

Test Group Summary Report

C02A Metals in Water – Full Range

October 2025 PT Round

Issued: November 28, 2025

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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.

<i>Code</i> :	The registration code that is unique to each analyte that a participant is registered for.
<i>App</i> :	If a participant is accredited by CALA, this three-digit number is the appendix number that the accredited method is assigned to.
<i>N</i> :	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.
<i>Assigned</i> :	The Assigned Value is the robust mean of the reported results, outliers excluded. This is often referred to as the “target” value.
<i>±u</i> :	The uncertainty of the assigned value.
<i>Reported</i> :	The result reported by the participant.
<i>s</i> :	The Standard Deviation of Proficiency Assessment (SDPA). This value is used to determine the acceptance limits for the PT evaluation.
<i>z-Score</i> :	A value assigned to each reported result that is a measure of the degree to which it deviates from the Assigned Value.
<i>Score</i> :	The composite score of the four results reported for each analyte. It is normalized to a score out of 100.
<i>Bias</i> :	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.PTCCanada.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:

$$z - Score = \frac{(x - \bar{X})}{SDPA} \quad \text{where: } \begin{array}{l} x = \text{participant result;} \\ \bar{X} = \text{the Assigned Value;} \\ SDPA = \text{the Standard Deviation for Proficiency Assessment.} \end{array}$$

The assigned value \bar{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 $100 + (-15 \times \text{avg } |z|)$.

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.

$$RSZ = \frac{\sum z}{\sqrt{N}} \quad \text{where } \begin{array}{l} z = \text{the z- score} \\ N = \text{the number of samples} \end{array}$$

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

$$RSZ \geq -2 \text{ and } \leq 2 \text{ no flag assigned}$$

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

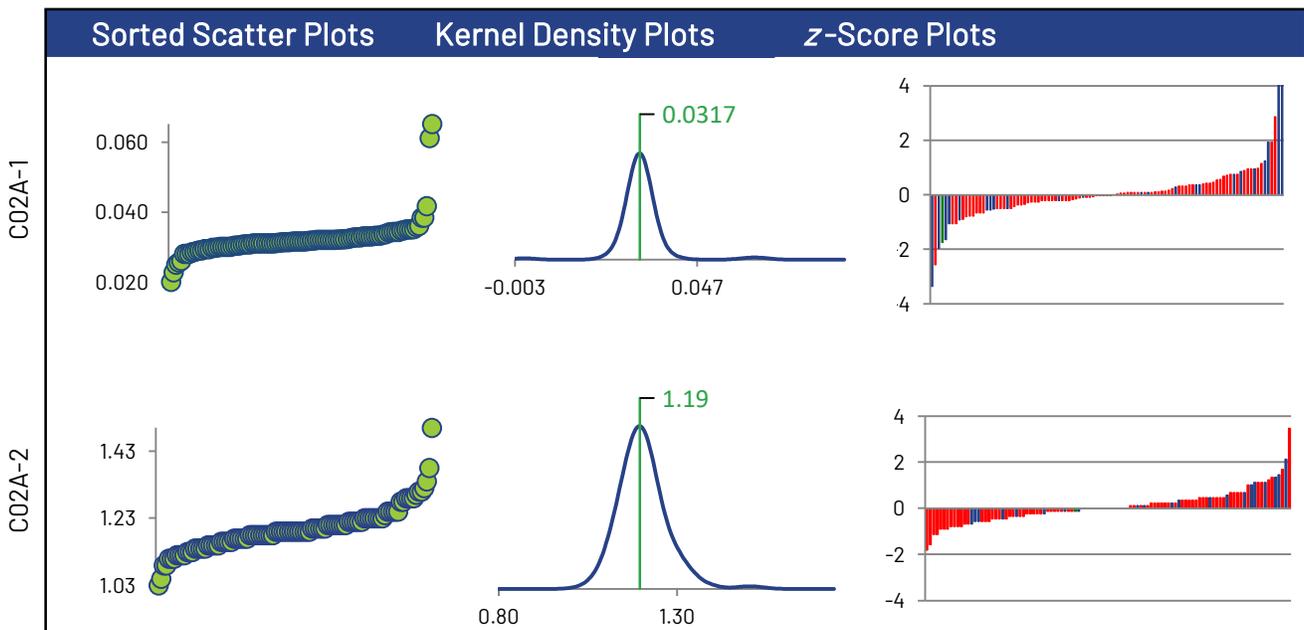
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	103	106	105	106
Median µg/L	0.0316	1.19	0.150	0.606
Robust Mean µg/L	0.0317	1.19	0.151	0.609
Uncertainty of the Assigned Value µg/L	0.000273	0.00645	0.00111	0.00328
Robust Standard Deviation µg/L	0.00222	0.0531	0.00912	0.0270
Regression Standard Deviation µg/L	0.00238	0.0895	0.0114	0.0456
Stability Flag				
Homogeneity Flag	Homogeneity			
Standard Deviation Used (SDPA) µg/L	0.00348	0.0895	0.0114	0.0456
Flagged Outliers	1	1	1	1
$ z > 3.0$	3	1	2	1
$2 < z < 3$	2	1	5	1
Failure Rate %*	4.7			

Methods Used

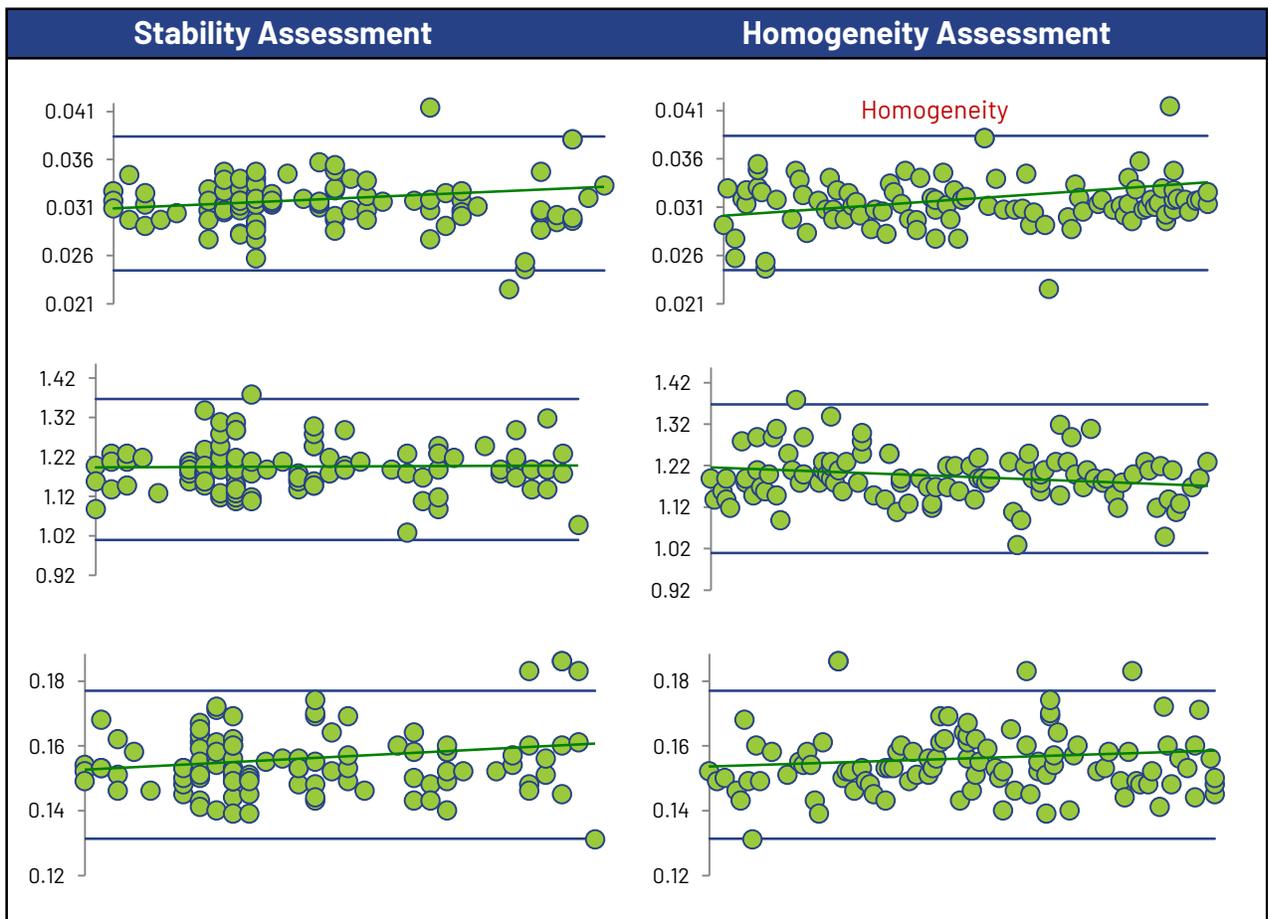
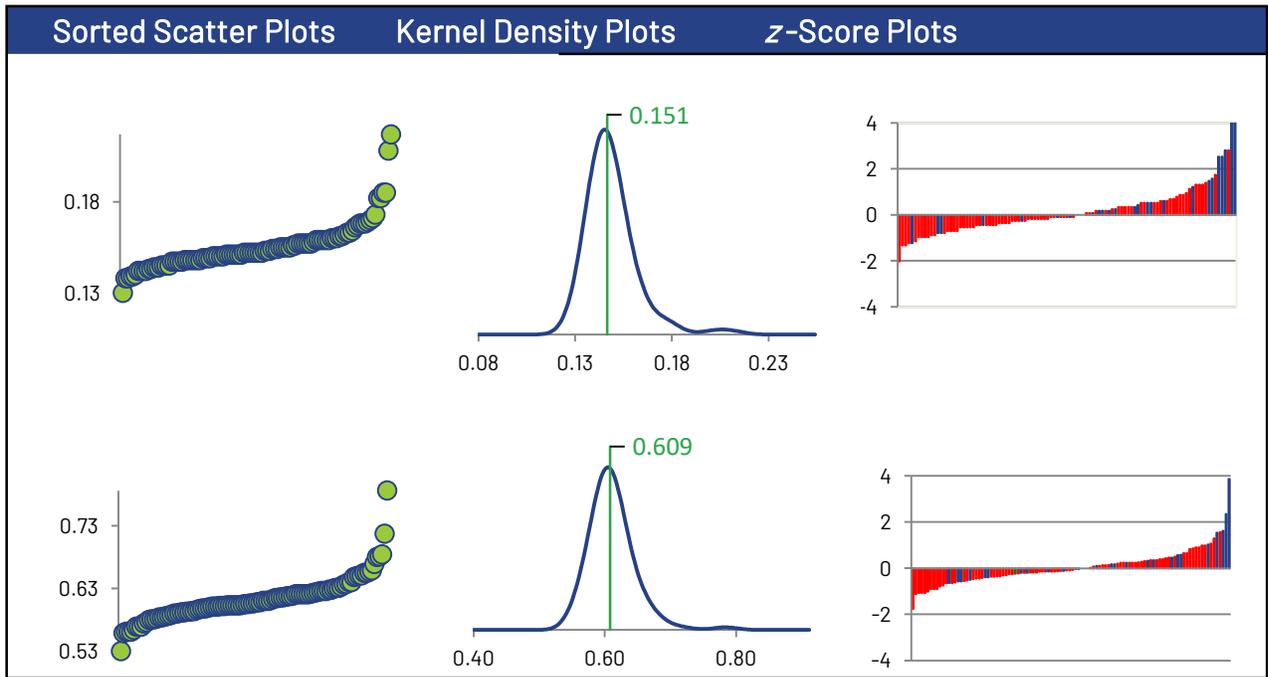
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	23	26	25	26
ICP/MS (Red)	79	79	79	79
AA FLAME (Green)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

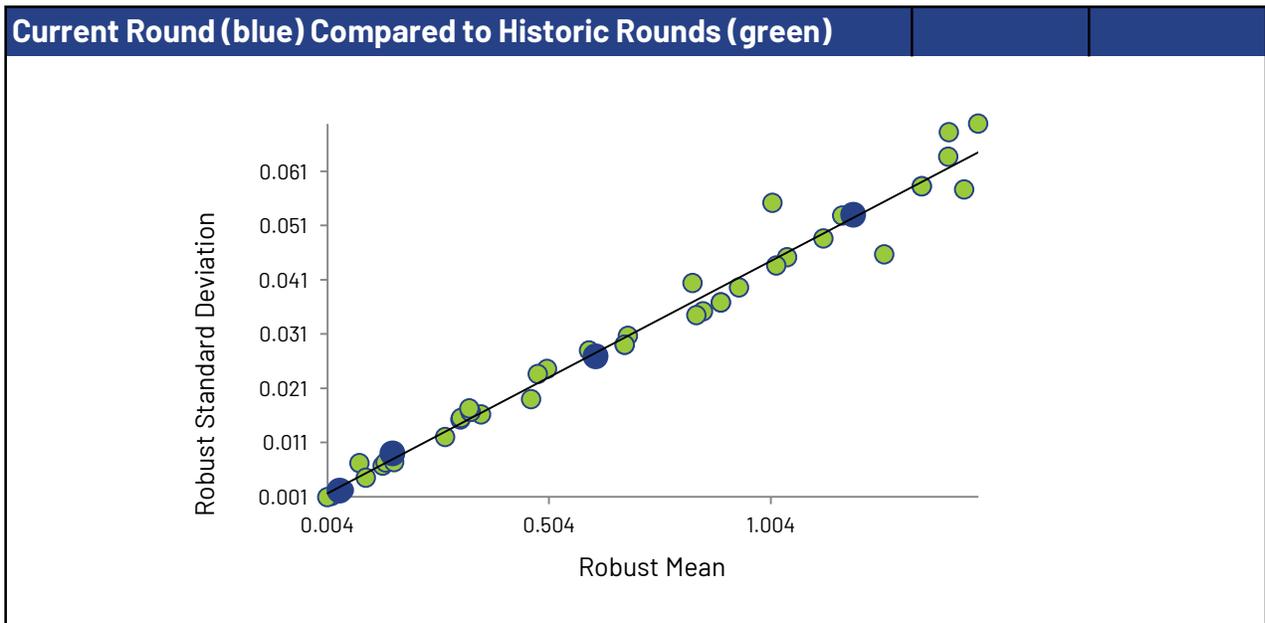
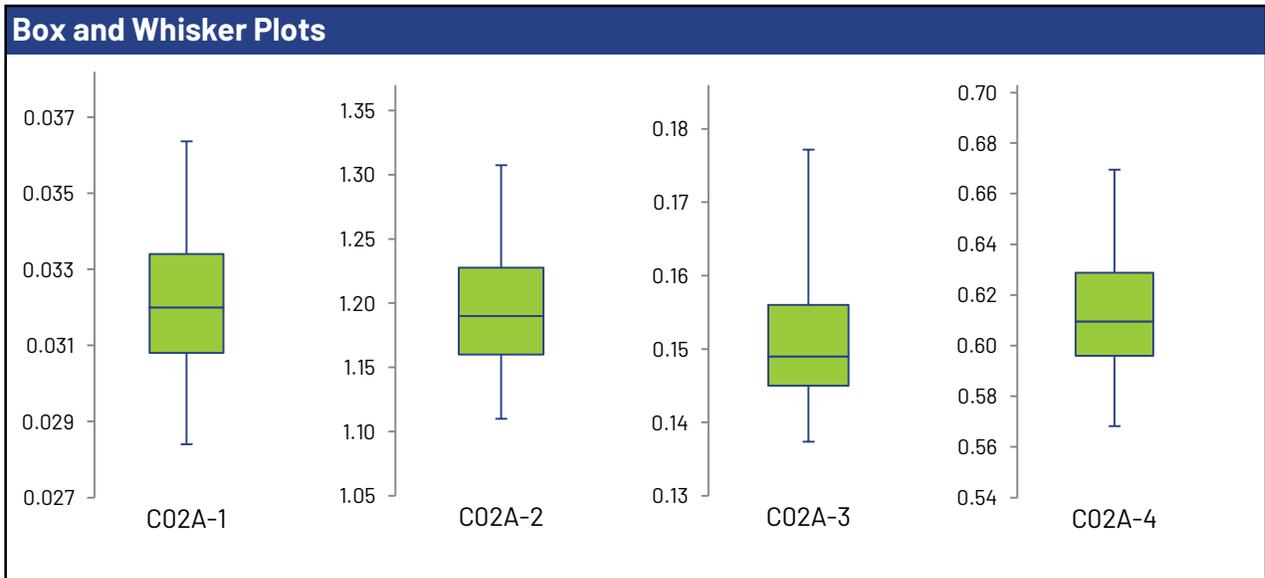
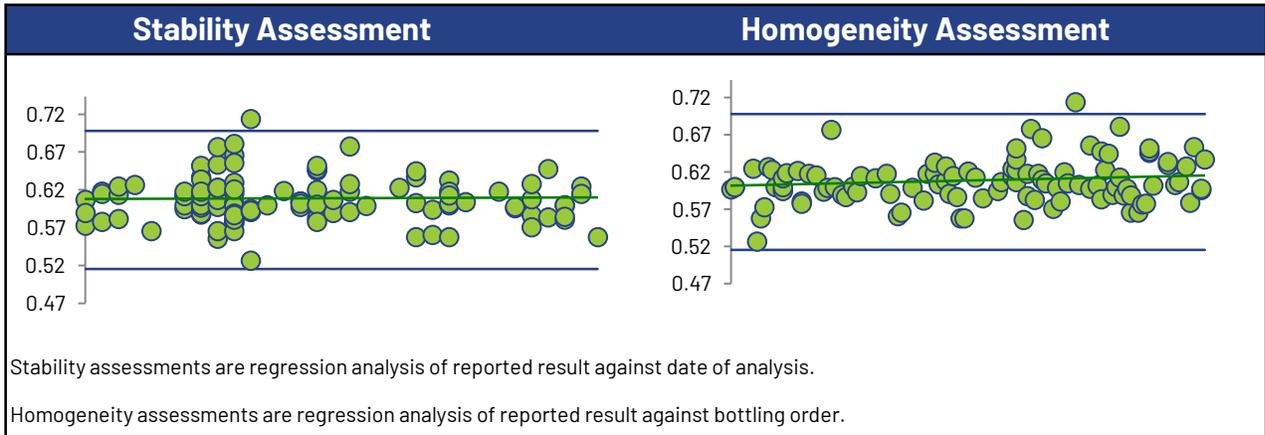


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Aluminum



Aluminum



Antimony

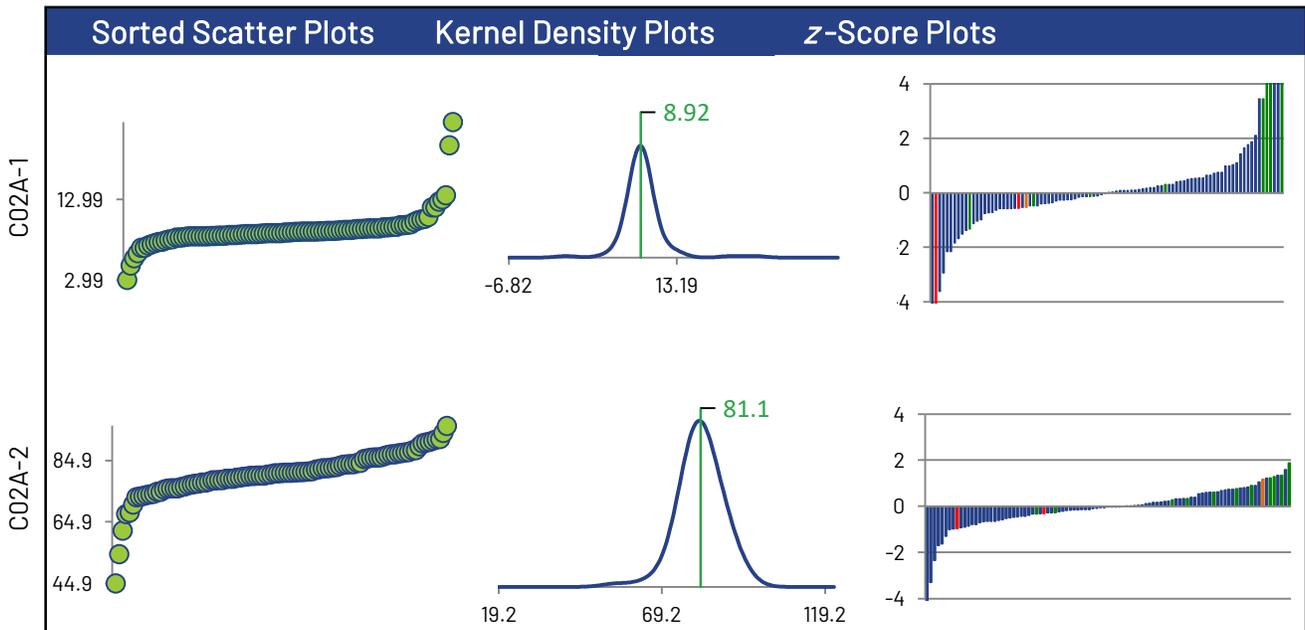
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	94	97	97	98
Median µg/L	8.92	80.9	53.7	50.0
Robust Mean µg/L	8.92	81.1	53.8	50.2
Uncertainty of the Assigned Value µg/L	0.109	0.730	0.363	0.409
Robust Standard Deviation µg/L	0.847	5.75	2.86	3.24
Regression Standard Deviation µg/L	0.892	8.11	5.38	5.02
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.892	8.11	5.38	5.02
Flagged Outliers	2	2	2	1
$ z > 3.0$	10	2	2	4
$2 < z < 3$	4	1	1	3
Failure Rate %*	7.1			

