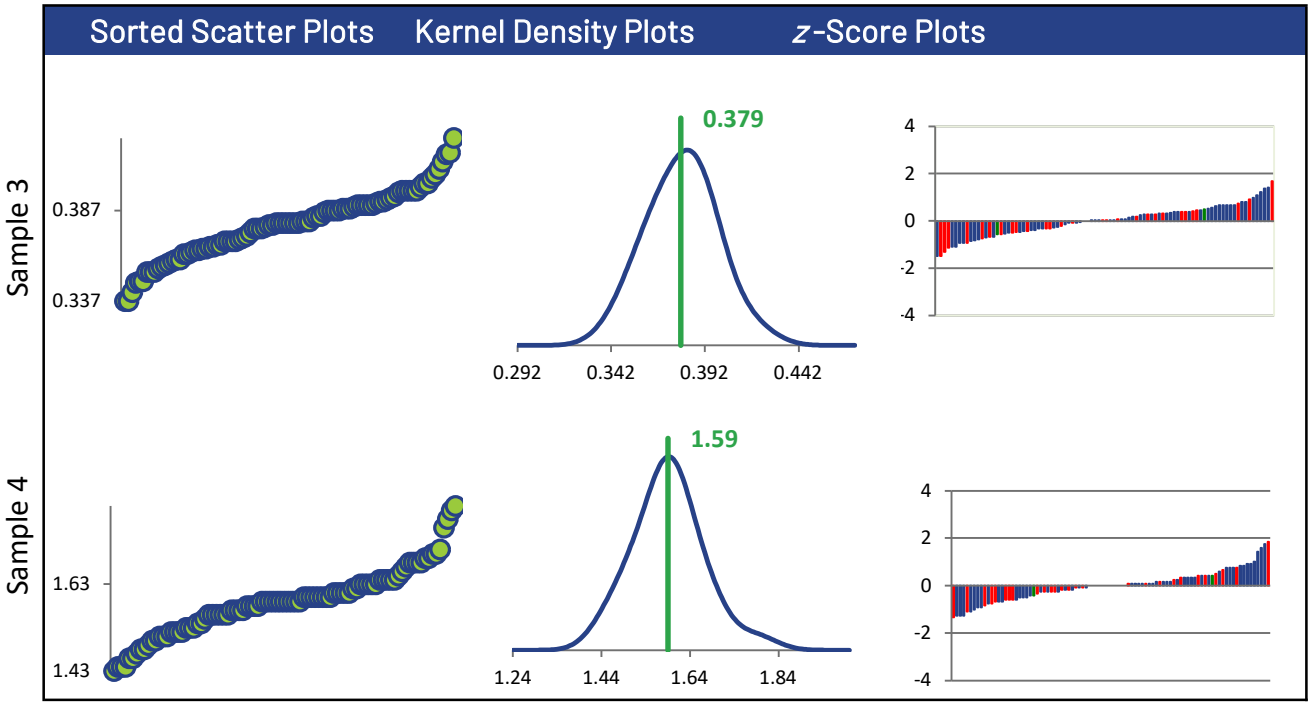
Methods Used

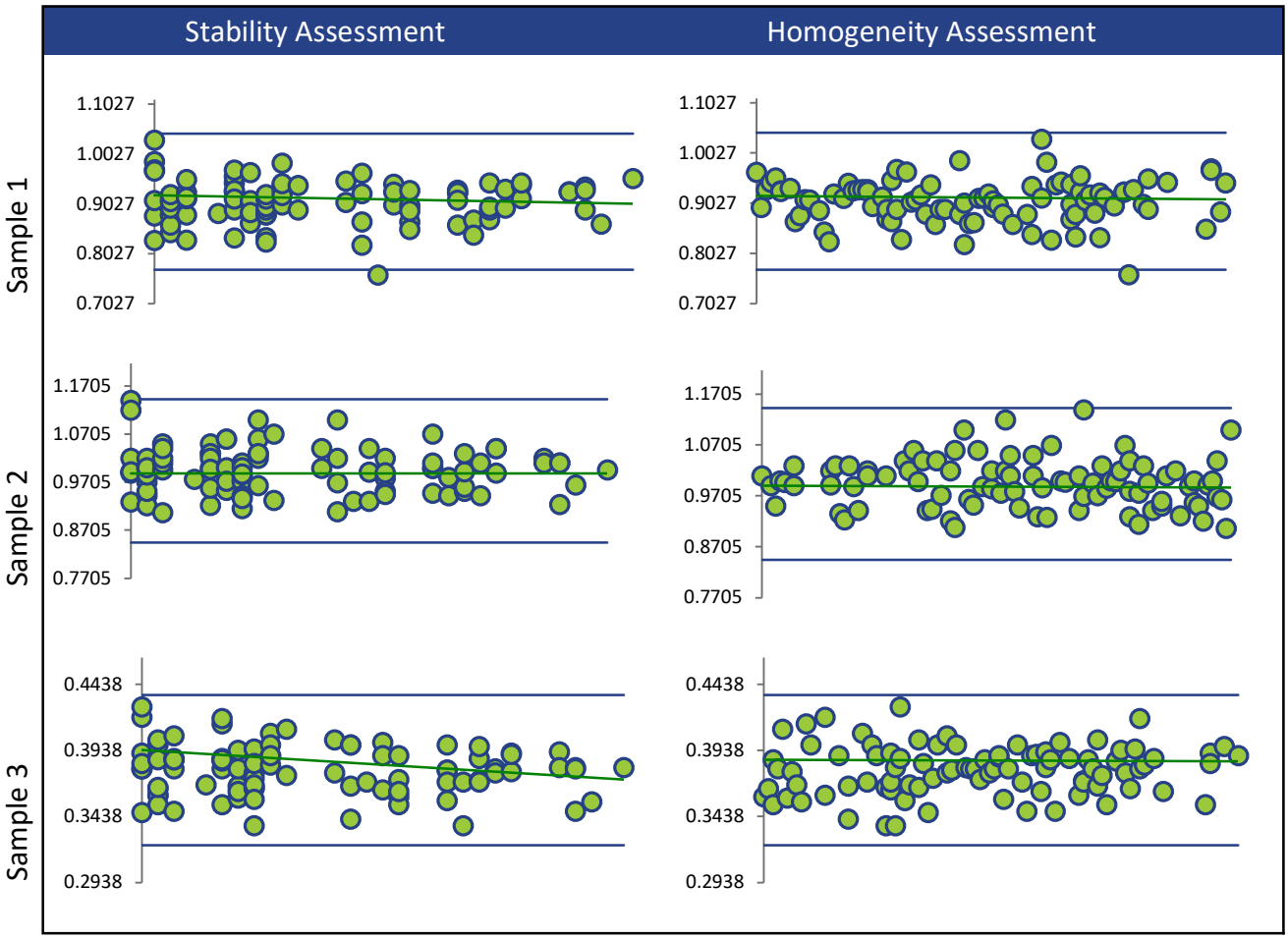
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	59	59	58	59
ICP/OES (Red)	30	30	30	30
AA FLAME (Green)	2	2	2	2

All summary stats and the plots below are based on the data excluding any flagged outliers



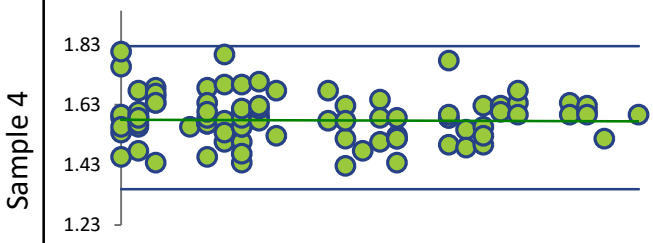
COPPER


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.387
0.337
0.379
0.292
0.342
0.392
0.442
4
2
0
-2
-4
Sample 4
1.63
1.43
1.59
1.24
1.44
1.64
1.84
4
2
0
-2
-4

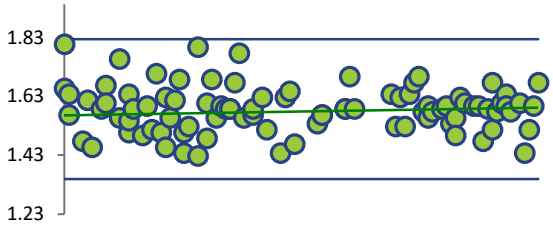

Stability Assessment
Homogeneity Assessment
Sample 1
1.1027
1.0027
0.9027
0.8027
0.7027
Sample 2
1.1705
1.0705
0.9705
0.8705
0.7705
Sample 3
0.4438
0.3938
0.3438
0.2938

COPPER

Stability Assessment



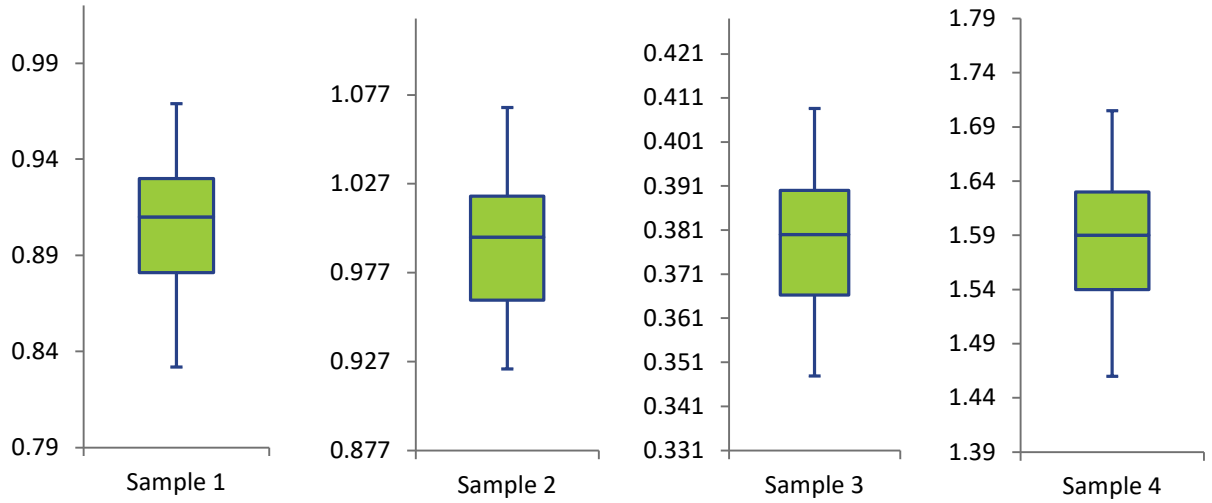
Homogeneity Assessment



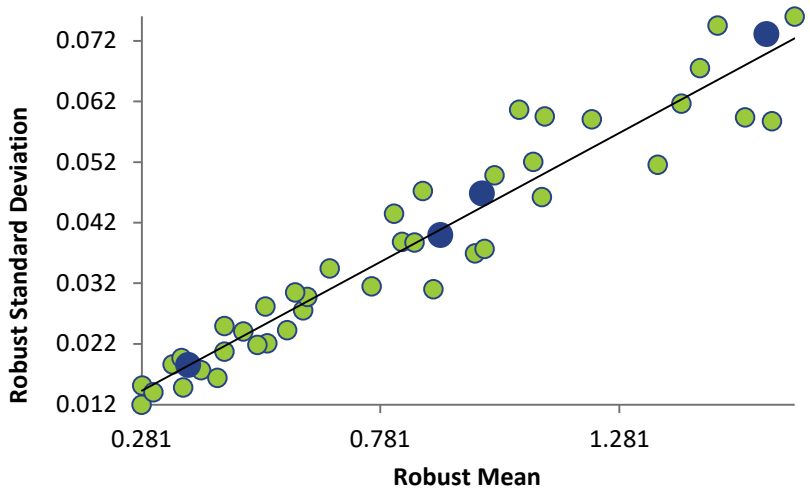
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



IRON

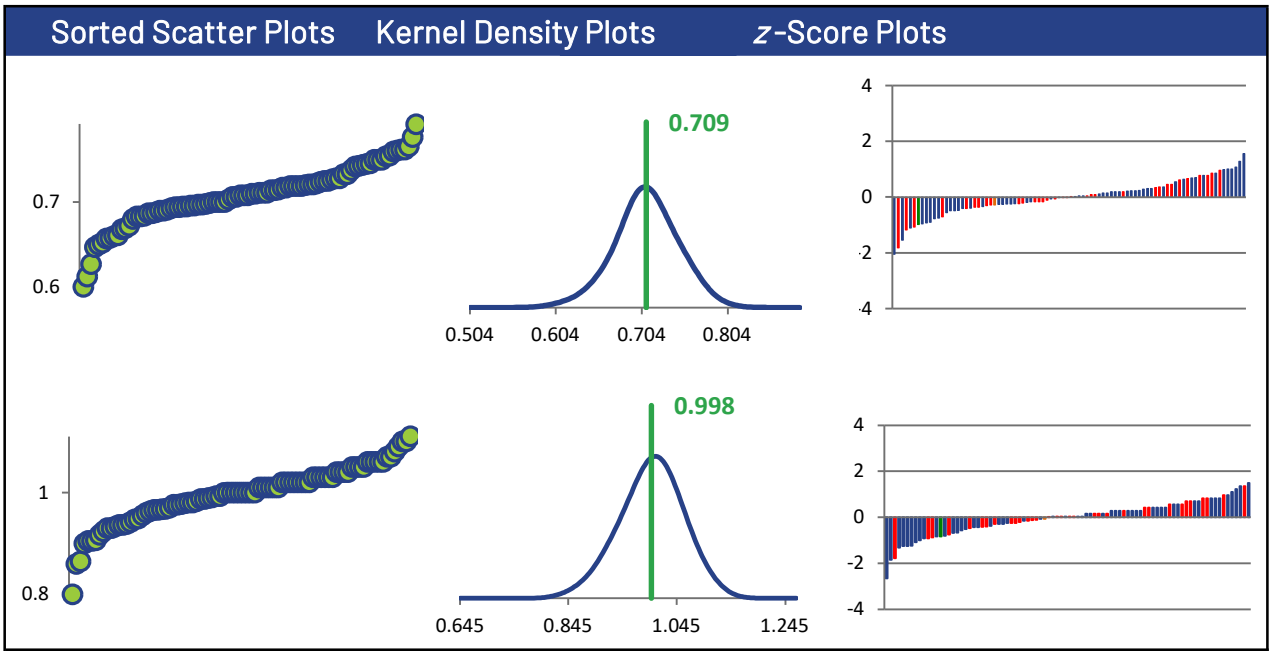
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	88	88	88	88
Median mg/L	0.709	1.00	0.282	1.63
Robust Mean mg/L	0.709	0.998	0.283	1.64
U mg/L	0.00439	0.00706	0.00246	0.0112
Robust Standard Deviation mg/L	0.0331	0.0533	0.0186	0.0842
Regression Standard Deviation mg/L	0.0532	0.0748	0.0212	0.123
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0532	0.0748	0.0212	0.123
Outliers	1	1	1	1
|z|>3.0	0	0	2	0
2<|z|<3	1	1	1	0

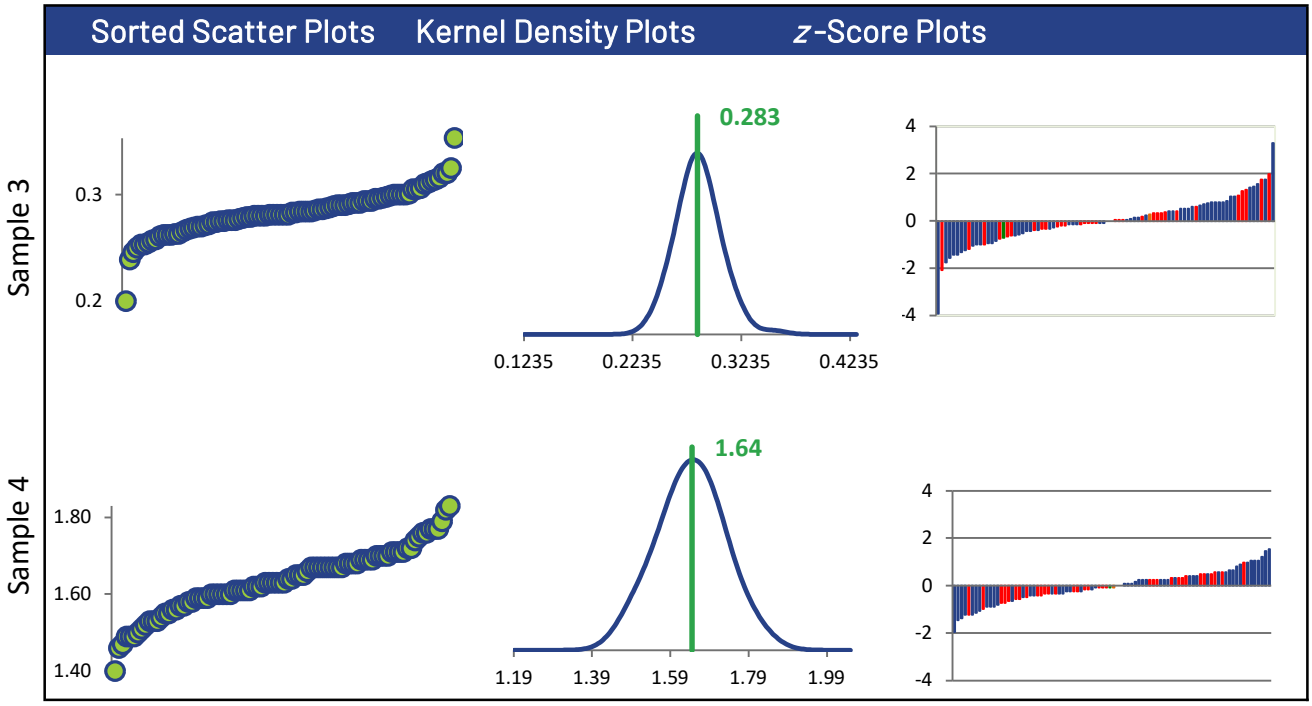
Methods Used

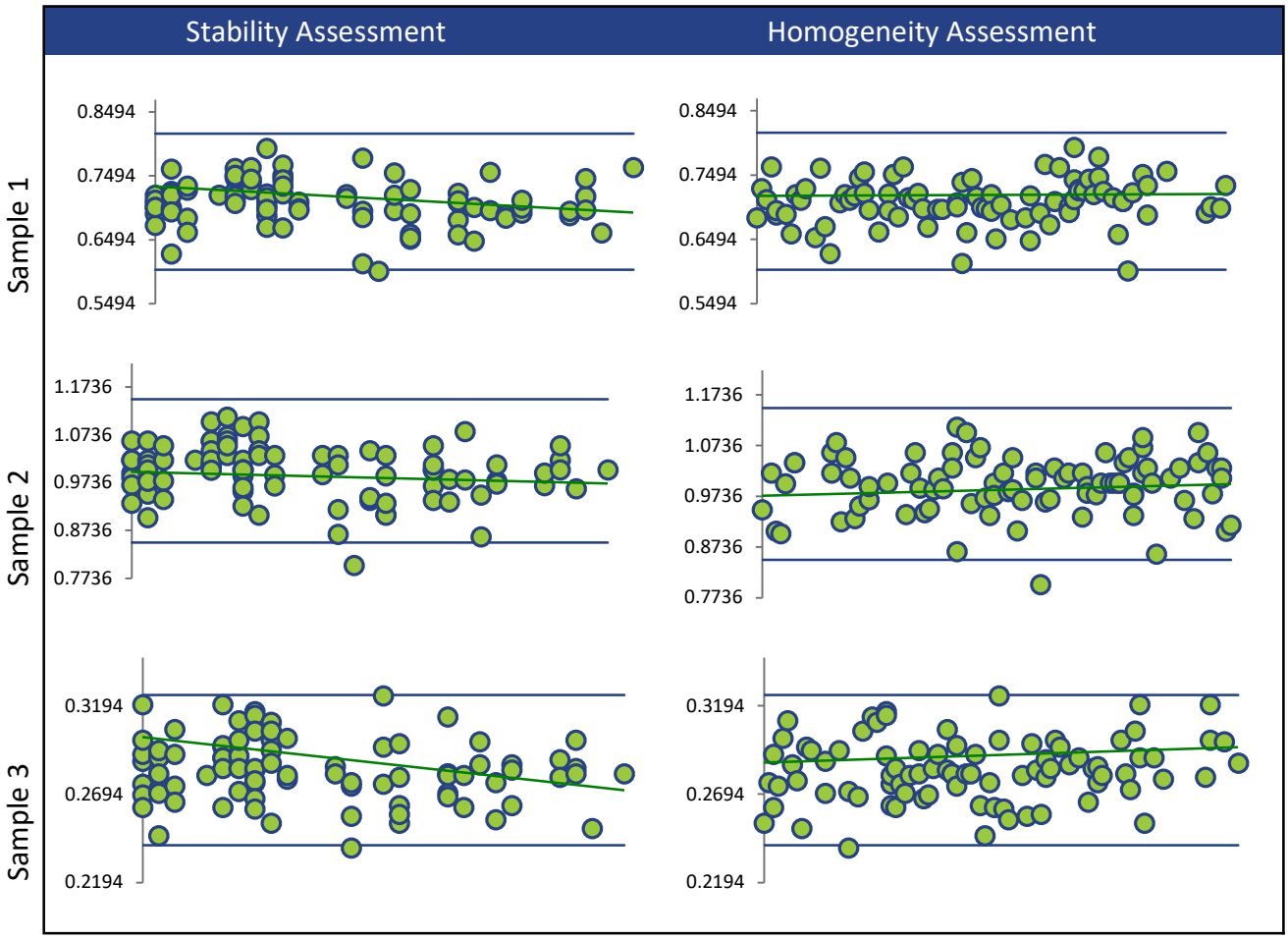
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	53	53	53	53
ICP/OES (Red)	33	33	33	33
COLORIMETRIC (Green)	1	1	1	1
AA FLAME (Orange)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



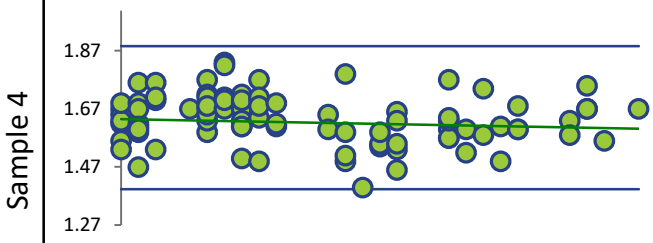
IRON


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.3
0.2
0.283
0.1235
0.2235
0.3235
0.4235
4
2
0
-2
-4
Sample 4
1.80
1.60
1.40
1.64
1.19
1.39
1.59
1.79
1.99
4
2
0
-2
-4

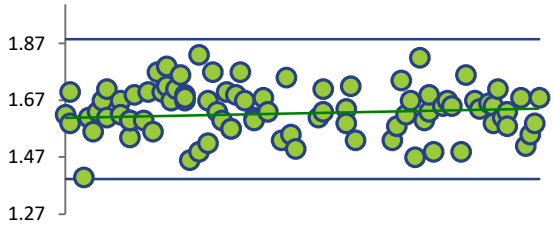

Stability Assessment
Homogeneity Assessment
Sample 1
0.8494
0.7494
0.6494
0.5494
Sample 2
1.1736
1.0736
0.9736
0.8736
0.7736
Sample 3
0.3194
0.2694
0.2194

IRON

Stability Assessment



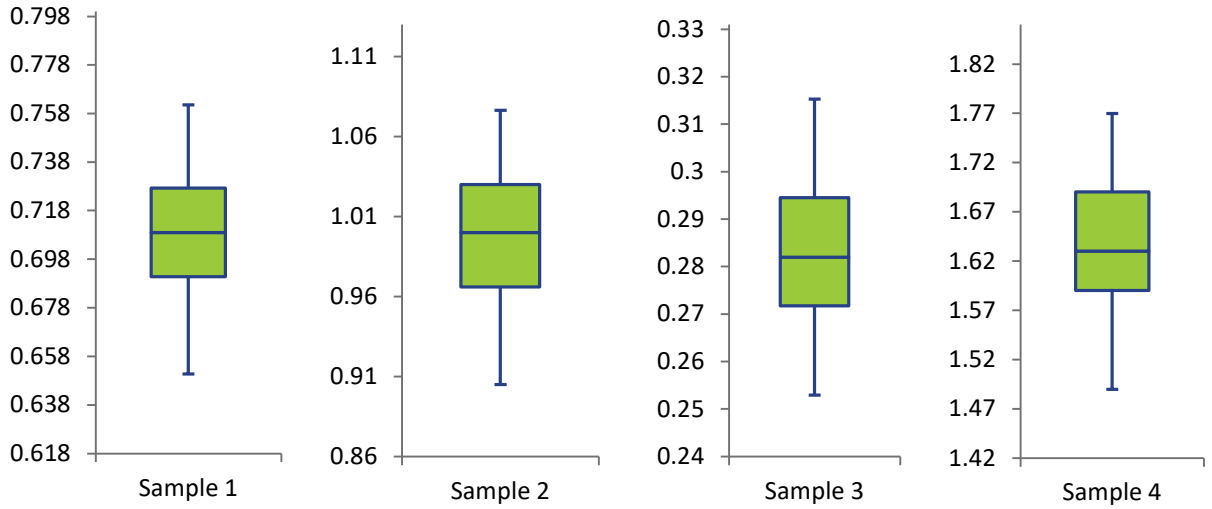
Homogeneity Assessment



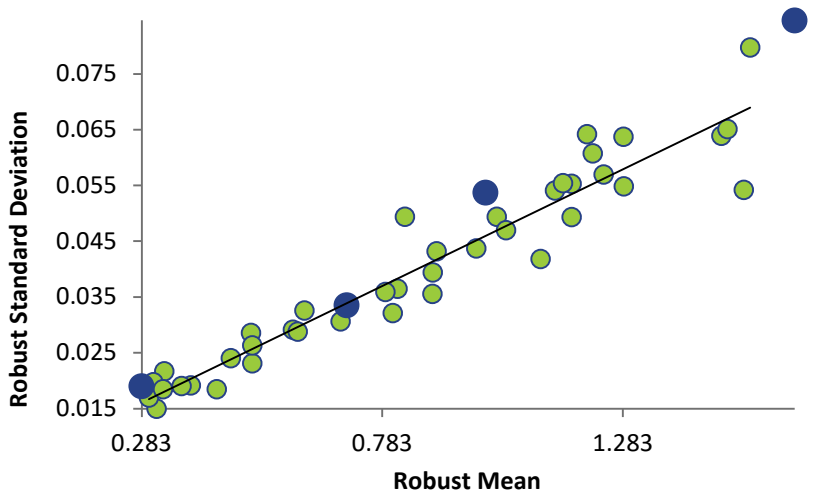
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



LEAD

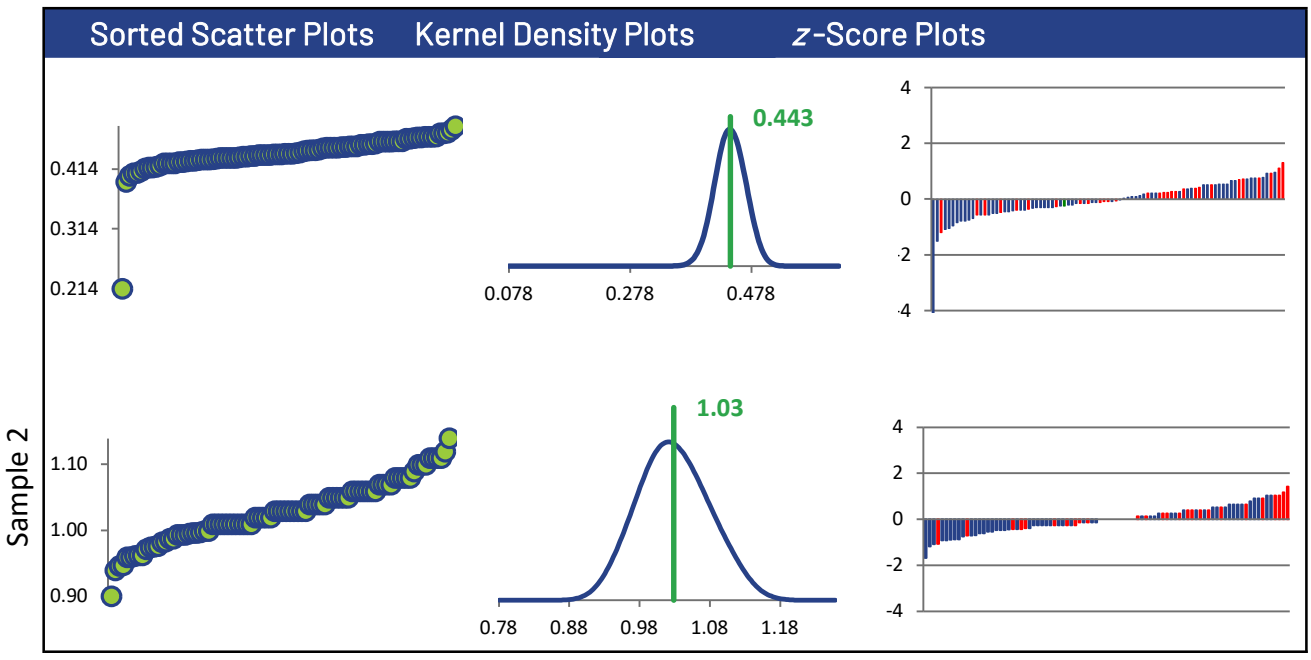
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	89	88	89	88
Median mg/L	0.440	1.03	0.288	1.08
Robust Mean mg/L	0.443	1.03	0.289	1.08
U mg/L	0.00260	0.00632	0.00159	0.00553
Robust Standard Deviation mg/L	0.0196	0.0480	0.0121	0.0420
Regression Standard Deviation mg/L	0.0332	0.0771	0.0216	0.0806
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0332	0.0771	0.0216	0.0806
Outliers	2	1	1	1
|z|>3.0	1	0	1	0
2<|z|<3	0	0	1	0