Methods Used

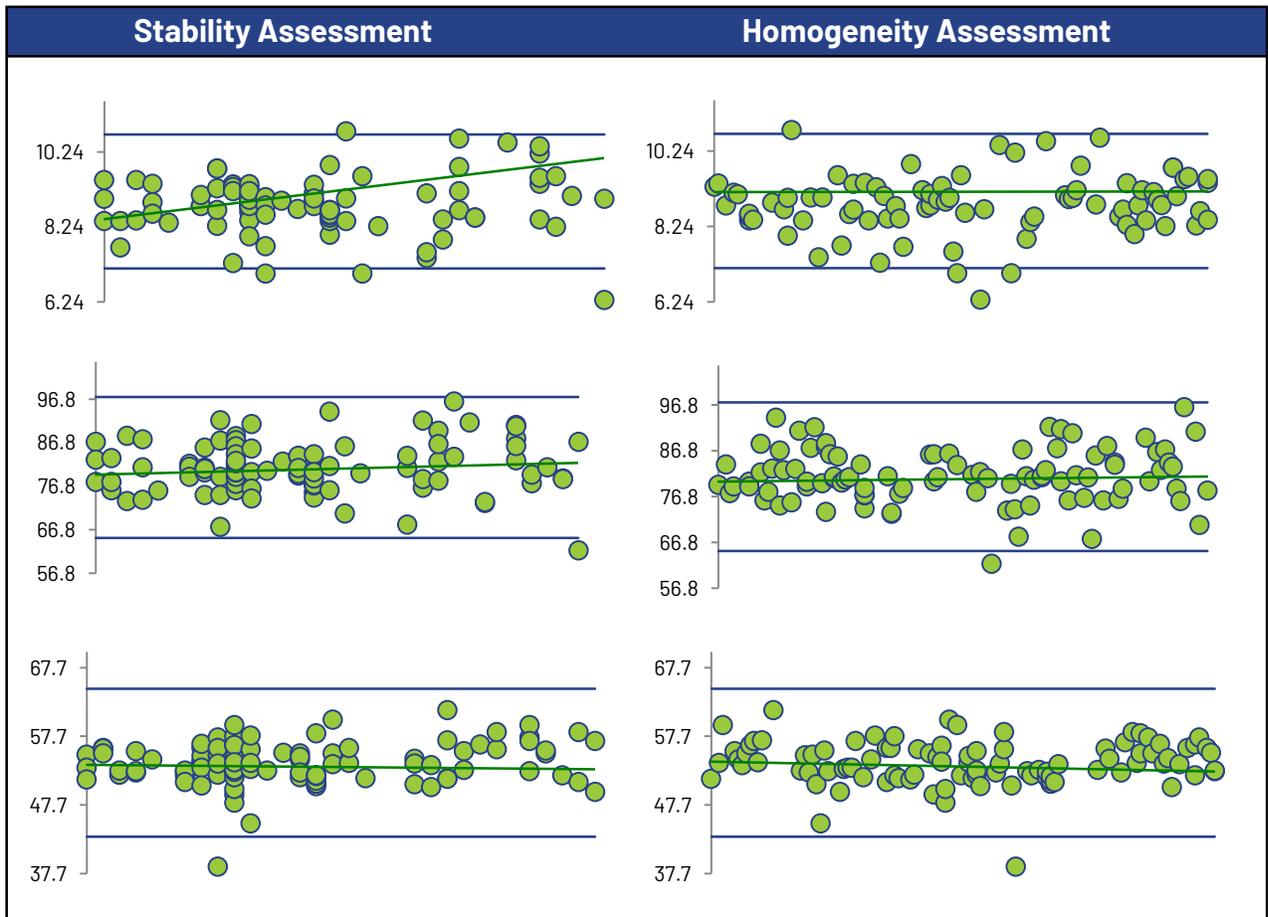
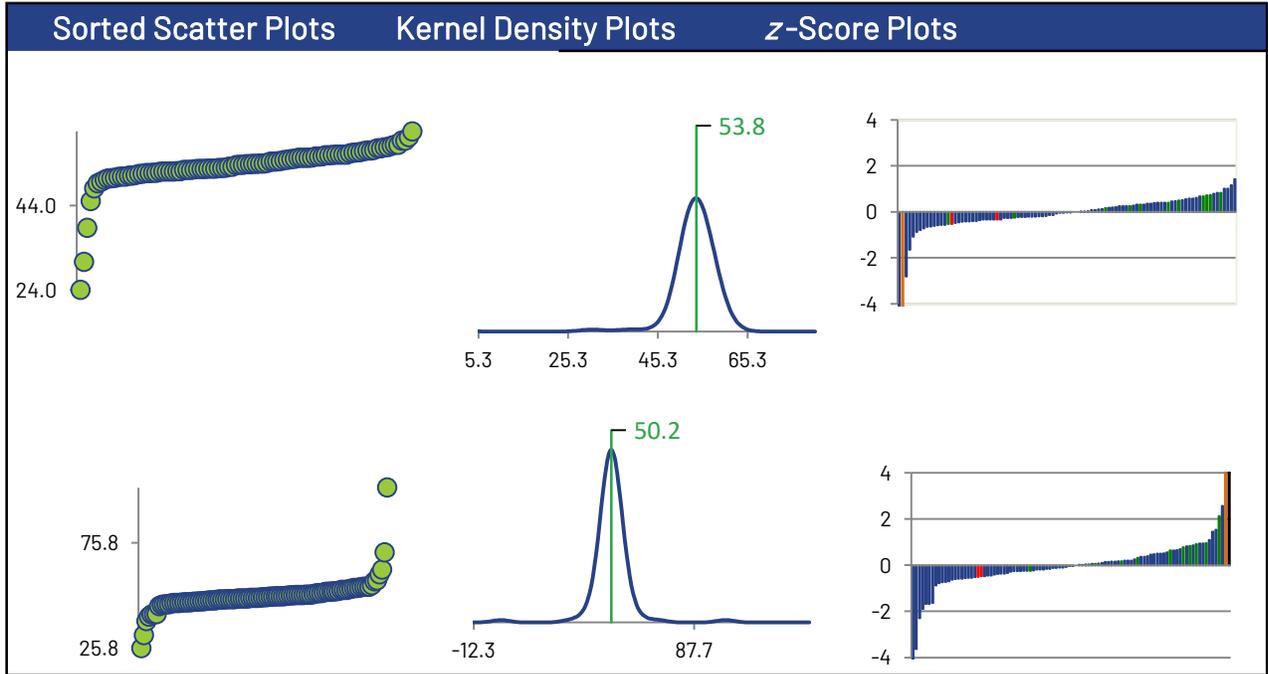
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	83	83	83	83
HYDRIDE AA (Red)	2	2	2	2
ICP/OES (Green)	8	11	11	11
HYDRIDE ICP (Orange)	1	1	1	1
AA GRAPHITE (Black)	0	0	0	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

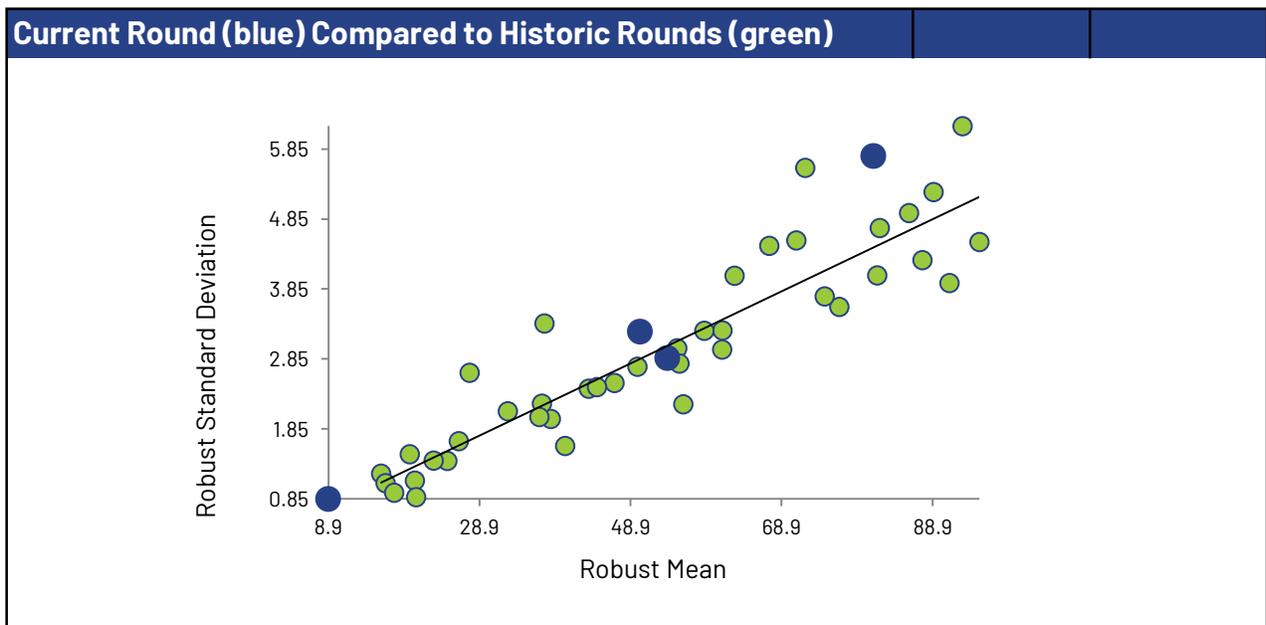
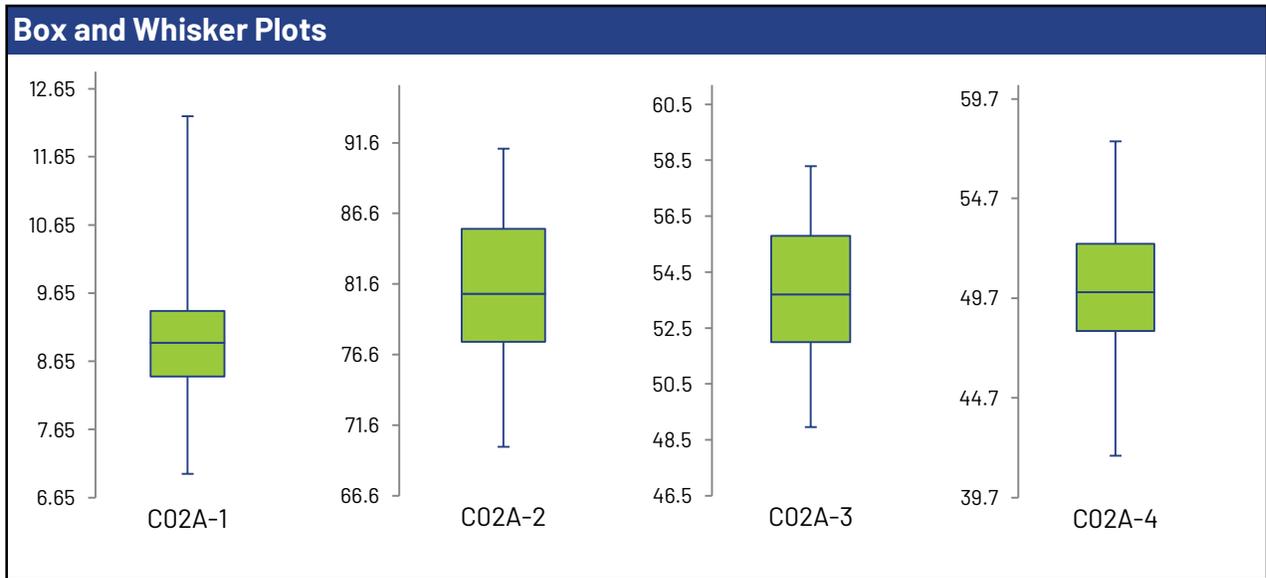
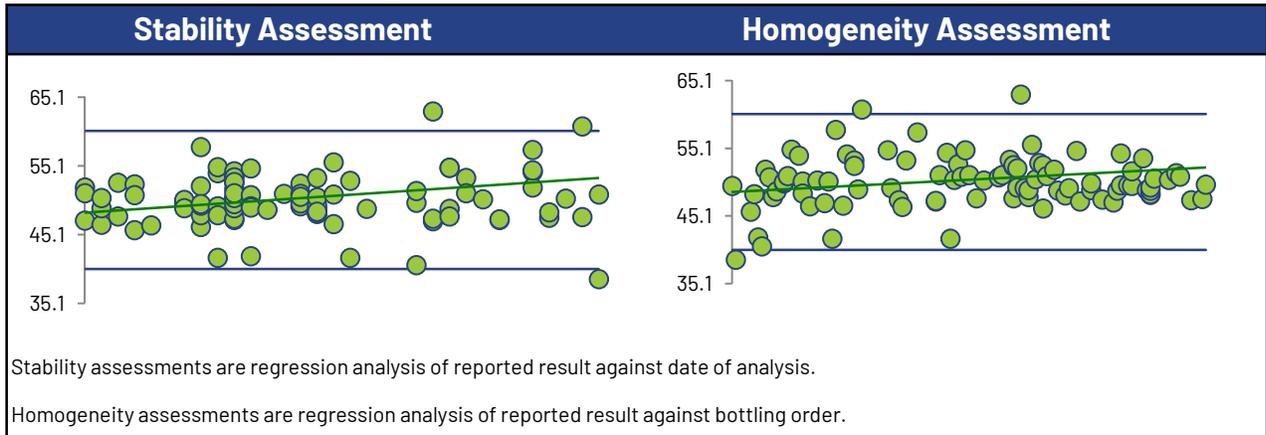


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Antimony



Antimony



Arsenic

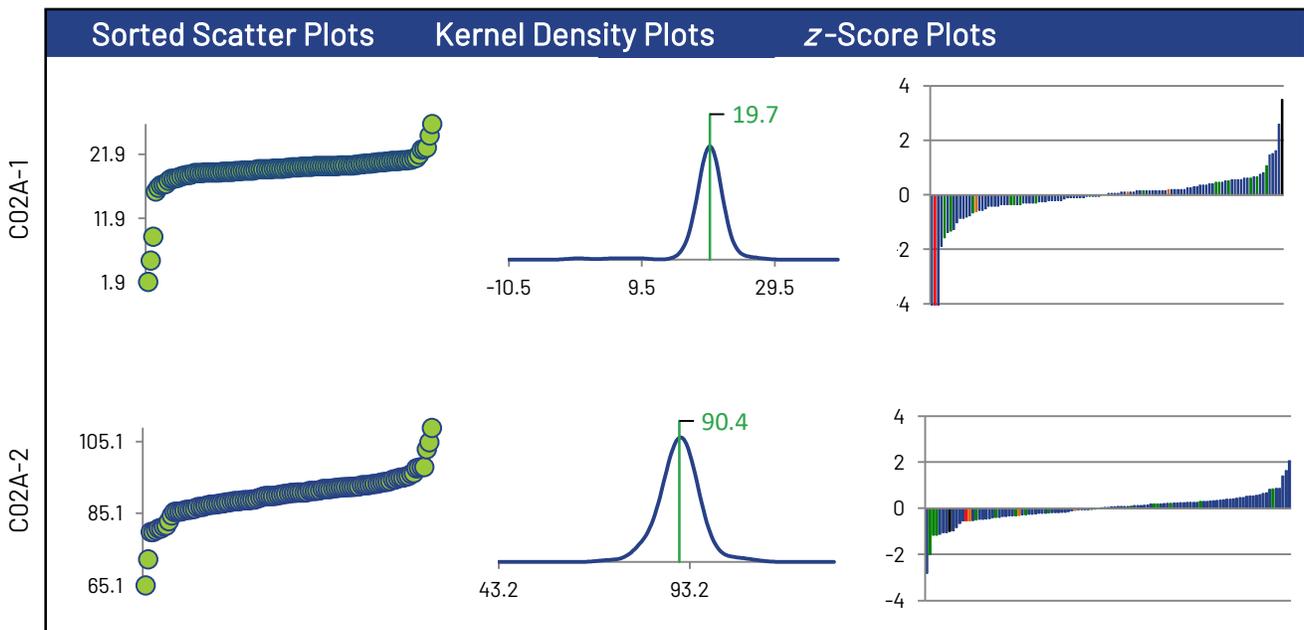
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	112	111	112	112
Median µg/L	19.8	90.7	23.2	65.0
Robust Mean µg/L	19.7	90.4	23.2	64.7
Uncertainty of the Assigned Value µg/L	0.119	0.471	0.131	0.363
Robust Standard Deviation µg/L	1.01	3.97	1.11	3.07
Regression Standard Deviation µg/L	1.97	9.04	2.32	6.47
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	1.97	9.04	2.32	6.47
Flagged Outliers	2	3	2	2
$ z > 3.0$	4	0	3	0
$2 < z < 3$	1	2	4	3
Failure Rate %*	6.1			

Methods Used

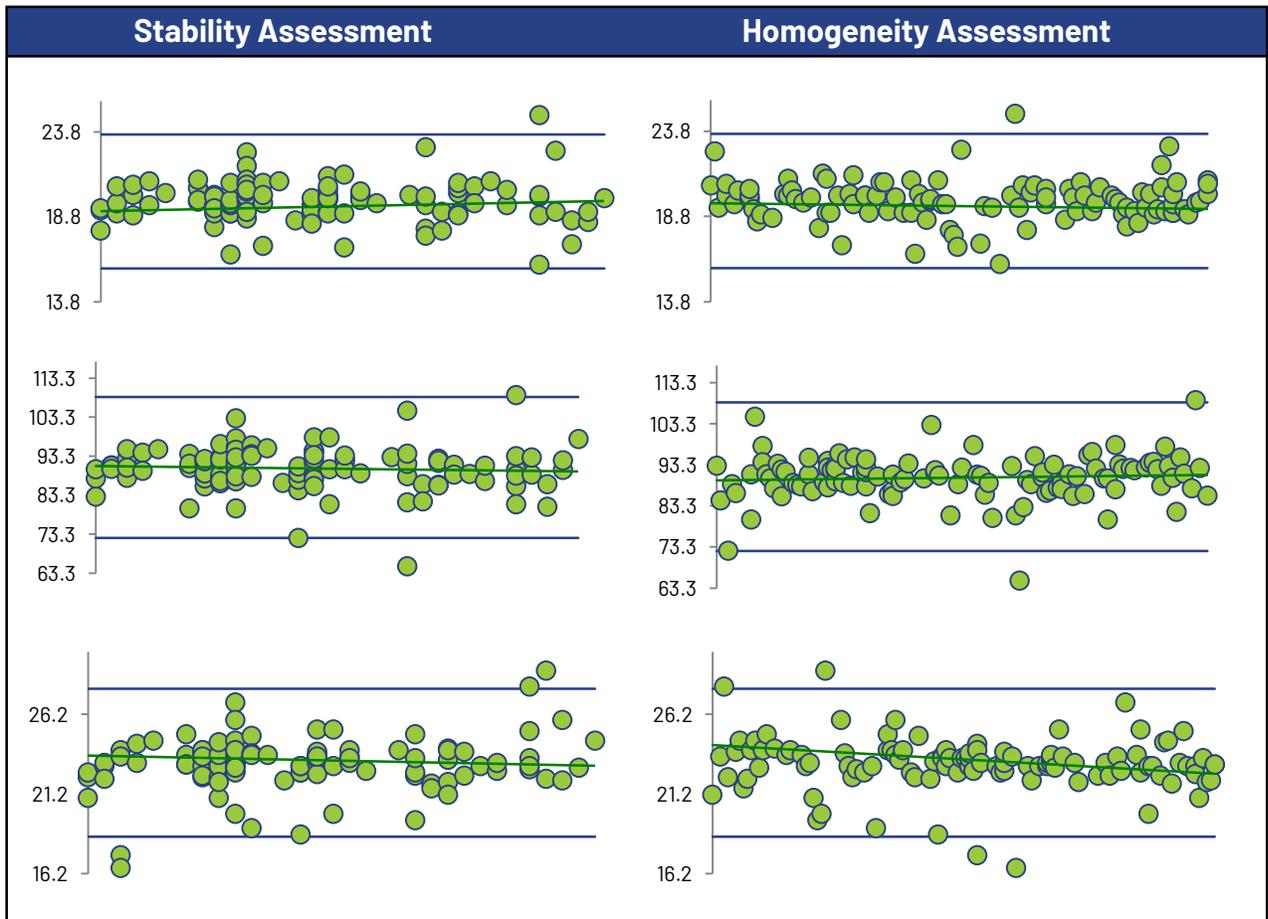
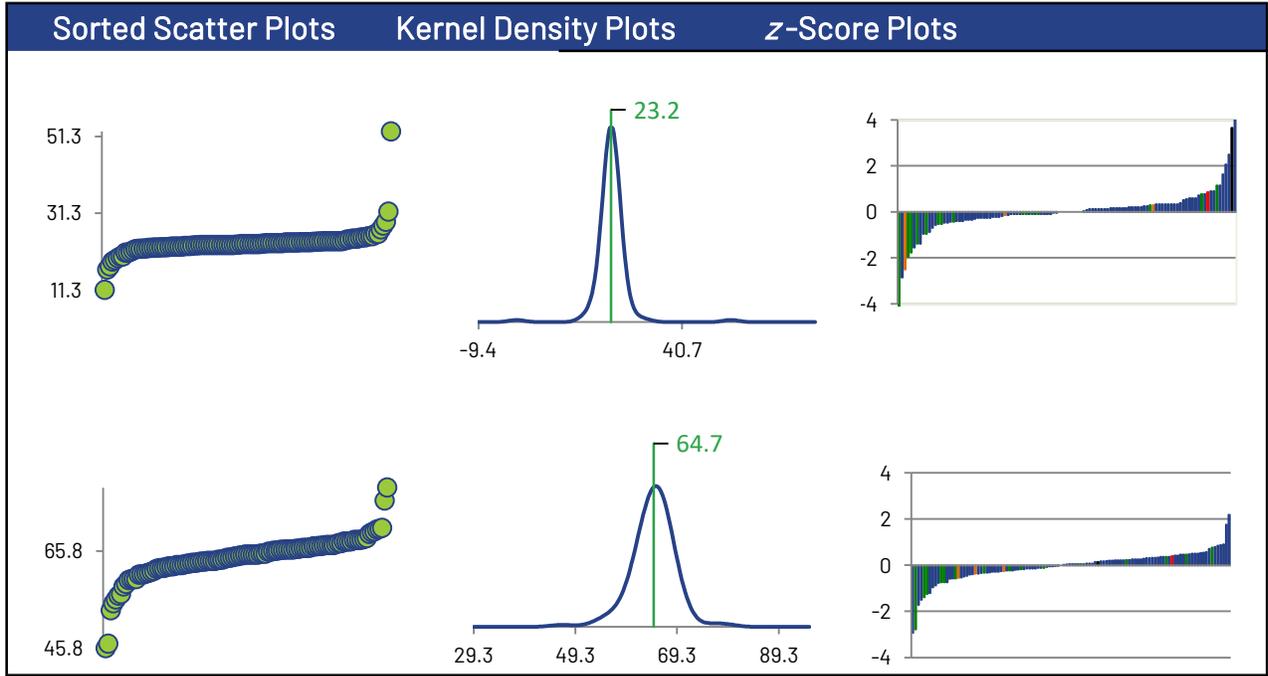
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	92	91	92	92
HYDRIDE ICP (Red)	1	1	1	1
ICP/OES (Green)	15	15	15	15
HYDRIDE AA (Orange)	3	3	3	3
AA GRAPHITE (Black)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