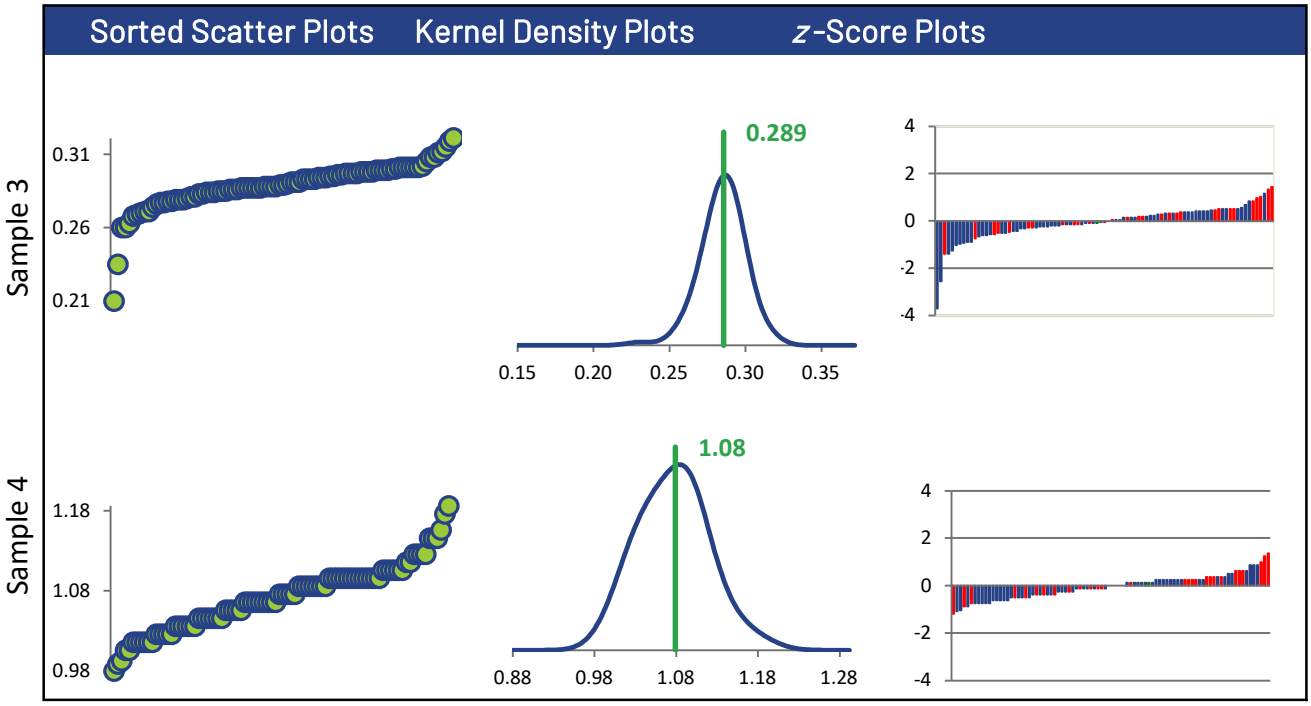
Methods Used

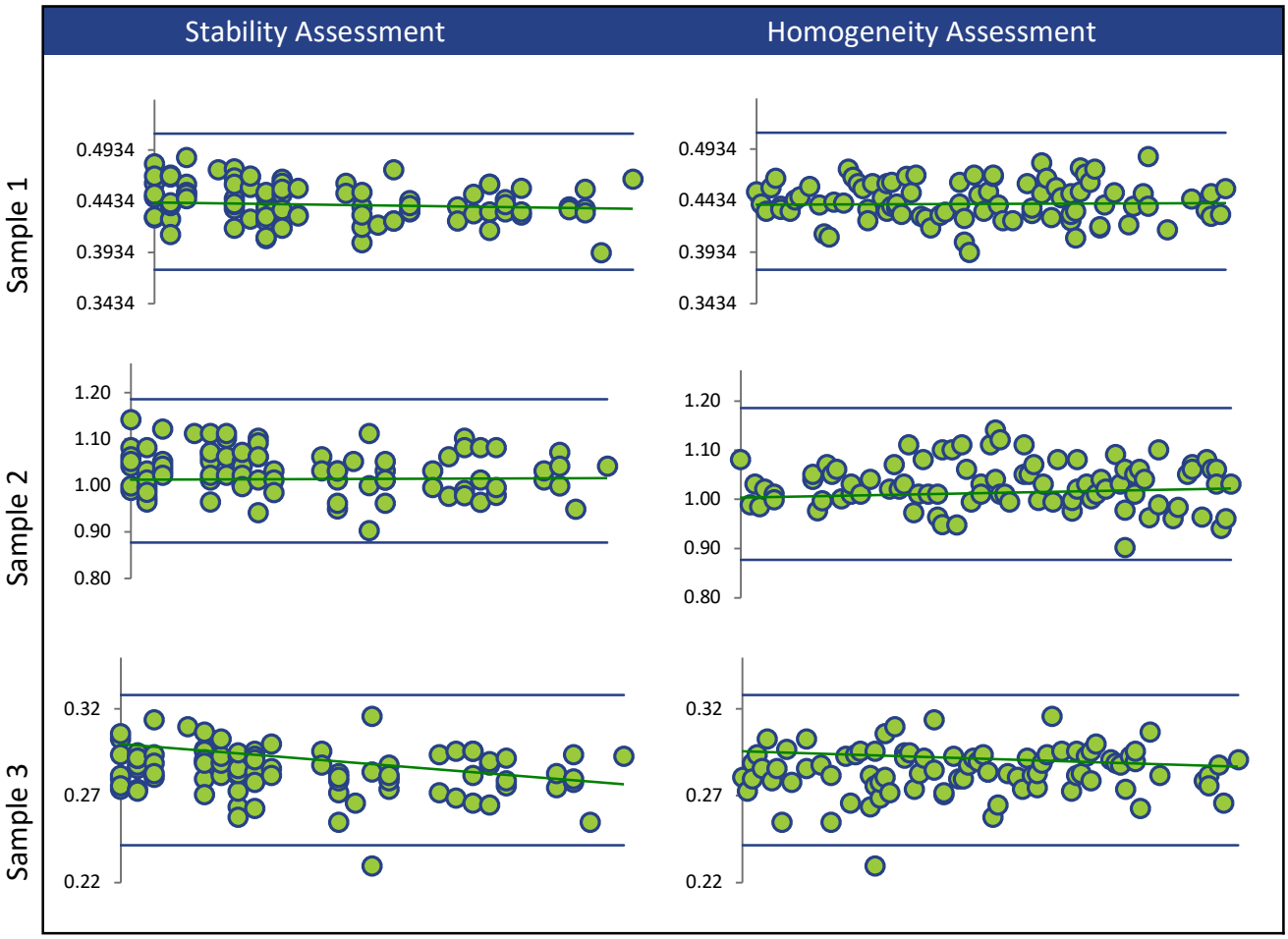
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	59	58	59	58
ICP/OES (Red)	29	29	29	29
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



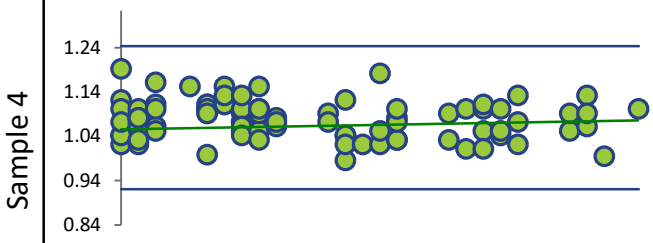
LEAD


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.31
0.26
0.21
0.289
0.15
0.20
0.25
0.30
0.35
4
2
0
-2
-4
Sample 4
1.18
1.08
0.98
1.08
0.88
0.98
1.08
1.18
1.28
4
2
0
-2
-4

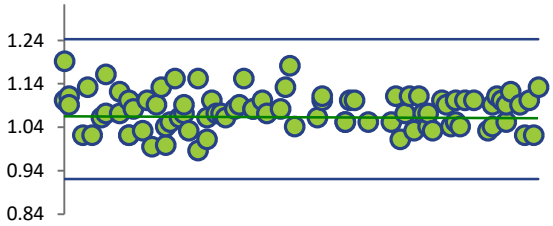

Stability Assessment
Homogeneity Assessment
Sample 1
0.4934
0.4434
0.3934
0.3434
Sample 2
1.20
1.10
1.00
0.90
0.80
Sample 3
0.32
0.27
0.22

LEAD

Stability Assessment



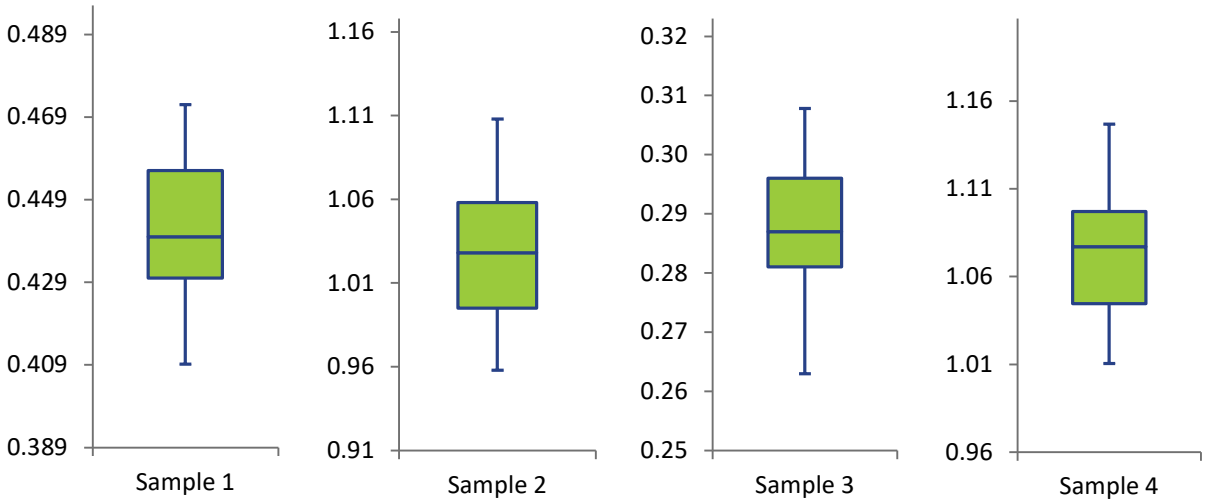
Homogeneity Assessment



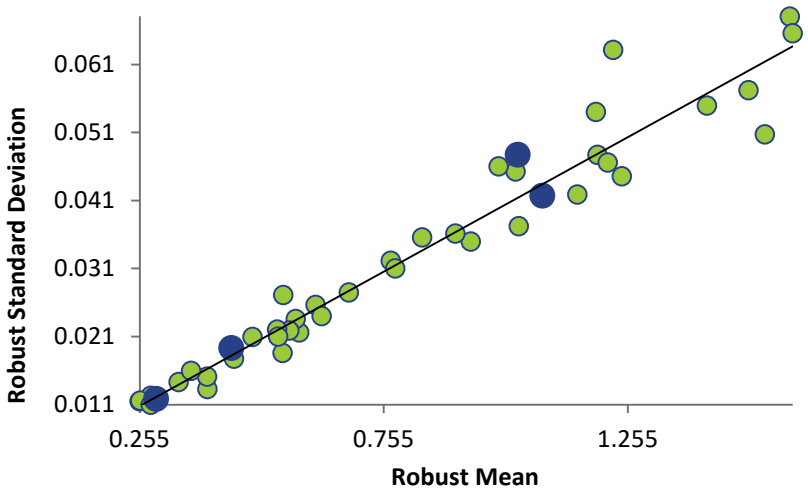
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



LITHIUM

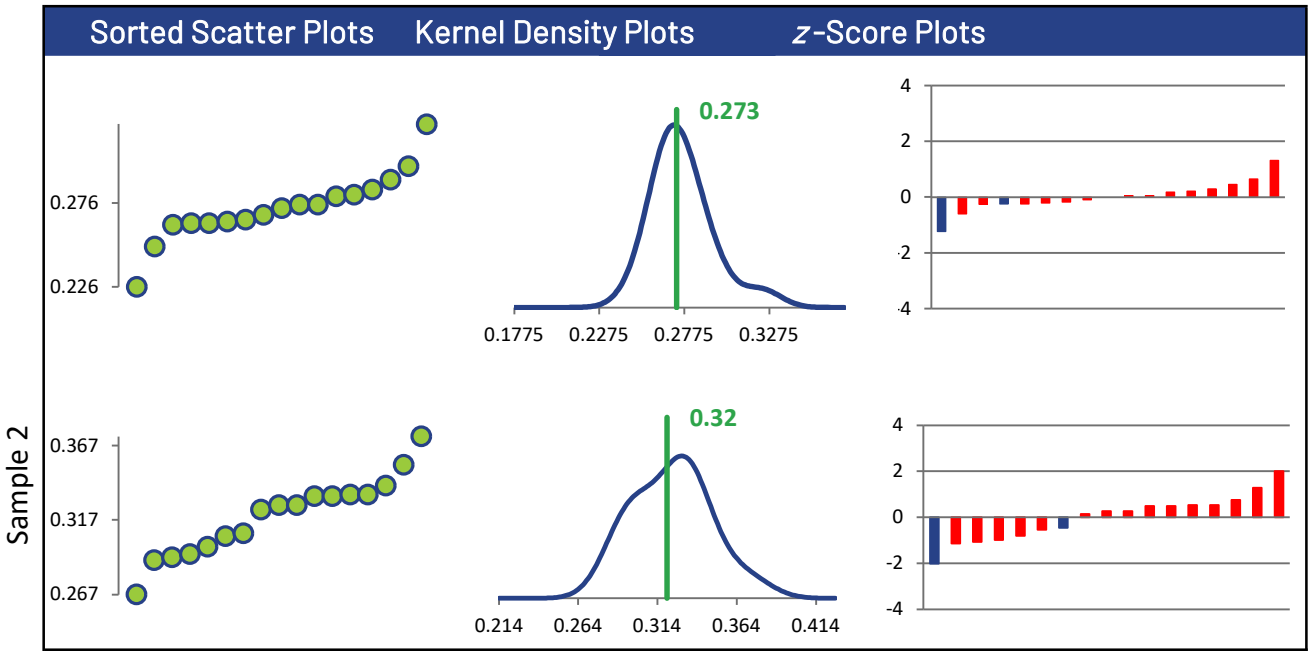
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	17	17	17	17
Median mg/L	0.273	0.327	0.0517	0.482
Robust Mean mg/L	0.273	0.320	0.0522	0.485
U mg/L	0.00431	0.00800	0.00162	0.0118
Robust Standard Deviation mg/L	0.0142	0.0264	0.00534	0.0390
Regression Standard Deviation mg/L				
Stability Flag				
Homogeneity Flag	Homogeneity			
Standard Deviation Used (SDPA) mg/L	0.0382	0.0264	0.00534	0.0390
Outliers	1	1	1	1
|z|>3.0	0	0	0	0
2<|z|<3	0	2	1	1

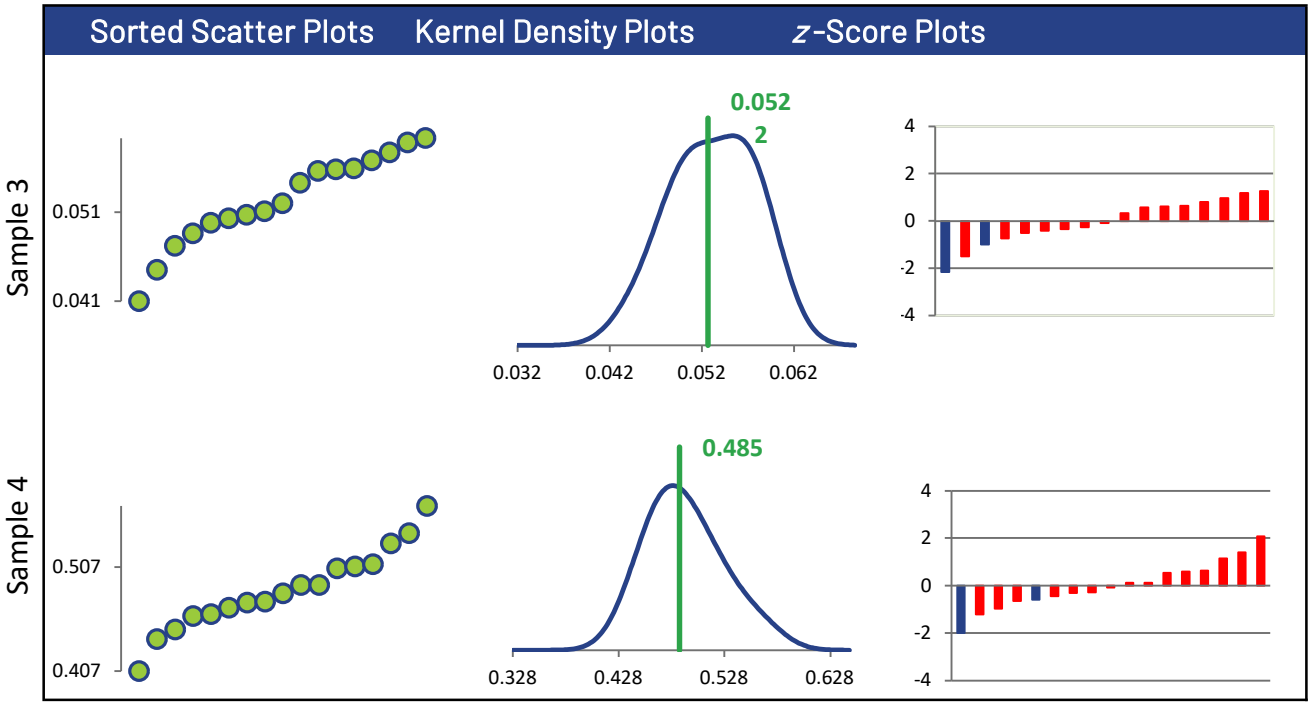
Methods Used

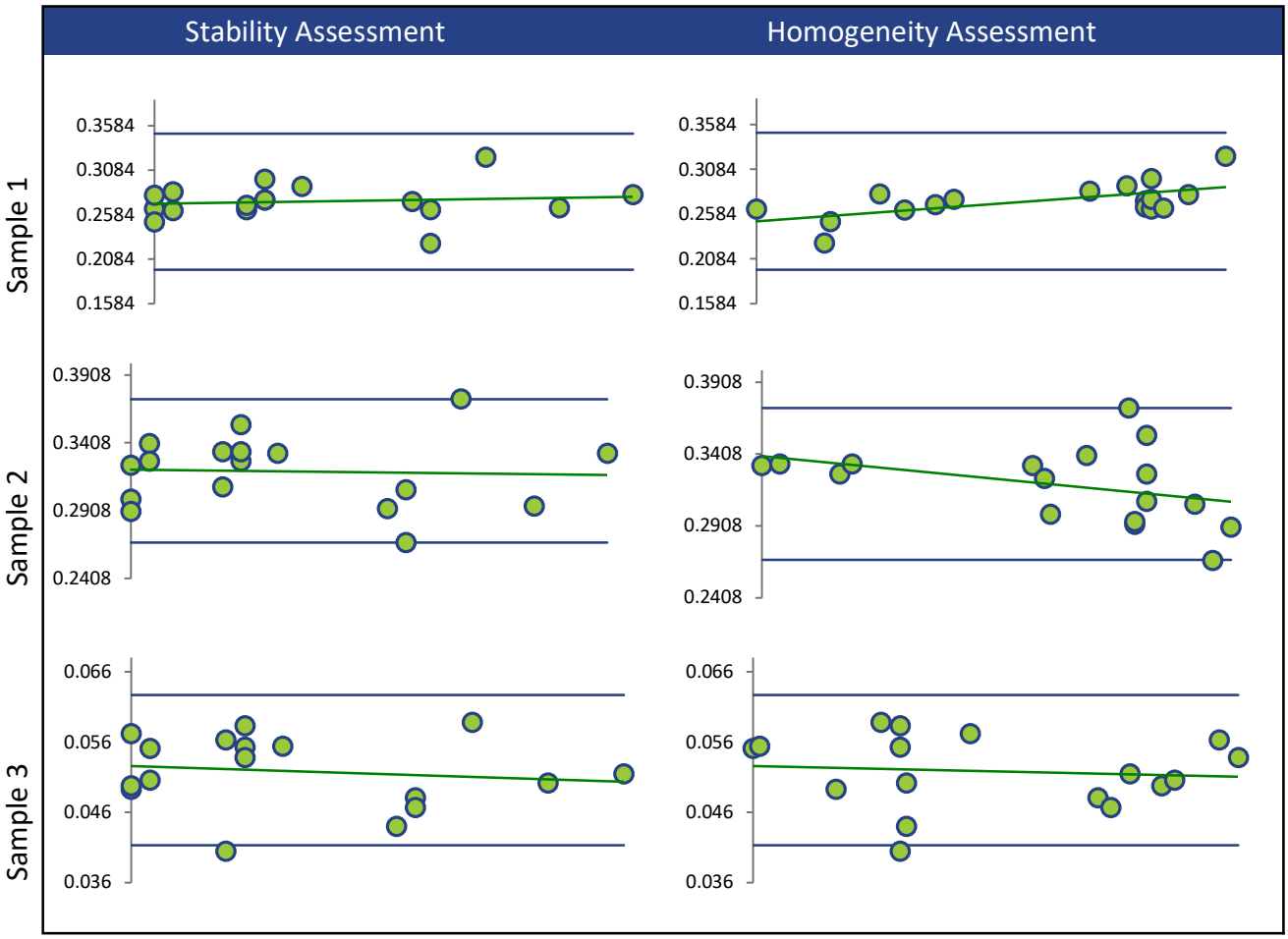
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/OES (Blue)	2	2	2	2
ICP/MS (Red)	15	15	15	15

All summary stats and the plots below are based on the data excluding any flagged outliers



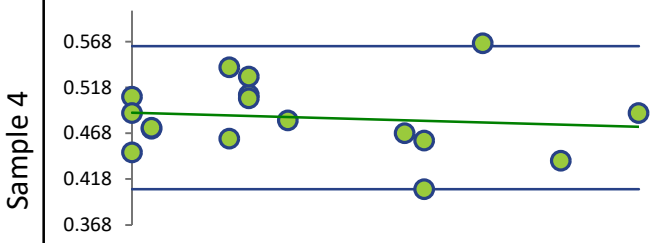
LITHIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.051
0.041
0.052
2
0.032
0.042
0.052
0.062
4
2
0
-2
-4
Sample 4
0.507
0.407
0.485
0.328
0.428
0.528
0.628
4
2
0
-2
-4

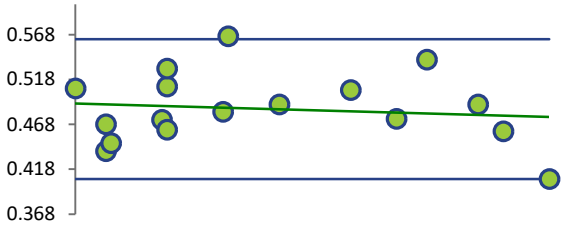

Stability Assessment
Homogeneity Assessment
Sample 1
0.3584
0.3084
0.2584
0.2084
0.1584
Sample 2
0.3908
0.3408
0.2908
0.2408
Sample 3
0.066
0.056
0.046
0.036

LITHIUM

Stability Assessment



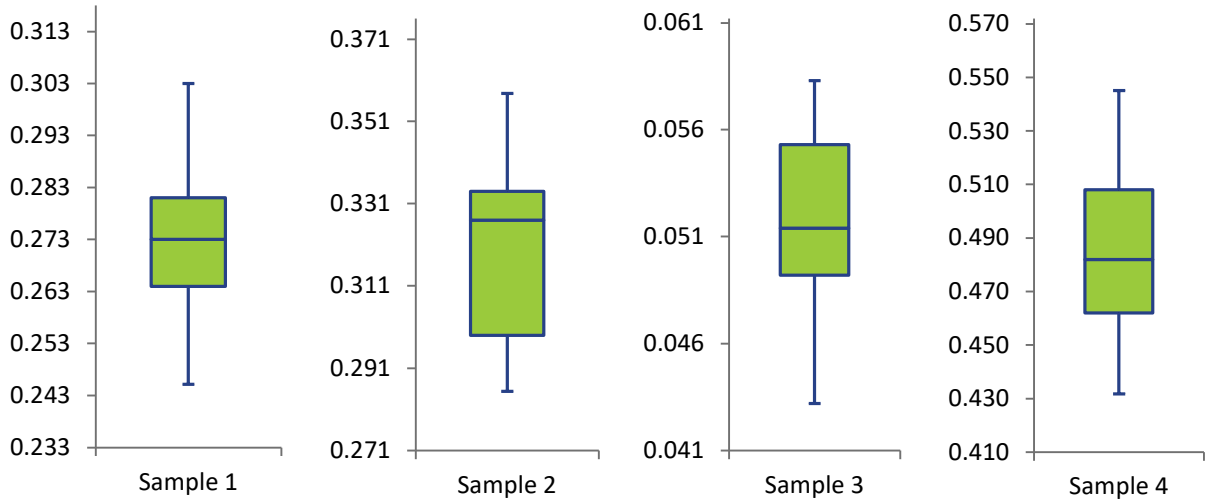
Homogeneity Assessment



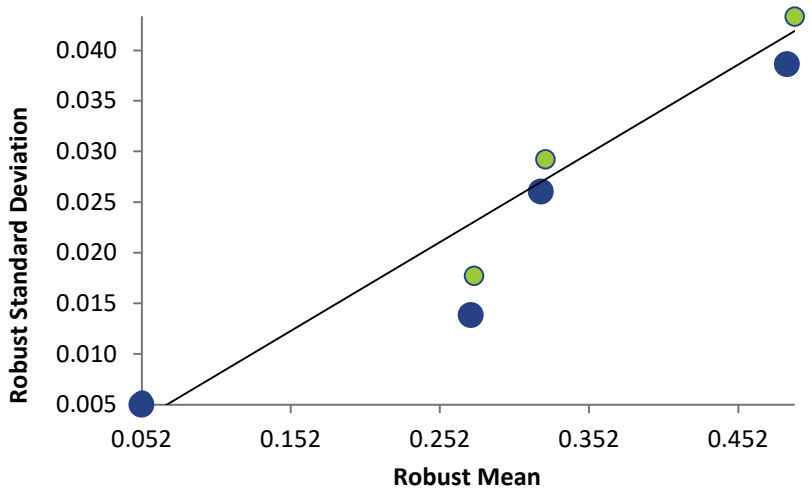
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



MANGANESE

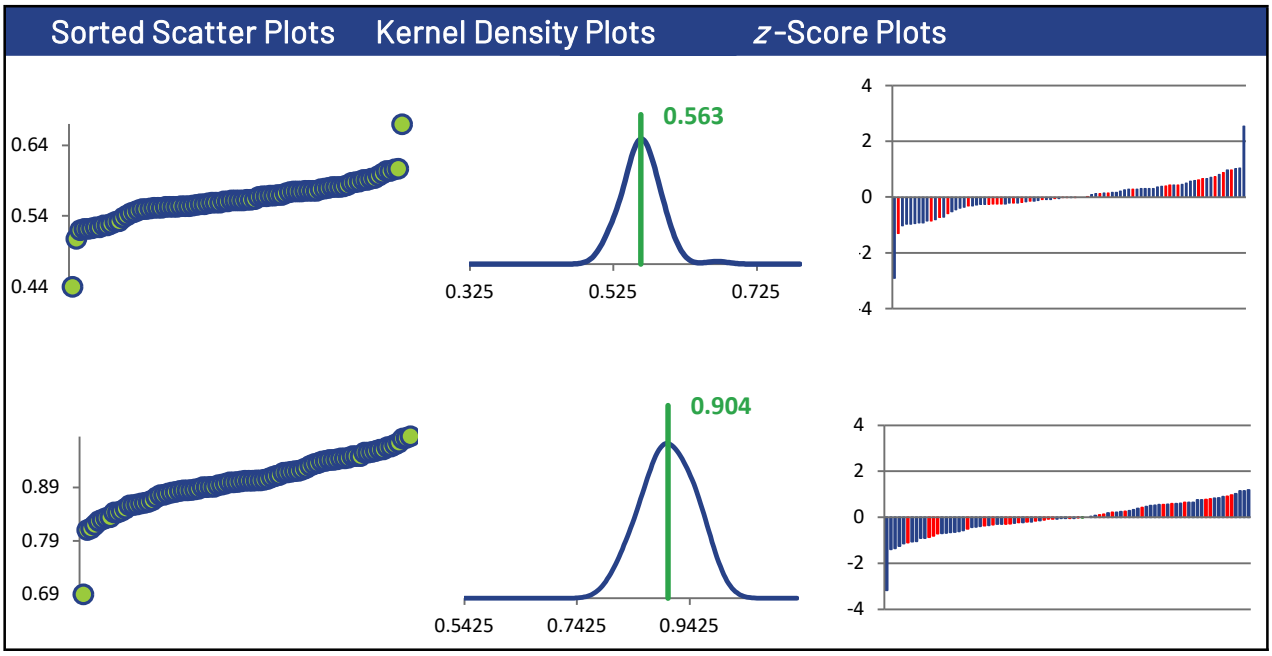
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	86	86	86	86
Median mg/L	0.562	0.902	0.334	1.20
Robust Mean mg/L	0.563	0.904	0.335	1.20
U mg/L	0.00323	0.00632	0.00233	0.00820
Robust Standard Deviation mg/L	0.0240	0.0469	0.0173	0.0608
Regression Standard Deviation mg/L	0.0422	0.0678	0.0251	0.0900
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0422	0.0678	0.0251	0.0900
Outliers	2	2	2	2
|z|>3.0	0	1	0	0
2<|z|<3	2	0	1	0

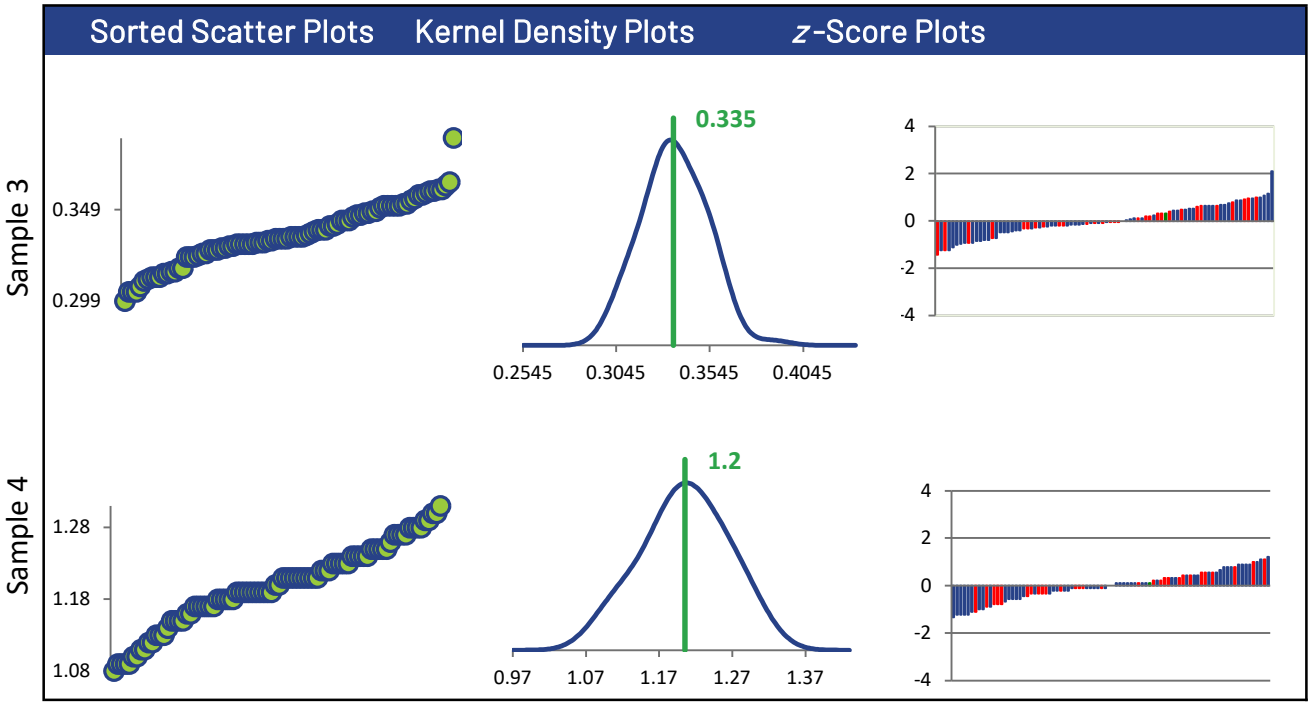
Methods Used

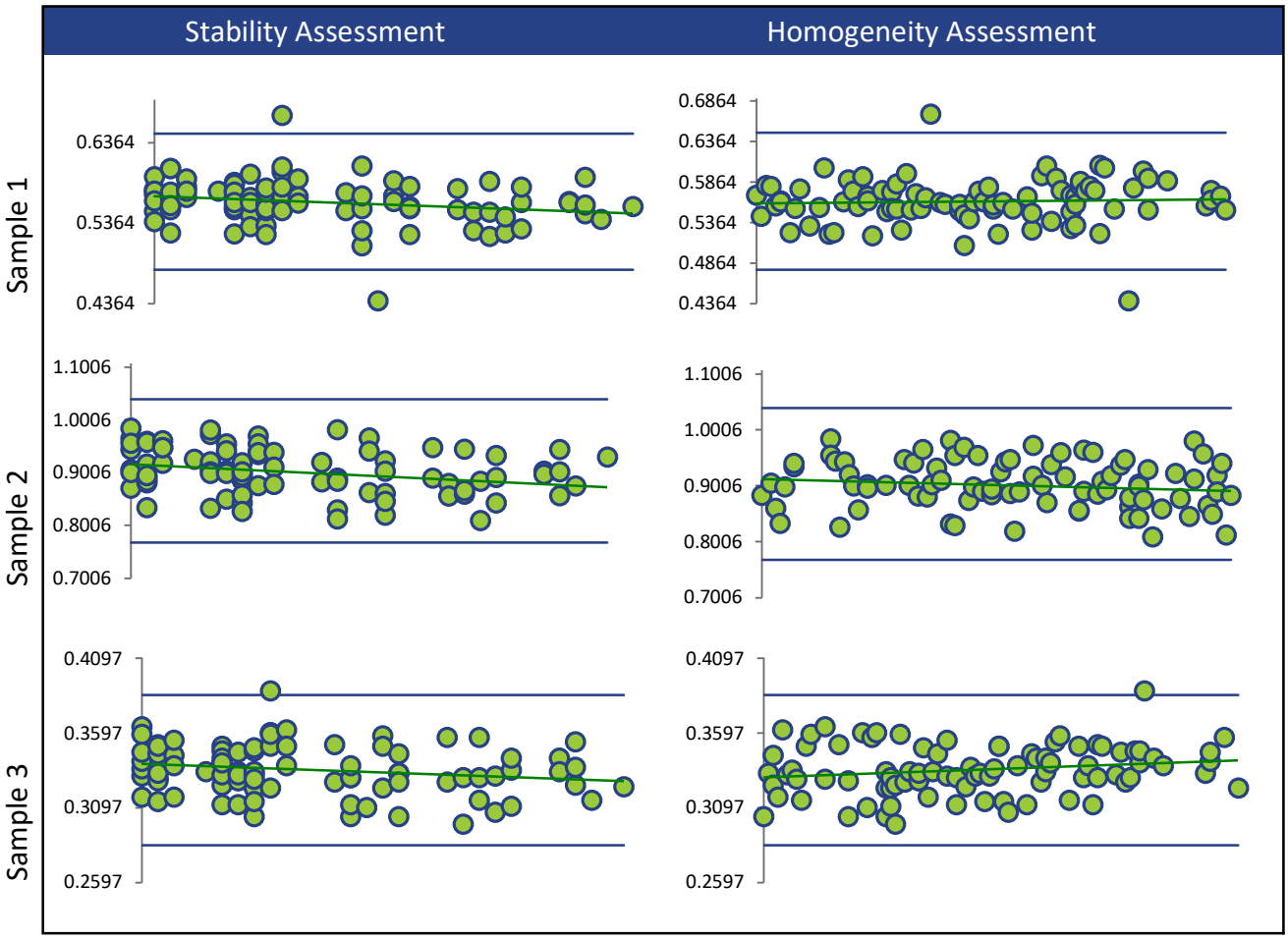
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	55	55	55	55
ICP/OES (Red)	30	30	30	30
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



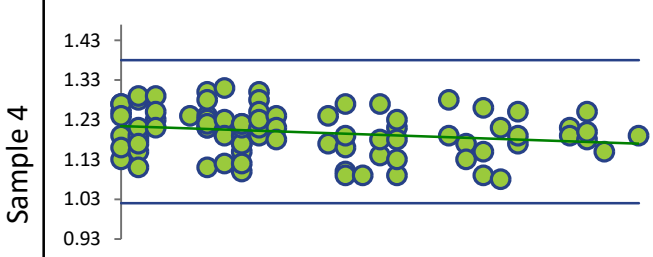
MANGANESE


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.349
0.299
0.335
0.2545
0.3045
0.3545
0.4045
4
2
0
-2
-4
Sample 4
1.28
1.18
1.08
1.2
0.97
1.07
1.17
1.27
1.37
4
2
0
-2
-4

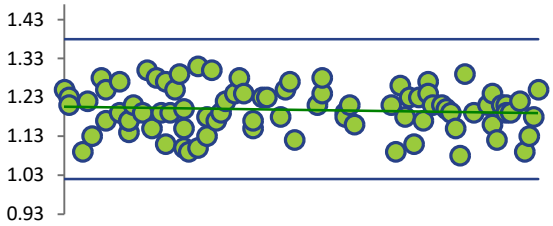

Stability Assessment
Homogeneity Assessment
Sample 1
0.6364
0.5364
0.4364
0.6864
0.6364
0.5864
0.5364
0.4864
0.4364
Sample 2
1.1006
1.0006
0.9006
0.8006
0.7006
Sample 3
0.4097
0.3597
0.3097
0.2597

MANGANESE

Stability Assessment



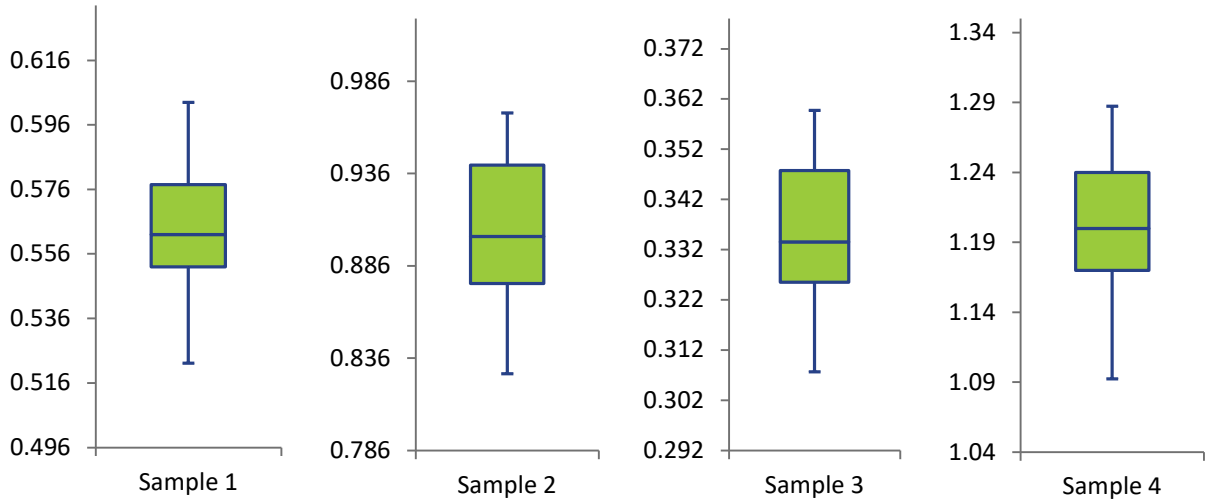
Homogeneity Assessment



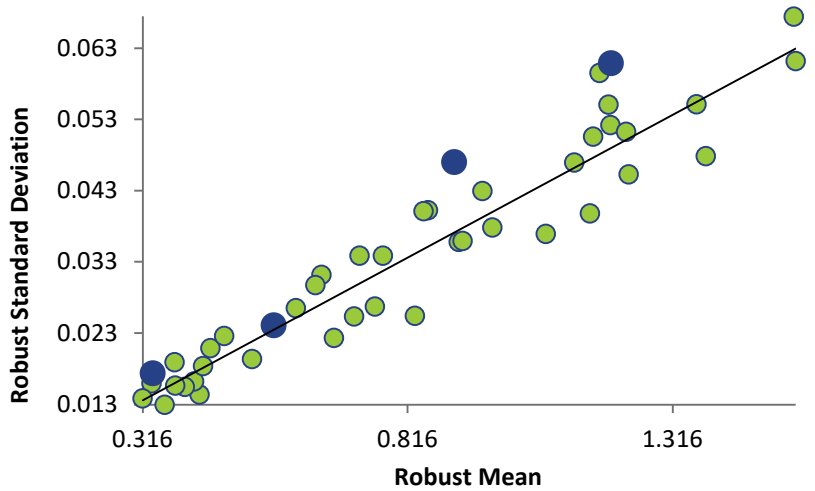
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



MOLYBDENUM

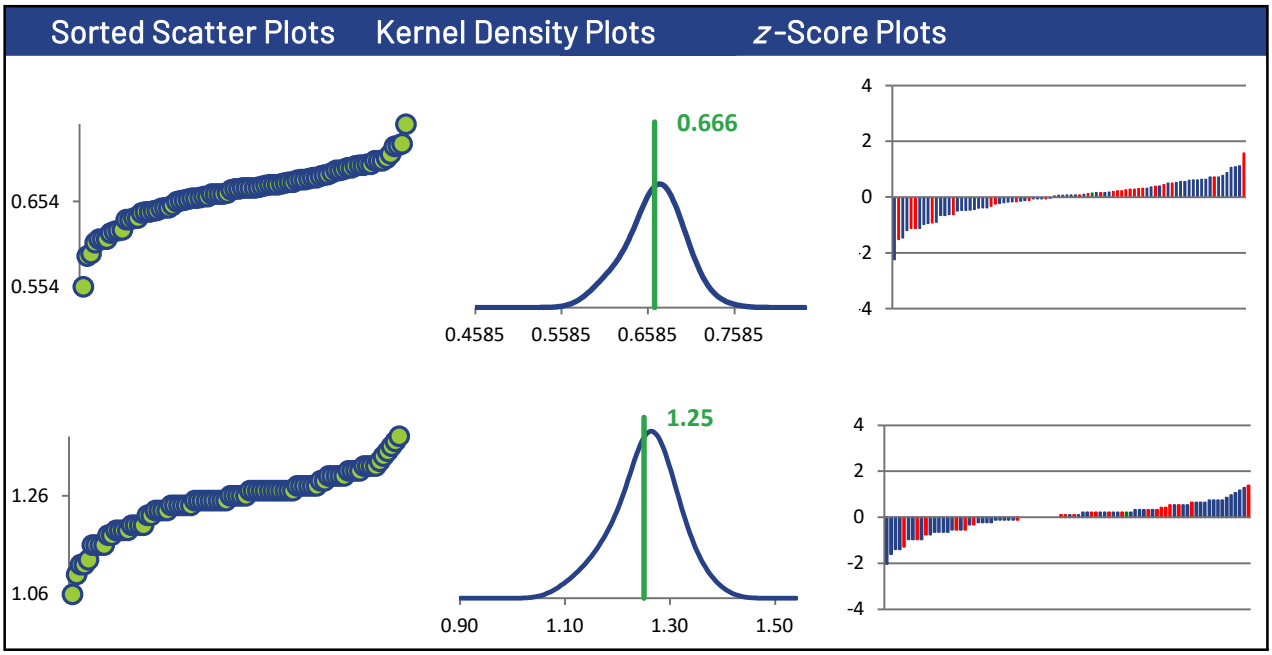
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	84	84	84	84
Median mg/L	0.670	1.26	0.550	1.43
Robust Mean mg/L	0.666	1.25	0.546	1.42
U mg/L	0.00412	0.00754	0.00363	0.00959
Robust Standard Deviation mg/L	0.0302	0.0553	0.0266	0.0703
Regression Standard Deviation mg/L	0.0500	0.0941	0.0409	0.107
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0500	0.0941	0.0409	0.107
Outliers	2	2	2	2
|z|>3.0	0	0	0	0
2<|z|<3	1	1	2	0

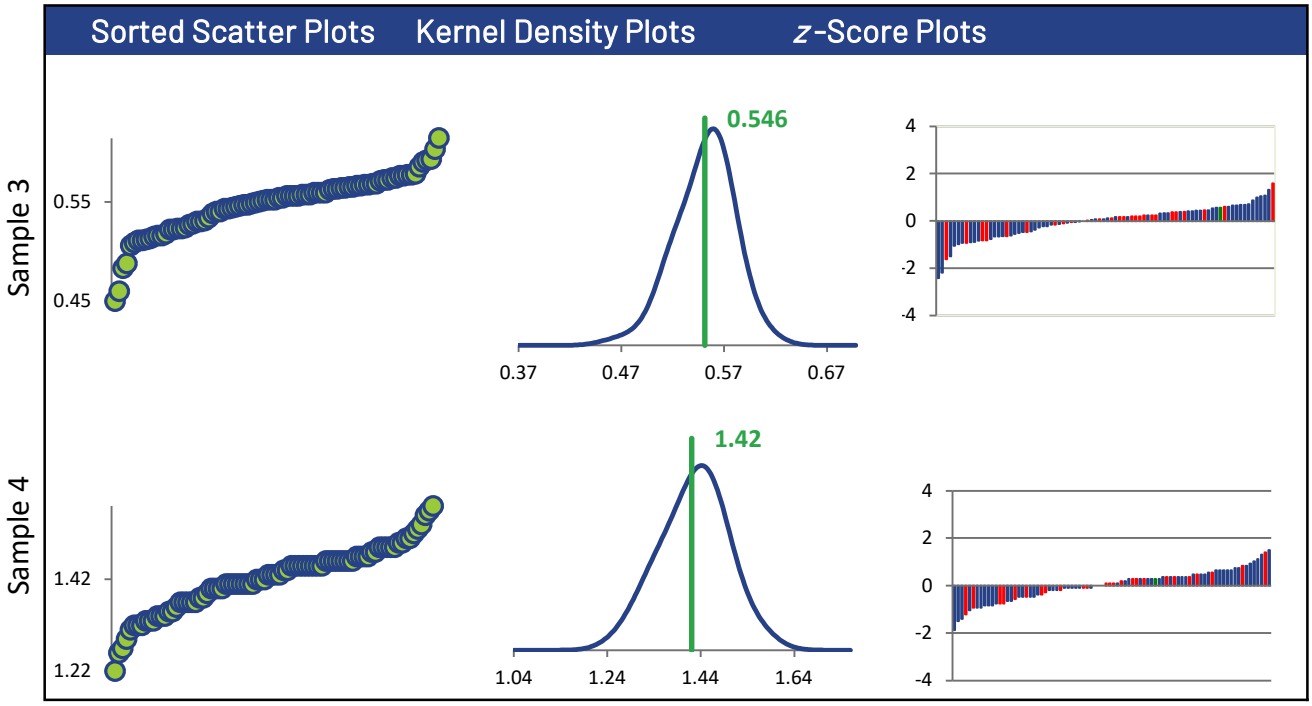
Methods Used

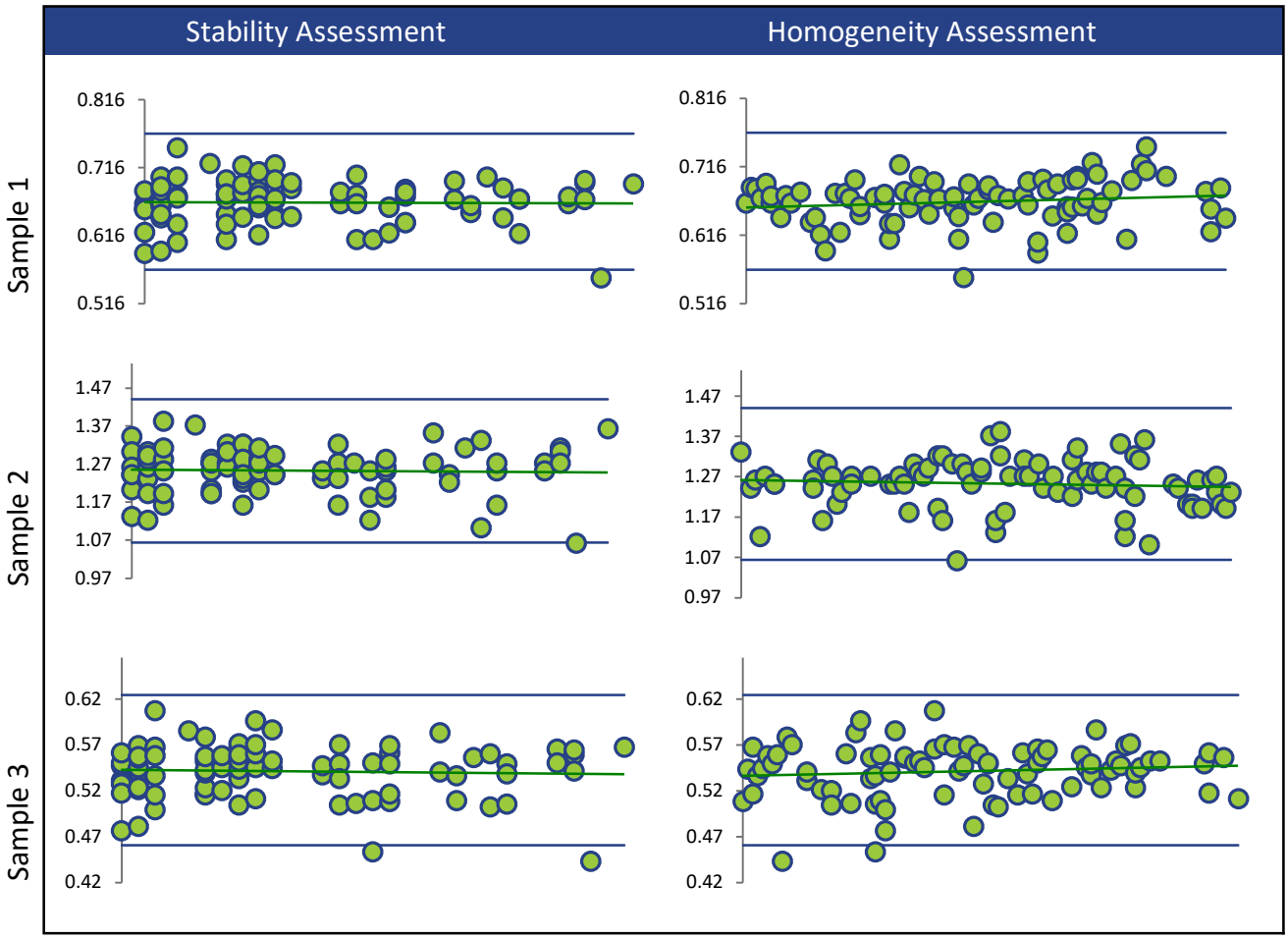
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	57	57	57	57
ICP/OES (Red)	26	26	26	26
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



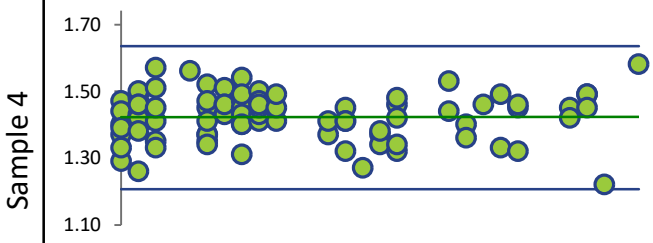
MOLYBDENUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.55
0.45
0.546
0.37
0.47
0.57
0.67
4
2
0
-2
-4
Sample 4
1.42
1.22
1.42
1.04
1.24
1.44
1.64
4
2
0
-2
-4

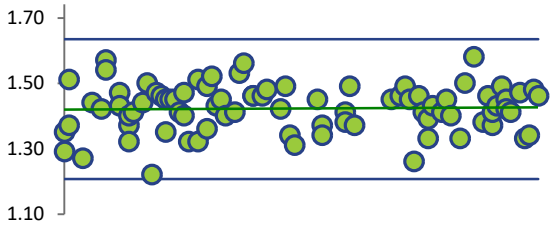

Stability Assessment
Homogeneity Assessment
Sample 1
0.816
0.716
0.616
0.516
0.816
0.716
0.616
0.516
Sample 2
1.47
1.37
1.27
1.17
1.07
0.97
1.47
1.37
1.27
1.17
1.07
0.97
Sample 3
0.62
0.57
0.52
0.47
0.42
0.62
0.57
0.52
0.47
0.42

MOLYBDENUM

Stability Assessment



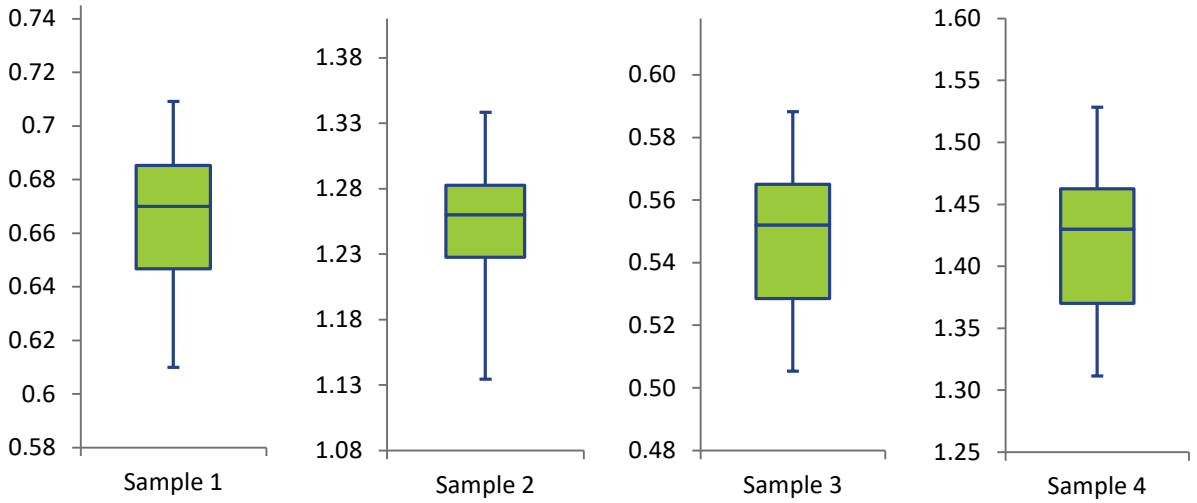
Homogeneity Assessment



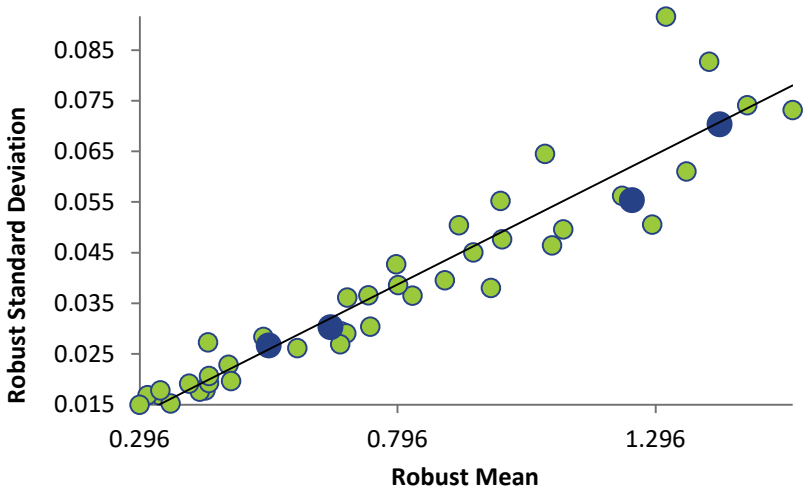
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