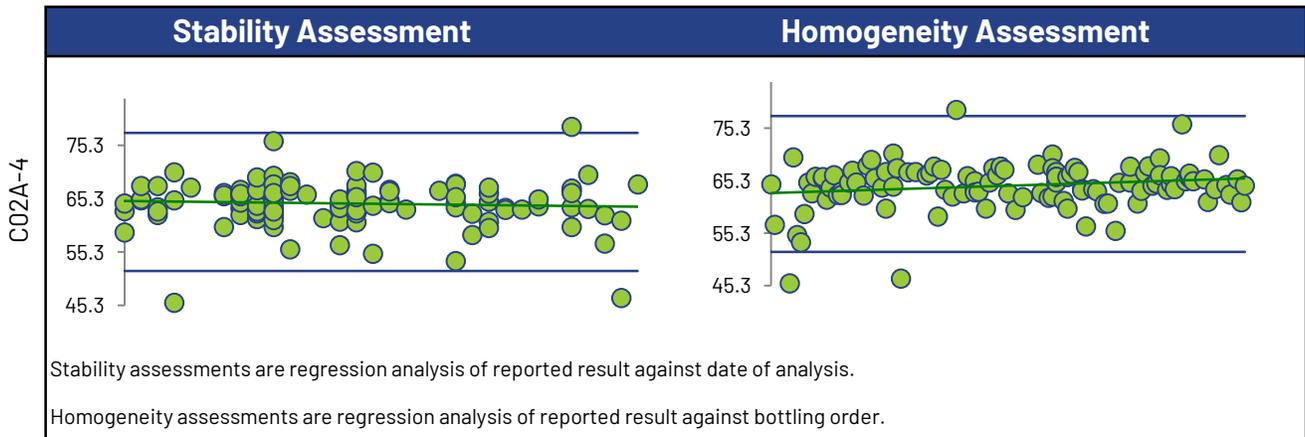


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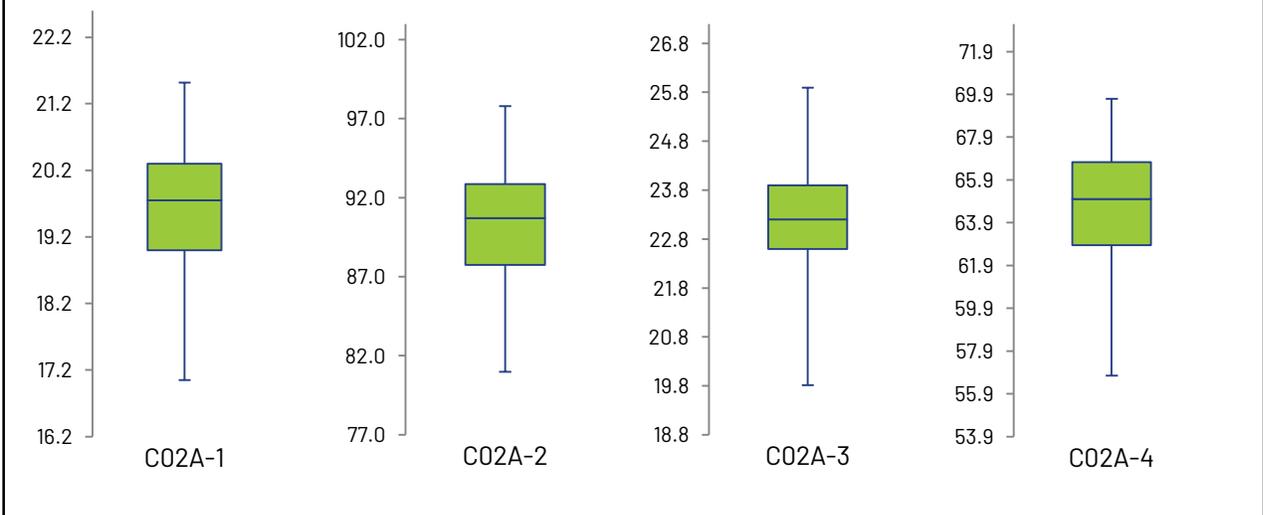
Arsenic



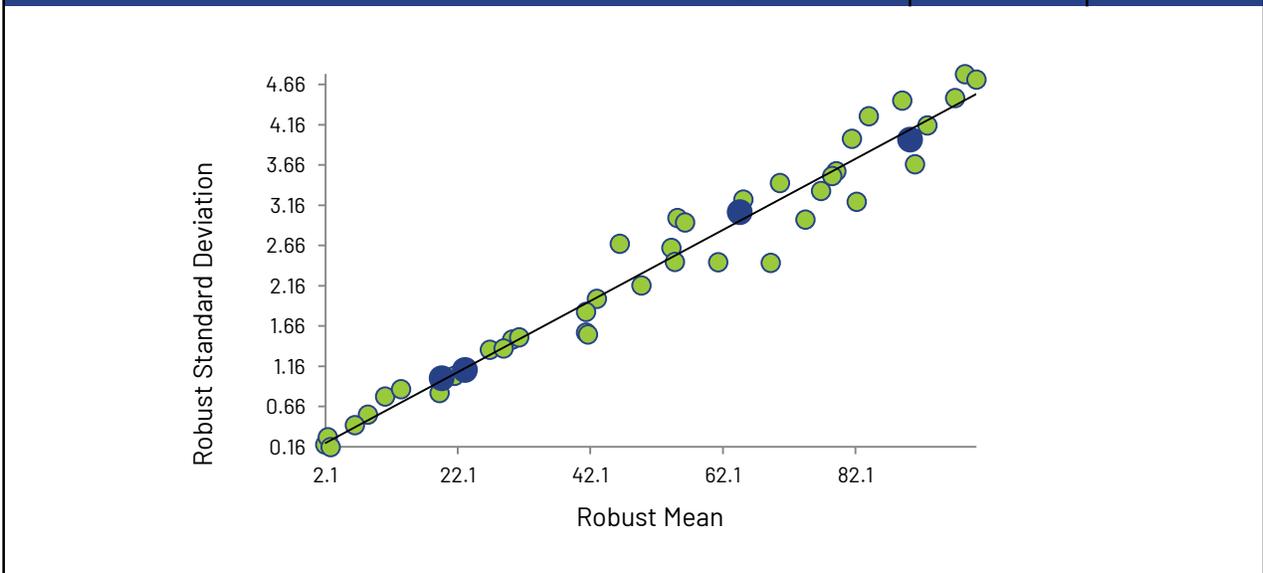
Arsenic



Box and Whisker Plots



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



Barium

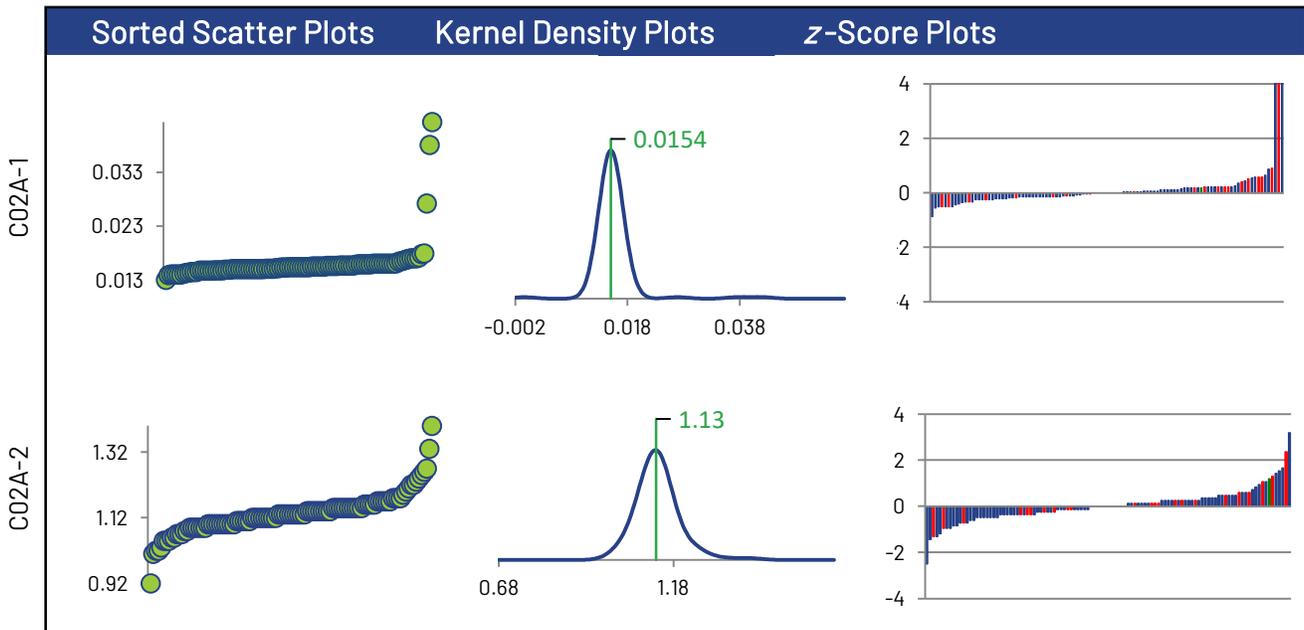
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	105	109	108	108
Median µg/L	0.0154	1.13	0.444	0.402
Robust Mean µg/L	0.0154	1.13	0.444	0.402
Uncertainty of the Assigned Value µg/L	0.0000926	0.00536	0.00212	0.00180
Robust Standard Deviation µg/L	0.000759	0.0448	0.0176	0.0150
Regression Standard Deviation µg/L	0.00115	0.0847	0.0333	0.0302
Stability Flag	Stability			
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00275	0.0847	0.0333	0.0302
Flagged Outliers	0	1	1	1
$ z > 3.0$	3	1	1	1
$2 < z < 3$	0	2	0	0
Failure Rate %*	2.7			

Methods Used

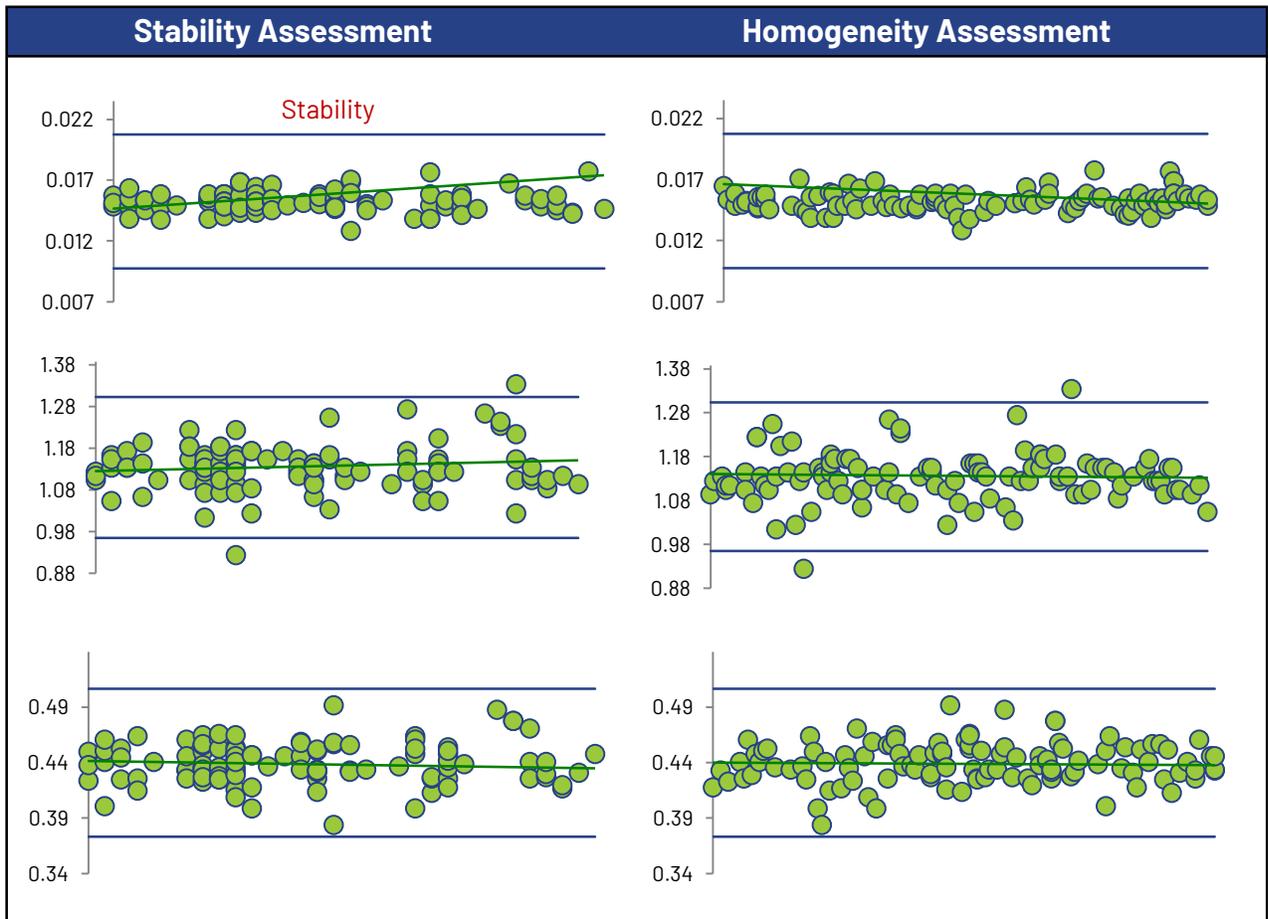
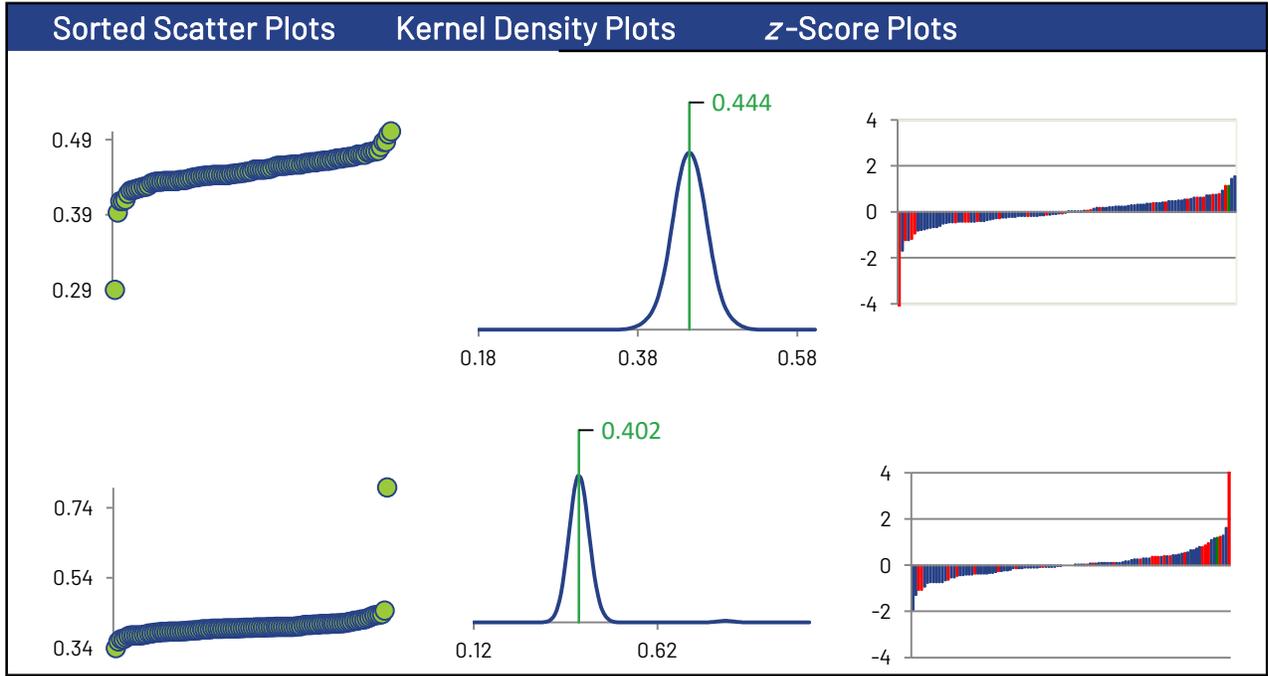
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	83	84	84	84
ICP/OES (Red)	21	24	23	23
AA FLAME (Green)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

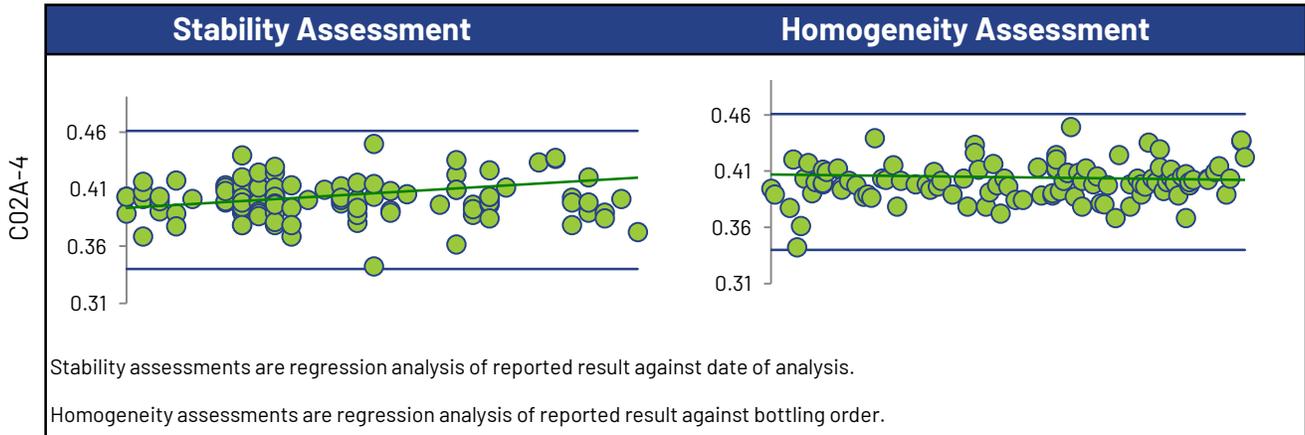


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

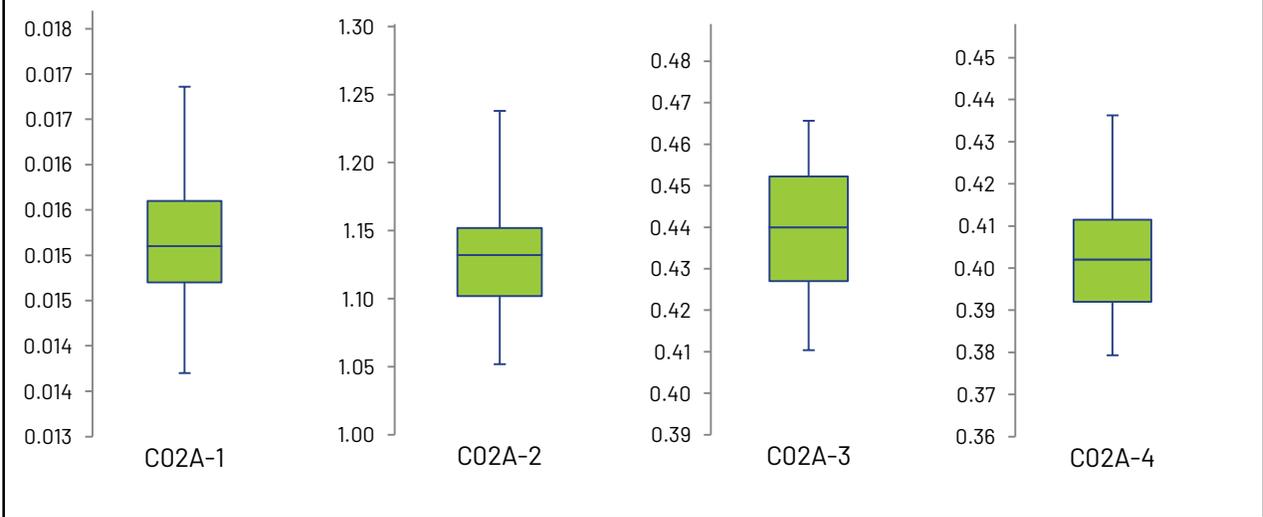
Barium



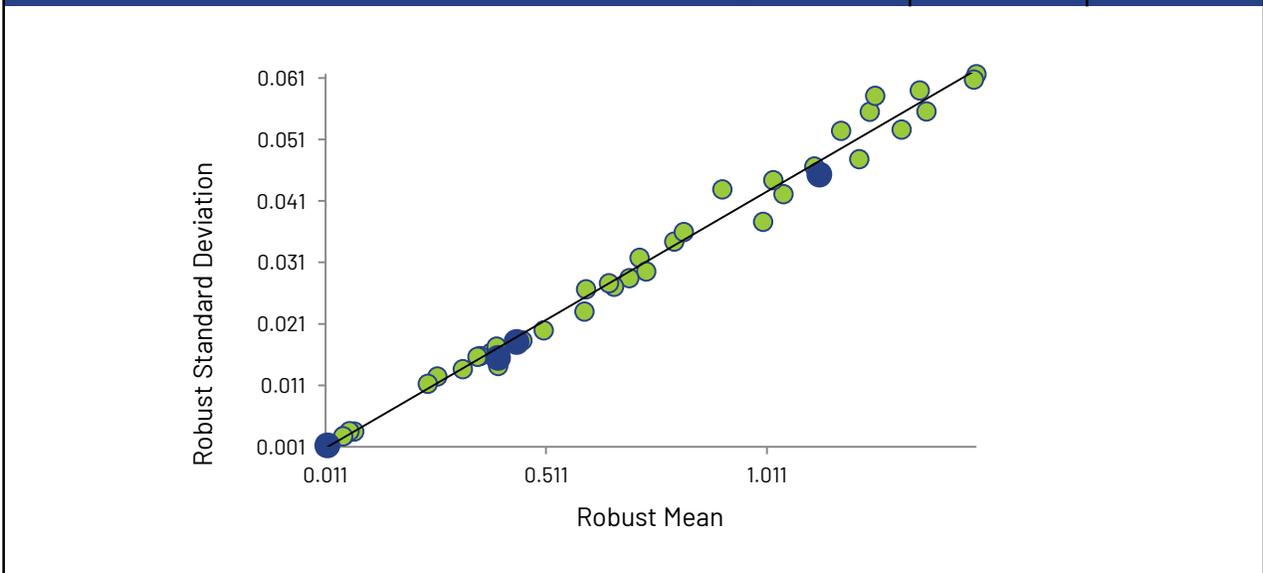
Barium



Box and Whisker Plots



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



Beryllium

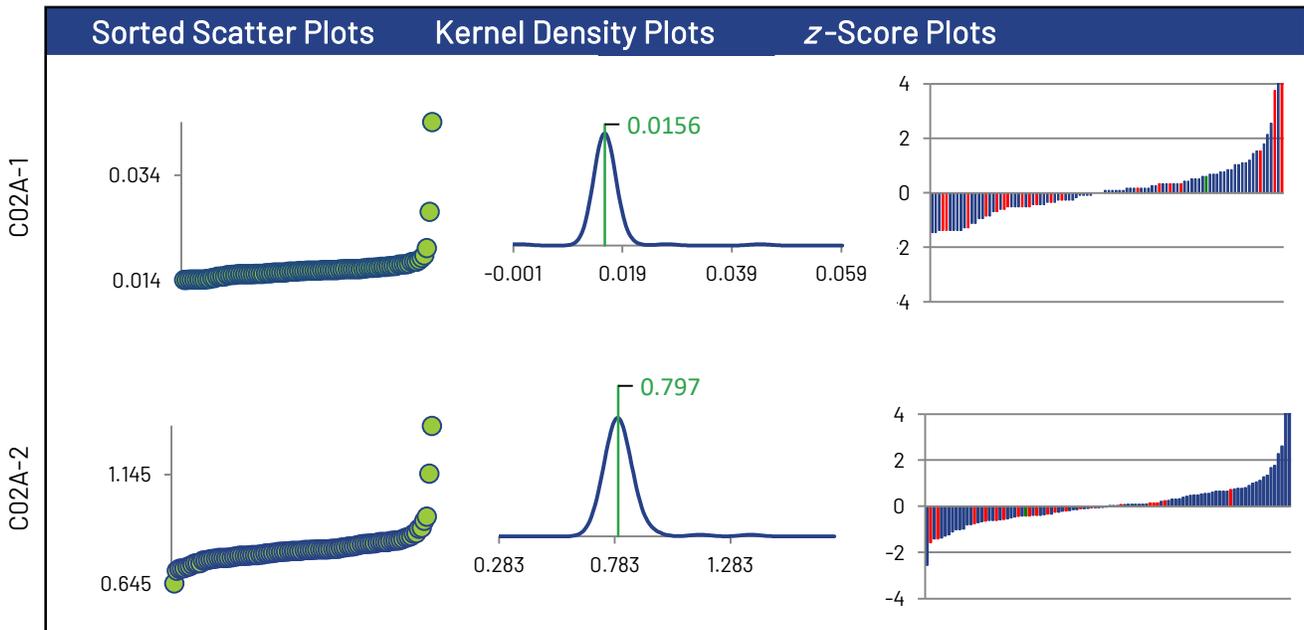
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	98	100	100	100
Median µg/L	0.0157	0.798	0.256	0.602
Robust Mean µg/L	0.0156	0.797	0.255	0.607
Uncertainty of the Assigned Value µg/L	0.000130	0.00538	0.00161	0.00400
Robust Standard Deviation µg/L	0.00103	0.0430	0.0129	0.0320
Regression Standard Deviation µg/L	0.00117	0.0598	0.0191	0.0455
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00117	0.0598	0.0191	0.0455
Flagged Outliers	1	0	0	0
$ z > 3.0$	3	2	1	2
$2 < z < 3$	2	3	2	3
Failure Rate %*	5.0			

Methods Used

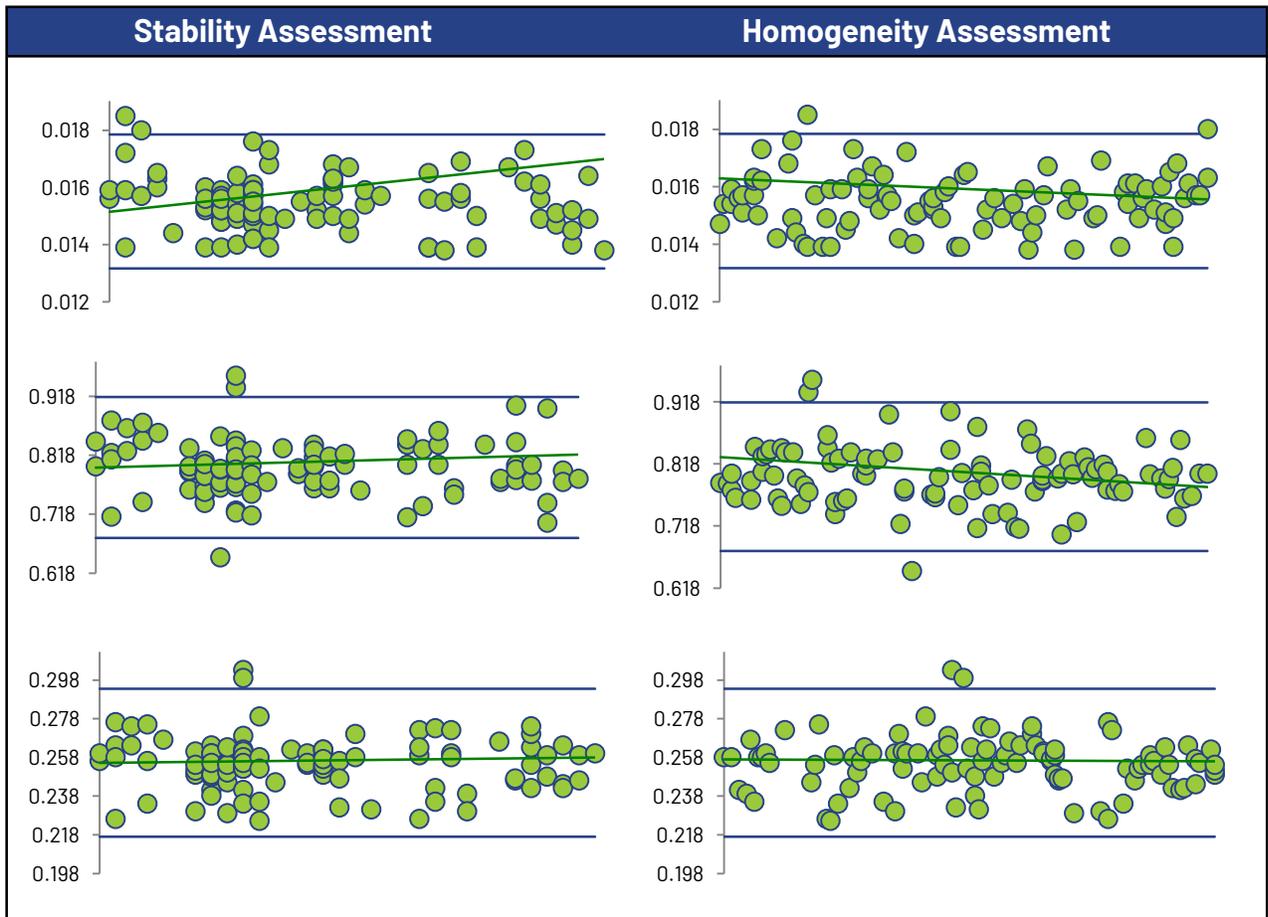
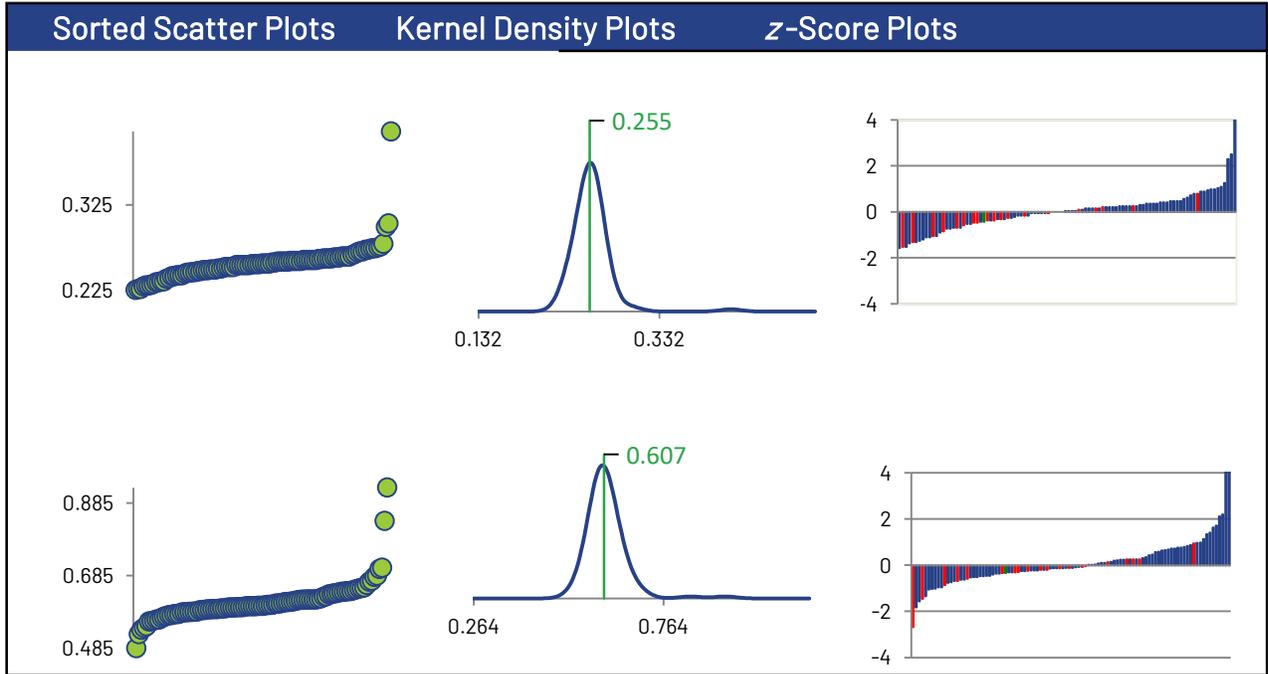
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	78	79	79	79
ICP/OES (Red)	19	20	20	20
AA FLAME (Green)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

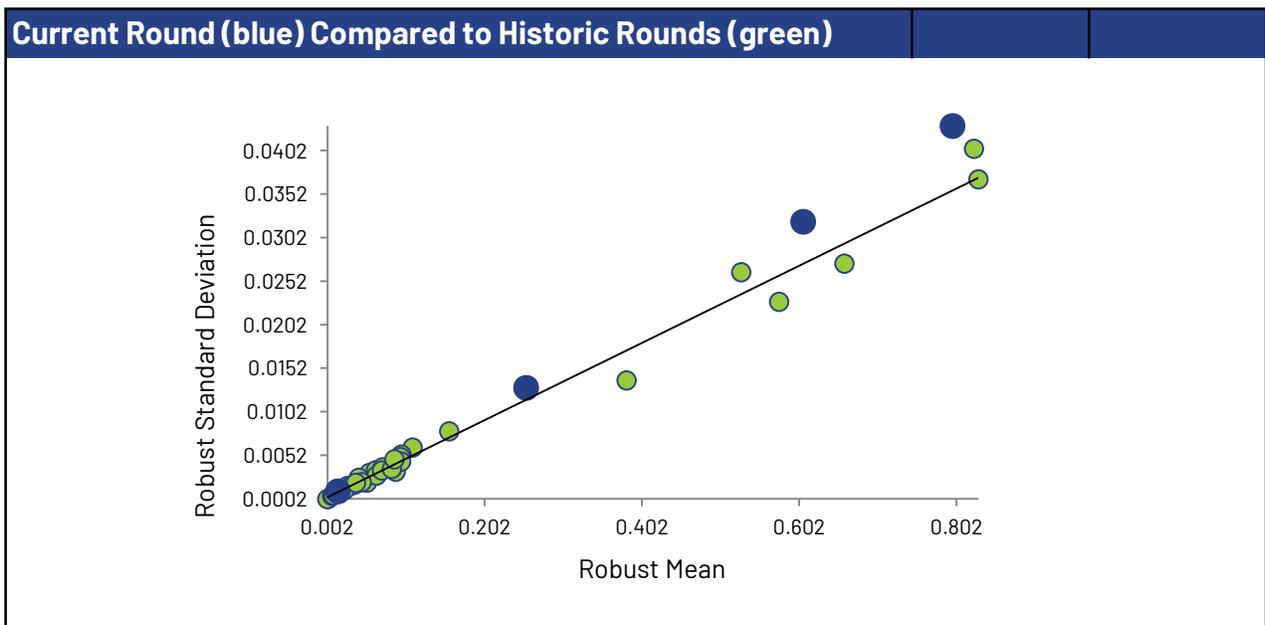
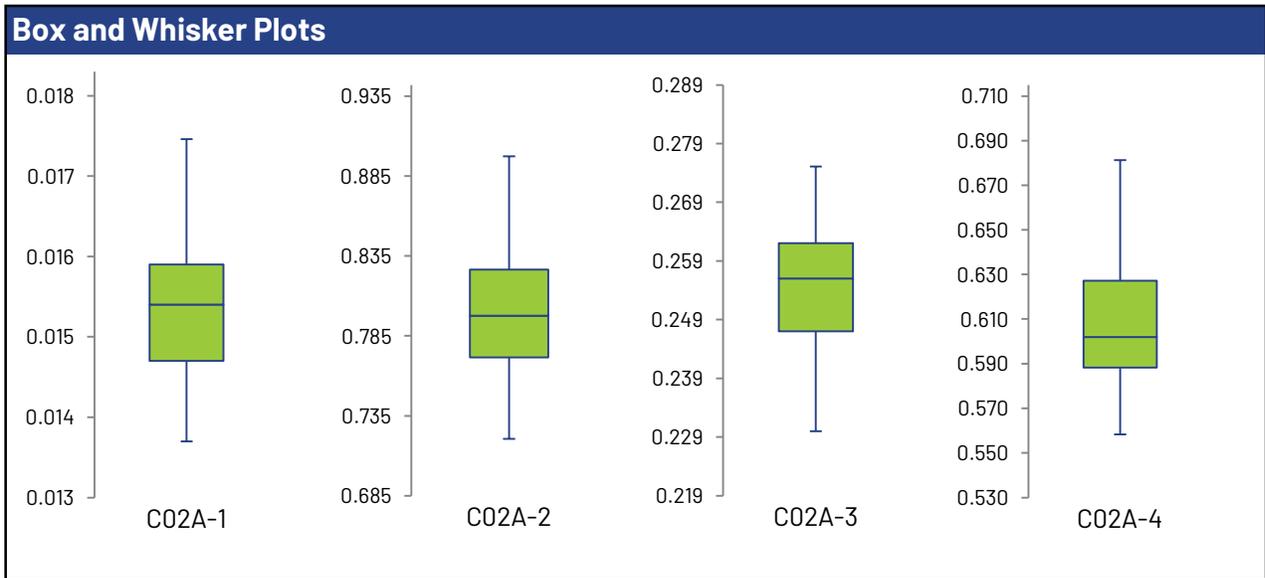
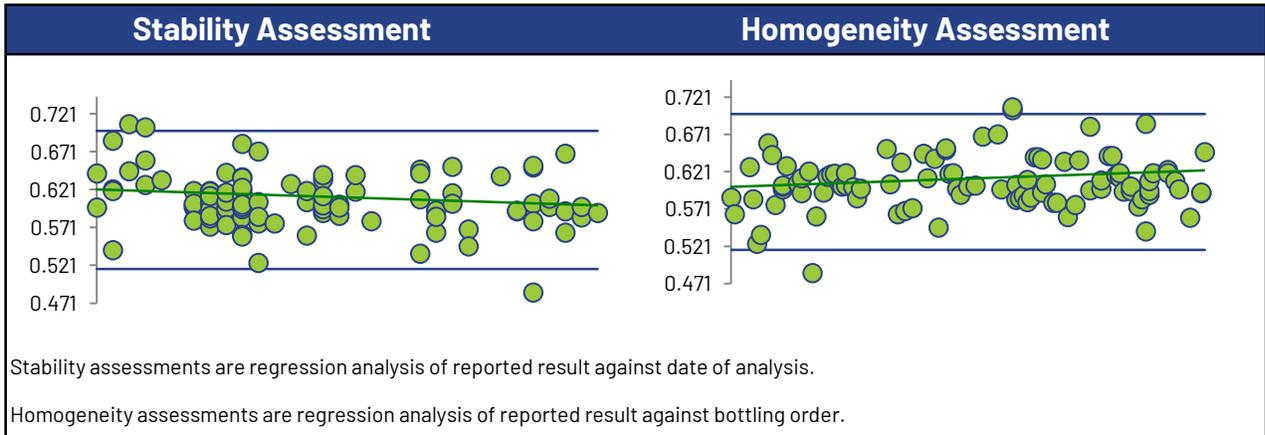


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Beryllium



Beryllium



Bismuth

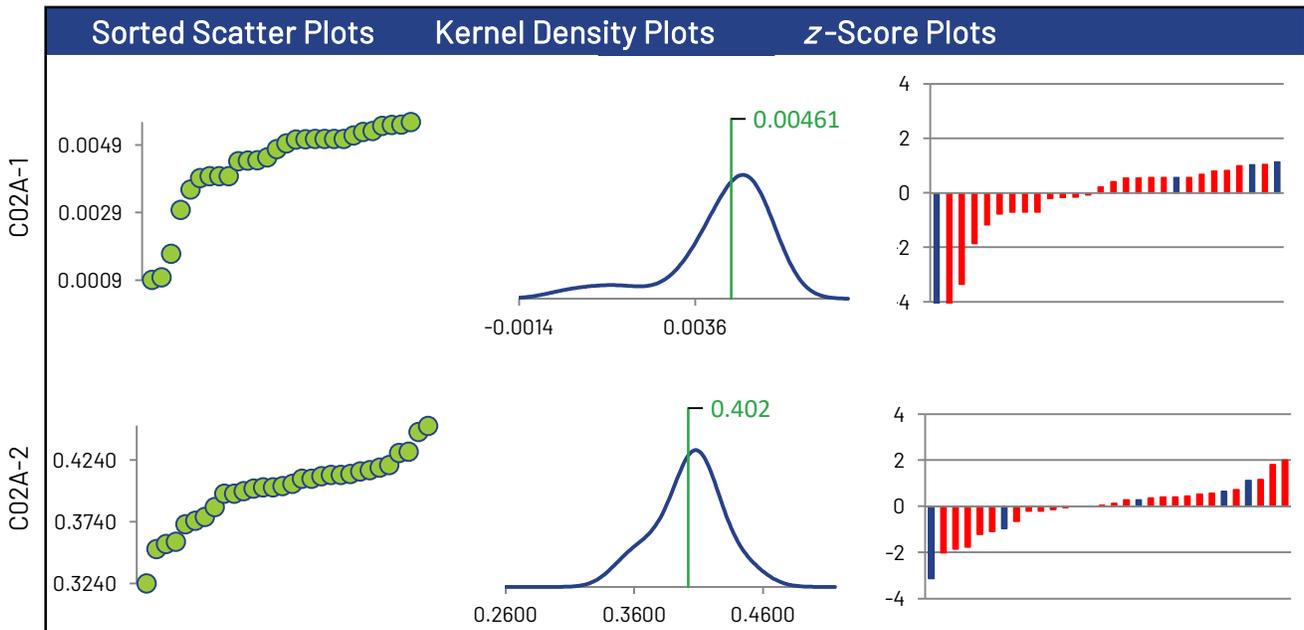
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	28	30	30	30
Median µg/L	0.00489	0.404	0.248	0.312
Robust Mean µg/L	0.00461	0.402	0.248	0.312
Uncertainty of the Assigned Value µg/L	0.000205	0.00571	0.00251	0.00306
Robust Standard Deviation µg/L	0.000866	0.0250	0.0110	0.0134
Regression Standard Deviation µg/L				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.000866	0.0250	0.0110	0.0134
Flagged Outliers	0	0	0	0
$ z > 3.0$	3	1	1	1
$2 < z < 3$	0	0	1	3
Failure Rate %*	3.3			