NICKEL

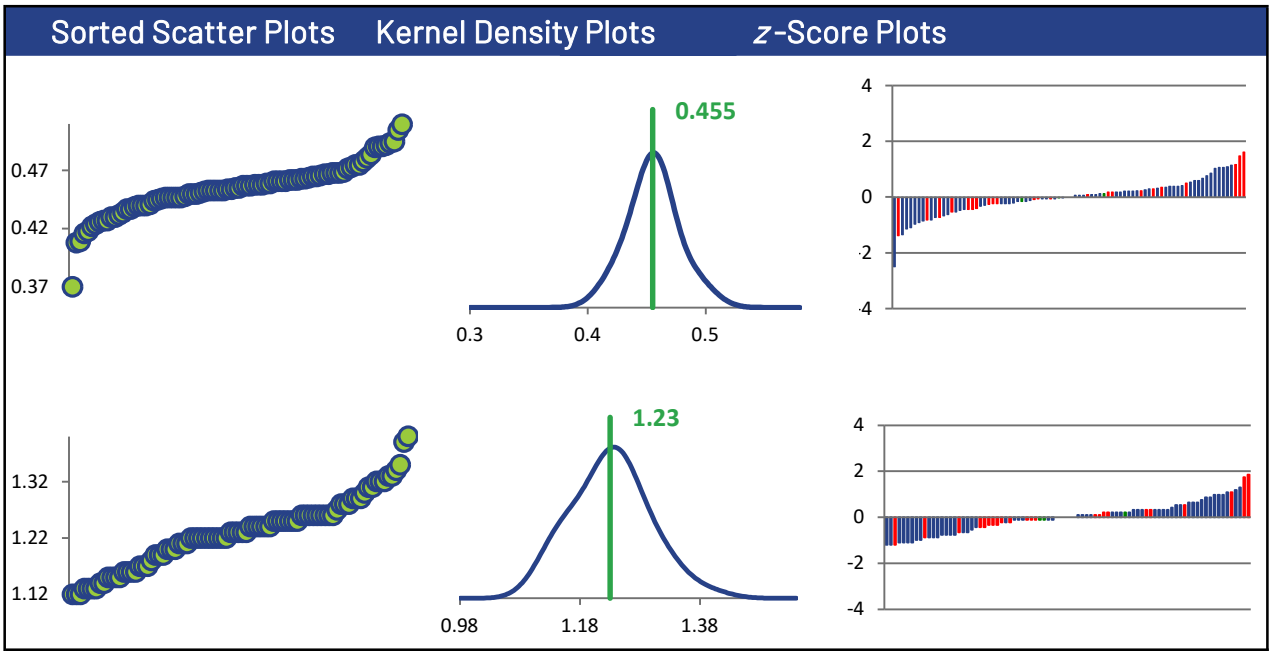
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	86	86	86	86
Median mg/L	0.455	1.23	0.582	1.30
Robust Mean mg/L	0.455	1.23	0.582	1.30
U mg/L	0.00266	0.00883	0.00423	0.00937
Robust Standard Deviation mg/L	0.0197	0.0655	0.0314	0.0695
Regression Standard Deviation mg/L	0.0341	0.0921	0.0437	0.0974
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0341	0.0921	0.0437	0.0974
Outliers	2	2	2	2
|z|>3.0	0	0	0	0
2<|z|<3	1	0	1	1

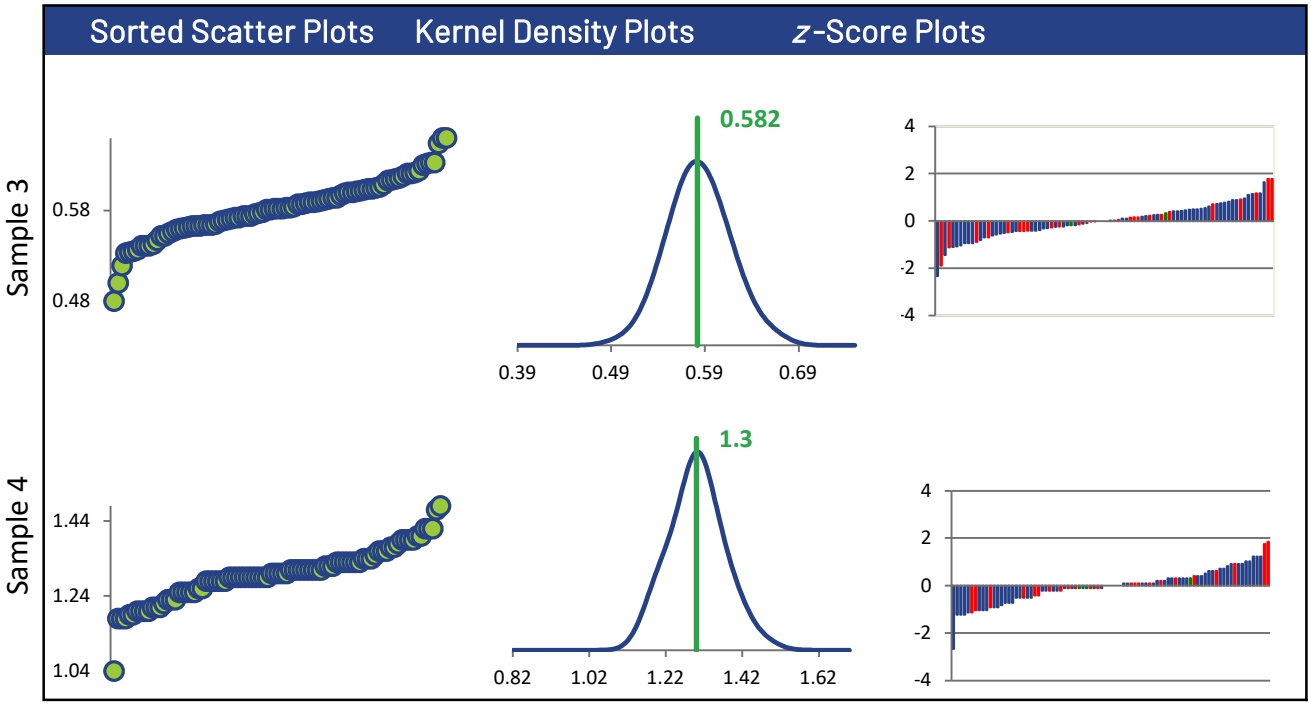
Methods Used

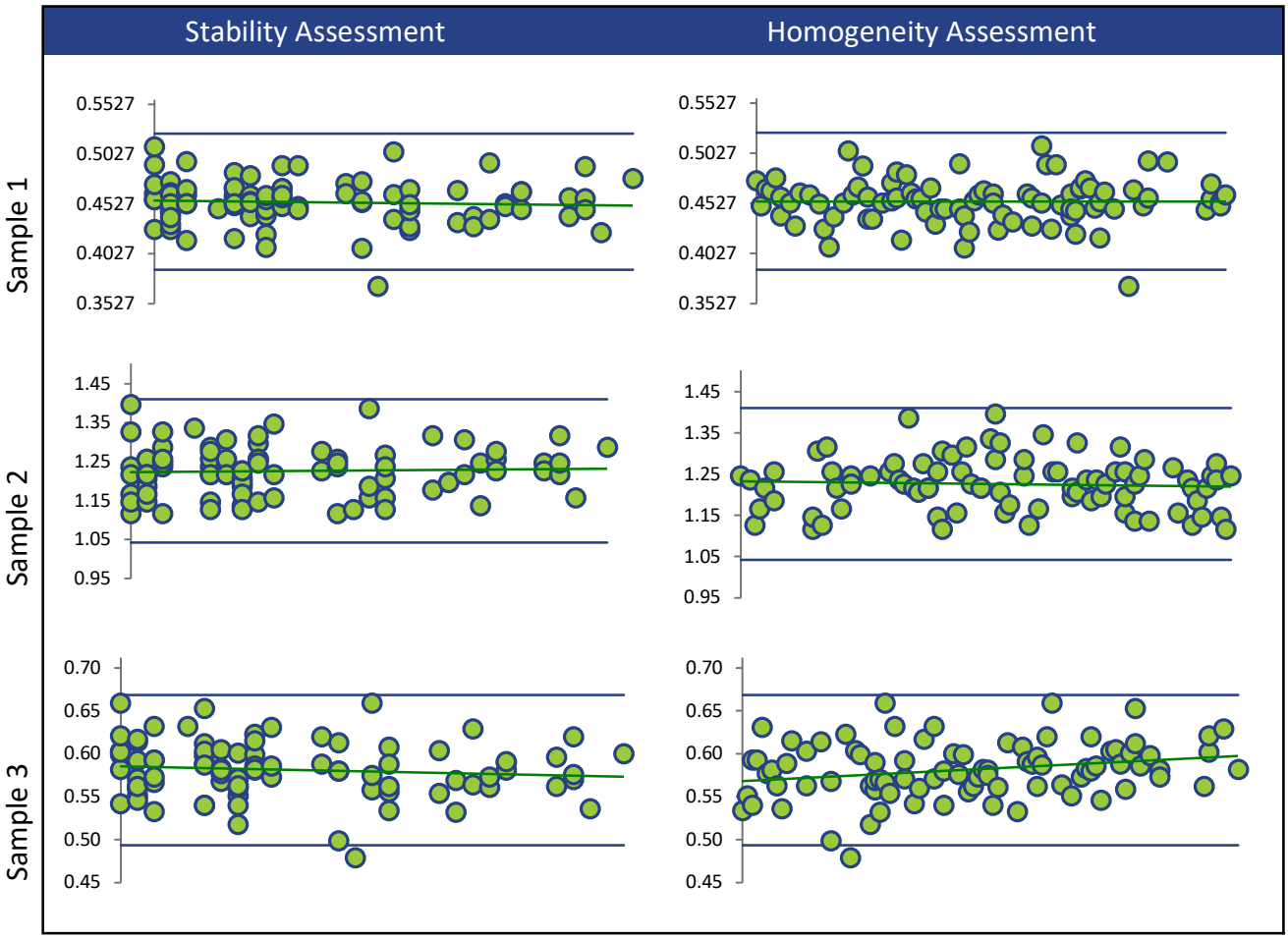
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	58	58	58	58
ICP/OES (Red)	25	25	25	25
AA FLAME (Green)	3	3	3	3

All summary stats and the plots below are based on the data excluding any flagged outliers



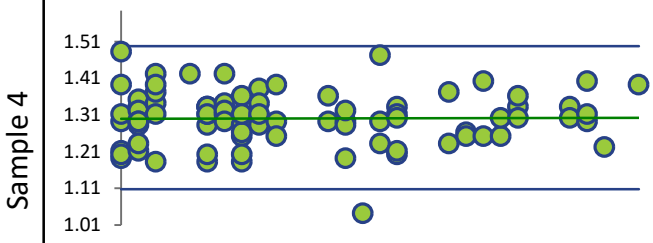
NICKEL


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.58
0.48
0.582
0.39
0.49
0.59
0.69
4
2
0
-2
-4
Sample 4
1.44
1.24
1.04
1.3
0.82
1.02
1.22
1.42
1.62
4
2
0
-2
-4

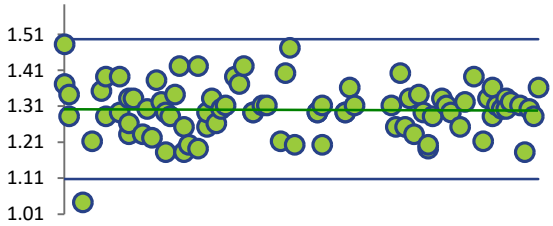

Stability Assessment
Homogeneity Assessment
Sample 1
0.5527
0.5027
0.4527
0.4027
0.3527
Sample 2
1.45
1.35
1.25
1.15
1.05
0.95
Sample 3
0.70
0.65
0.60
0.55
0.50
0.45

NICKEL

Stability Assessment



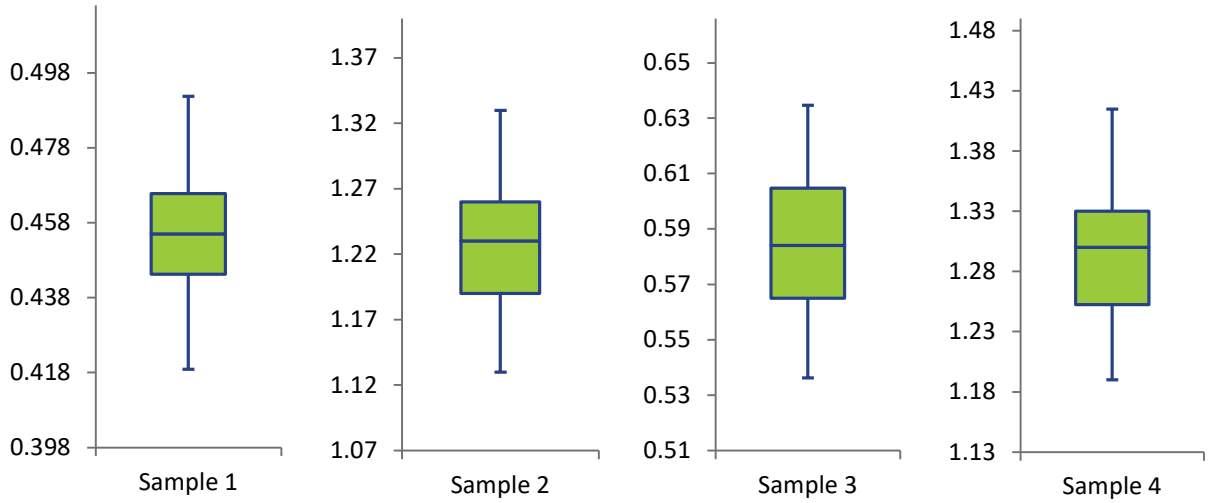
Homogeneity Assessment



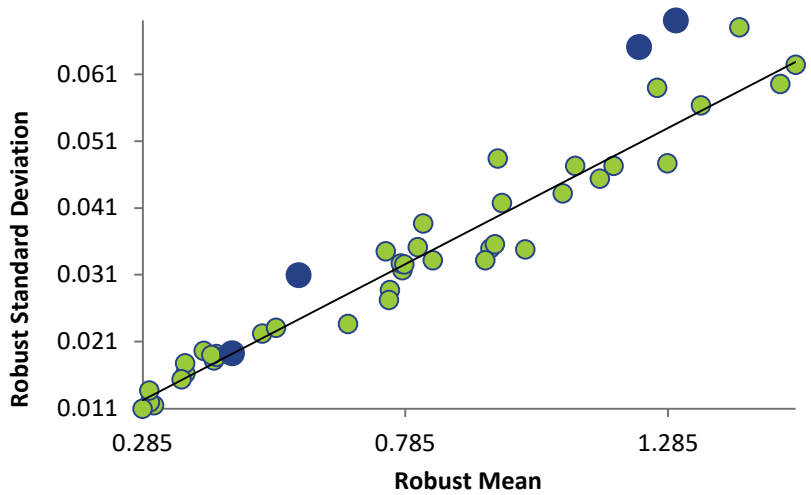
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



SELENIUM

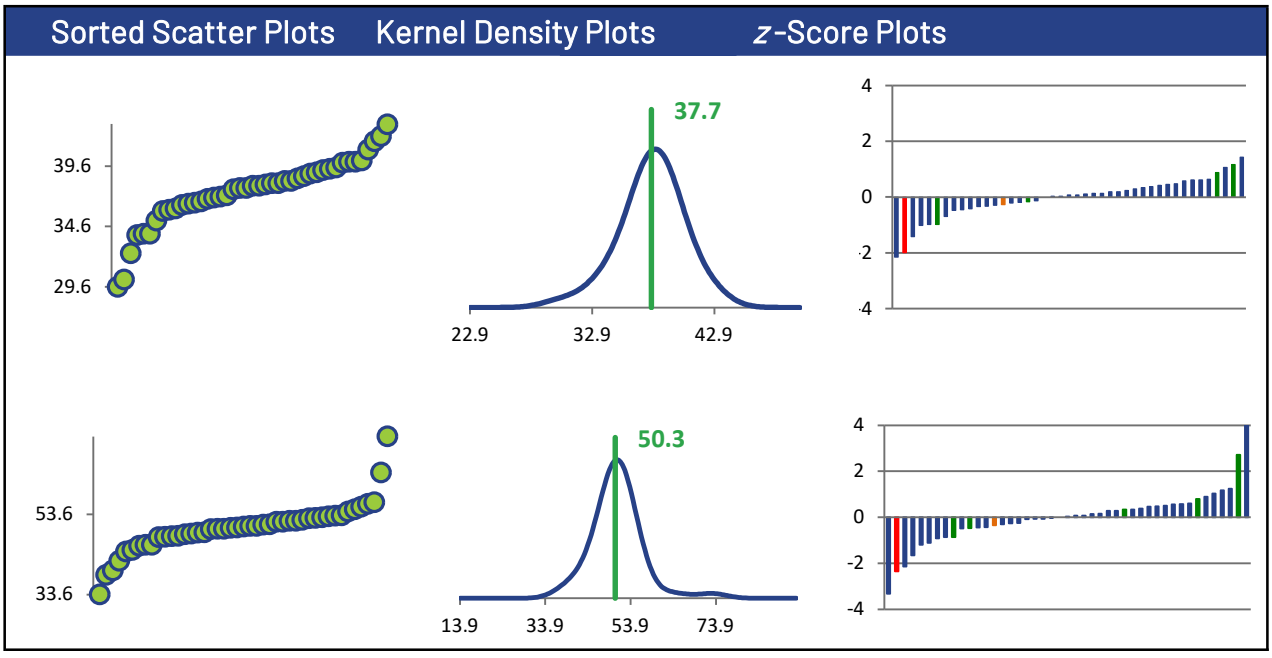
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	43	45	35	44
Median mg/L	38.0	50.5	1.98	82.3
Robust Mean mg/L	37.7	50.3	1.97	81.8
U mg/L	0.456	0.764	0.0450	0.974
Robust Standard Deviation mg/L	2.39	4.10	0.213	5.17
Regression Standard Deviation mg/L	3.77	5.03	0.197	8.18
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	3.77	5.03	0.213	8.18
Outliers	6	5	7	6
|z|>3.0	0	2	3	0
2<|z|<3	1	3	1	1

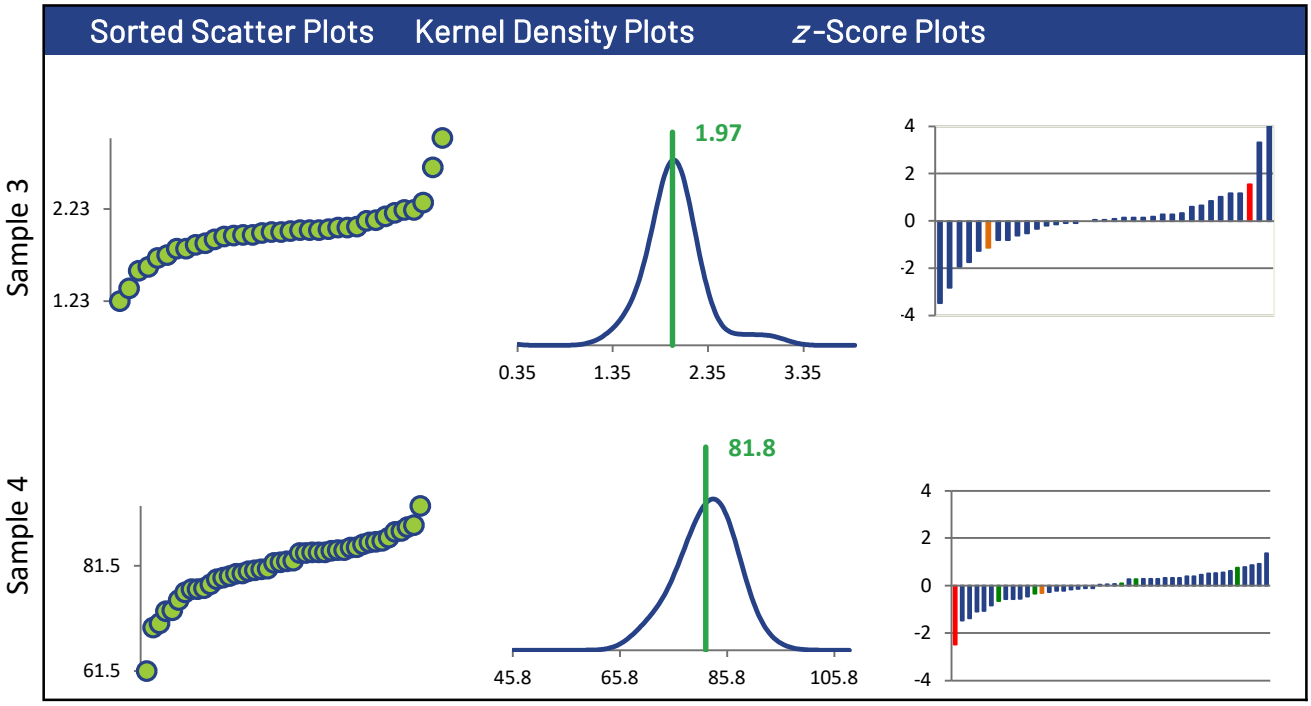
Methods Used

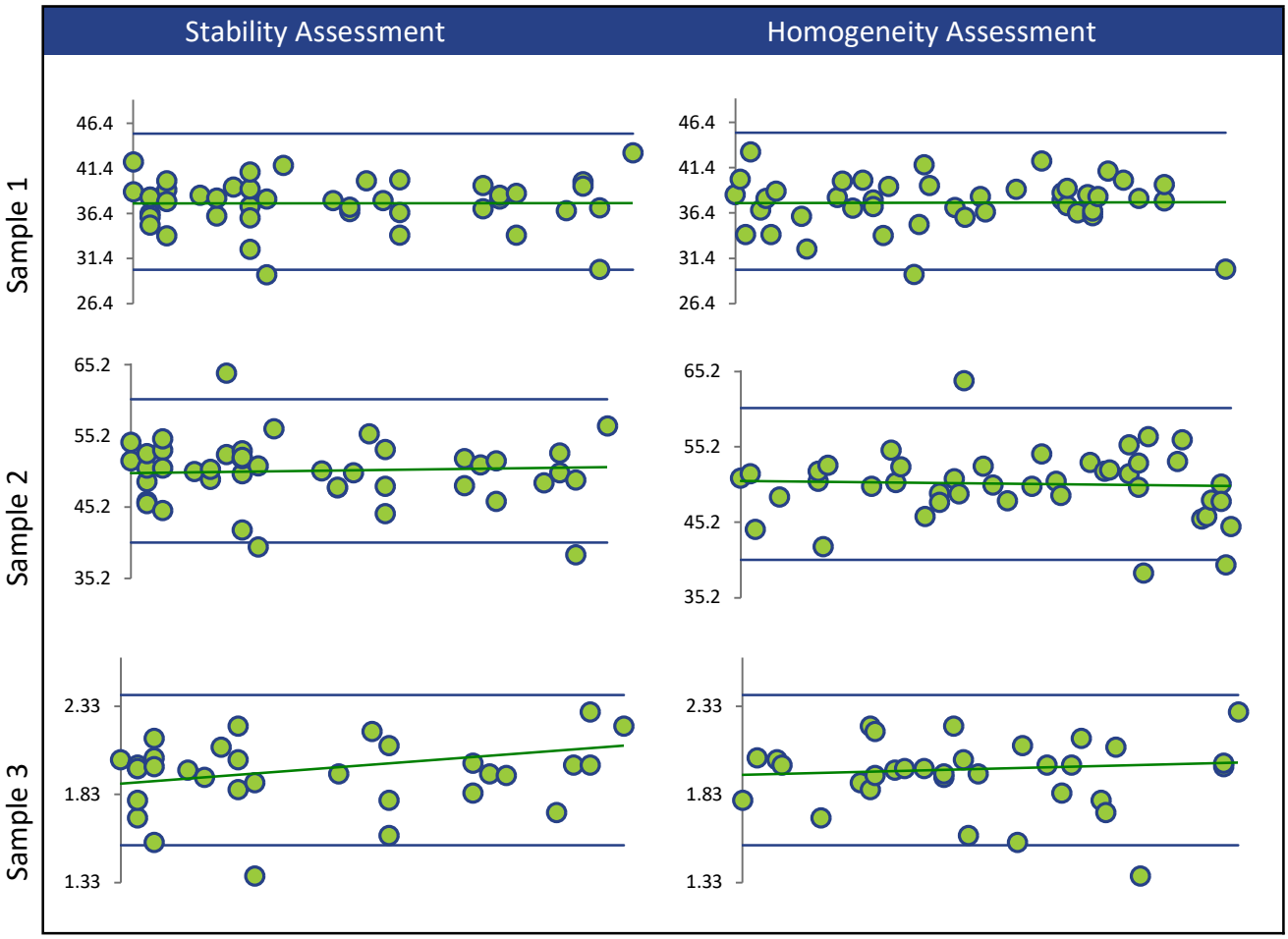
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	37	38	33	37
JR ATOMIC FLUORESCENCE SPECTROPHOTOMETRY (Red)	1	1	1	1
ICP/OES (Green)	4	5	0	5
ATOMIC FLUORESCENCE SPECTROMETER (Orange)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



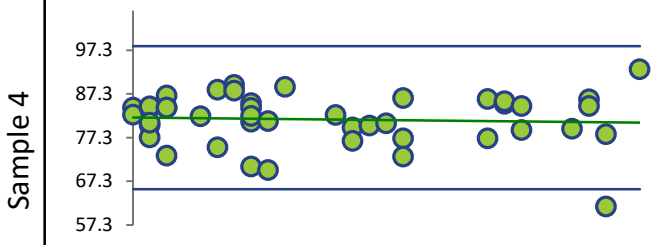
SELENIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
2.23
1.23
1.97
0.35
1.35
2.35
3.35
4
2
0
-2
-4
Sample 4
81.5
61.5
81.8
45.8
65.8
85.8
105.8
4
2
0
-2
-4

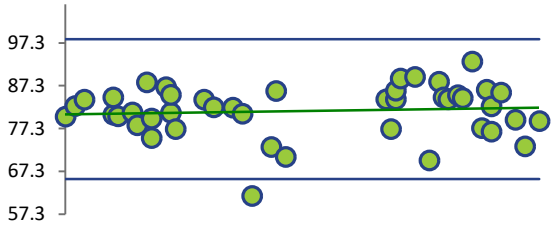

Stability Assessment
Homogeneity Assessment
Sample 1
46.4
41.4
36.4
31.4
26.4
46.4
41.4
36.4
31.4
26.4
Sample 2
65.2
55.2
45.2
35.2
65.2
55.2
45.2
35.2
Sample 3
2.33
1.83
1.33
2.33
1.83
1.33

SELENIUM

Stability Assessment



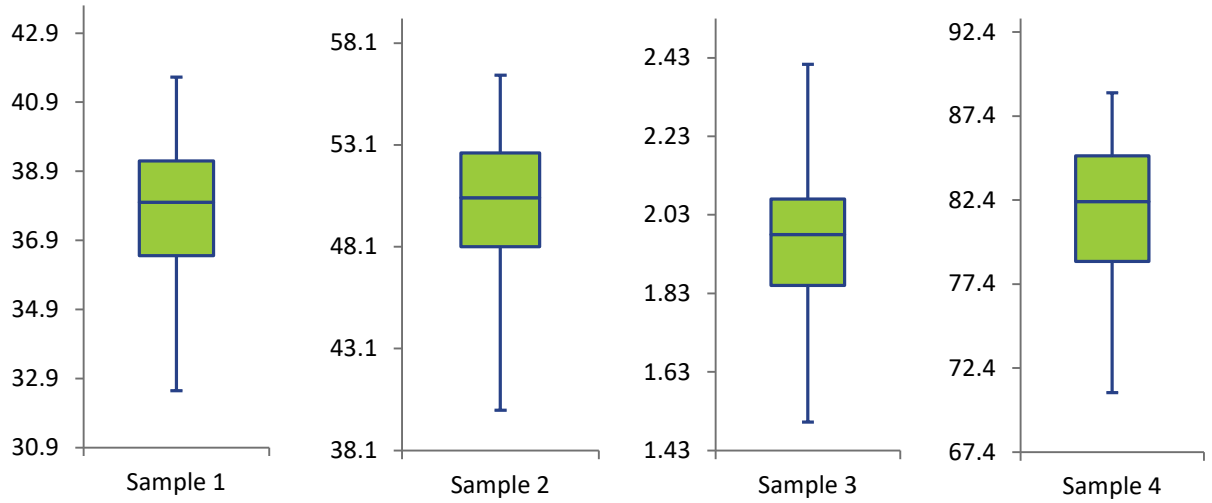
Homogeneity Assessment



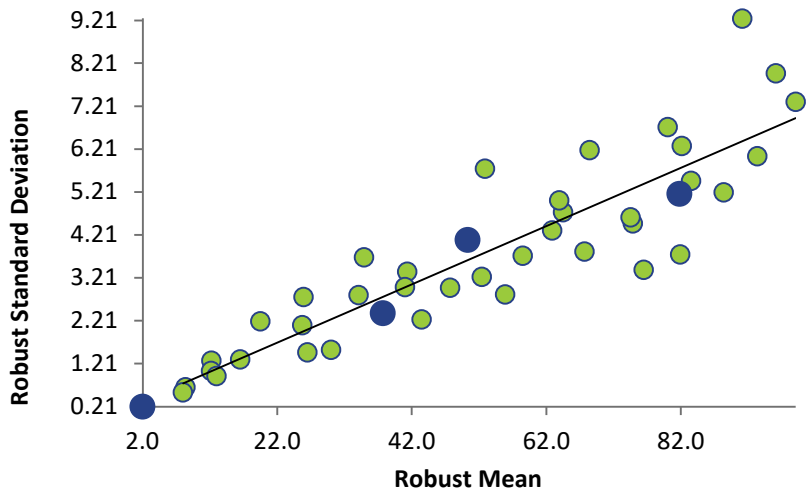
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



SILVER

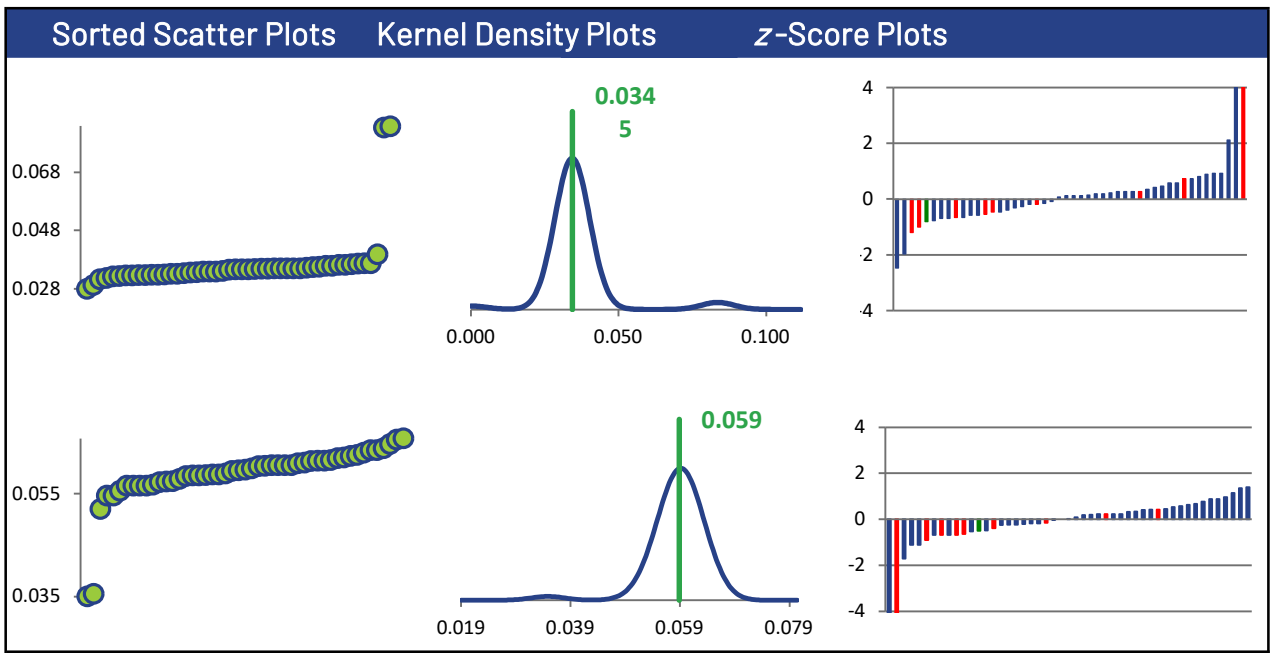
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	48	49	47	49
Median mg/L	0.0348	0.0591	0.0347	0.0827
Robust Mean mg/L	0.0345	0.0590	0.0346	0.0828
U mg/L	0.000336	0.000570	0.000346	0.000720
Robust Standard Deviation mg/L	0.00186	0.00319	0.00190	0.00403
Regression Standard Deviation mg/L	0.00259	0.00442	0.00259	0.00621
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.00259	0.00442	0.00259	0.00621
Outliers	1	1	2	1
|z|>3.0	2	2	2	2
2<|z|<3	2	0	3	0

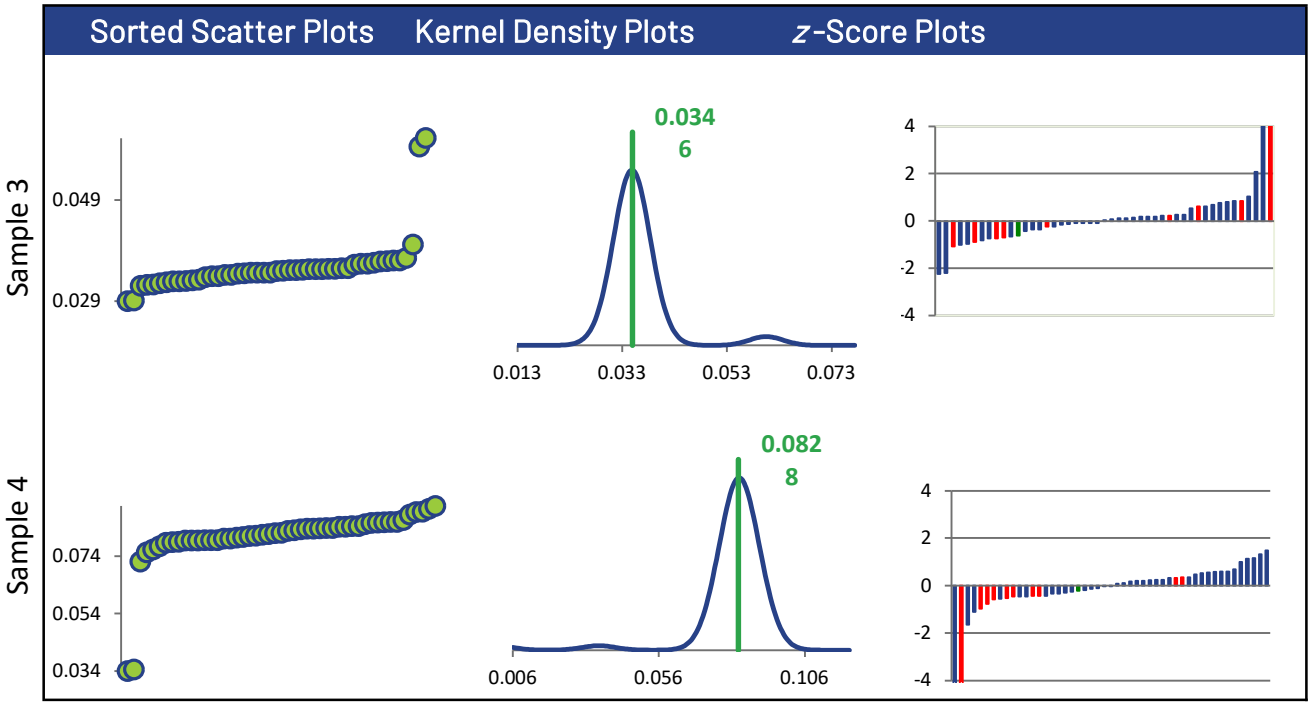
Methods Used

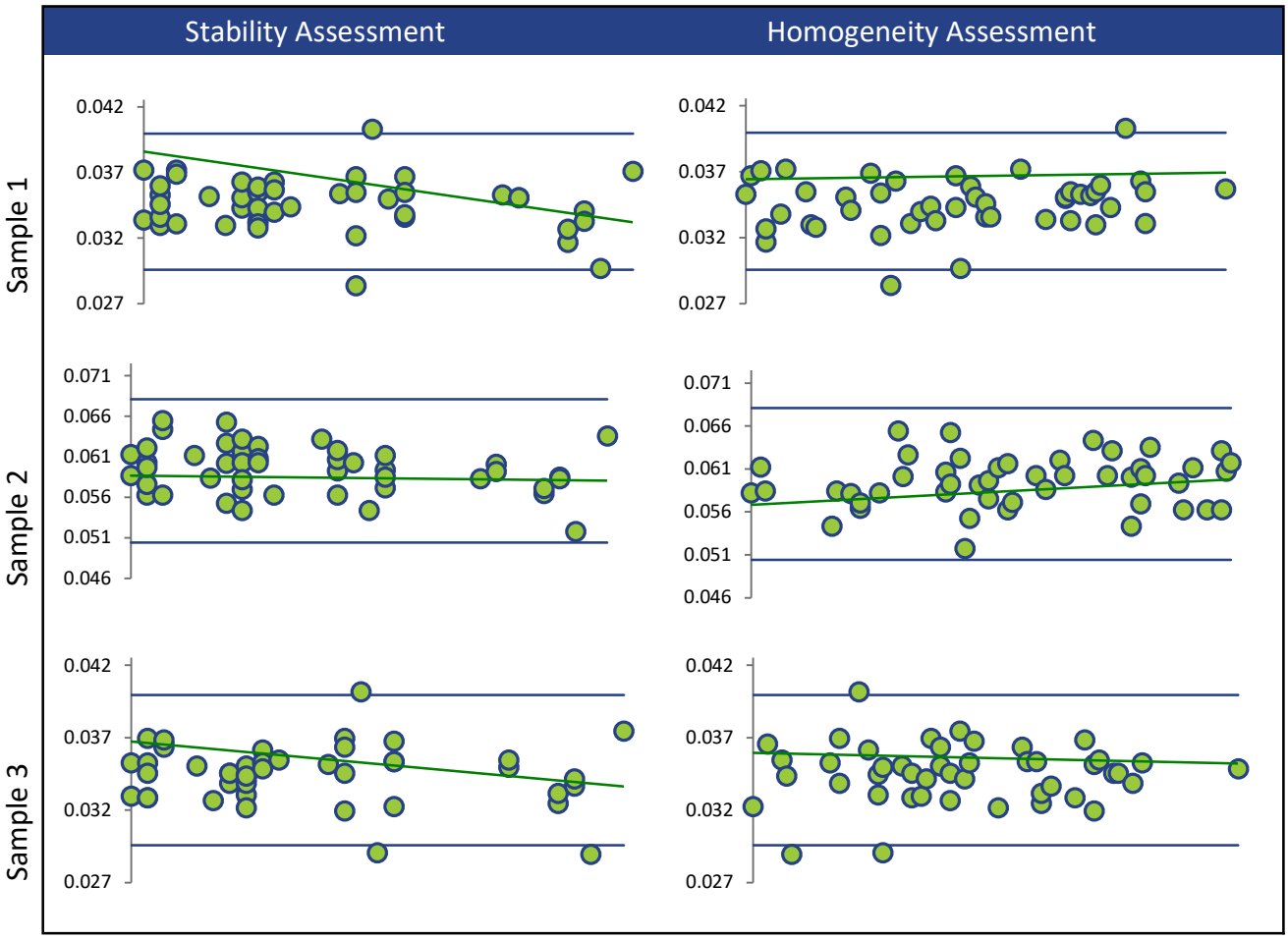
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	38	38	37	38
ICP/OES (Red)	9	10	9	10
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



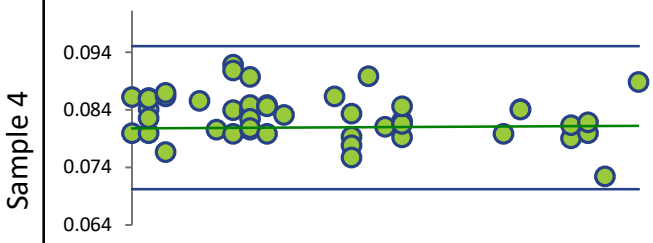
SILVER


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.049
0.029
0.034
6
0.013
0.033
0.053
0.073
4
2
0
-2
-4
Sample 4
0.074
0.054
0.034
0.082
8
0.006
0.056
0.106
4
2
0
-2
-4

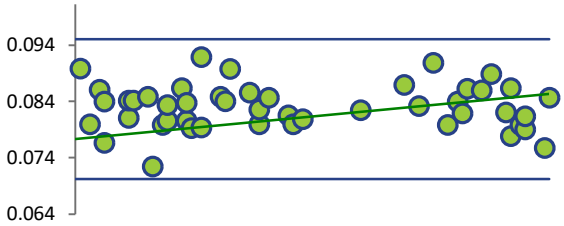

Stability Assessment
Homogeneity Assessment
Sample 1
0.042
0.037
0.032
0.027
Sample 2
0.071
0.066
0.061
0.056
0.051
0.046
Sample 3
0.042
0.037
0.032
0.027

SILVER

Stability Assessment



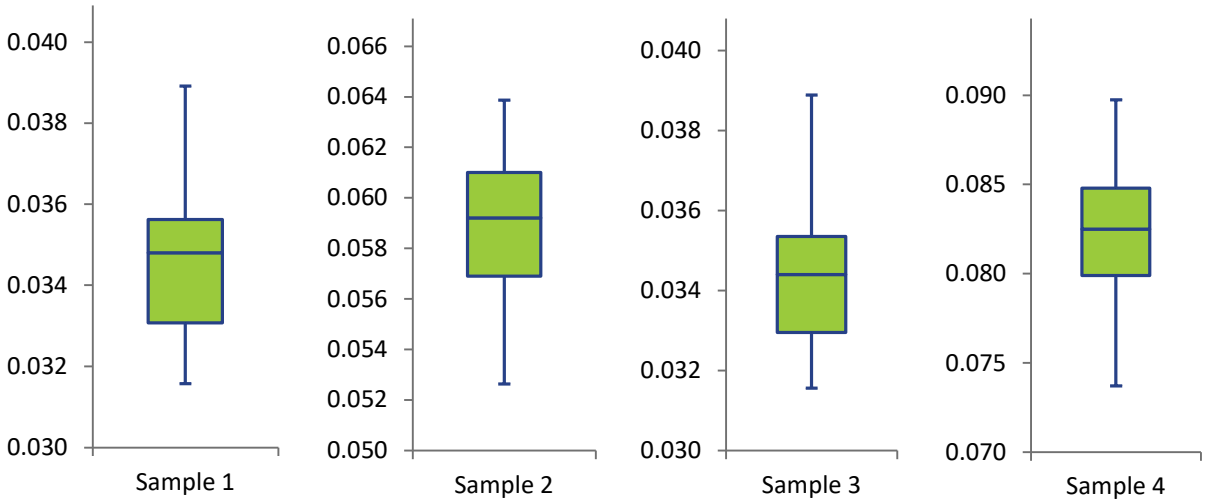
Homogeneity Assessment



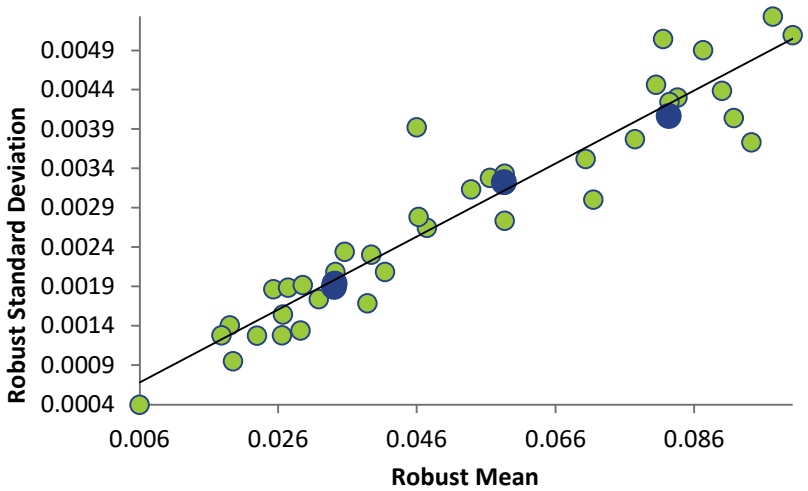
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



STRONTIUM

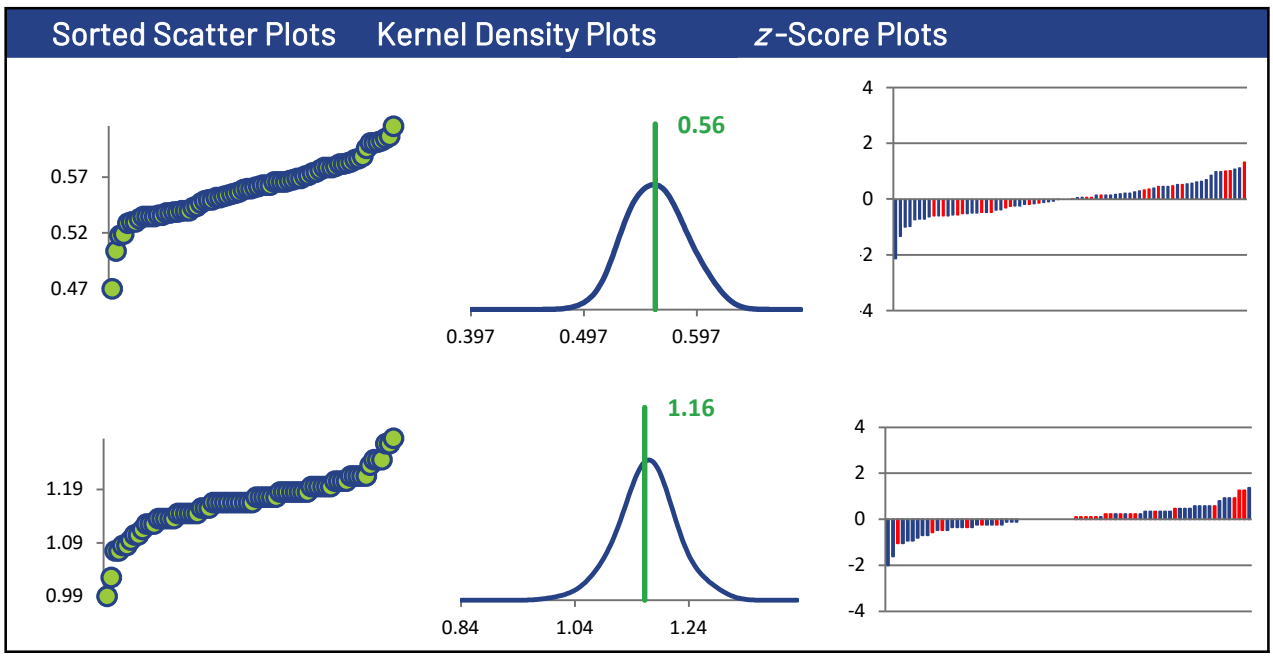
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	74	74	74	74
Median mg/L	0.561	1.16	0.336	1.11
Robust Mean mg/L	0.560	1.16	0.334	1.11
U mg/L	0.00363	0.00639	0.00190	0.00722
Robust Standard Deviation mg/L	0.0250	0.0440	0.0131	0.0497
Regression Standard Deviation mg/L	0.0420	0.0873	0.0250	0.0834
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0420	0.0873	0.0250	0.0834
Outliers	2	2	2	2
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

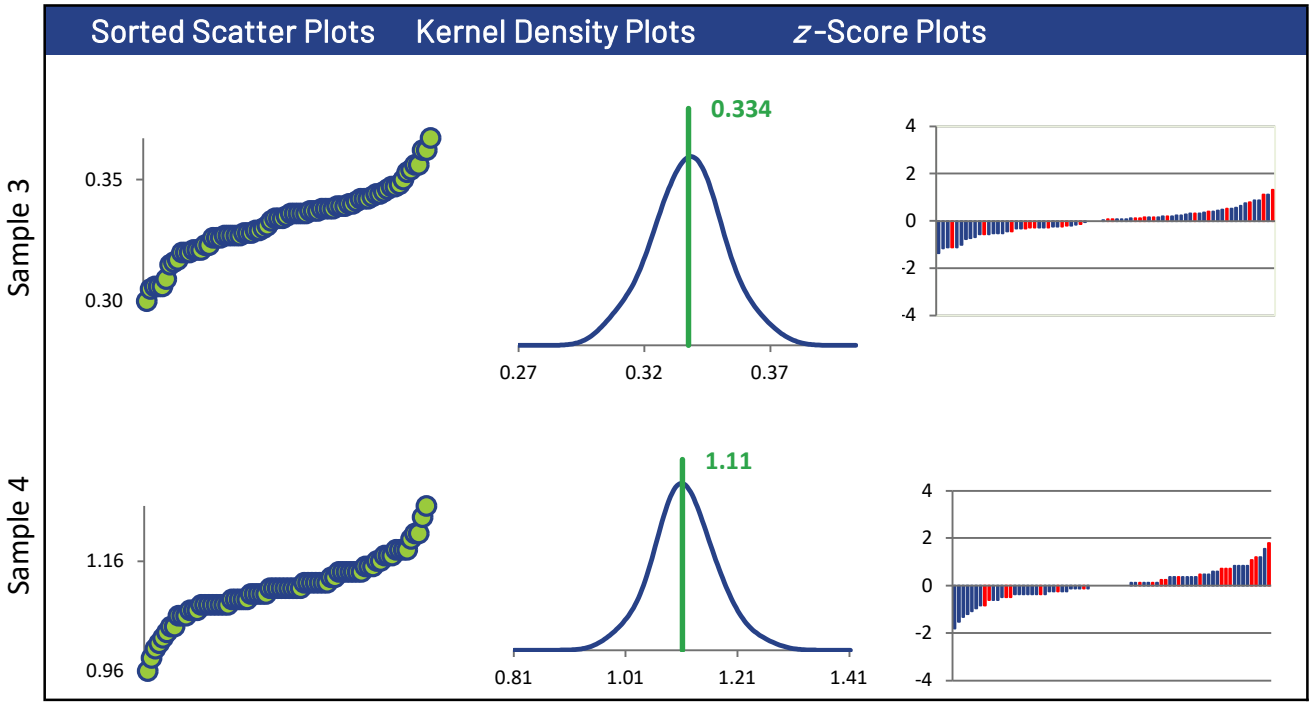
Methods Used

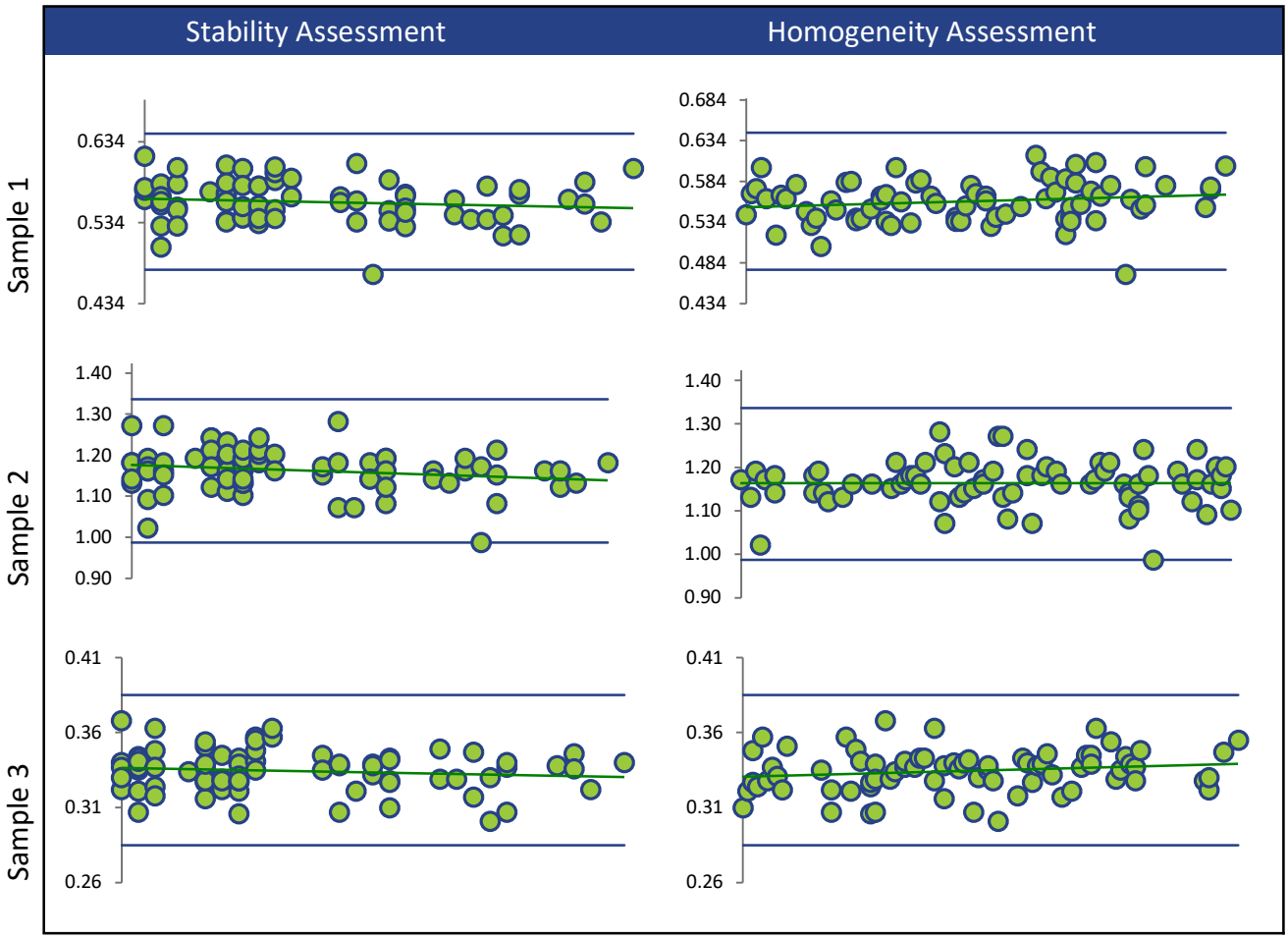
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	50	50	50	50
ICP/OES (Red)	24	24	24	24

All summary stats and the plots below are based on the data excluding any flagged outliers



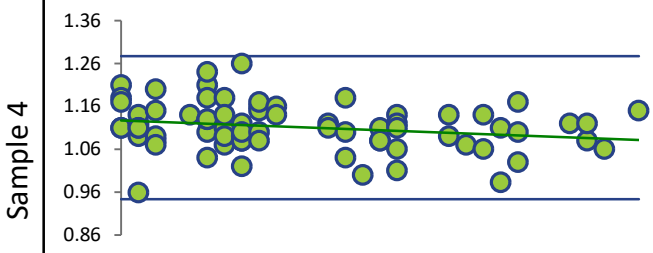
STRONTIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.35
0.30
0.334
0.27
0.32
0.37
4
2
0
-2
-4
Sample 4
1.16
0.96
1.11
0.81
1.01
1.21
1.41
4
2
0
-2
-4

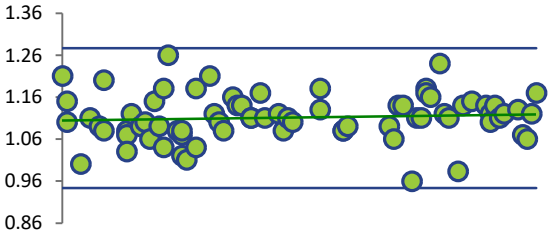

Stability Assessment
Homogeneity Assessment
Sample 1
0.634
0.534
0.434
0.684
0.634
0.584
0.534
0.484
0.434
Sample 2
1.40
1.30
1.20
1.10
1.00
0.90
Sample 3
0.41
0.36
0.31
0.26

STRONTIUM

Stability Assessment



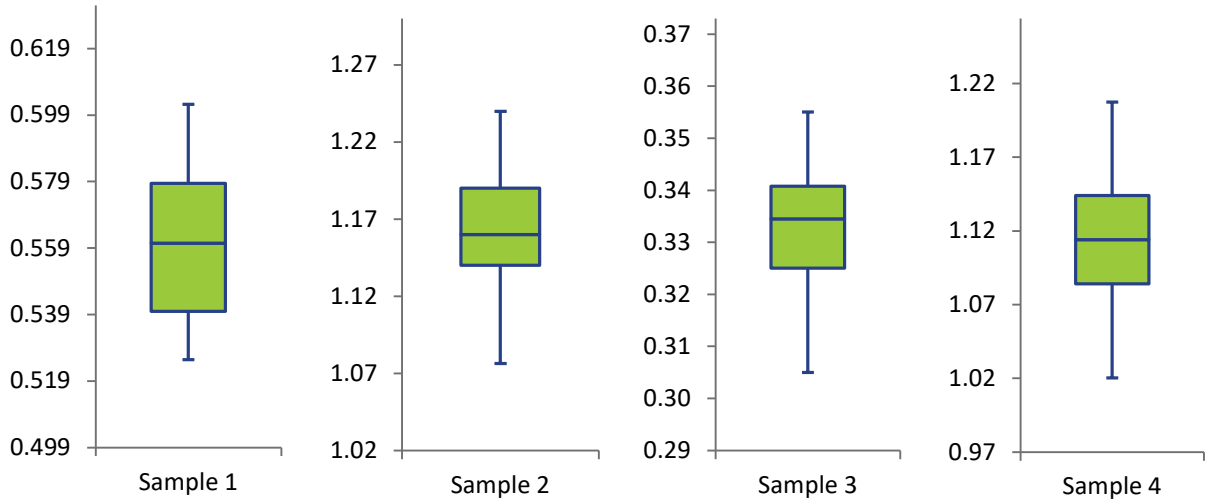
Homogeneity Assessment



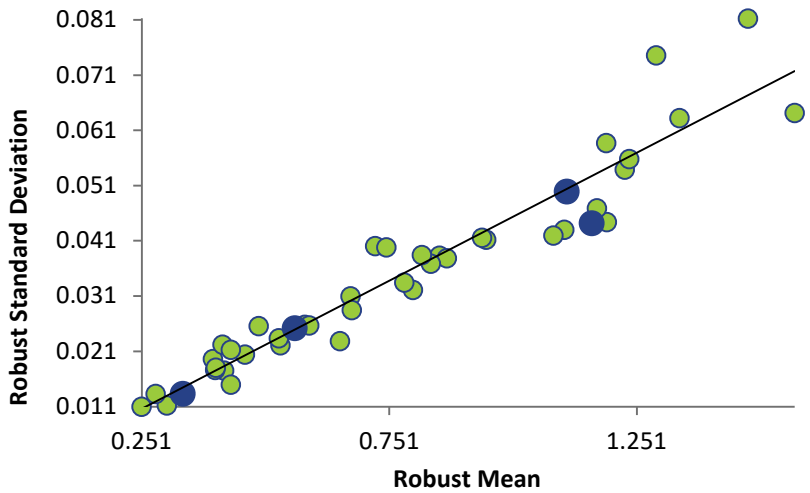
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