Methods Used

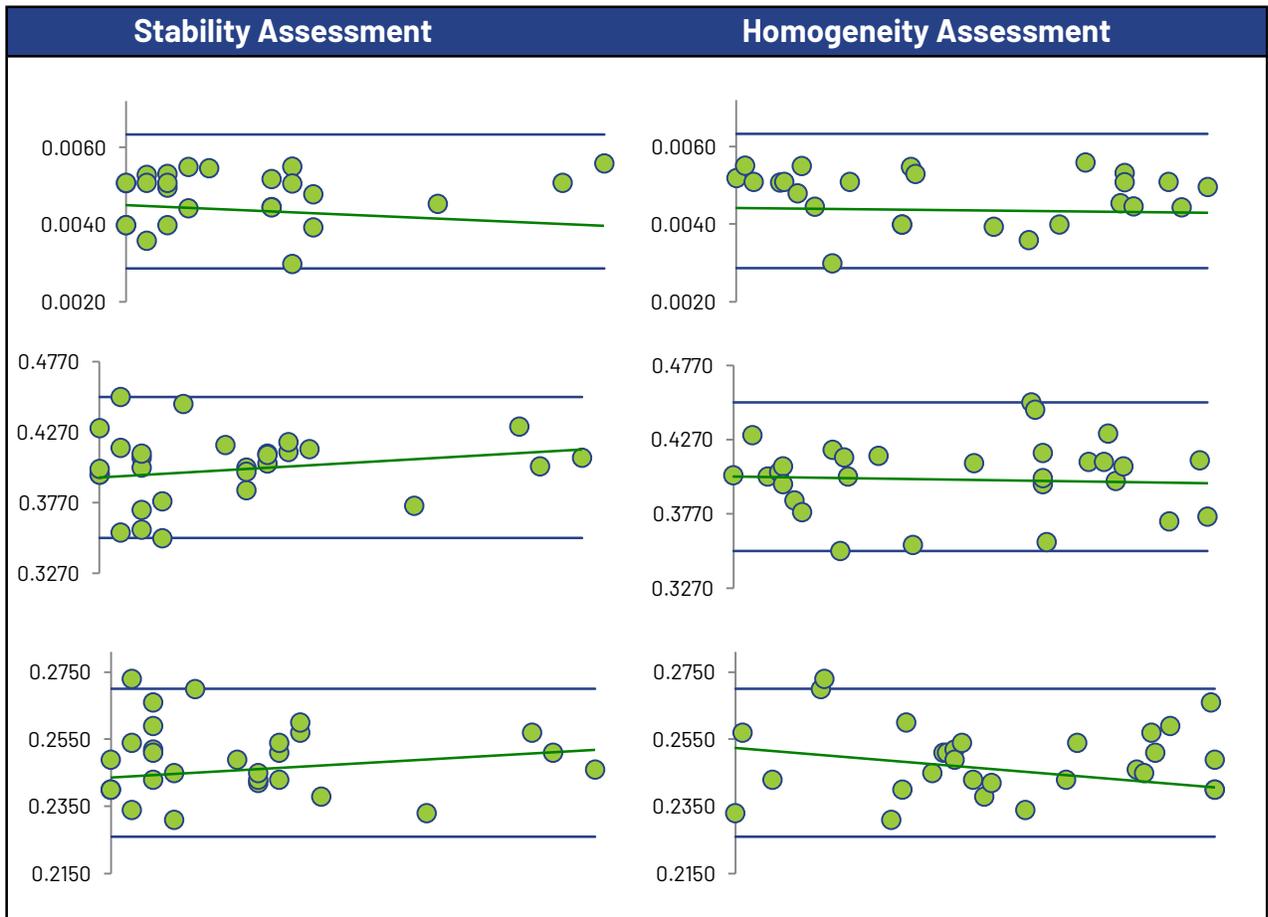
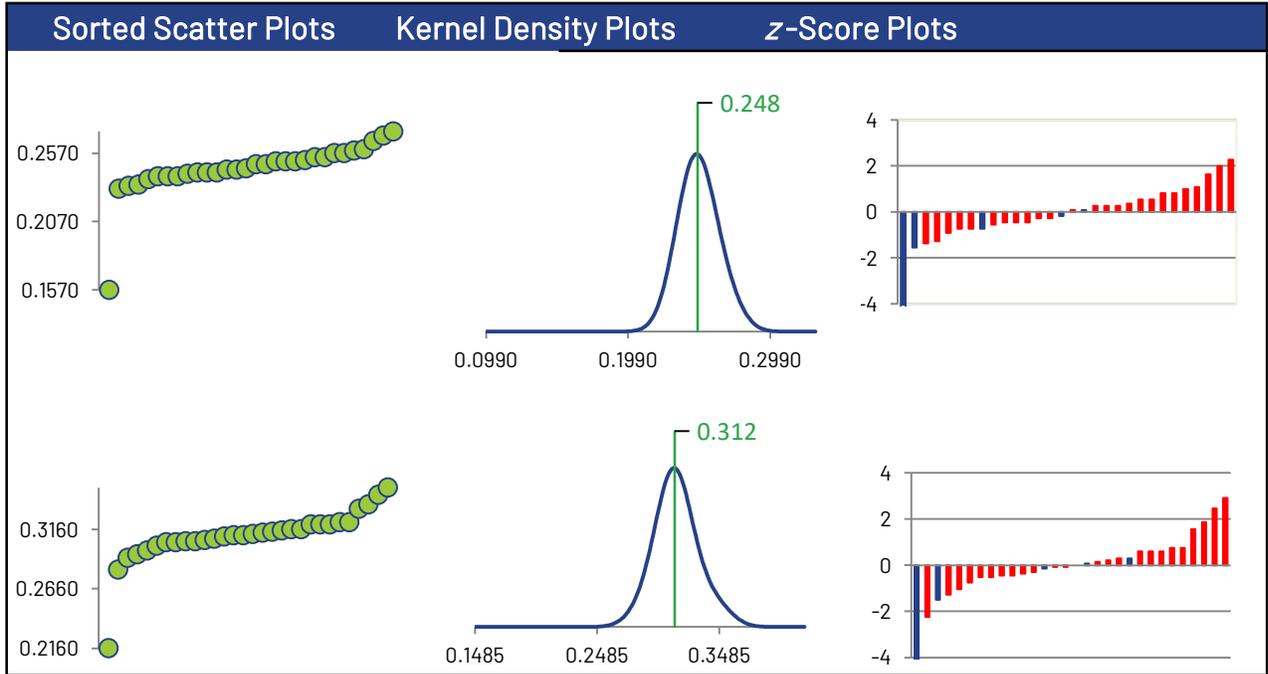
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	4	5	5	5
ICP/MS (Red)	24	25	25	25

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

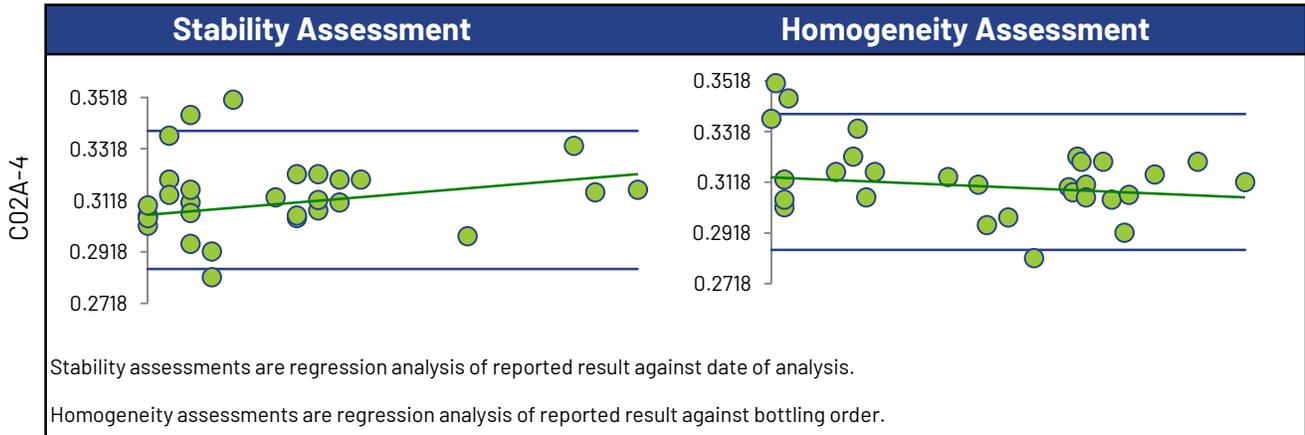


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

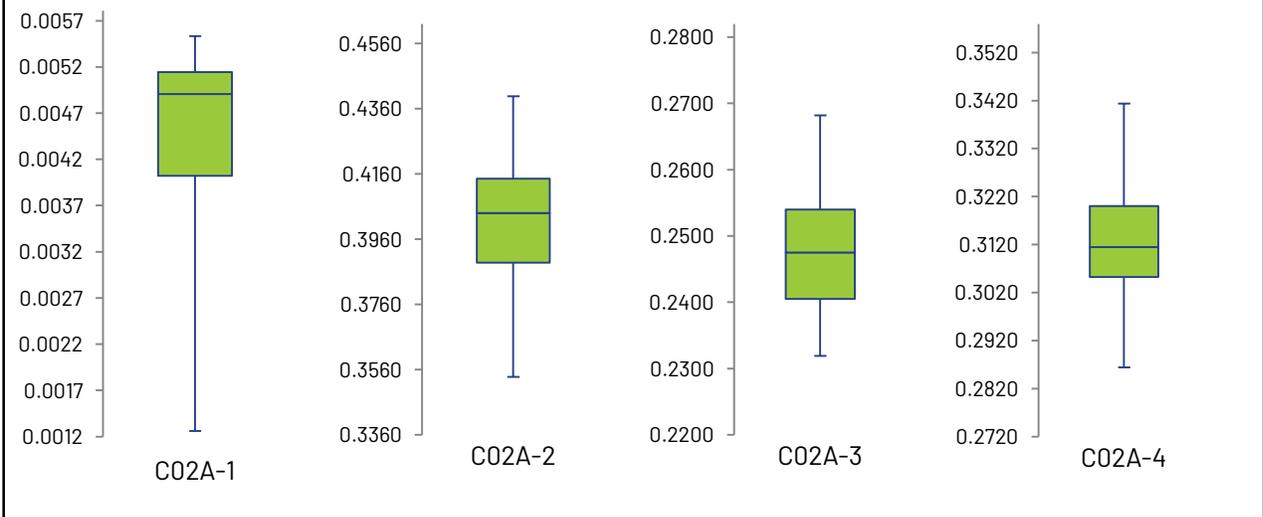
Bismuth



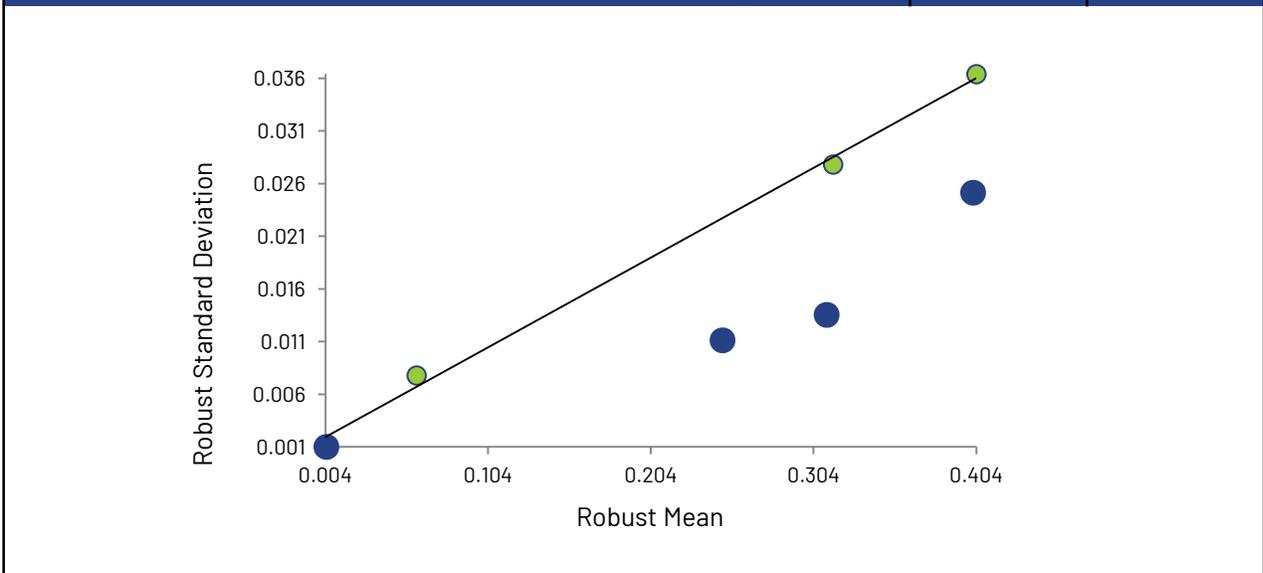
Bismuth



Box and Whisker Plots



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



Boron

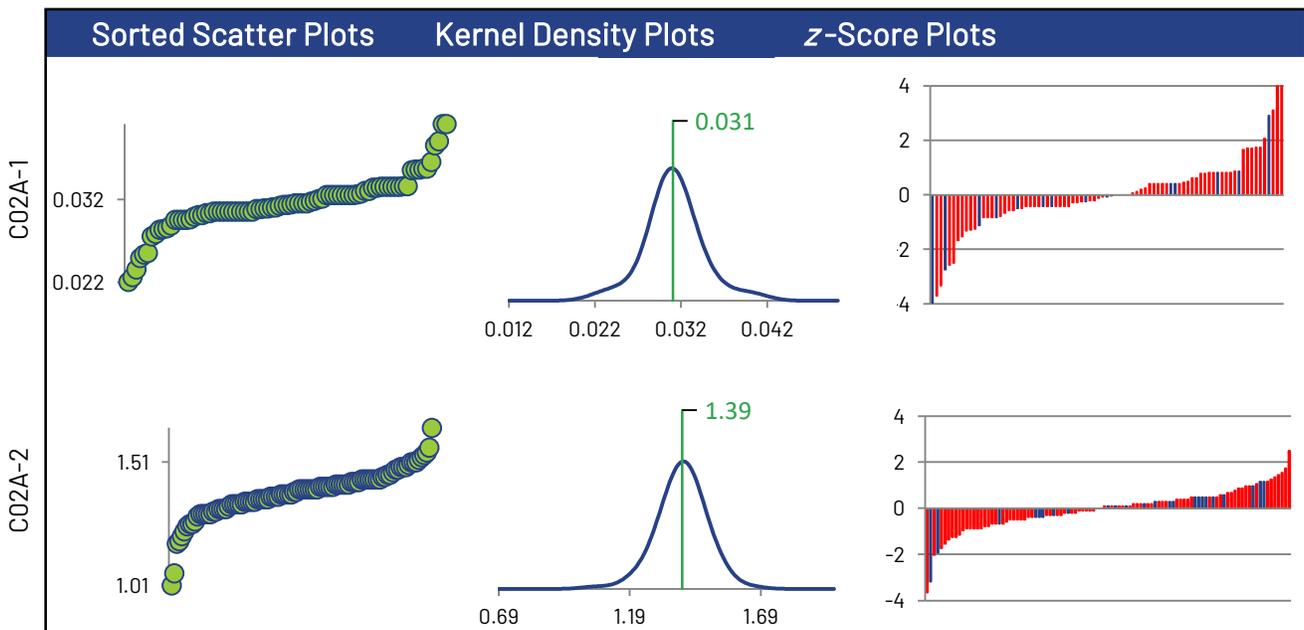
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	83	101	100	100
Median µg/L	0.0308	1.40	0.216	0.480
Robust Mean µg/L	0.0310	1.39	0.214	0.482
Uncertainty of the Assigned Value µg/L	0.000329	0.0101	0.00190	0.00360
Robust Standard Deviation µg/L	0.00240	0.0809	0.0152	0.0288
Regression Standard Deviation µg/L	0.00232	0.104	0.0161	0.0362
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00240	0.104	0.0161	0.0362
Flagged Outliers	1	0	0	0
$ z > 3.0$	6	2	4	2
$2 < z < 3$	5	2	2	2
Failure Rate %*	5.9			

Methods Used

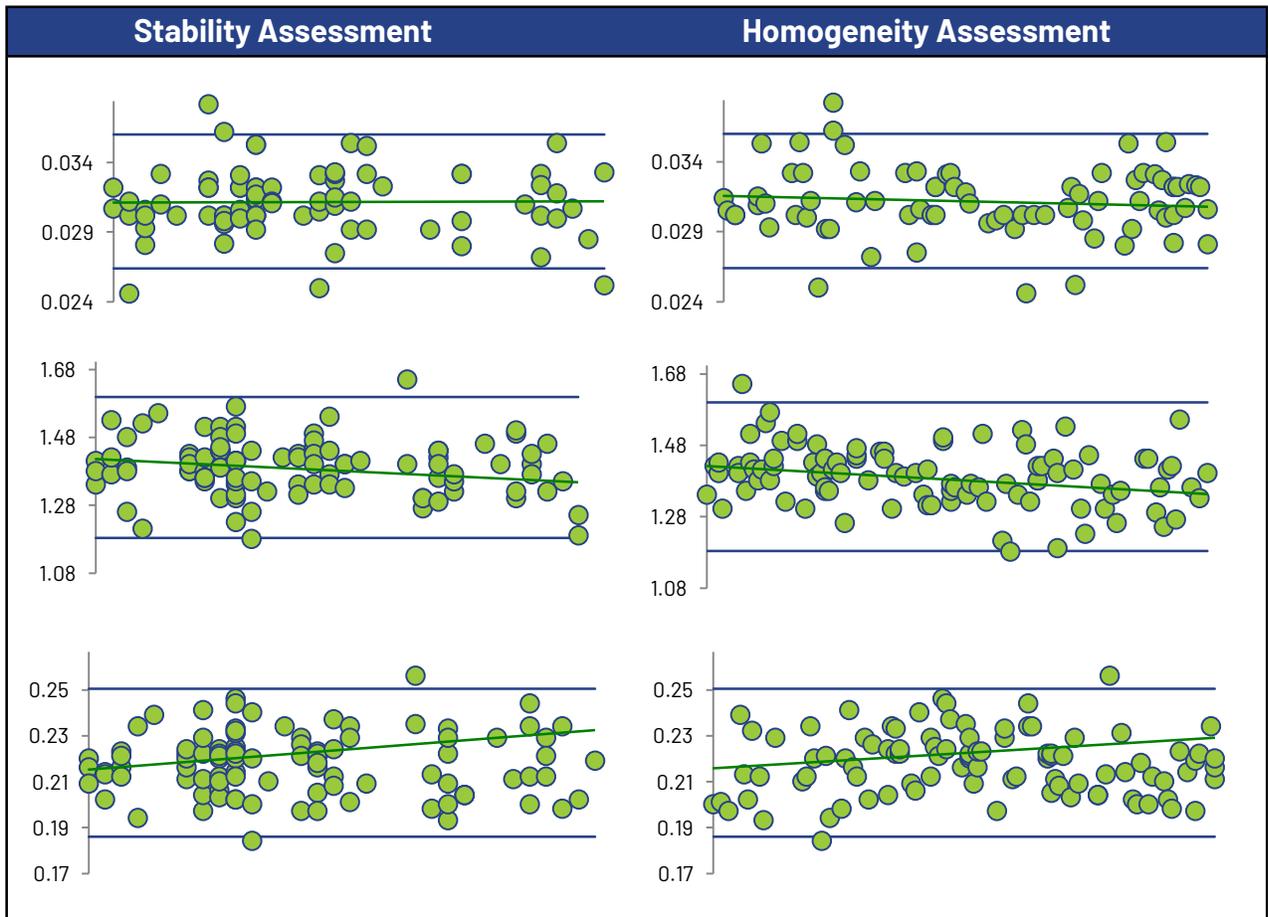
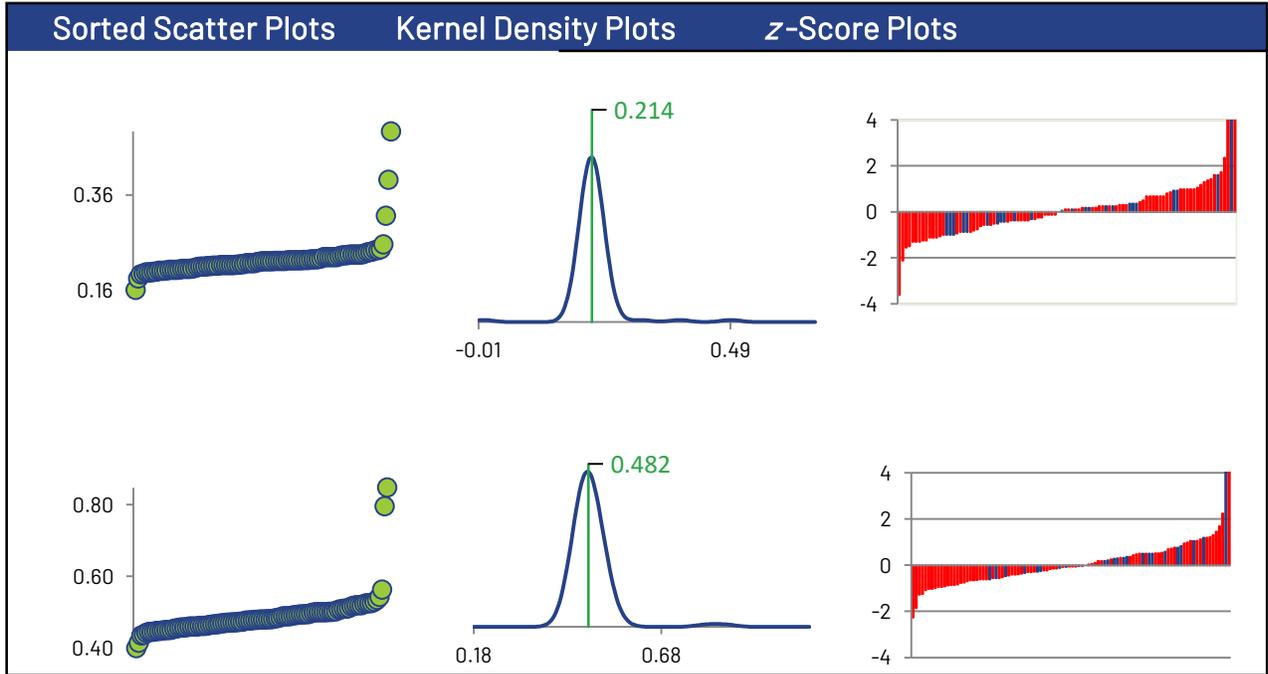
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	16	24	24	24
ICP/MS (Red)	67	77	76	76