THALLIUM

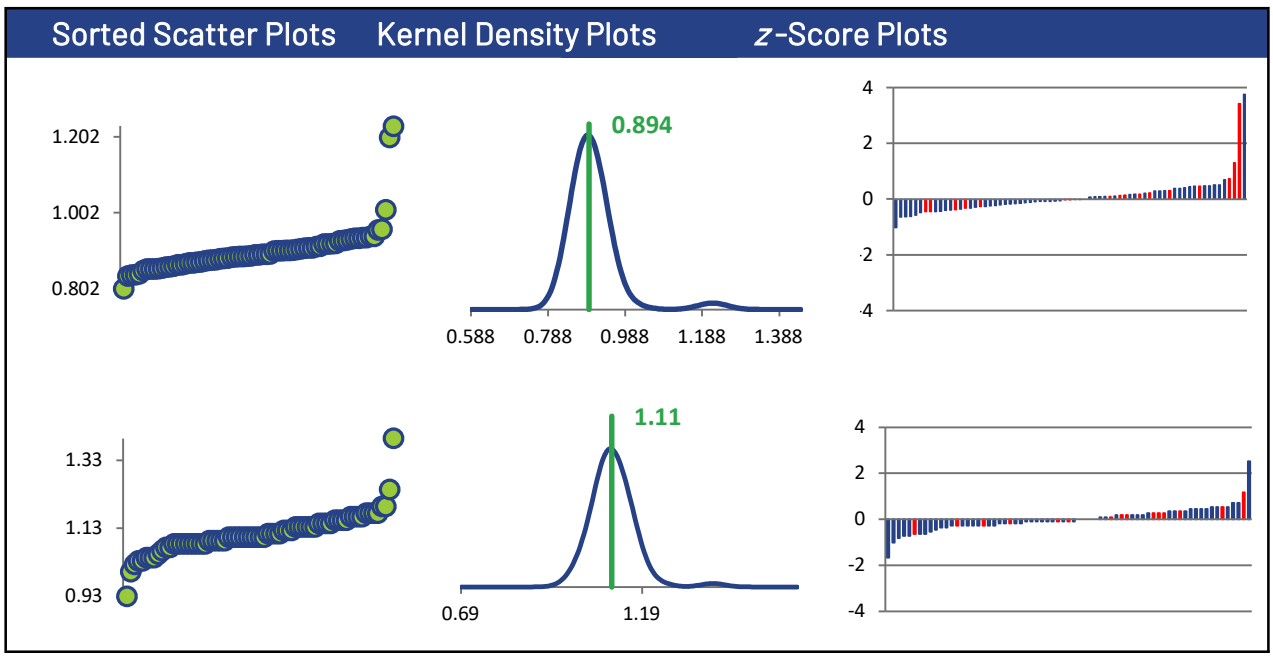
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	71	69	69	71
Median mg/L	0.891	1.10	0.453	1.24
Robust Mean mg/L	0.894	1.11	0.456	1.23
U mg/L	0.00531	0.00709	0.00299	0.00722
Robust Standard Deviation mg/L	0.0358	0.0471	0.0199	0.0487
Regression Standard Deviation mg/L	0.0894	0.111	0.0456	0.123
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0894	0.111	0.0456	0.123
Outliers	0	2	2	0
|z|>3.0	2	0	0	0
2<|z|<3	0	1	0	2

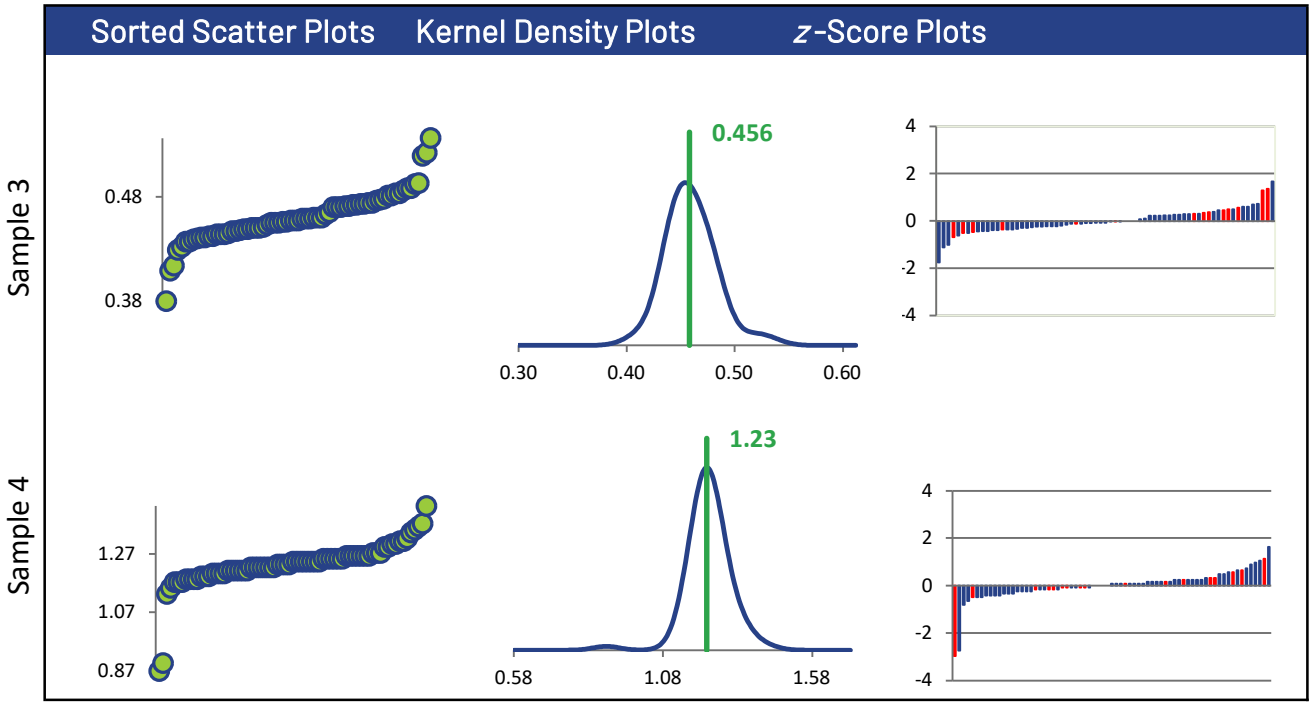
Methods Used

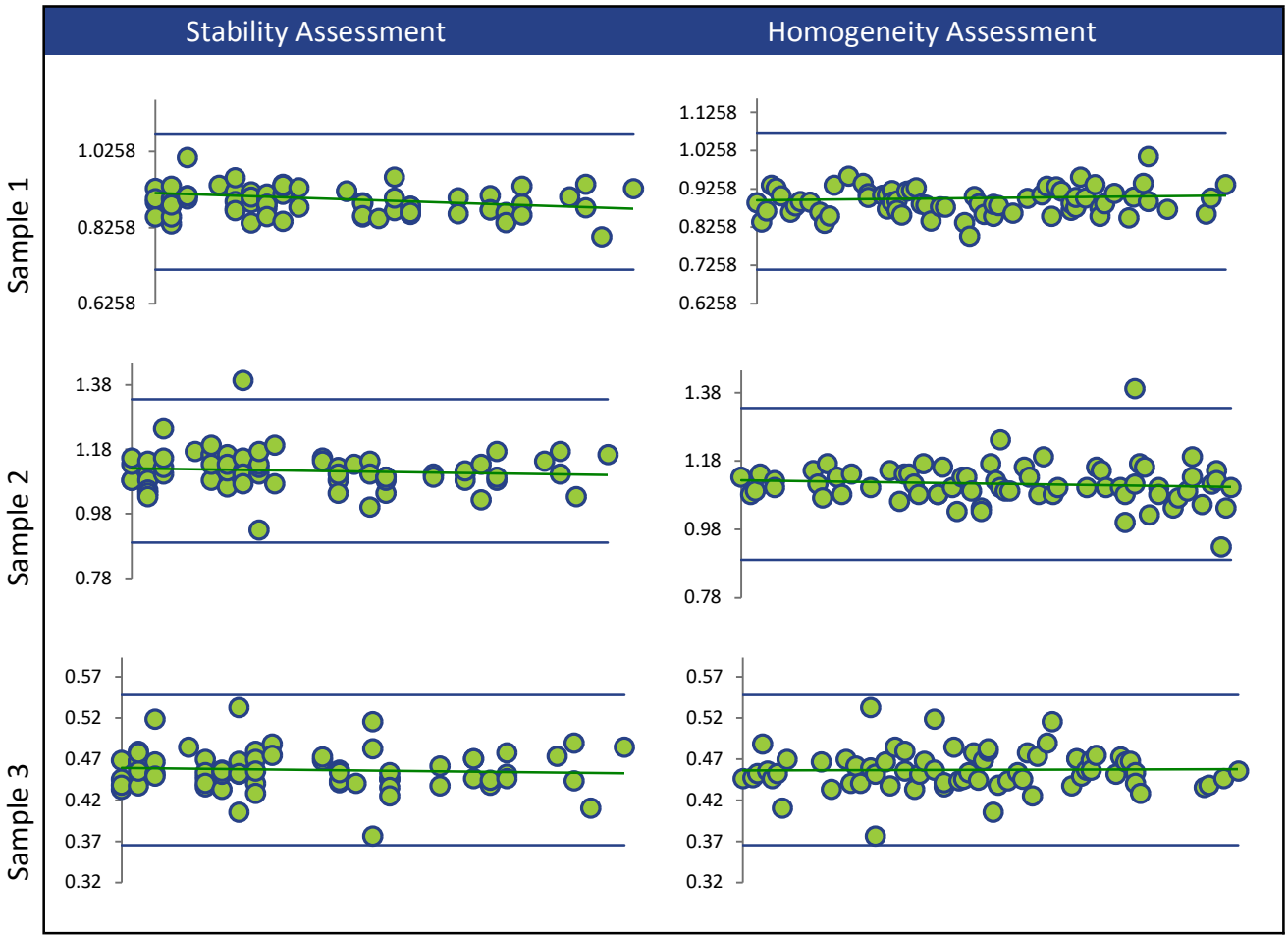
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	54	53	53	54
ICP/OES (Red)	17	16	16	17

All summary stats and the plots below are based on the data excluding any flagged outliers



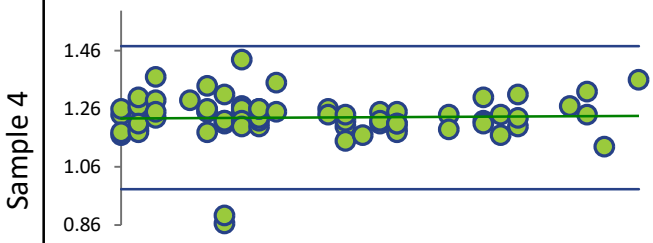
THALLIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.48
0.38
0.456
0.30
0.40
0.50
0.60
4
2
0
-2
-4
Sample 4
1.27
1.07
0.87
1.23
0.58
1.08
1.58
4
2
0
-2
-4

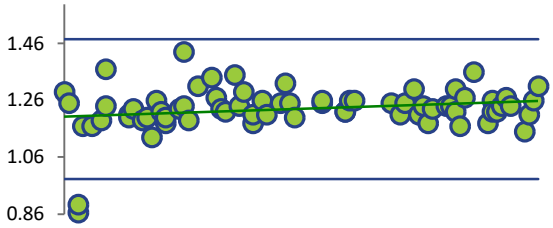

Stability Assessment
Homogeneity Assessment
Sample 1
1.0258
0.8258
0.6258
1.1258
1.0258
0.9258
0.8258
0.7258
0.6258
Sample 2
1.38
1.18
0.98
0.78
Sample 3
0.57
0.52
0.47
0.42
0.37
0.32

THALLIUM

Stability Assessment



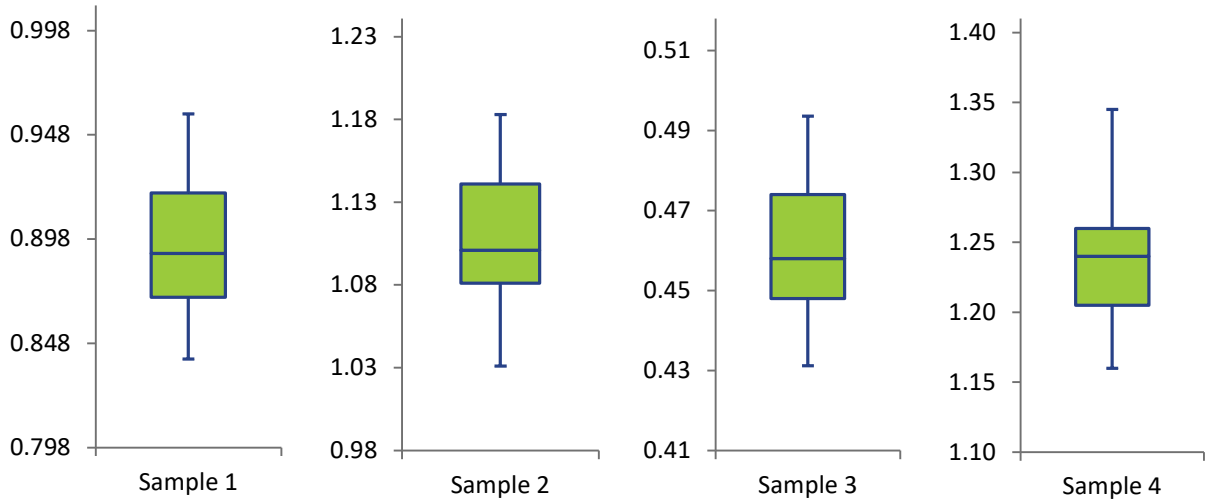
Homogeneity Assessment



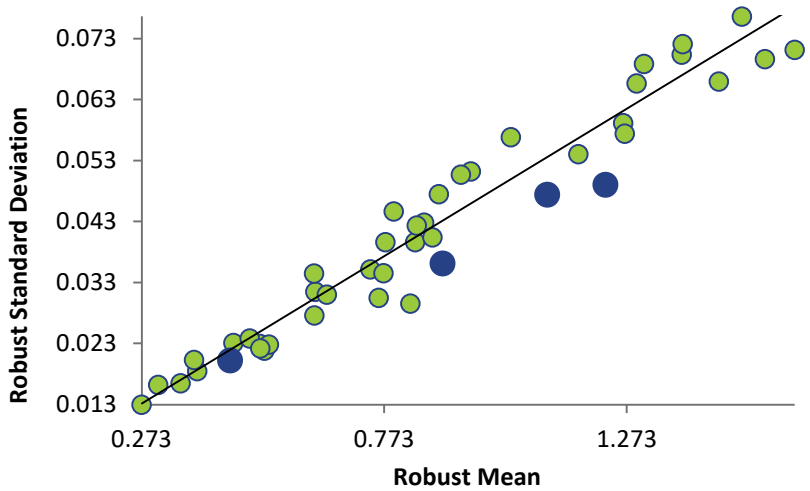
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



TIN

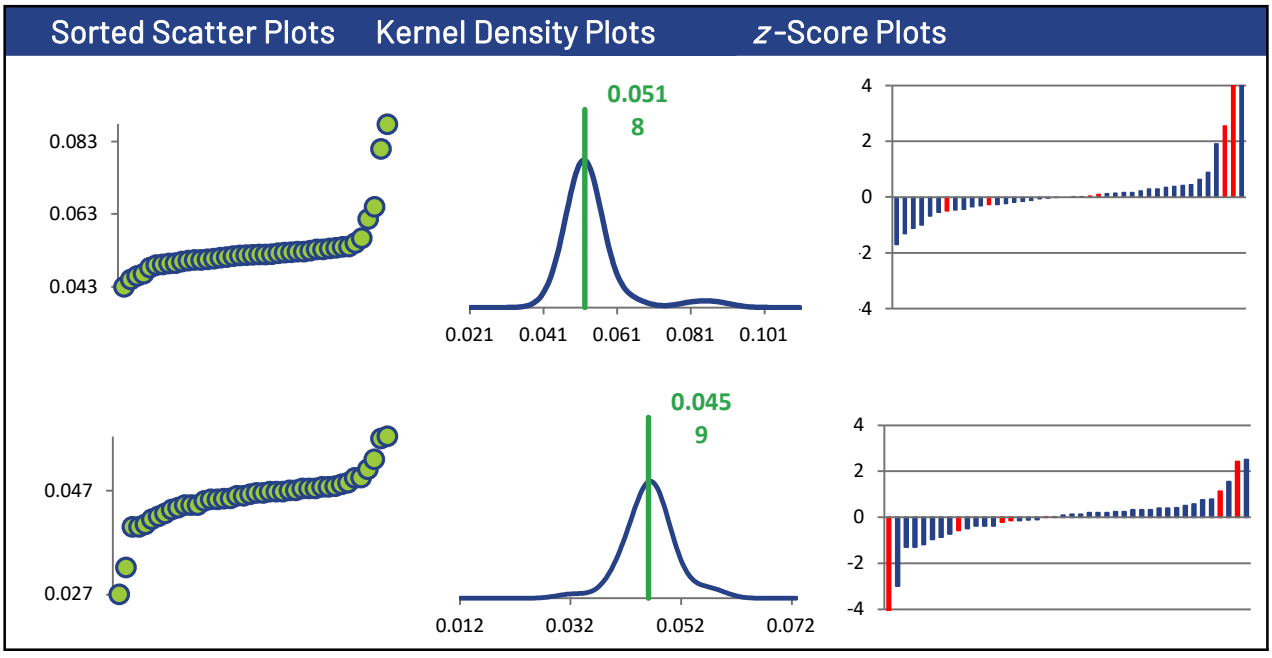
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	42	42	42	44
Median mg/L	0.0519	0.0464	0.0291	0.0843
Robust Mean mg/L	0.0518	0.0459	0.0293	0.0839
U mg/L	0.000530	0.000638	0.000405	0.000972
Robust Standard Deviation mg/L	0.00275	0.00331	0.00210	0.00516
Regression Standard Deviation mg/L	0.00518	0.00459	0.00293	0.00839
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.00518	0.00459	0.00293	0.00839
Outliers	0	0	0	0
|z|>3.0	2	1	4	2
2<|z|<3	1	3	0	1

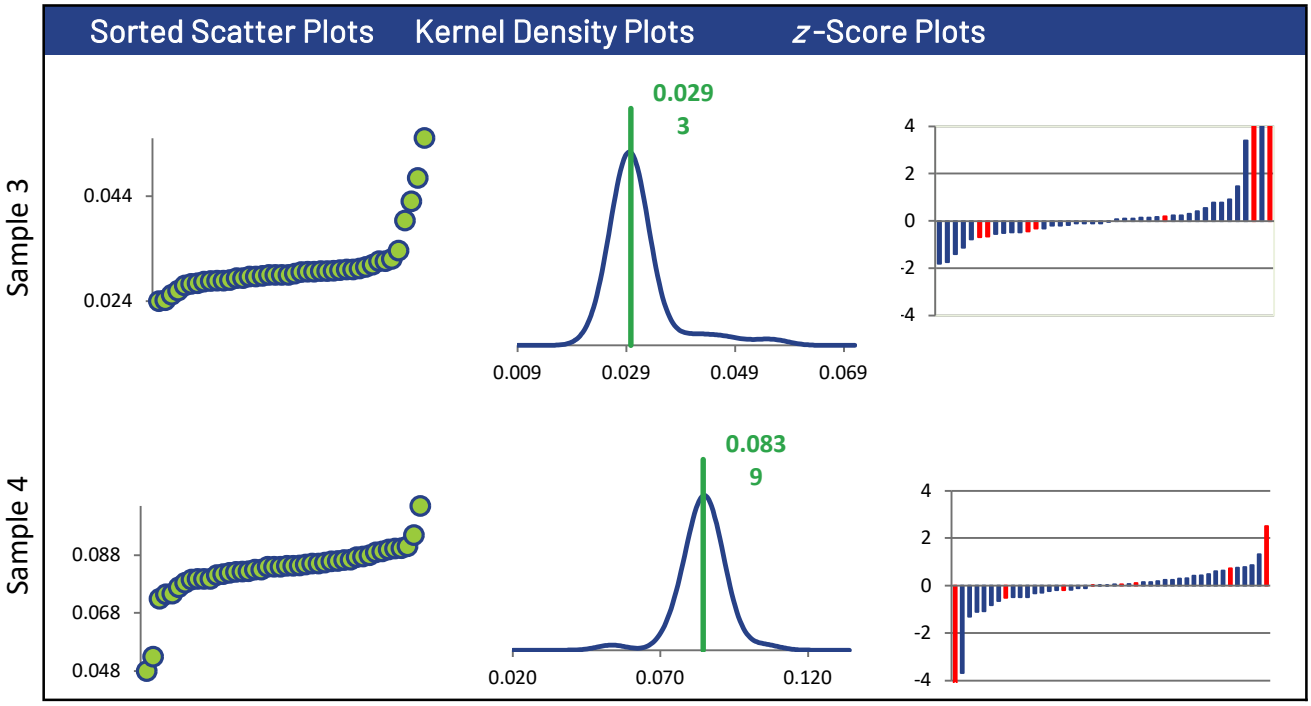
Methods Used

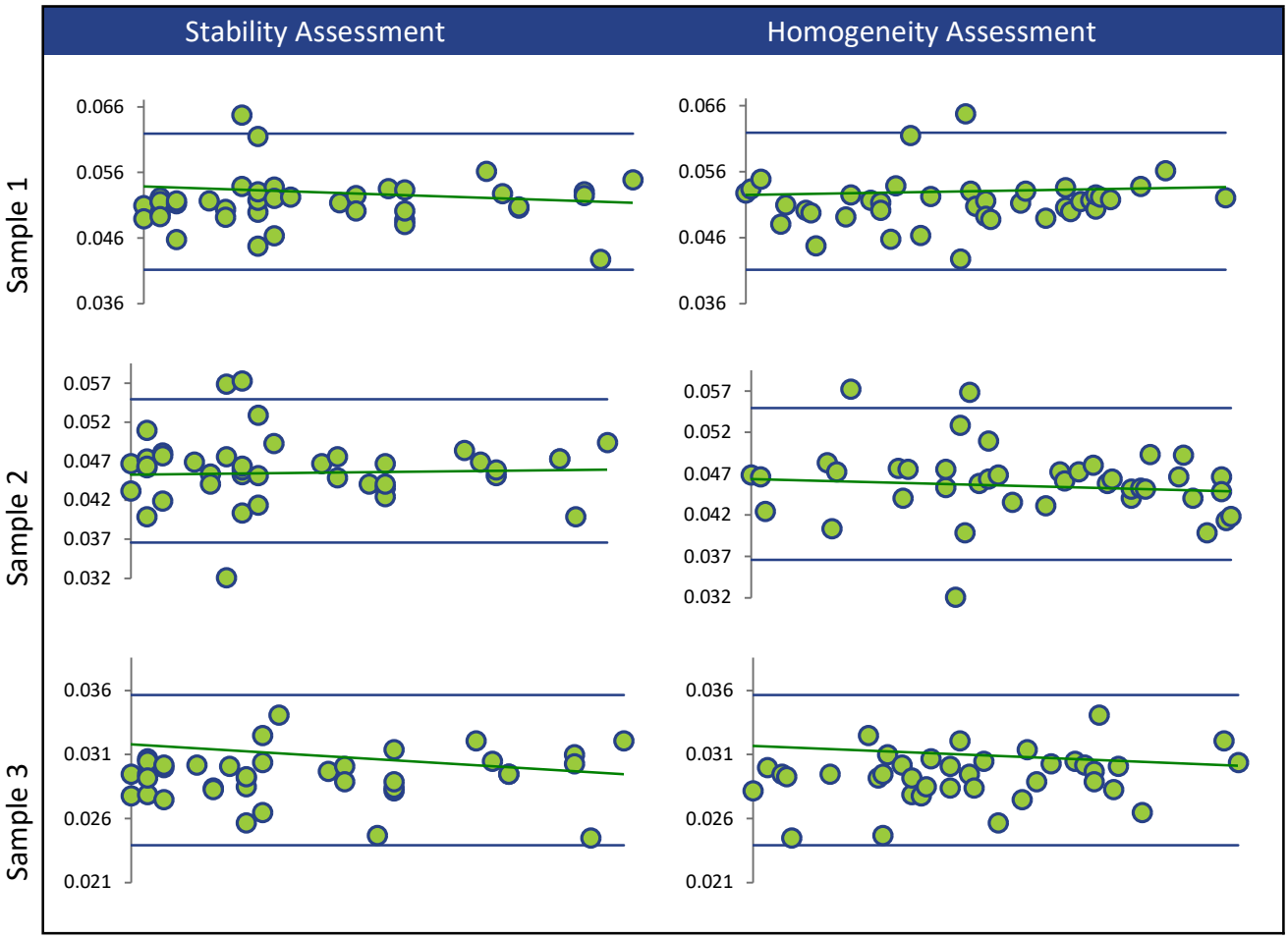
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	35	35	35	36
ICP/OES (Red)	7	7	7	8

All summary stats and the plots below are based on the data excluding any flagged outliers



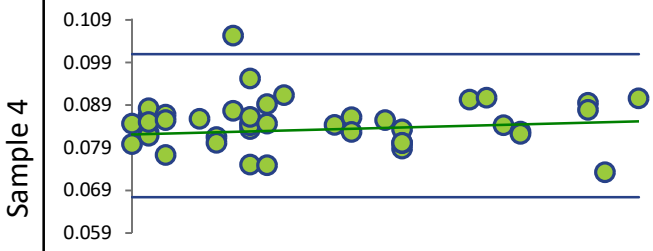
TIN


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.044
0.024
0.029
3
0.009
0.029
0.049
0.069
4
2
0
-2
-4
Sample 4
0.088
0.068
0.048
0.083
9
0.020
0.070
0.120
4
2
0
-2
-4

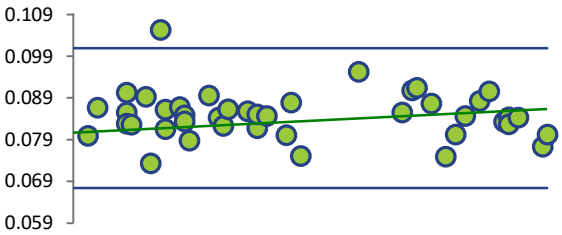

Stability Assessment
Homogeneity Assessment
Sample 1
0.066
0.056
0.046
0.036
Sample 2
0.057
0.052
0.047
0.042
0.037
0.032
Sample 3
0.036
0.031
0.026
0.021

TIN

Stability Assessment



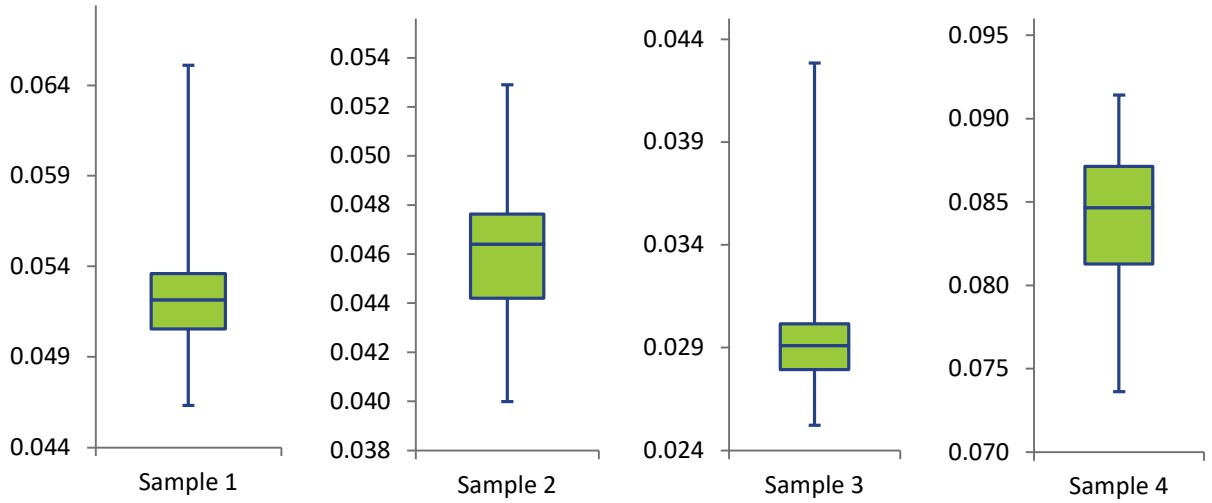
Homogeneity Assessment



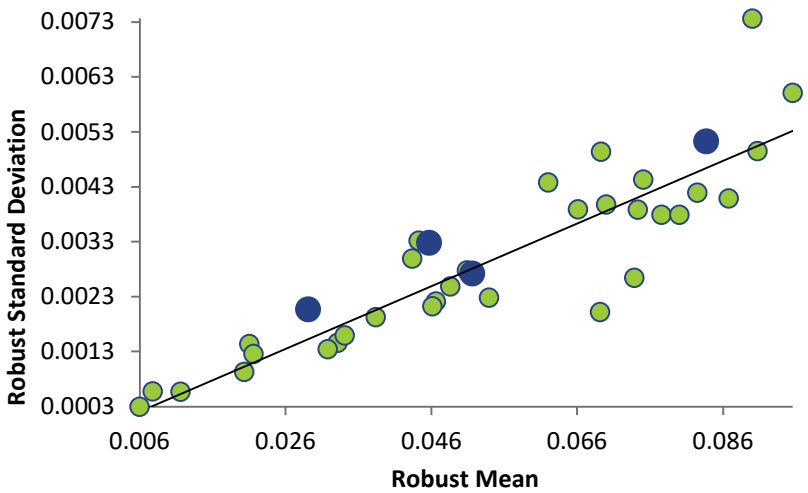
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



TITANIUM

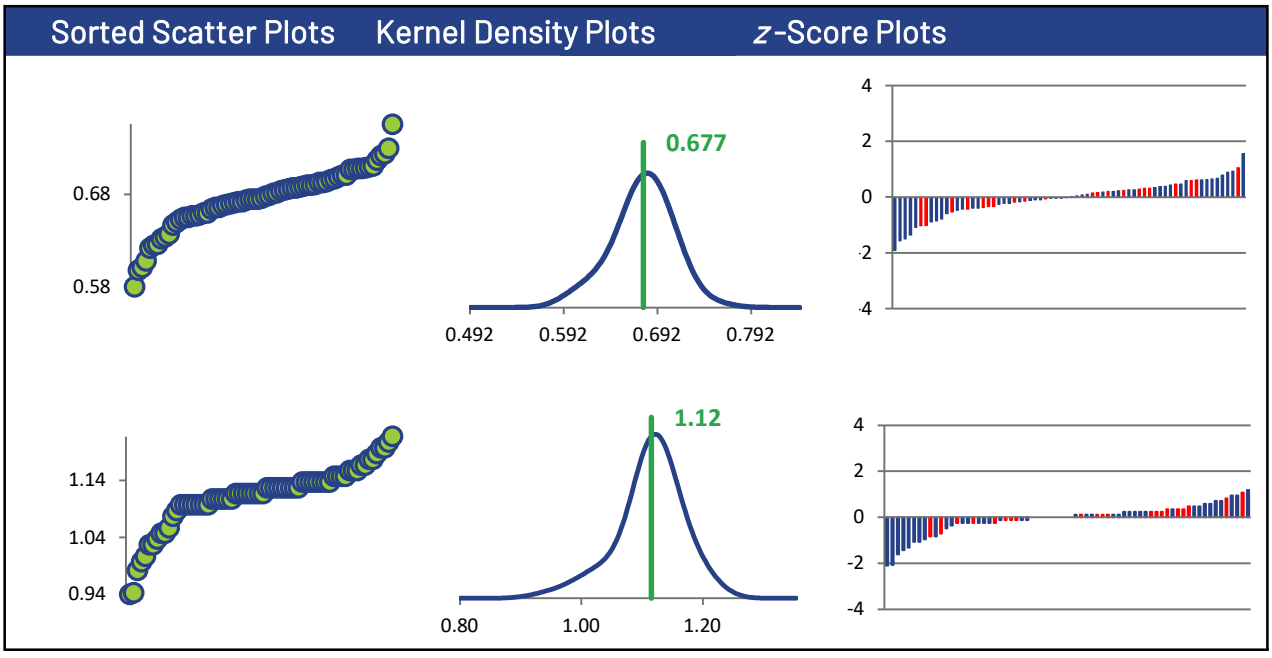
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	68	68	68	70
Median mg/L	0.677	1.12	0.293	1.02
Robust Mean mg/L	0.677	1.12	0.295	1.01
U mg/L	0.00452	0.00653	0.00233	0.00725
Robust Standard Deviation mg/L	0.0298	0.0431	0.0154	0.0485
Regression Standard Deviation mg/L	0.0507	0.0841	0.0221	0.0761
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0507	0.0841	0.0221	0.0761
Outliers	2	2	2	0
|z|>3.0	0	0	0	2
2<|z|<3	0	2	1	0

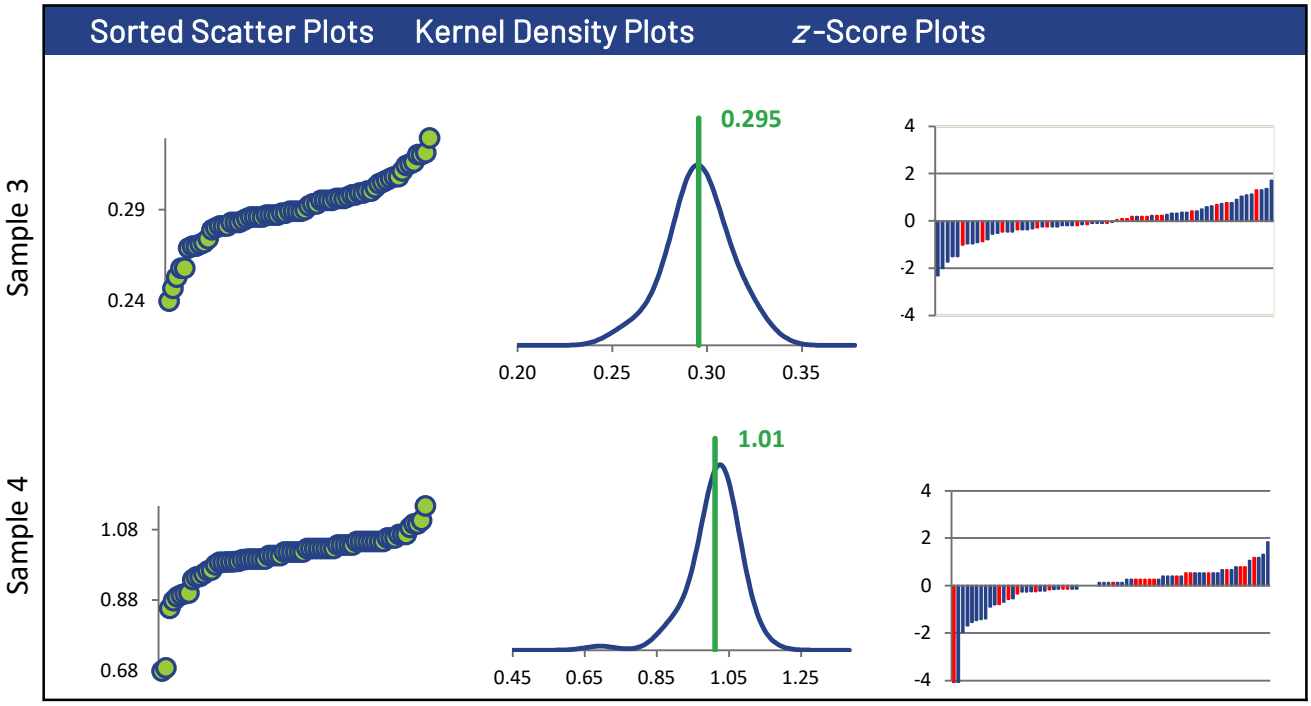
Methods Used

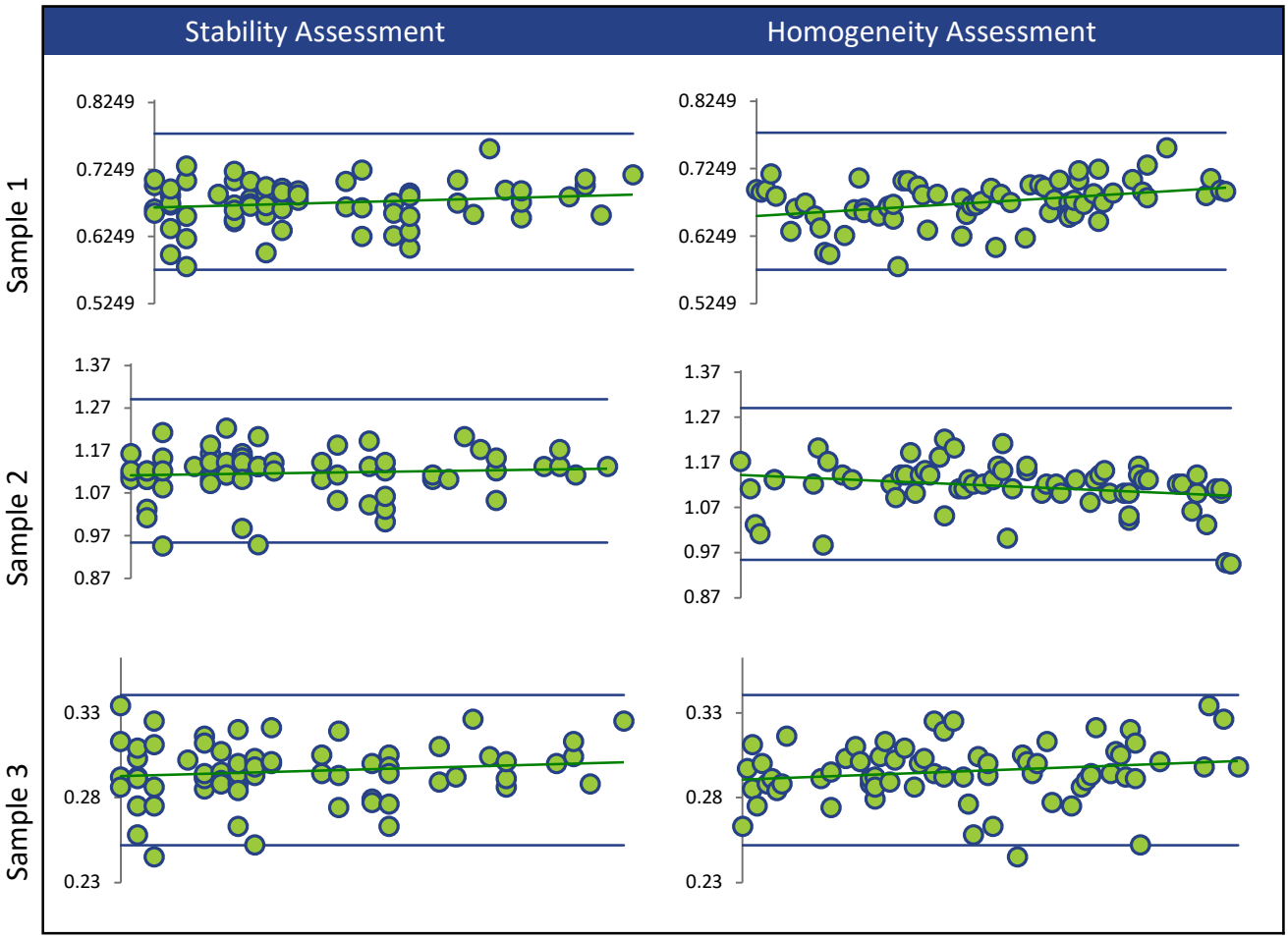
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	47	47	47	48
ICP/OES (Red)	21	21	21	22

All summary stats and the plots below are based on the data excluding any flagged outliers



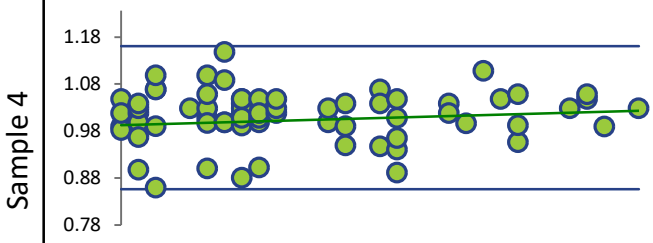
TITANIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.29
0.24
0.295
0.20
0.25
0.30
0.35
4
2
0
-2
-4
Sample 4
1.08
0.88
0.68
1.01
0.45
0.65
0.85
1.05
1.25
4
2
0
-2
-4

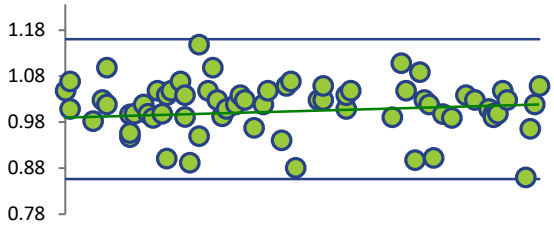

Stability Assessment
Homogeneity Assessment
Sample 1
0.8249
0.7249
0.6249
0.5249
Sample 2
1.37
1.27
1.17
1.07
0.97
0.87
Sample 3
0.33
0.28
0.23

TITANIUM

Stability Assessment



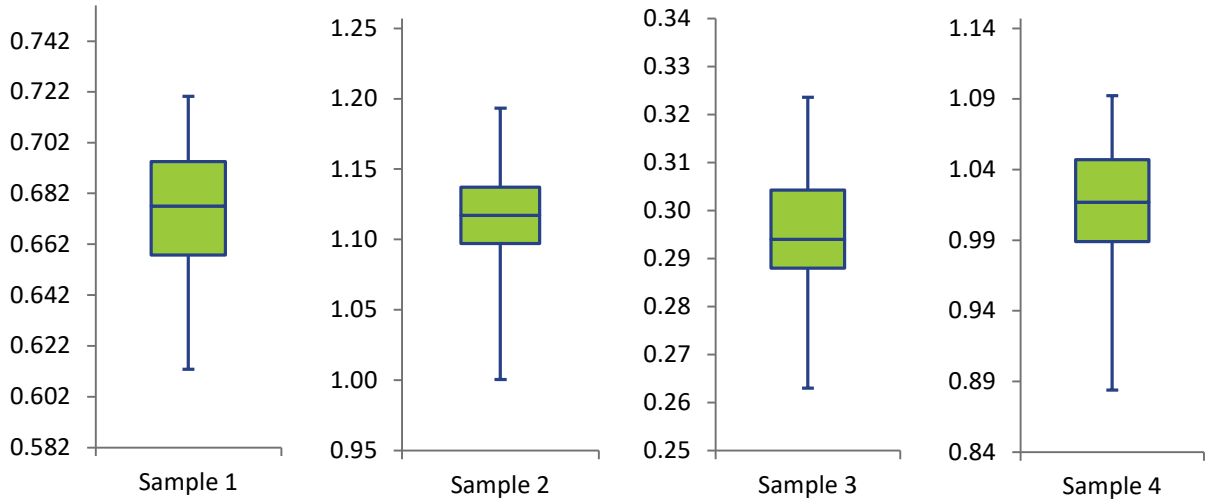
Homogeneity Assessment



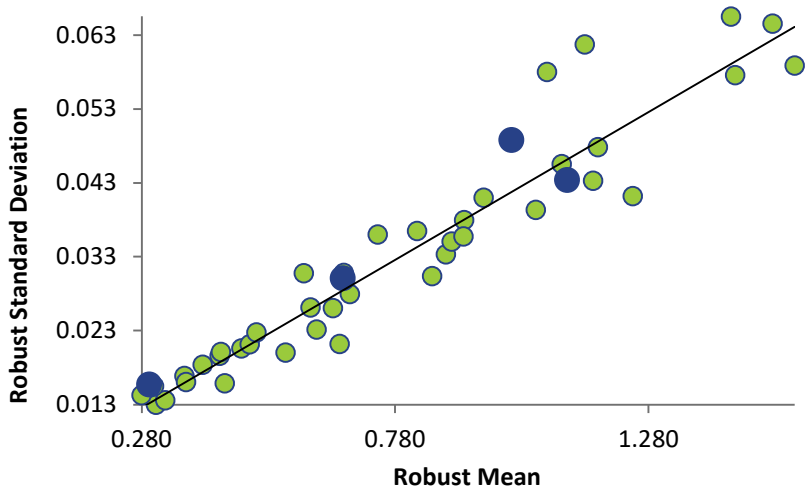
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



URANIUM

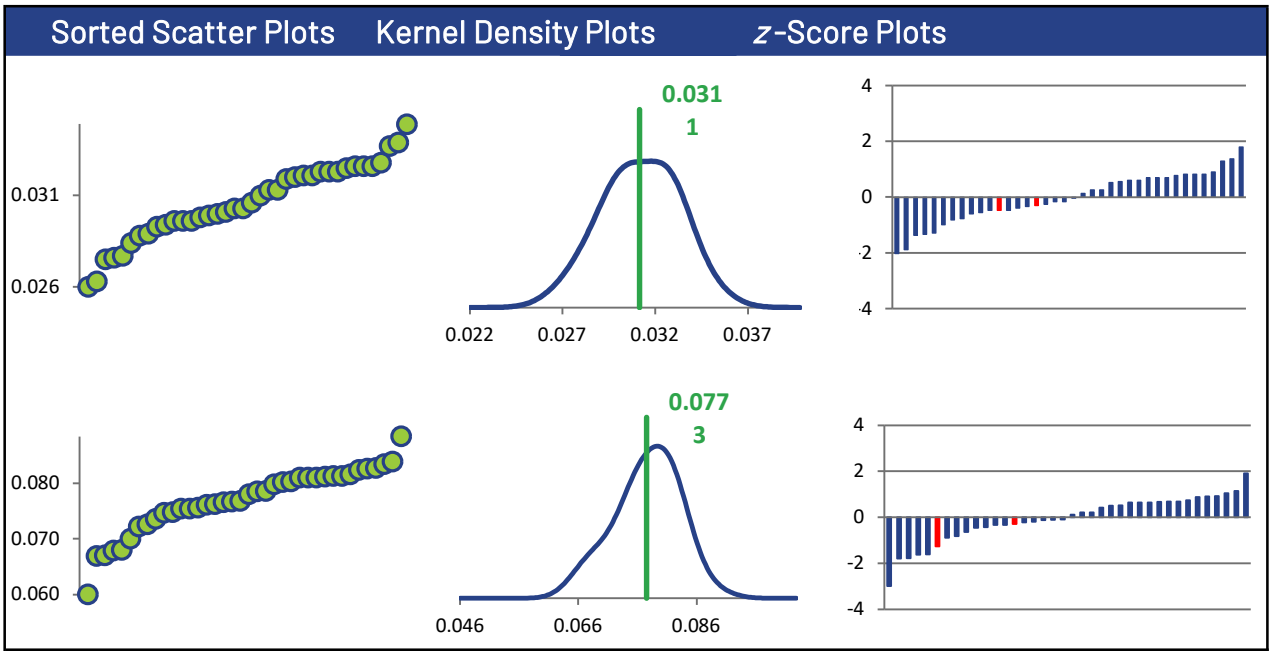
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	38	38	37	38
Median mg/L	0.0309	0.0774	0.0128	0.0794
Robust Mean mg/L	0.0311	0.0773	0.0125	0.0791
U mg/L	0.000442	0.00109	0.000212	0.00104
Robust Standard Deviation mg/L	0.00218	0.00537	0.00103	0.00511
Regression Standard Deviation mg/L	0.00233	0.00580	0.000941	0.00593
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.00233	0.00580	0.00103	0.00593
Outliers	1	1	1	1
|z|>3.0	0	0	0	0
2<|z|<3	1	1	2	1

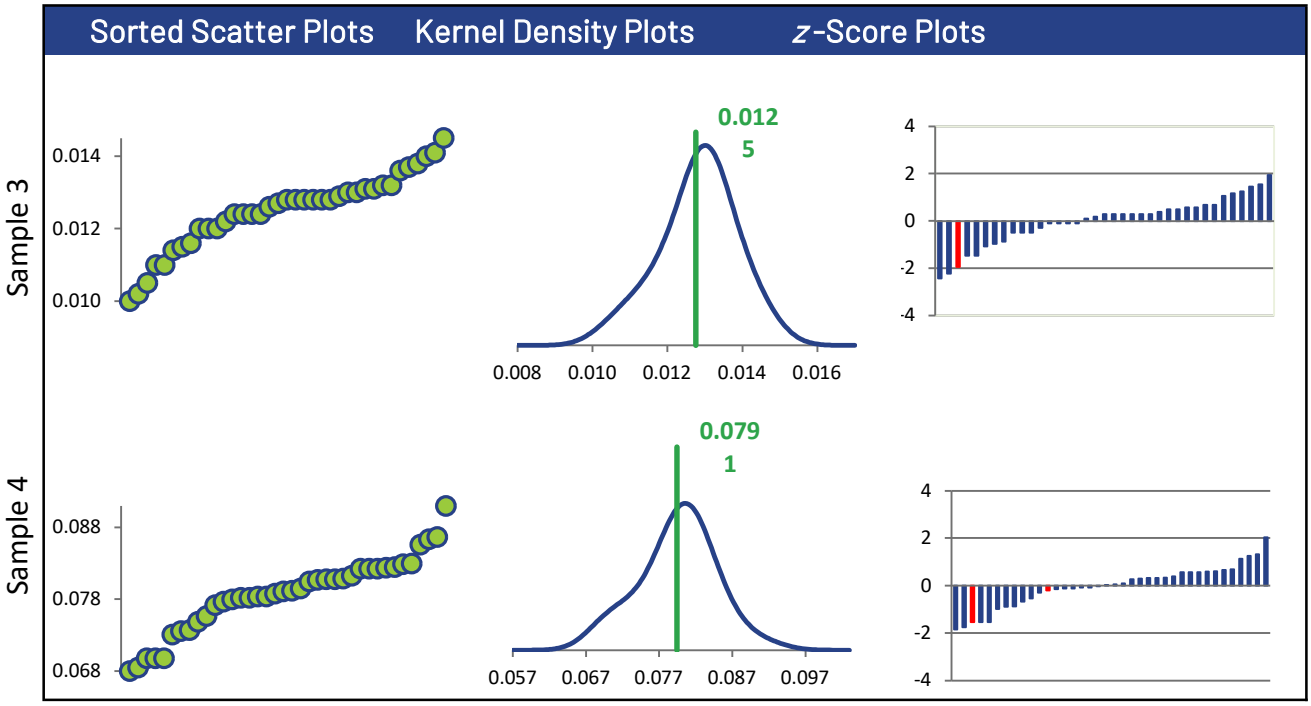
Methods Used

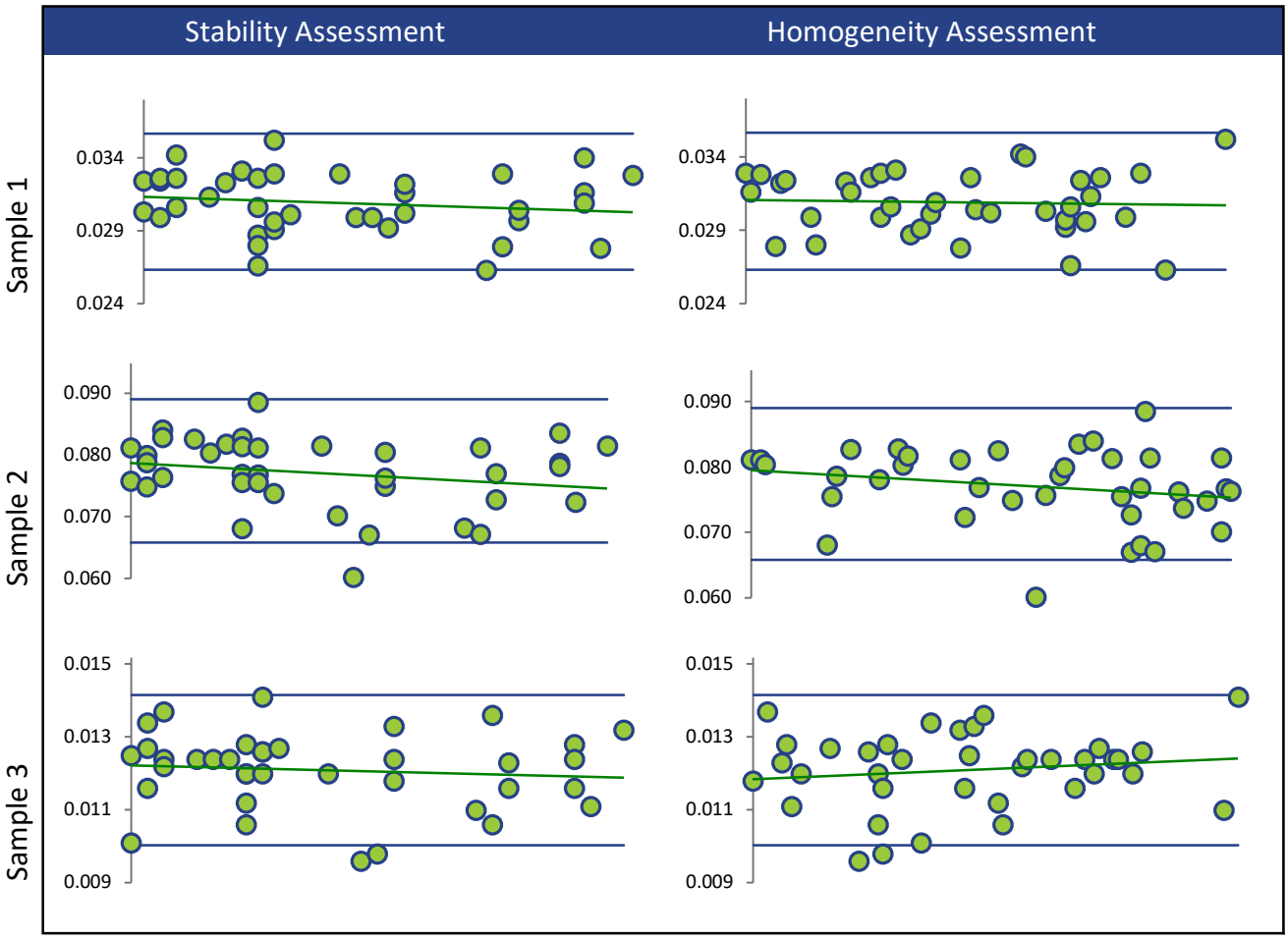
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	36	36	36	36
ICP/OES (Red)	2	2	1	2

All summary stats and the plots below are based on the data excluding any flagged outliers



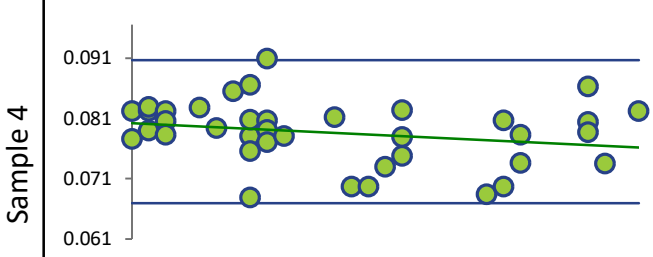
URANIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.014
0.012
0.010
0.012
5
0.008
0.010
0.012
0.014
0.016
4
2
0
-2
-4
Sample 4
0.088
0.078
0.068
0.079
1
0.057
0.067
0.077
0.087
0.097
4
2
0
-2
-4

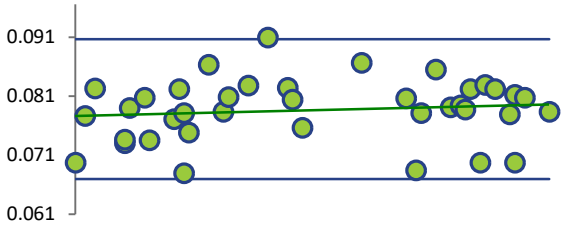

Stability Assessment
Homogeneity Assessment
Sample 1
0.034
0.029
0.024
0.034
0.029
0.024
Sample 2
0.090
0.080
0.070
0.060
0.090
0.080
0.070
0.060
Sample 3
0.015
0.013
0.011
0.009
0.015
0.013
0.011
0.009

URANIUM

Stability Assessment



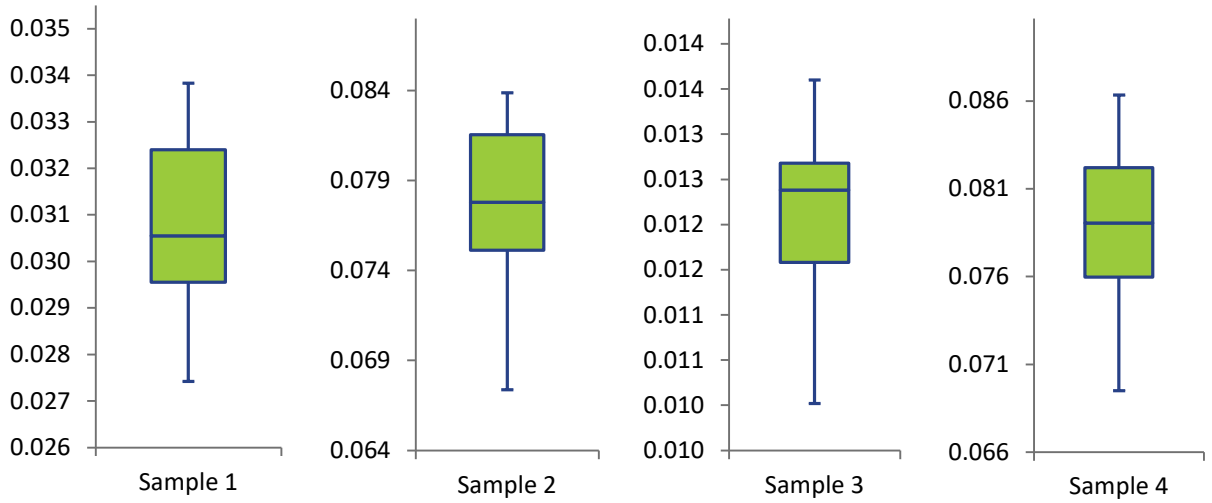
Homogeneity Assessment



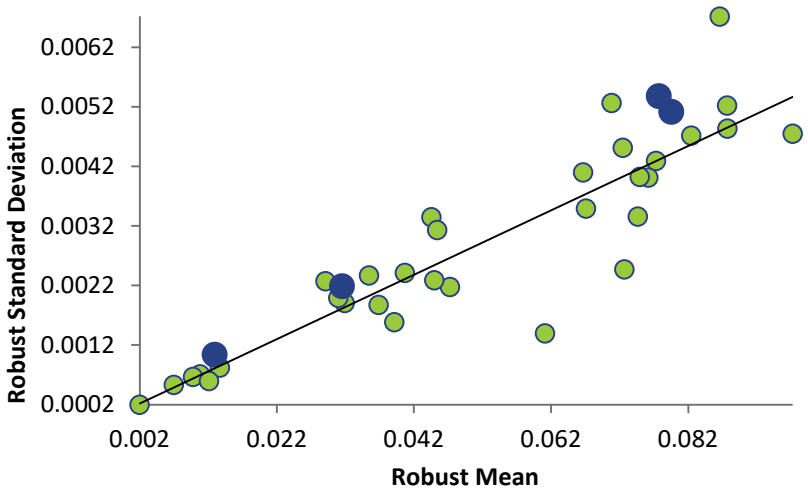
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