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

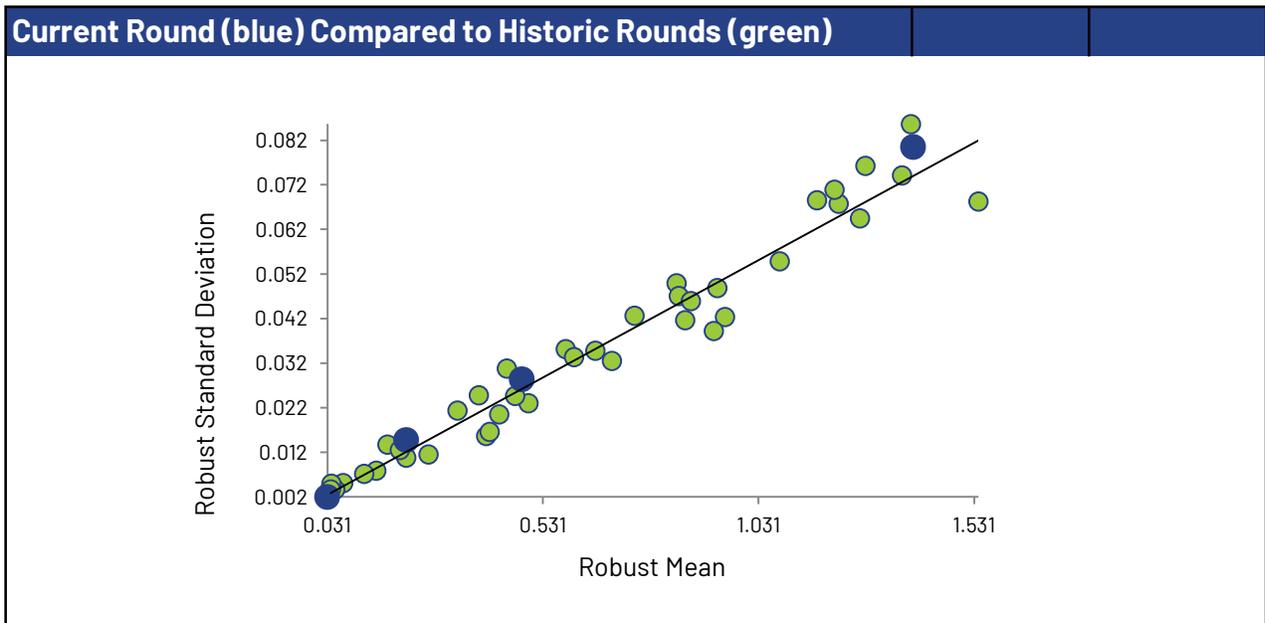
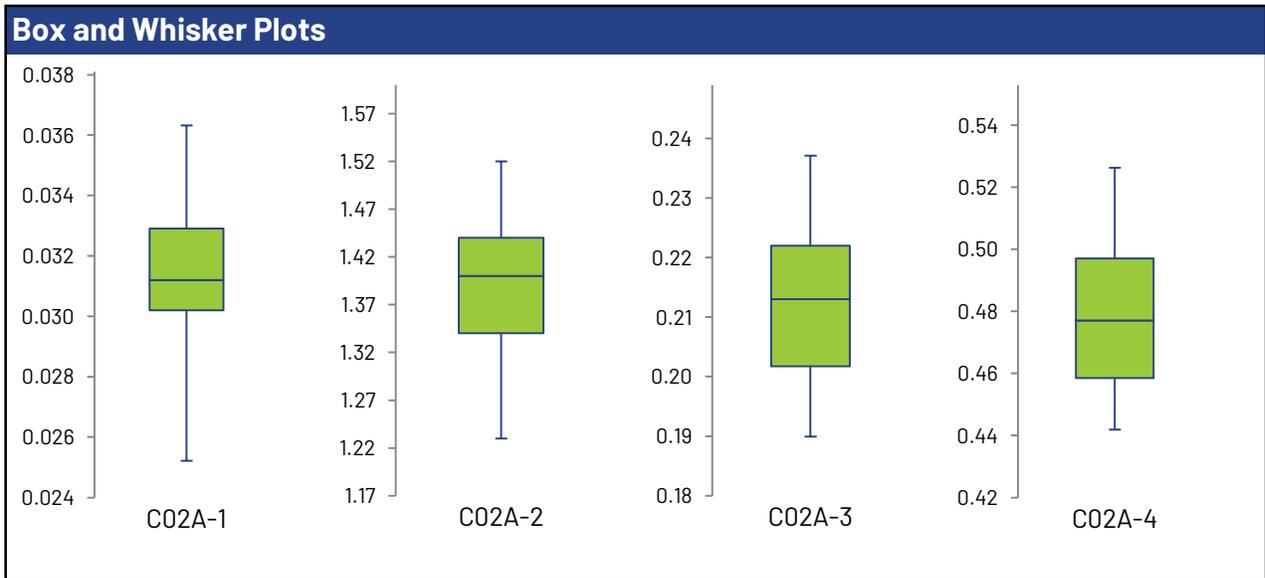
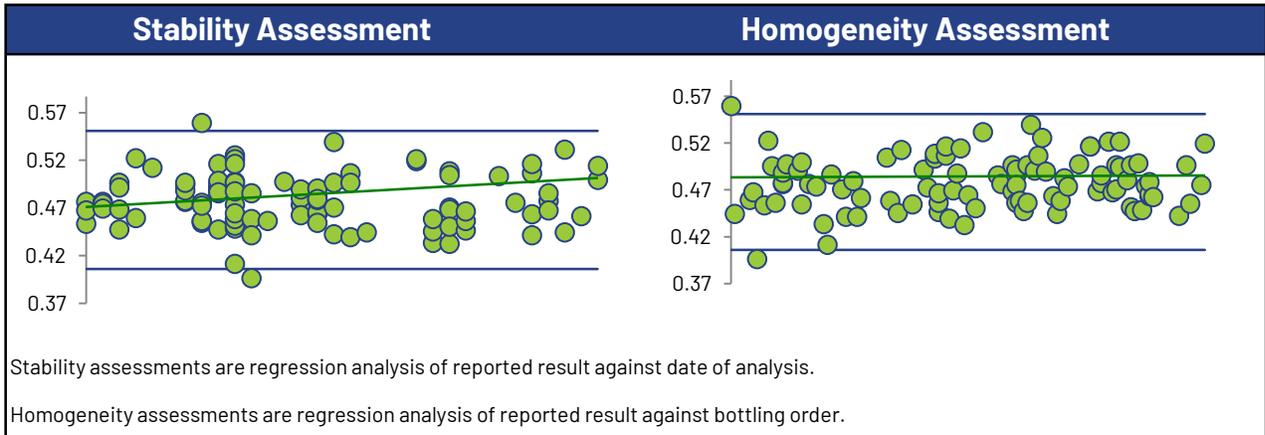


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Boron



Boron



Cadmium

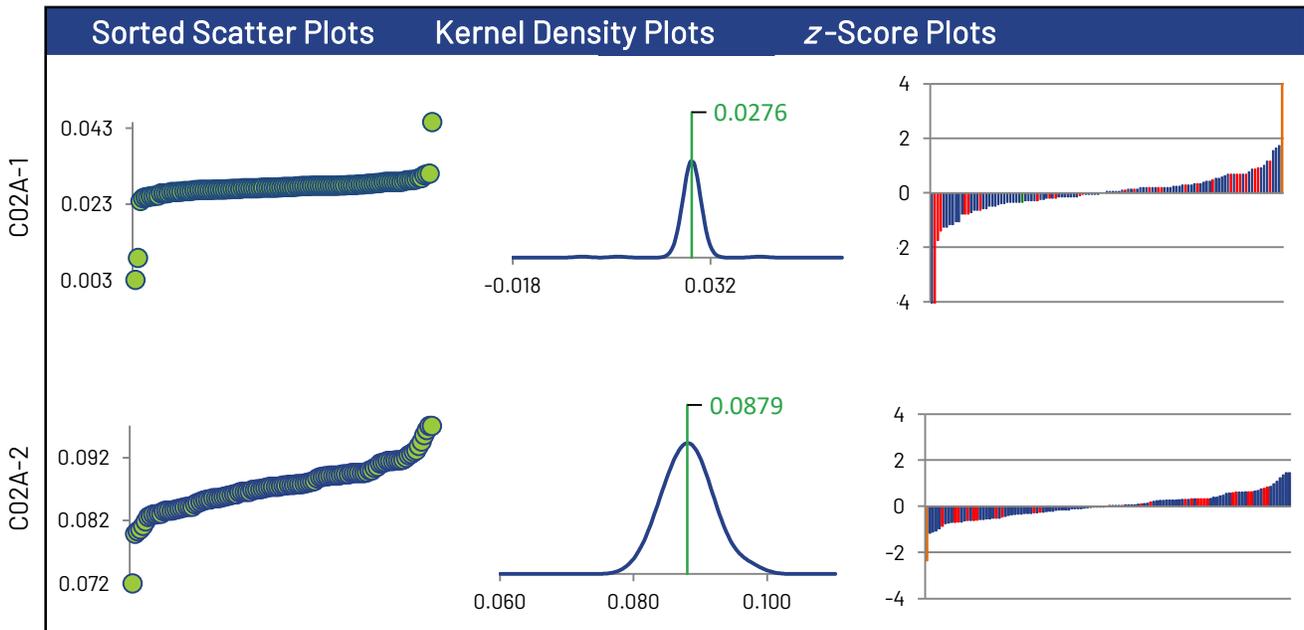
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	117	116	116	116
Median µg/L	0.0277	0.0880	0.0400	0.0493
Robust Mean µg/L	0.0276	0.0879	0.0401	0.0493
Uncertainty of the Assigned Value µg/L	0.000136	0.000399	0.000194	0.000239
Robust Standard Deviation µg/L	0.00118	0.00344	0.00167	0.00206
Regression Standard Deviation µg/L	0.00207	0.00660	0.00301	0.00370
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00207	0.00660	0.00301	0.00370
Flagged Outliers	1	2	2	2
$ z > 3.0$	3	0	1	1
$2 < z < 3$	0	1	0	1
Failure Rate %*	3.4			

Methods Used

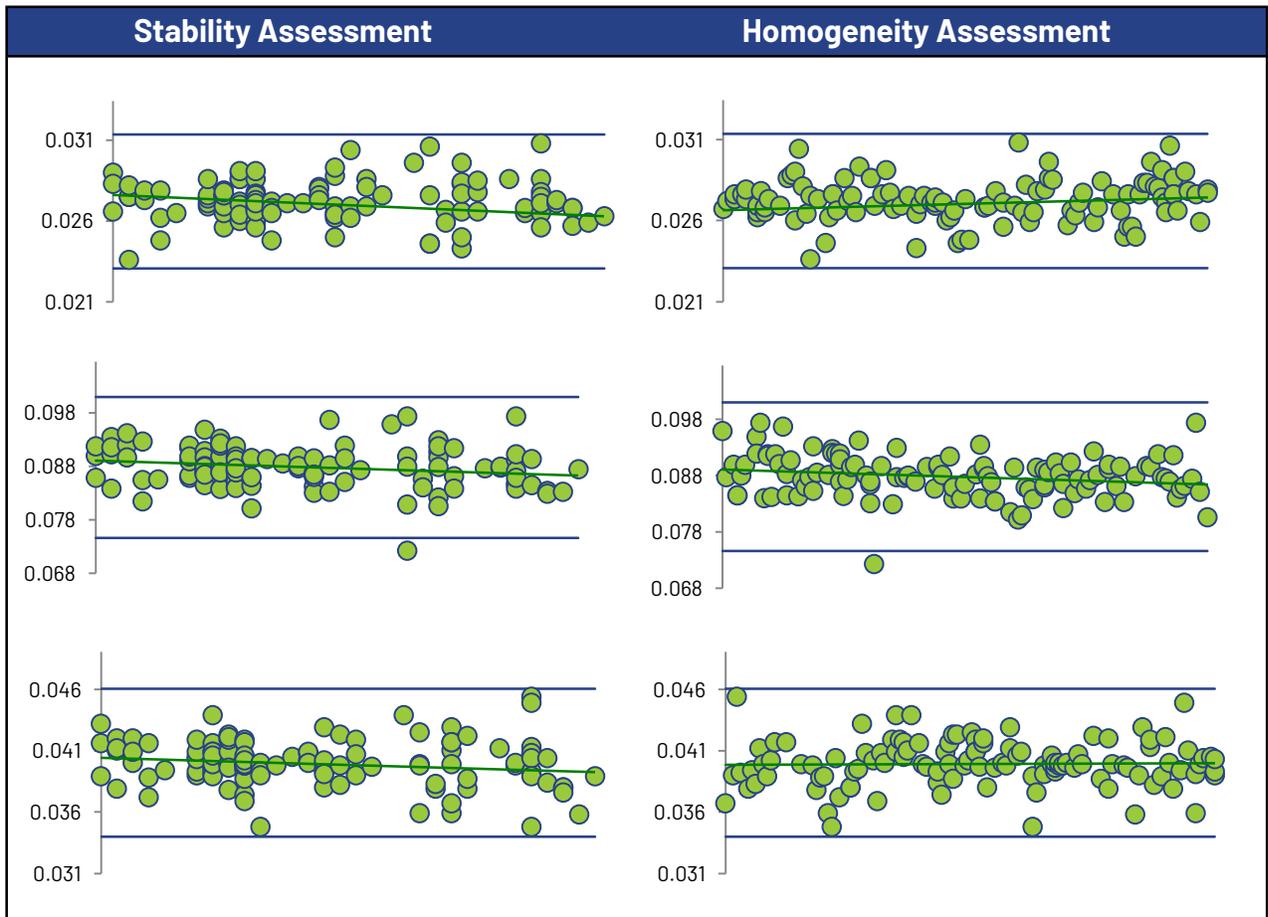
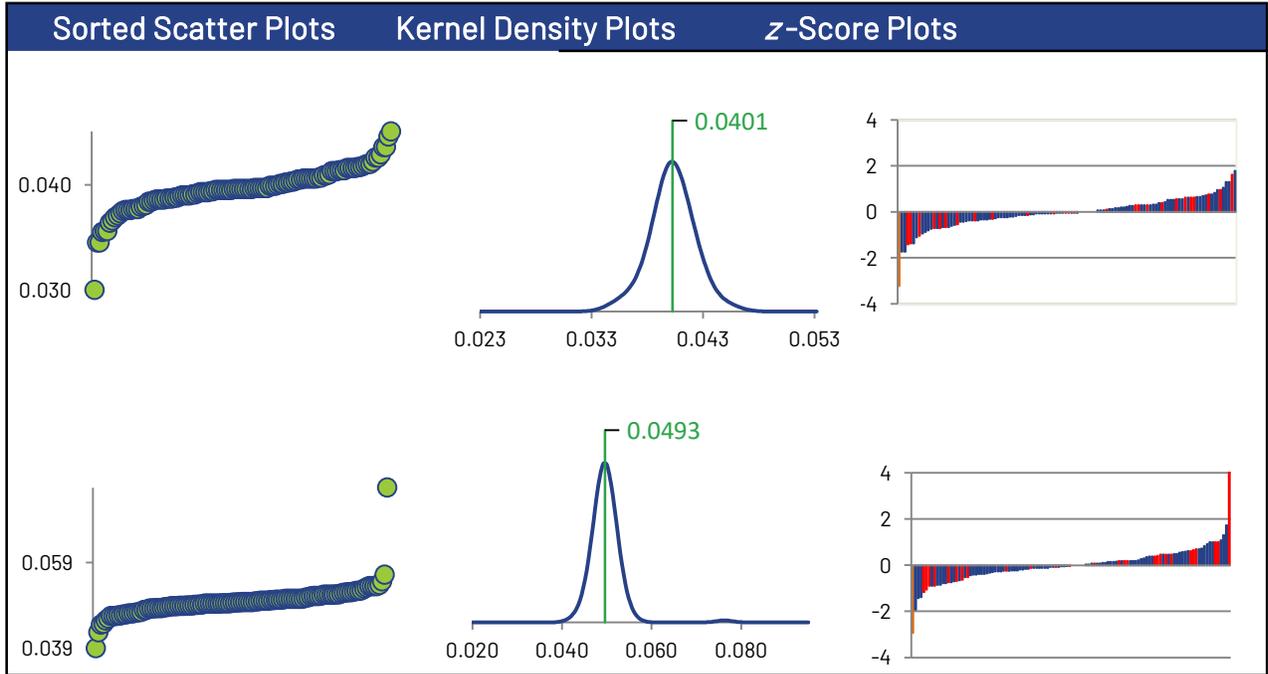
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	88	87	87	87
ICP/OES (Red)	27	27	27	27
AA FLAME (Green)	1	1	1	1
AA GRAPHITE (Orange)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

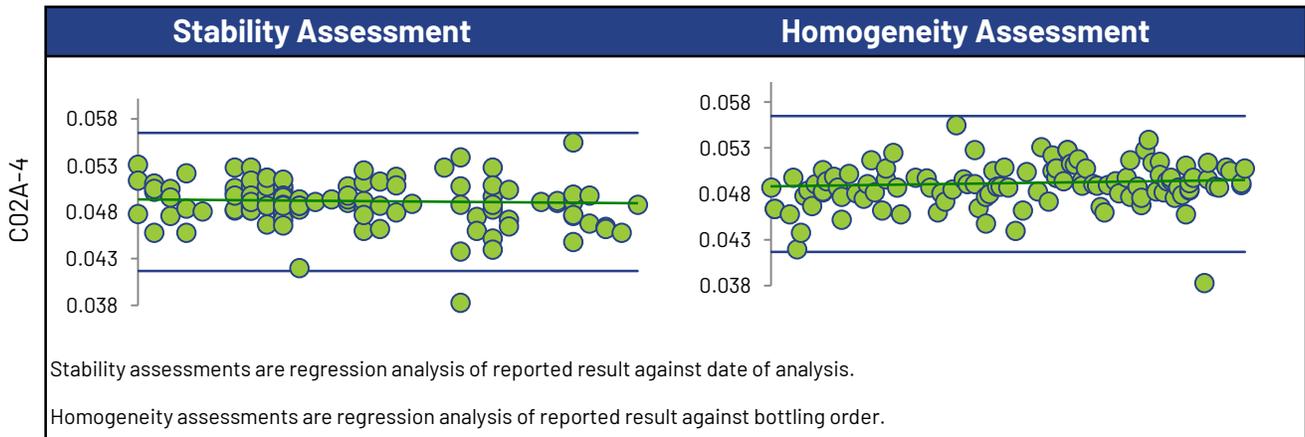


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

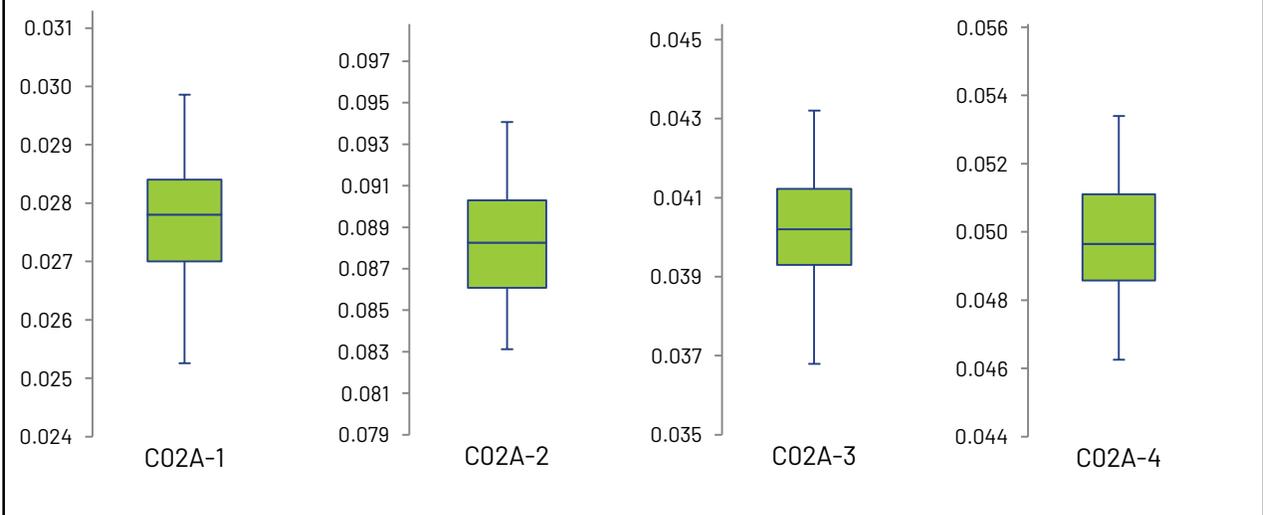
Cadmium



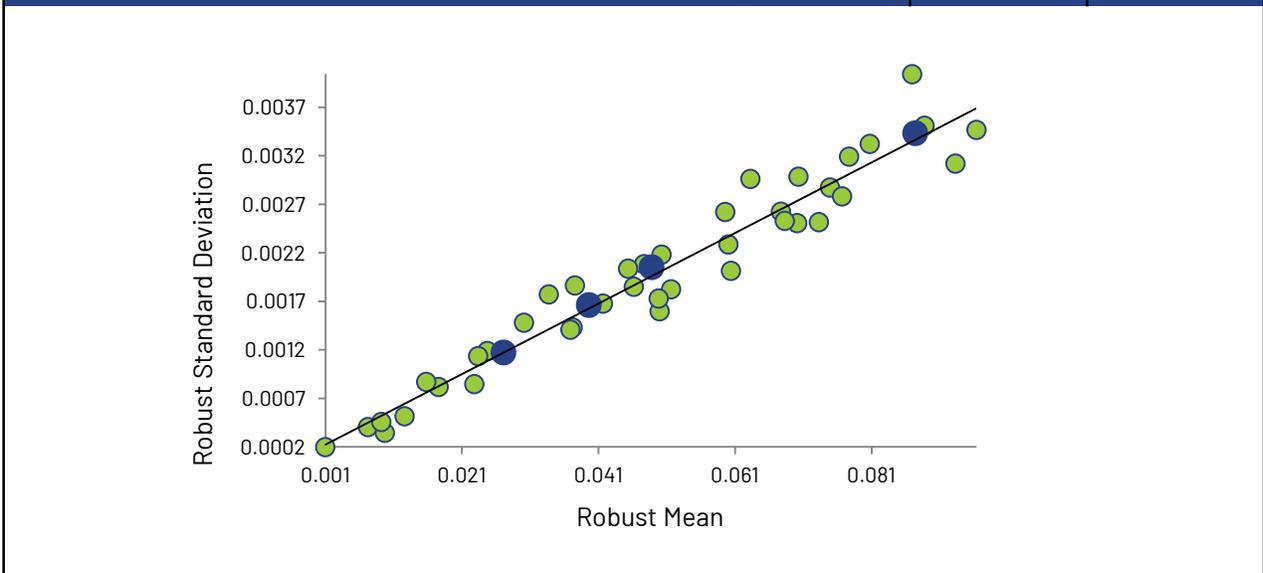
Cadmium



Box and Whisker Plots



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



Chromium

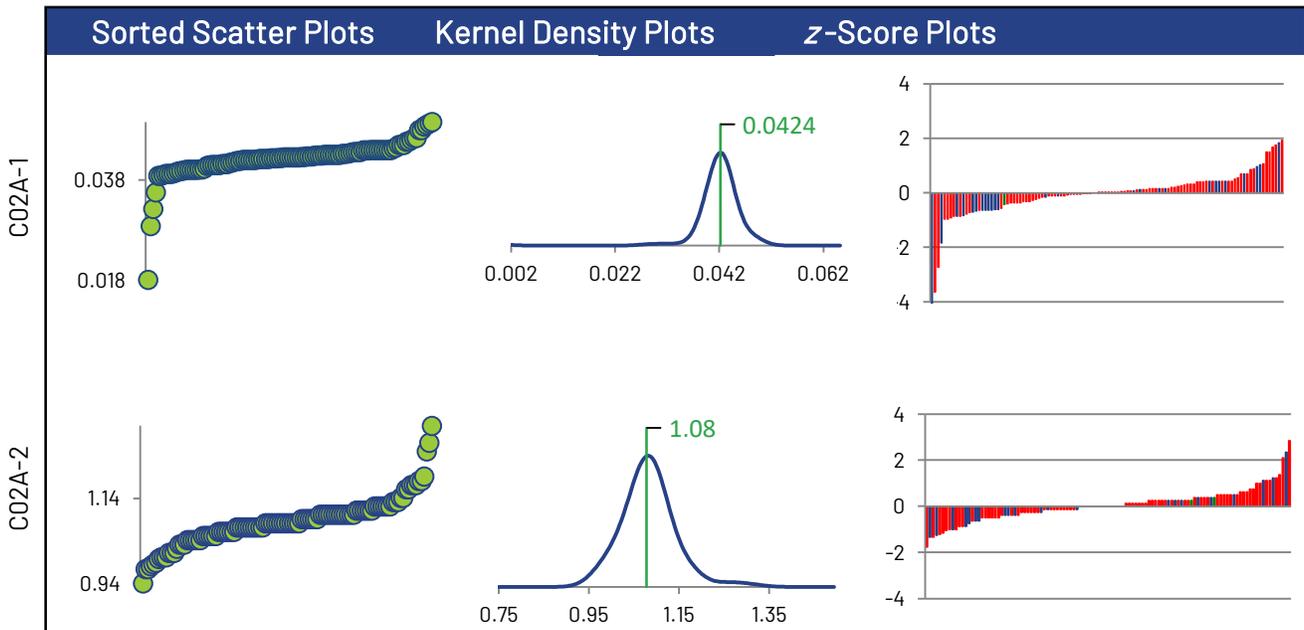
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	112	112	112	112
Median µg/L	0.0425	1.08	0.434	0.403
Robust Mean µg/L	0.0424	1.08	0.434	0.404
Uncertainty of the Assigned Value µg/L	0.000249	0.00540	0.00244	0.00227
Robust Standard Deviation µg/L	0.00211	0.0457	0.0207	0.0192
Regression Standard Deviation µg/L	0.00318	0.0811	0.0325	0.0303
Stability Flag	Stability			
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00374	0.0811	0.0325	0.0303
Flagged Outliers	1	1	1	1
z >3.0	2	0	2	2
2< z <3	1	3	1	1
Failure Rate %*	3.5			