VANADIUM

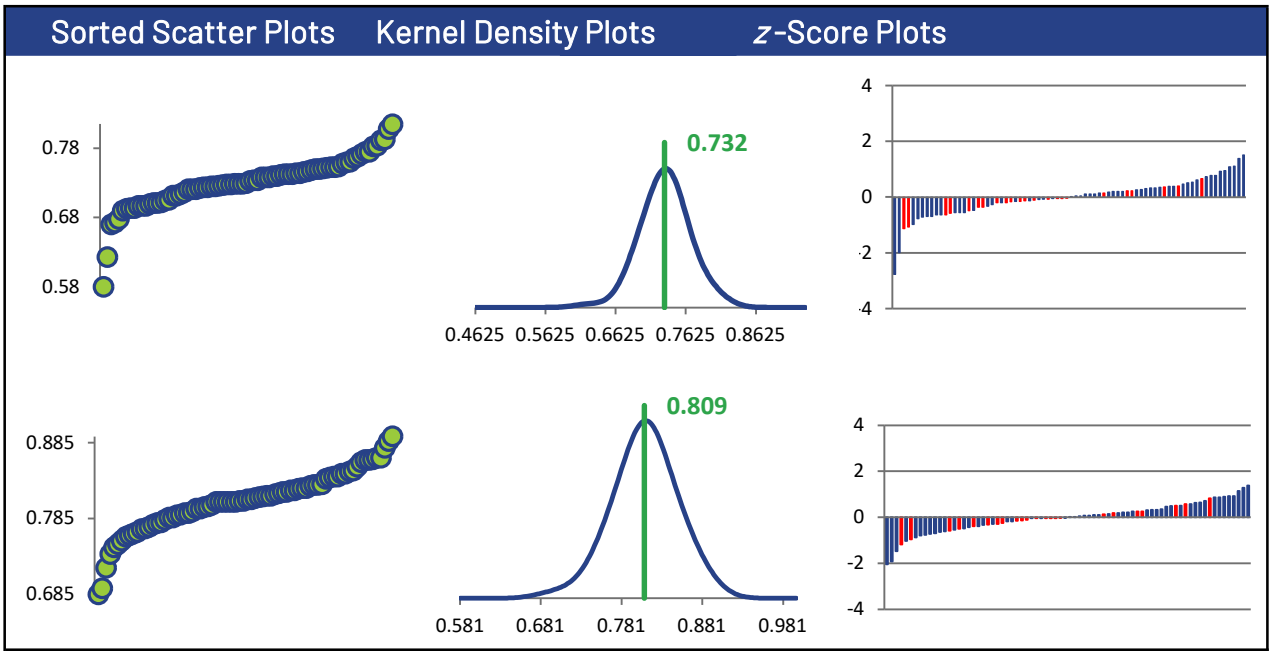
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	76	76	76	76
Median mg/L	0.732	0.809	0.314	1.60
Robust Mean mg/L	0.732	0.809	0.314	1.60
U mg/L	0.00442	0.00533	0.00215	0.0128
Robust Standard Deviation mg/L	0.0308	0.0372	0.0150	0.0891
Regression Standard Deviation mg/L	0.0549	0.0607	0.0235	0.120
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0549	0.0607	0.0235	0.120
Outliers	2	2	2	2
|z|>3.0	0	0	0	1
2<|z|<3	1	1	0	0

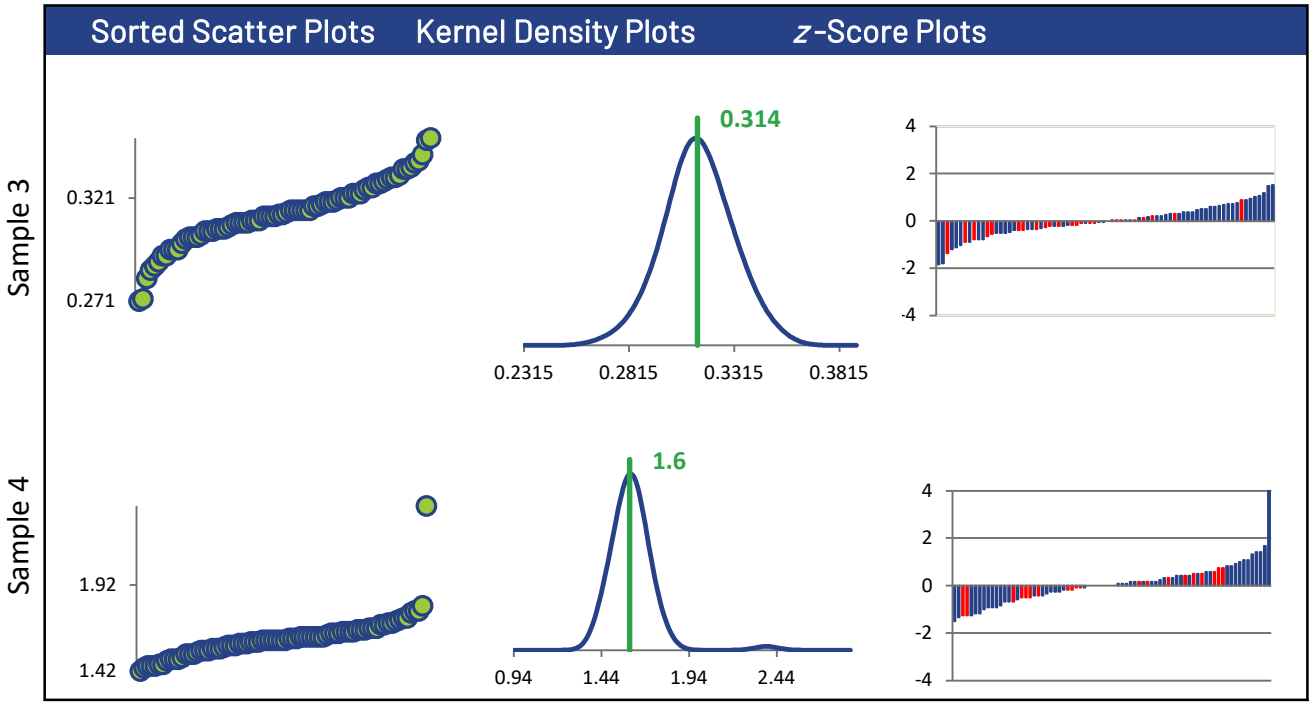
Methods Used

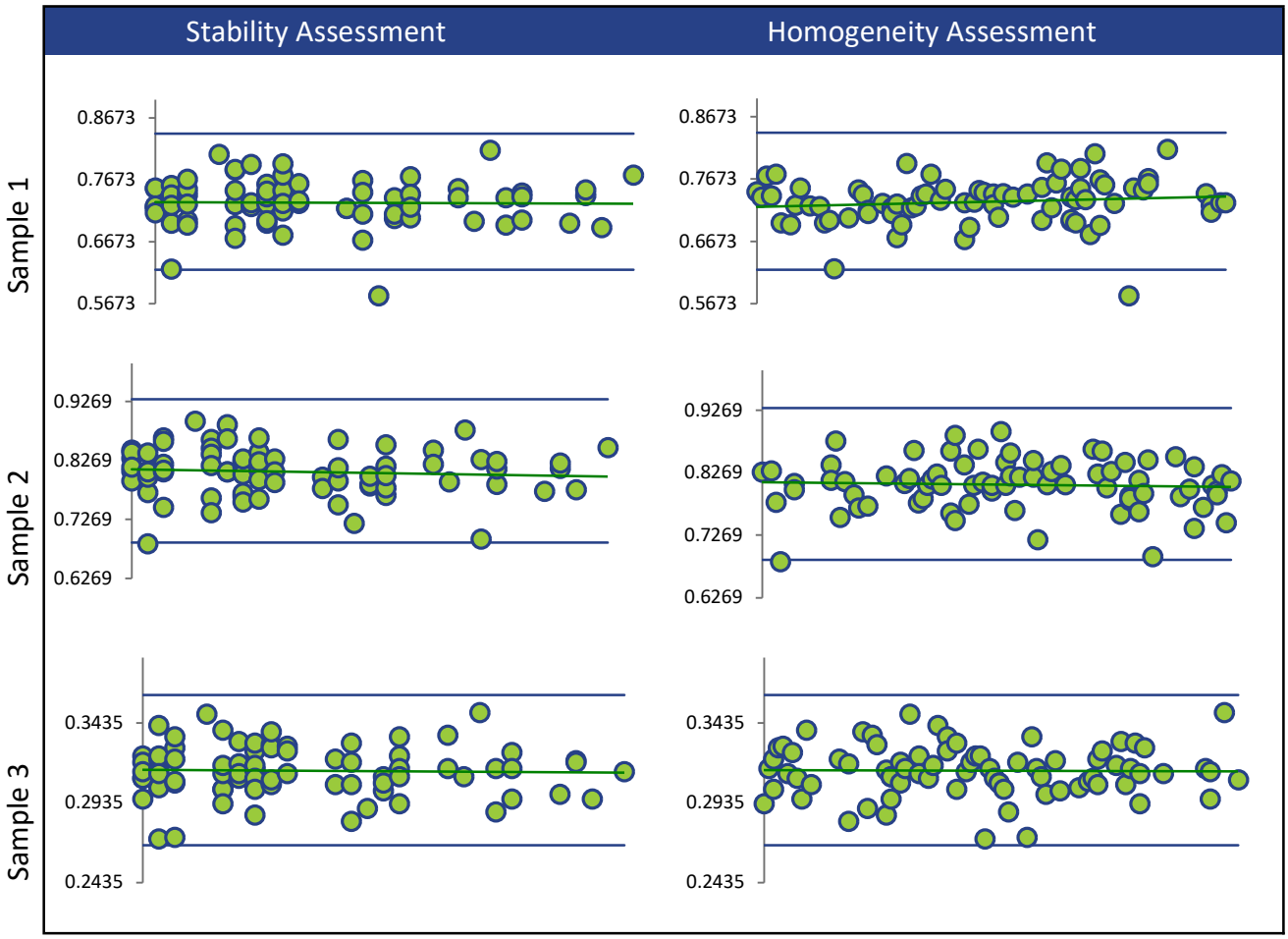
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	53	53	53	53
ICP/OES (Red)	23	23	23	23

All summary stats and the plots below are based on the data excluding any flagged outliers



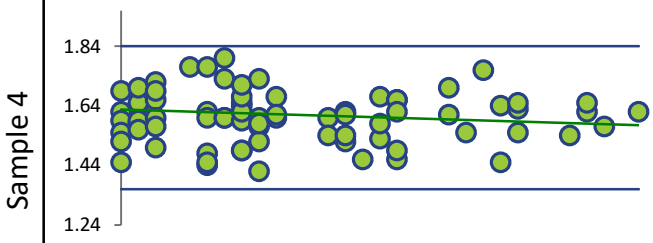
VANADIUM


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.321
0.271
0.314
0.2315
0.2815
0.3315
0.3815
4
2
0
-2
-4
Sample 4
1.92
1.42
1.6
0.94
1.44
1.94
2.44
4
2
0
-2
-4

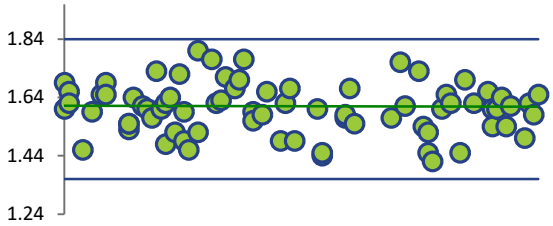

Stability Assessment
Homogeneity Assessment
Sample 1
0.8673
0.7673
0.6673
0.5673
0.8673
0.7673
0.6673
0.5673
Sample 2
0.9269
0.8269
0.7269
0.6269
0.9269
0.8269
0.7269
0.6269
Sample 3
0.3435
0.2935
0.2435
0.3435
0.2935
0.2435

VANADIUM

Stability Assessment



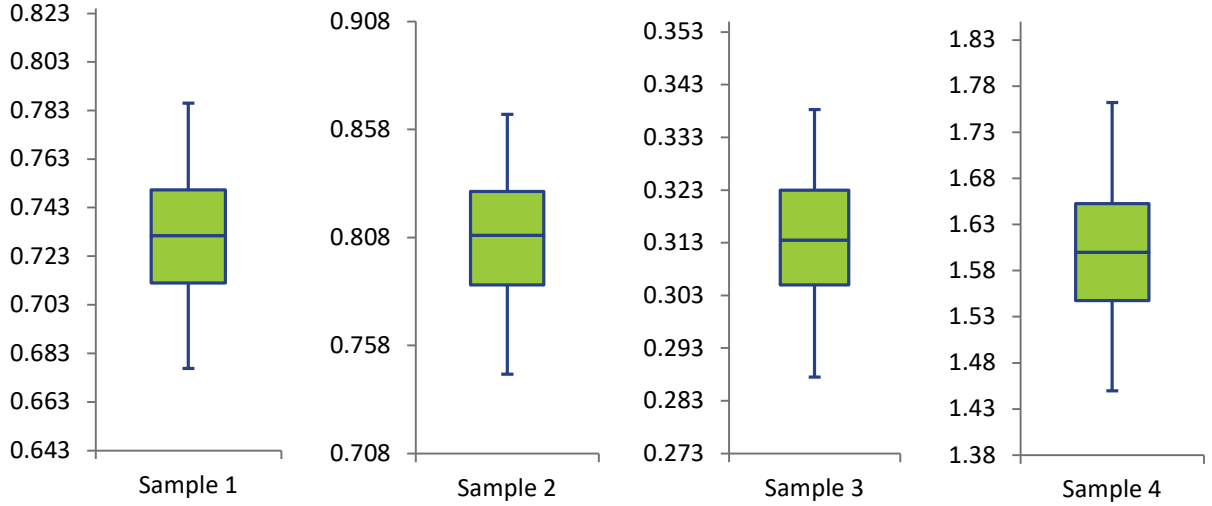
Homogeneity Assessment



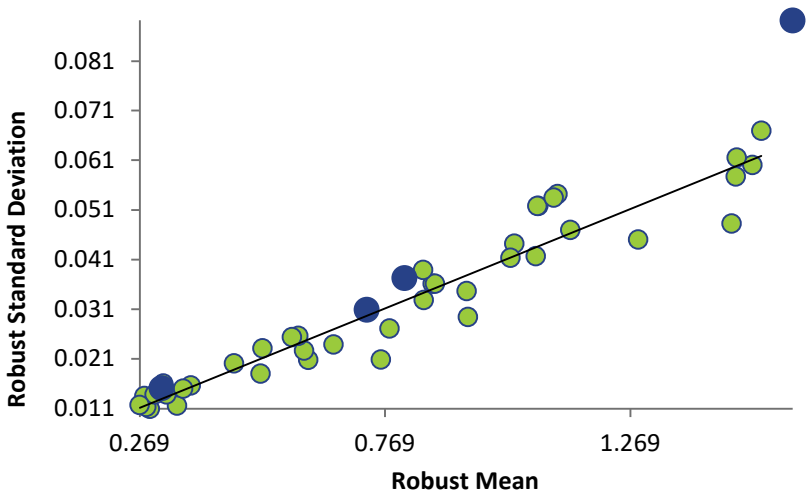
Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)



ZINC

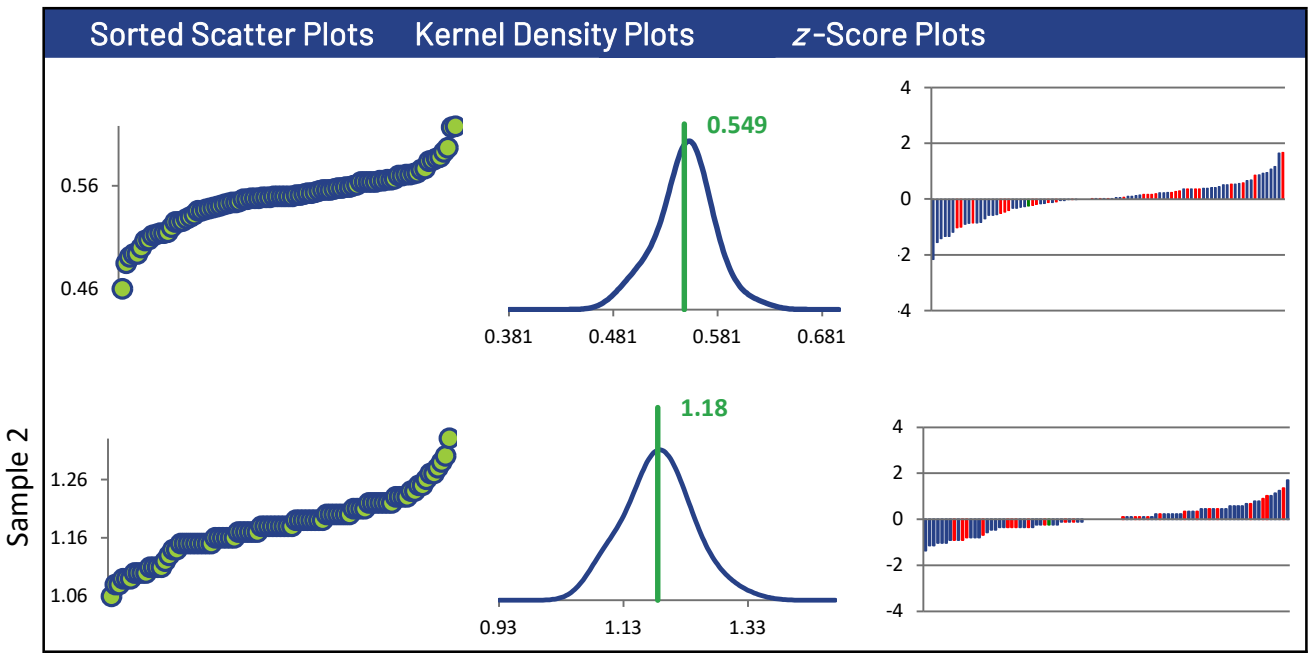
Summary Statistics

Statistic	C02C-1	C02C-2	C02C-3	C02C-4
N	89	89	89	89
Median mg/L	0.550	1.18	0.436	1.18
Robust Mean mg/L	0.549	1.18	0.436	1.18
U mg/L	0.00317	0.00704	0.00310	0.00676
Robust Standard Deviation mg/L	0.0239	0.0531	0.0234	0.0510
Regression Standard Deviation mg/L	0.0412	0.0884	0.0327	0.0882
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) mg/L	0.0412	0.0884	0.0327	0.0882
Outliers	2	2	2	2
|z|>3.0	0	0	0	0
2<|z|<3	1	0	2	0

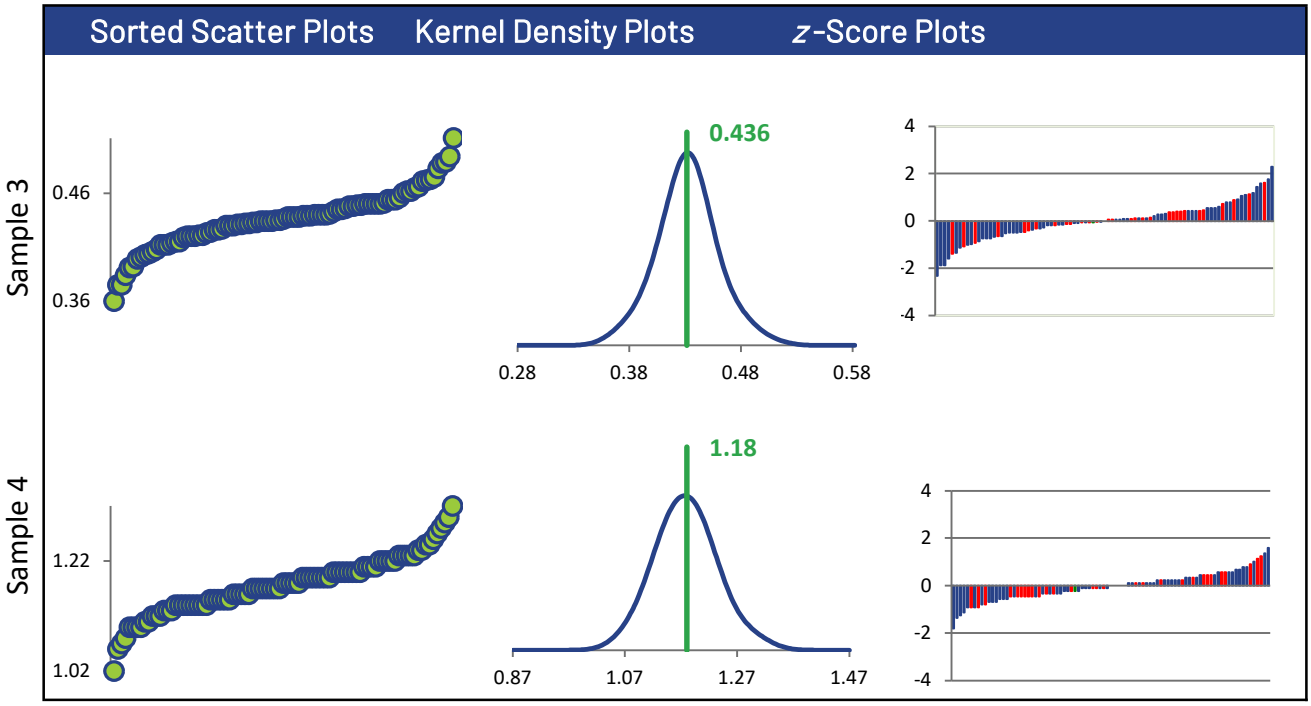
Methods Used

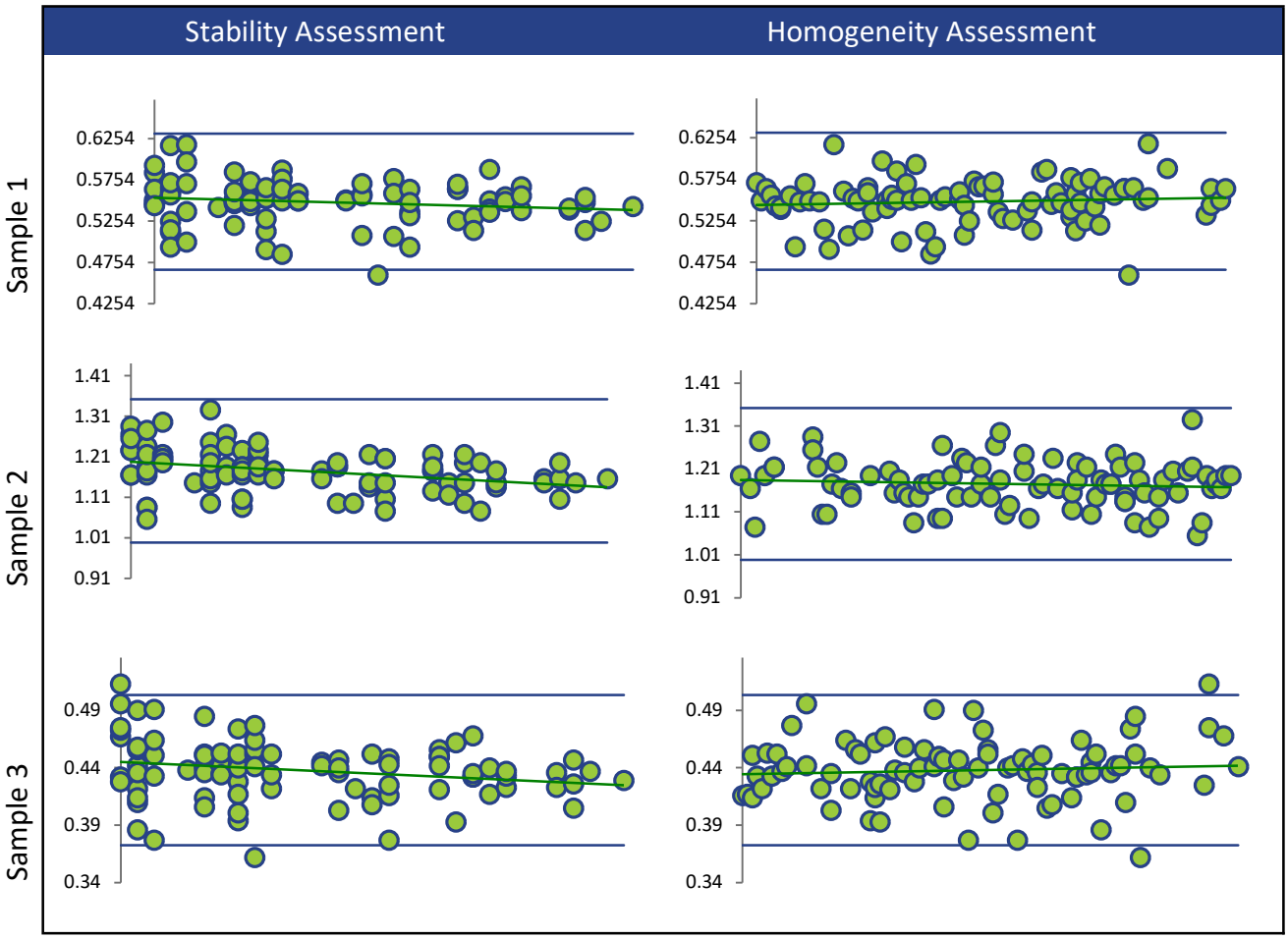
Method	C02C-1	C02C-2	C02C-3	C02C-4
ICP/MS (Blue)	58	58	58	58
ICP/OES (Red)	30	30	30	30
AA FLAME (Green)	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers



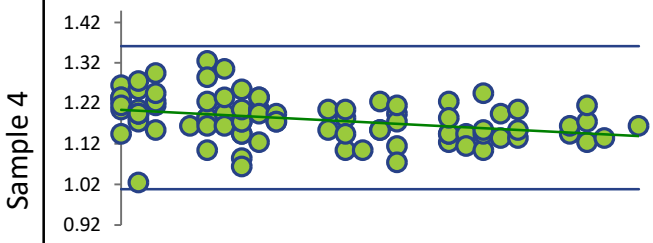
ZINC


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
0.46
0.36
0.436
0.28
0.38
0.48
0.58
4
2
0
-2
-4
Sample 4
1.22
1.02
1.18
0.87
1.07
1.27
1.47
4
2
0
-2
-4

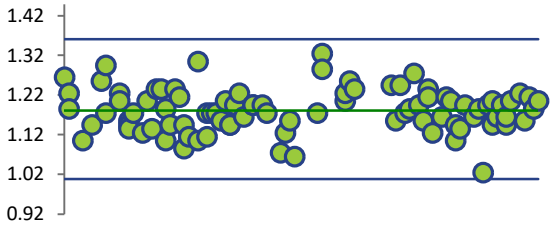

Stability Assessment
Homogeneity Assessment
Sample 1
0.6254
0.5754
0.5254
0.4754
0.4254
Sample 2
1.41
1.31
1.21
1.11
1.01
0.91
Sample 3
0.49
0.44
0.39
0.34

ZINC

Stability Assessment



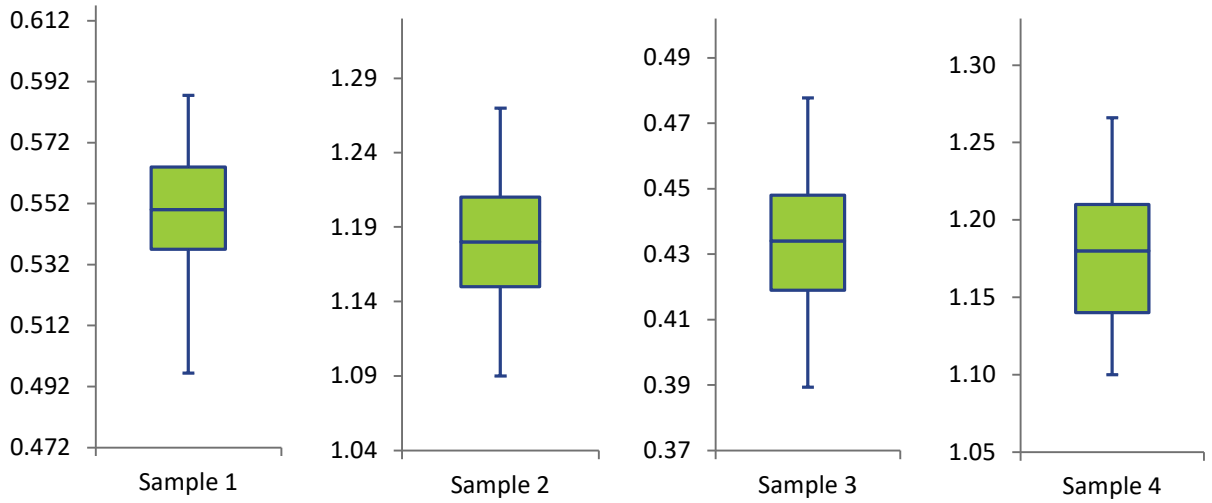
Homogeneity Assessment



Stability assessments are regression analysis of reported result against date of analysis.

Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



Current Round (blue) Compared to Historic Rounds (green)