Methods Used

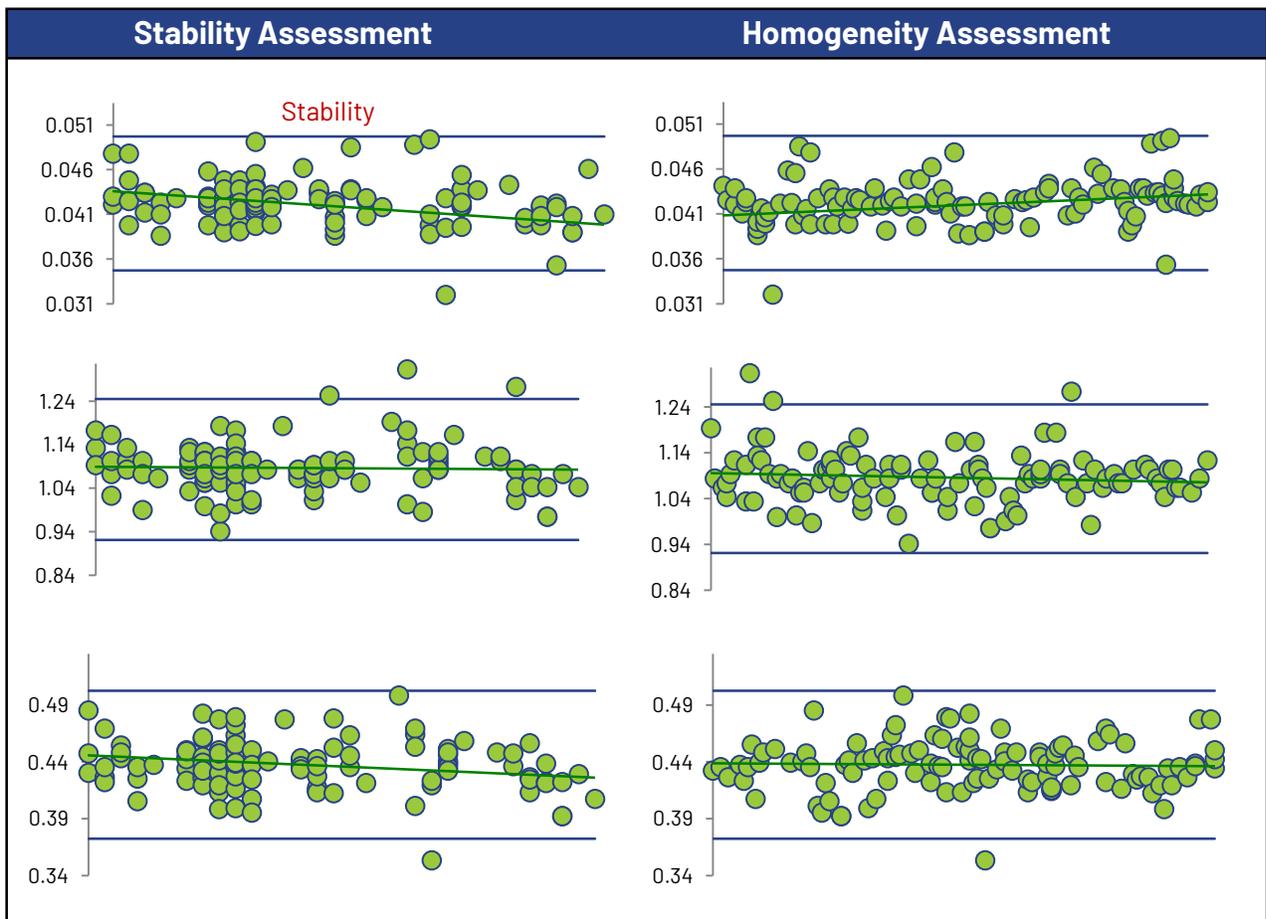
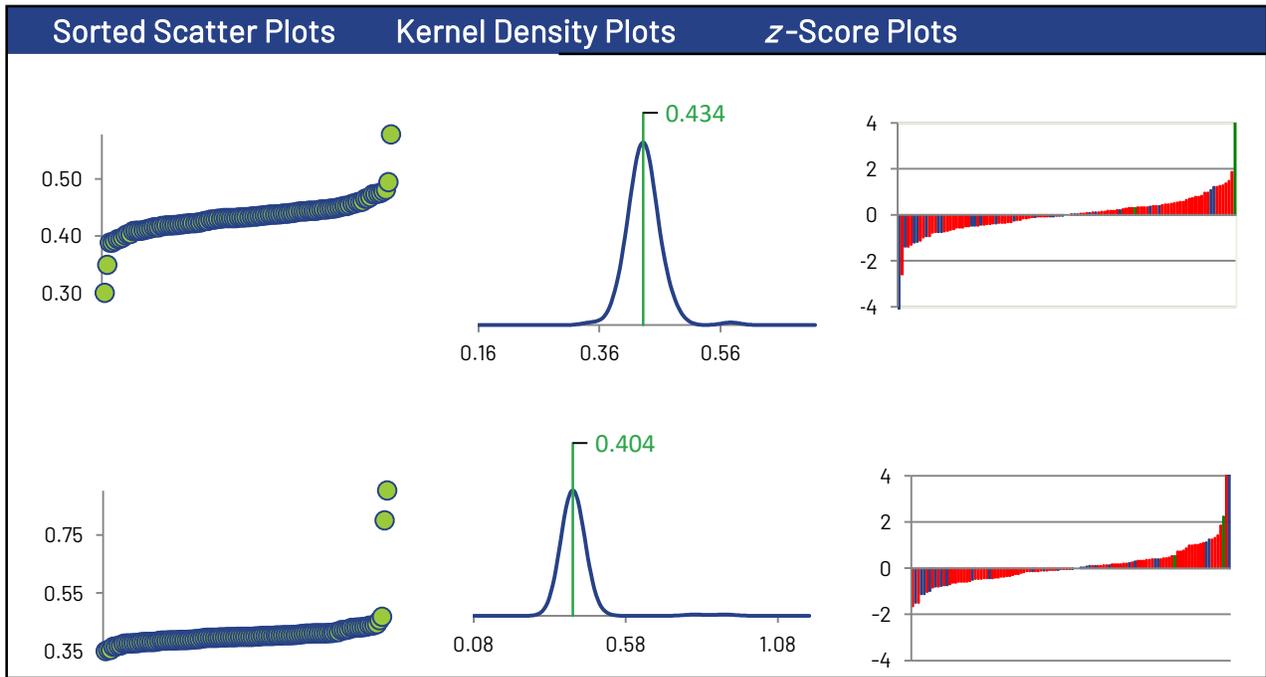
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	26	26	26	26
ICP/MS (Red)	85	84	84	84
AA FLAME (Green)	1	2	2	2

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

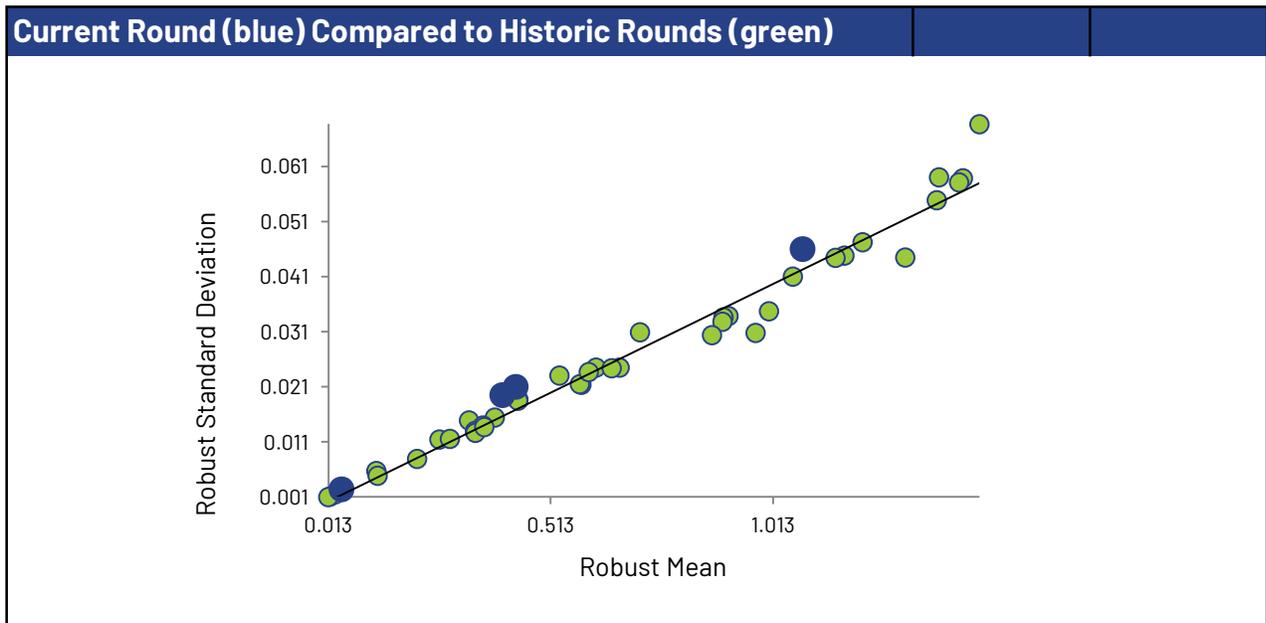
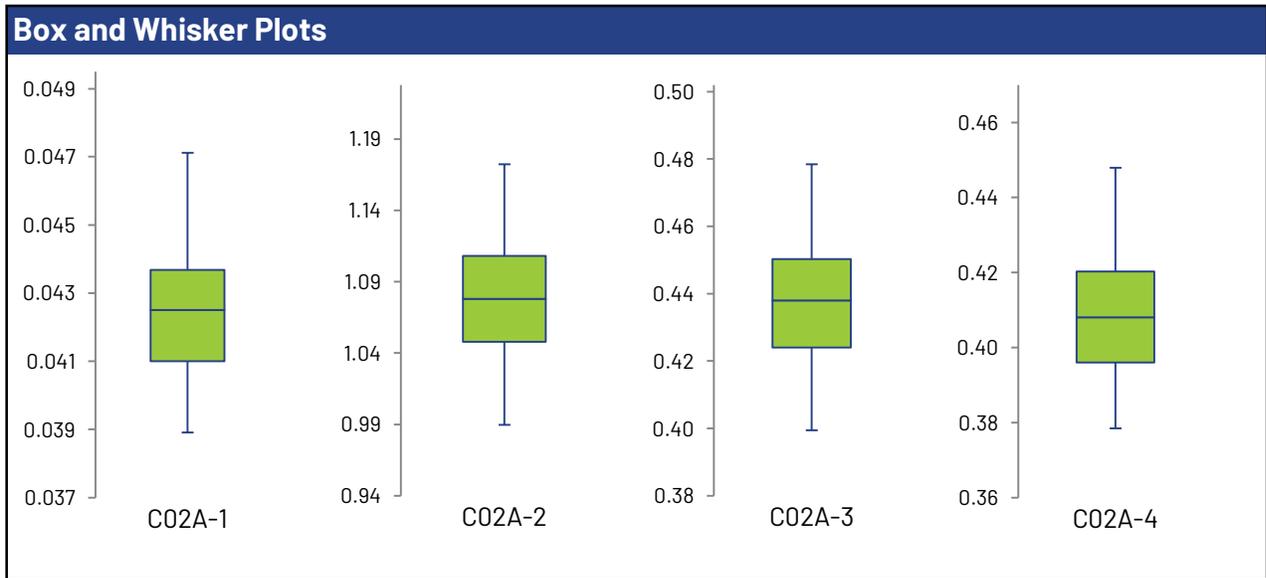
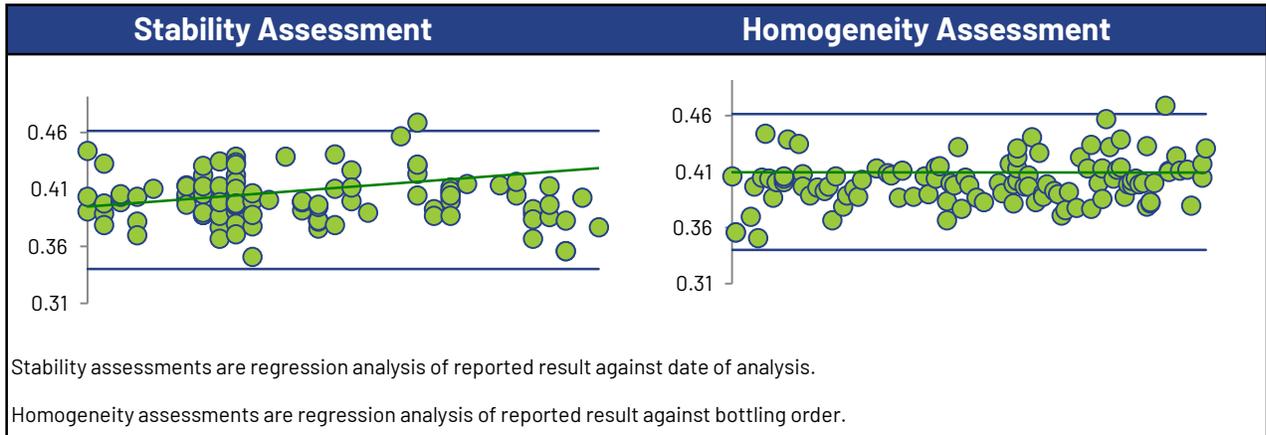


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Chromium



Chromium



Cobalt

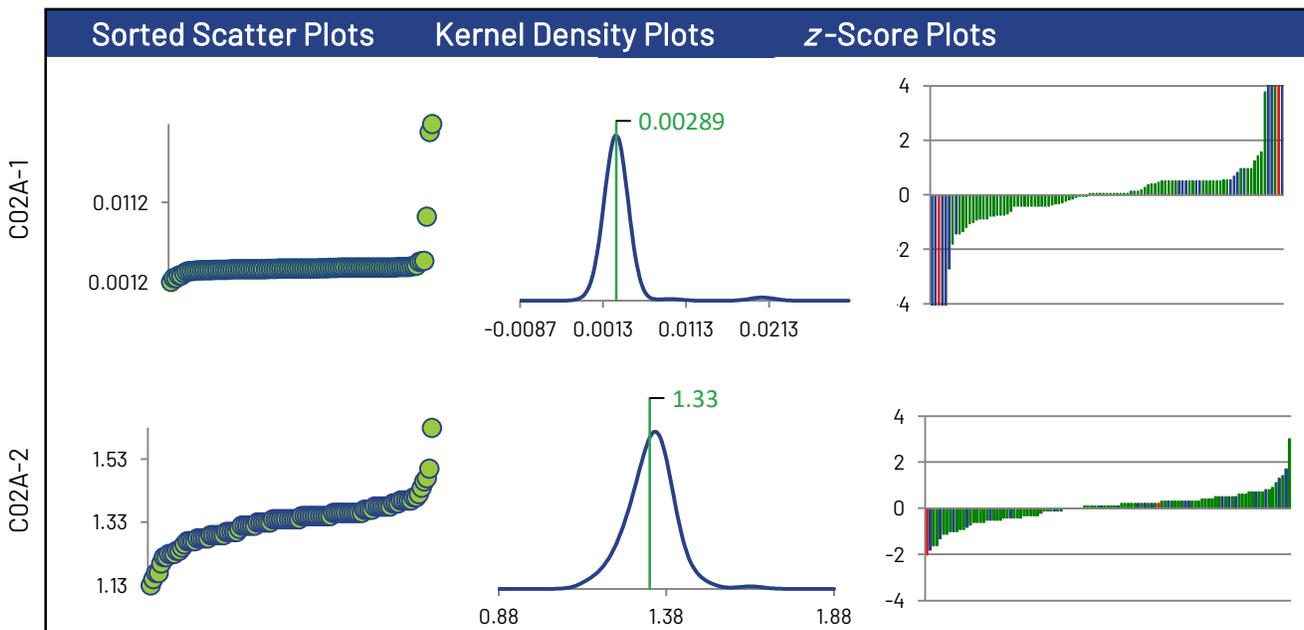
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	103	109	109	109
Median µg/L	0.00290	1.34	0.385	0.892
Robust Mean µg/L	0.00289	1.33	0.385	0.891
Uncertainty of the Assigned Value µg/L	0.0000218	0.00674	0.00211	0.00421
Robust Standard Deviation µg/L	0.000177	0.0563	0.0176	0.0352
Regression Standard Deviation µg/L	0.000217	0.100	0.0289	0.0668
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.000217	0.100	0.0289	0.0668
Flagged Outliers	1	1	1	1
$ z > 3.0$	11	0	2	1
$2 < z < 3$	1	1	0	0
Failure Rate %*	4.5			

Methods Used

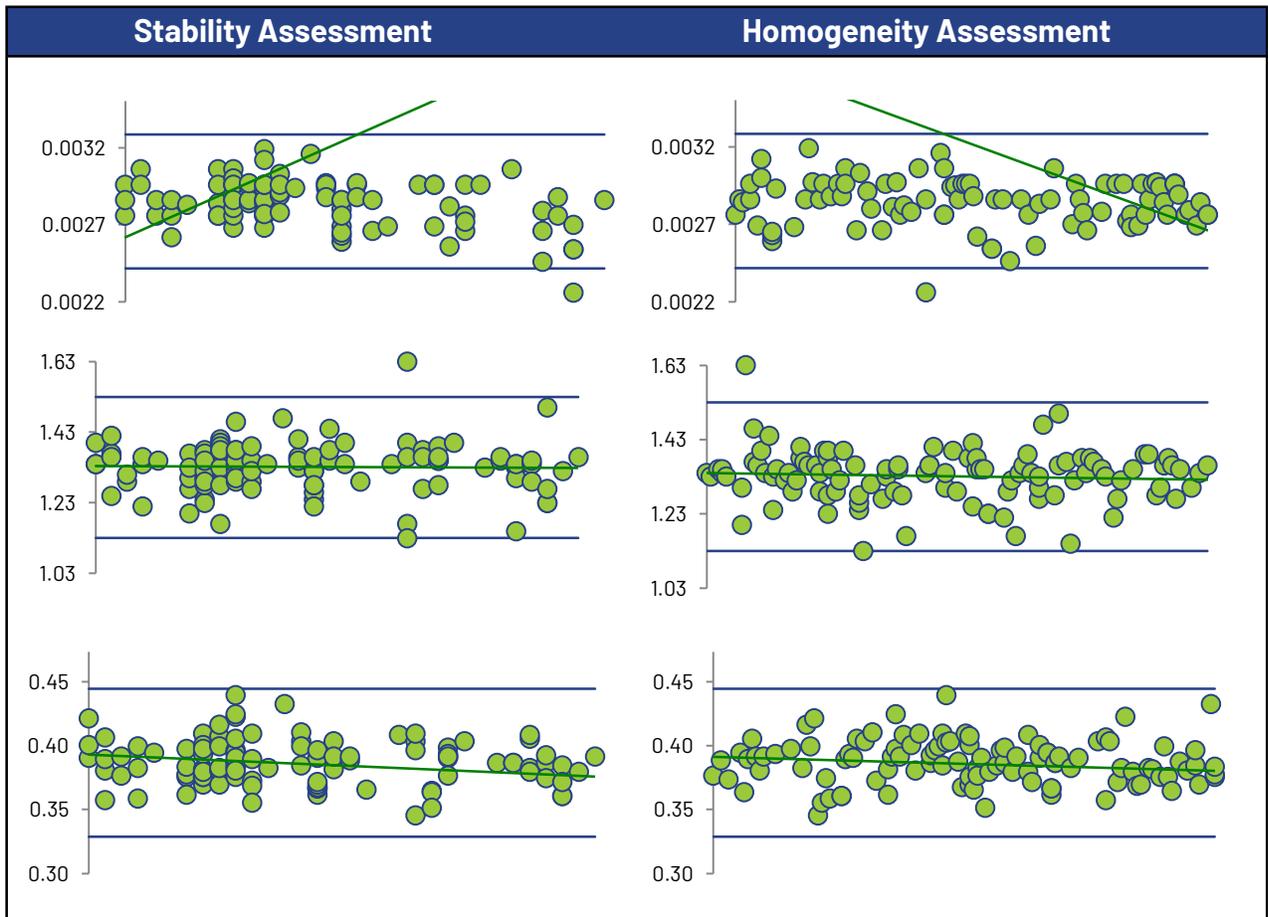
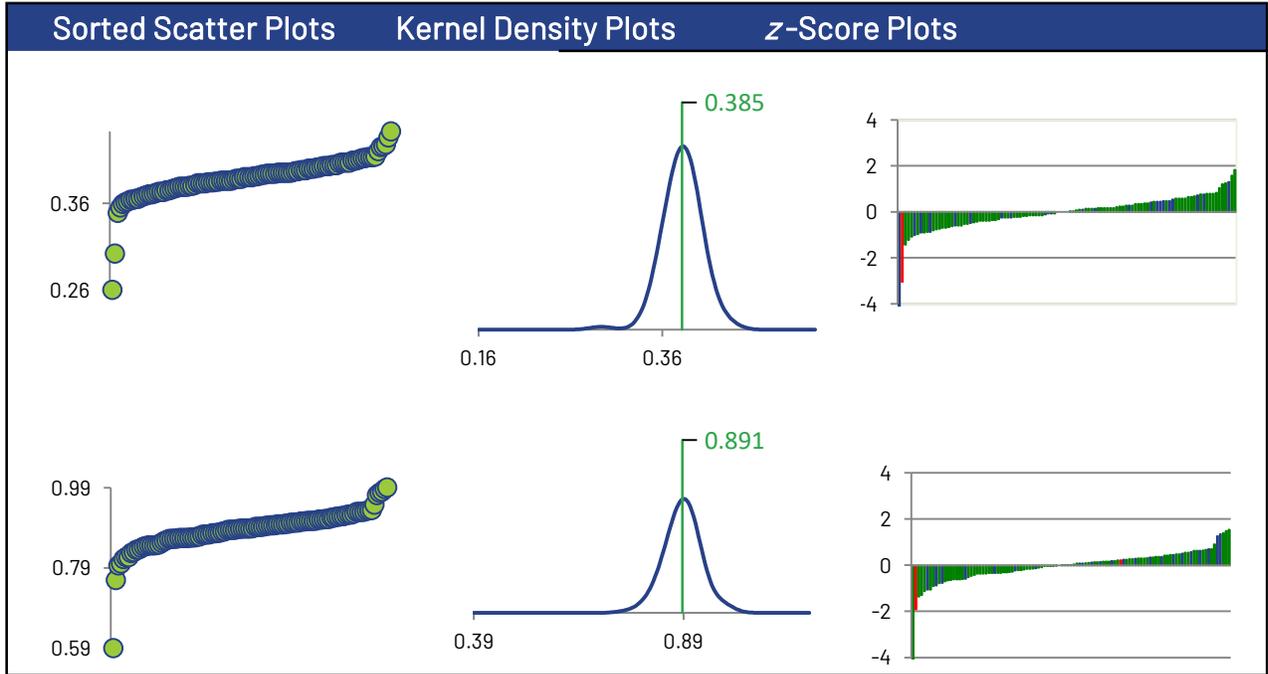
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	18	24	24	24
AA FLAME (Red)	2	2	2	2
ICP/MS (Green)	83	83	83	83

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

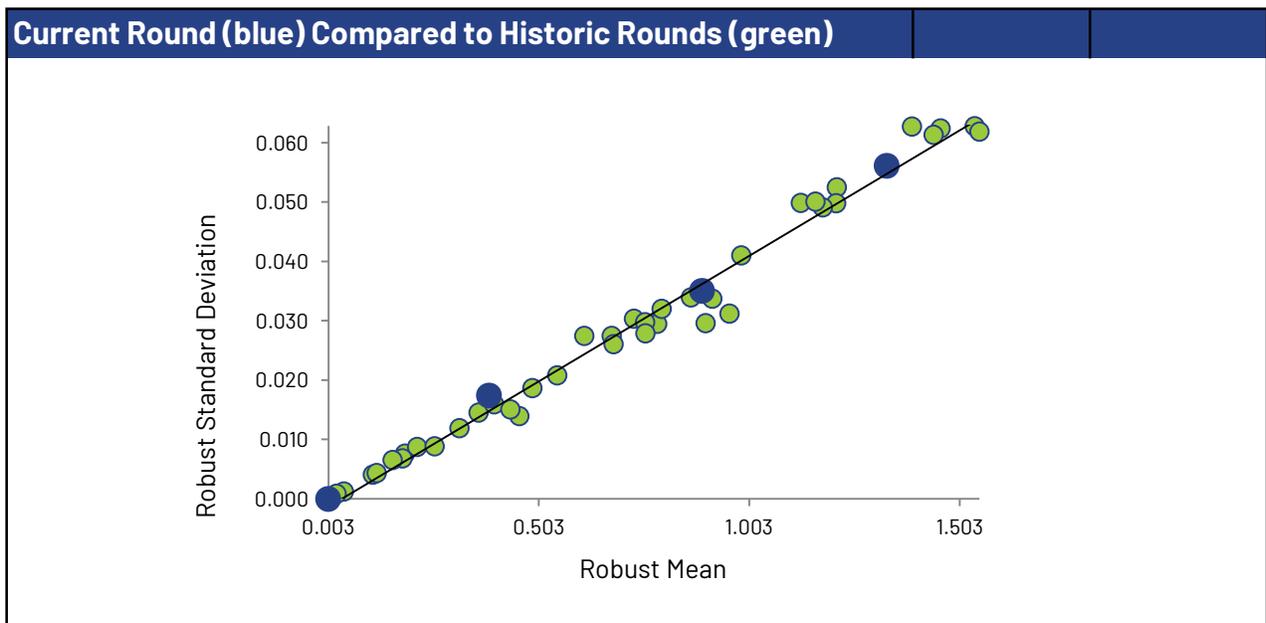
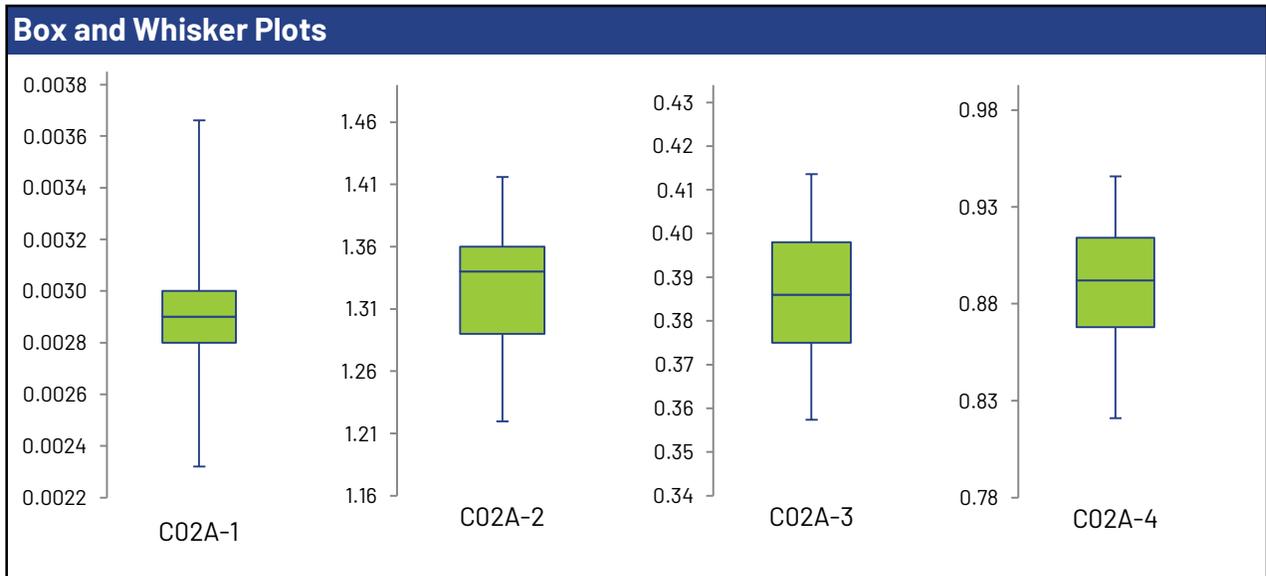
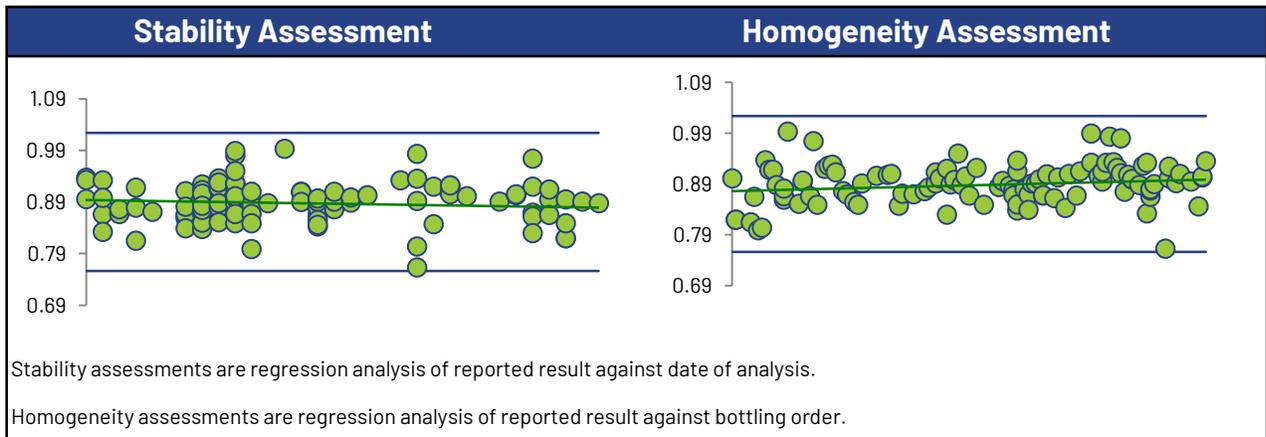


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Cobalt



Cobalt



Copper

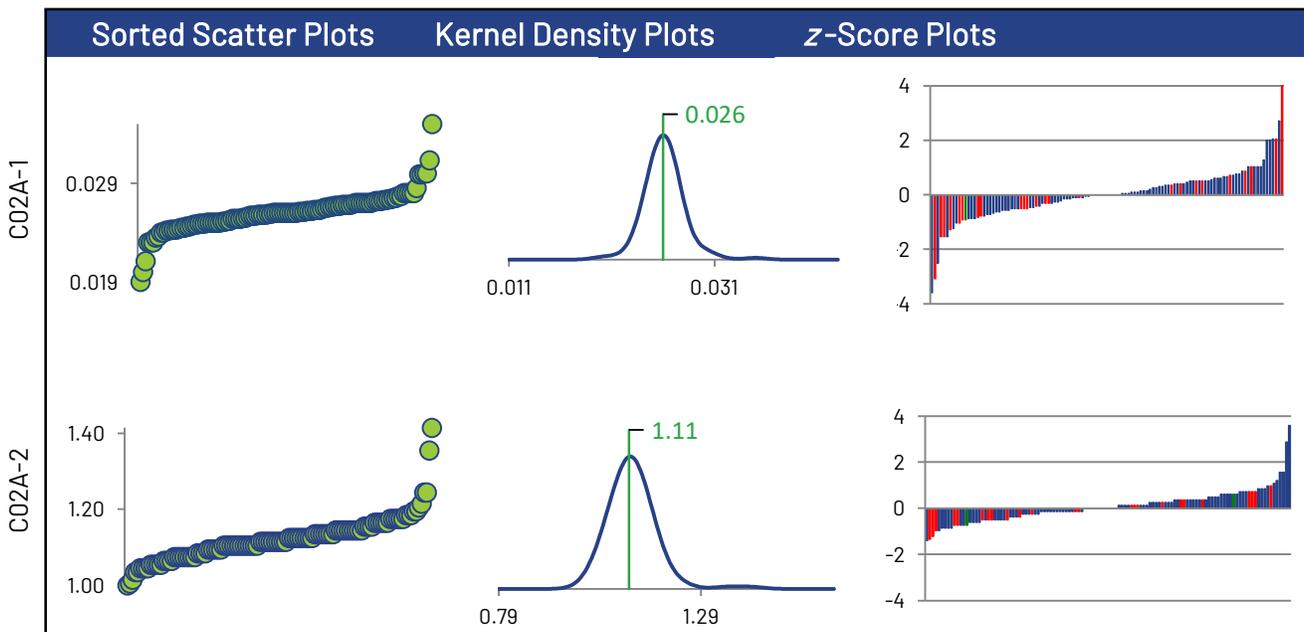
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	115	118	118	118
Median µg/L	0.0260	1.11	0.254	0.571
Robust Mean µg/L	0.0260	1.11	0.253	0.569
Uncertainty of the Assigned Value µg/L	0.000166	0.00549	0.00140	0.00284
Robust Standard Deviation µg/L	0.00142	0.0477	0.0122	0.0247
Regression Standard Deviation µg/L	0.00195	0.0835	0.0190	0.0427
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00195	0.0835	0.0190	0.0427
Flagged Outliers	3	1	1	1
$ z > 3.0$	3	1	0	1
$2 < z < 3$	4	1	1	3
Failure Rate %*	5.0			

Methods Used

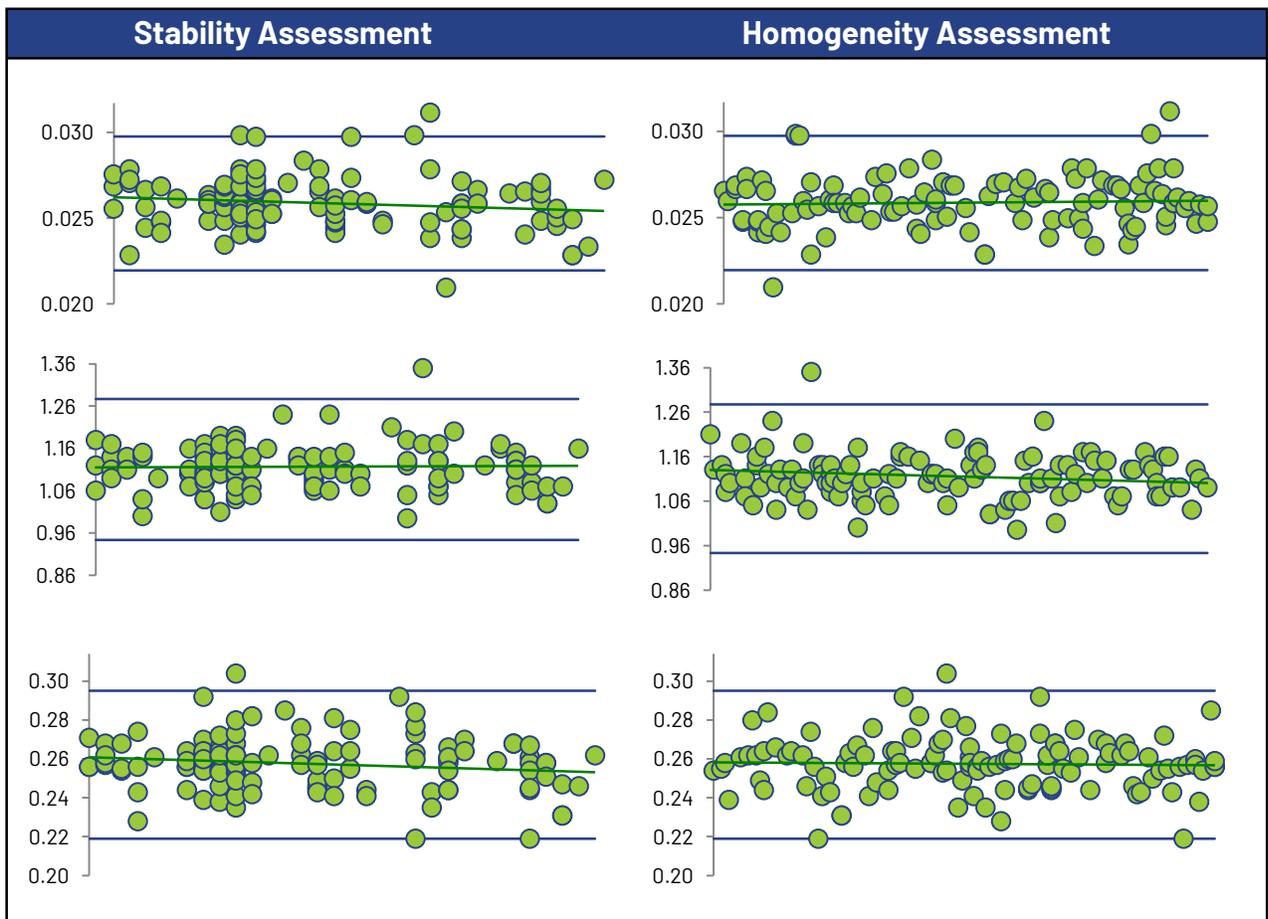
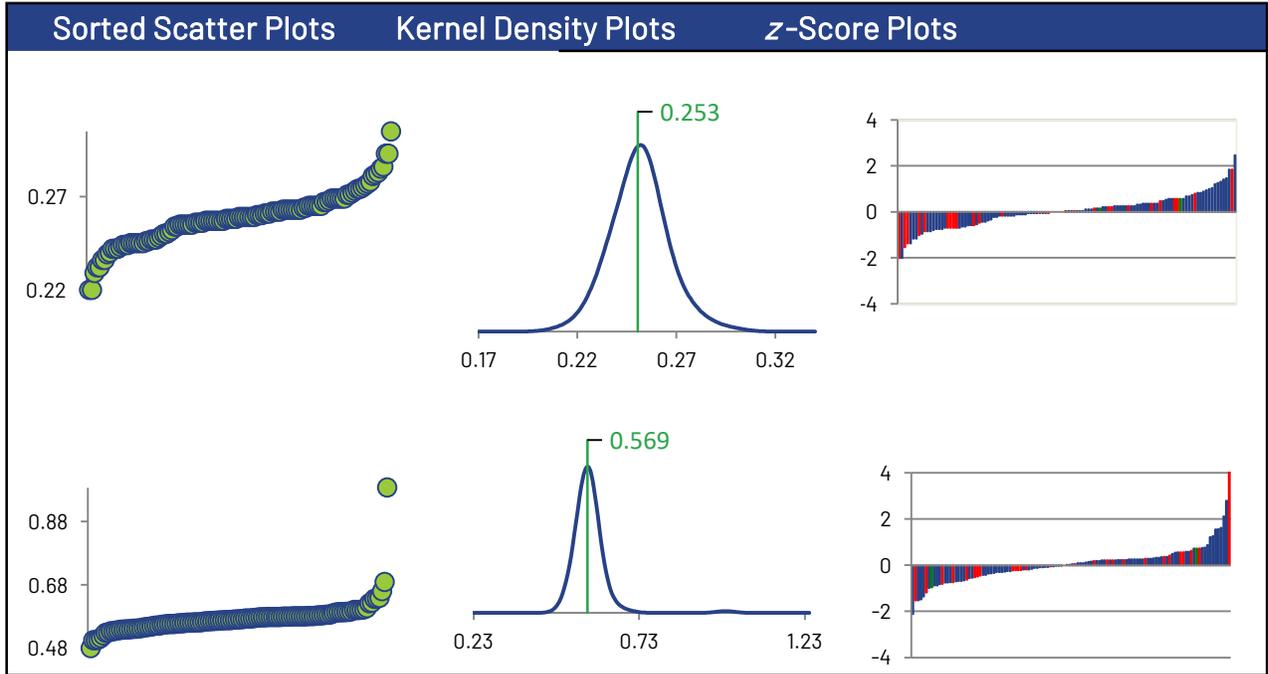
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	87	88	88	88
ICP/OES (Red)	27	28	28	28
AA FLAME (Green)	1	2	2	2

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

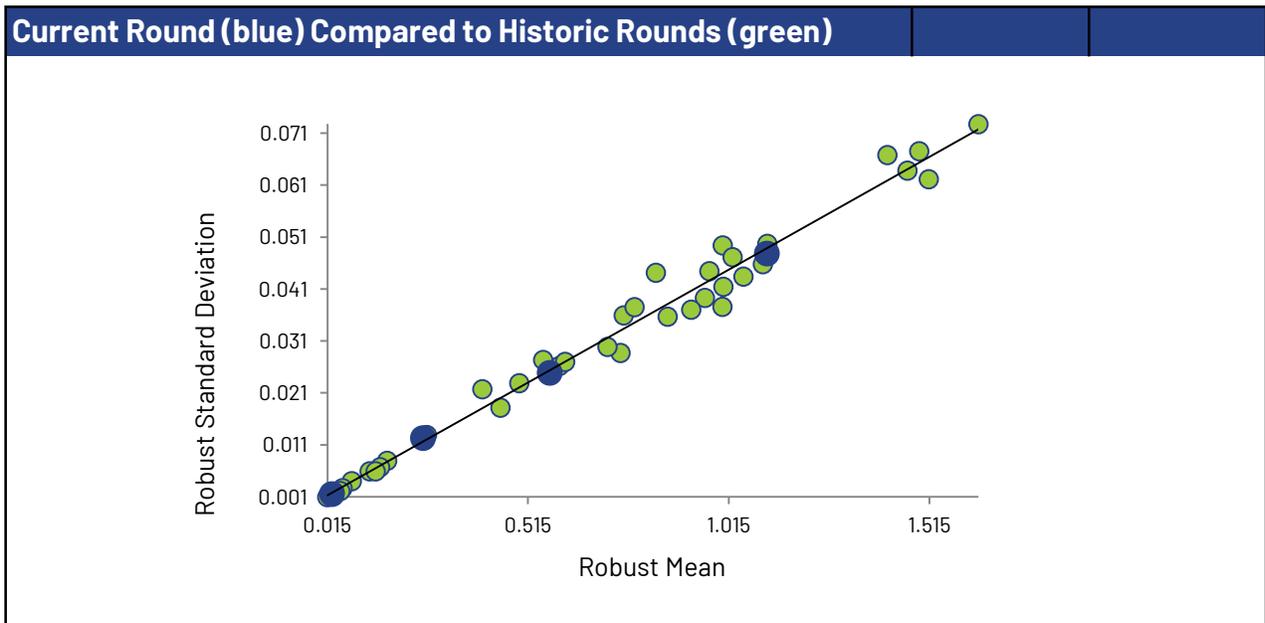
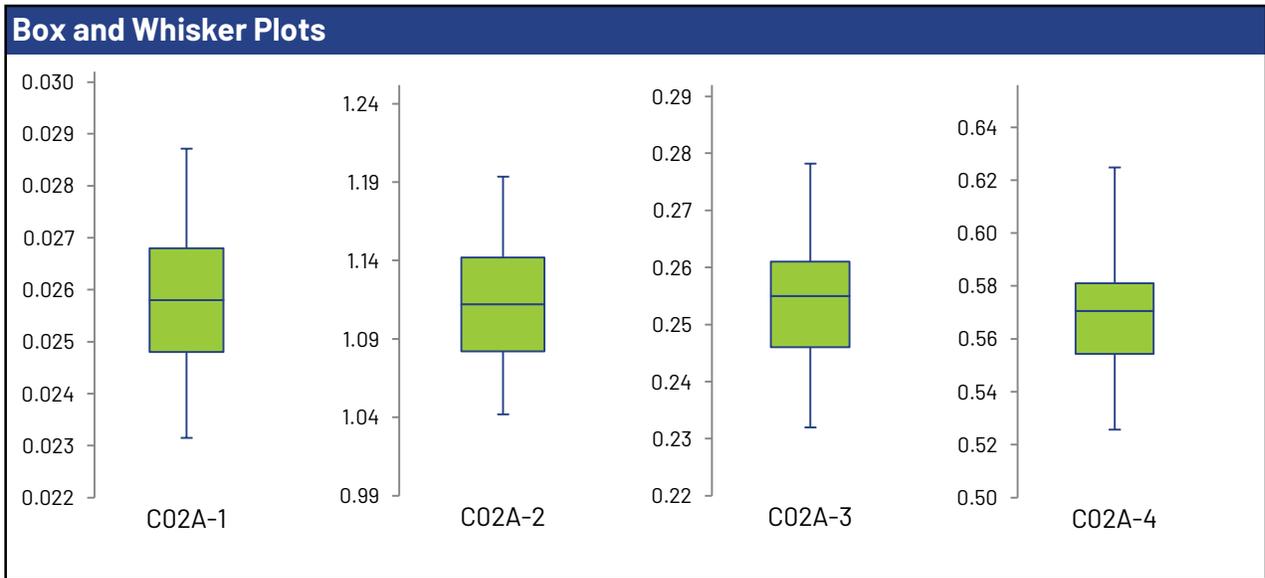
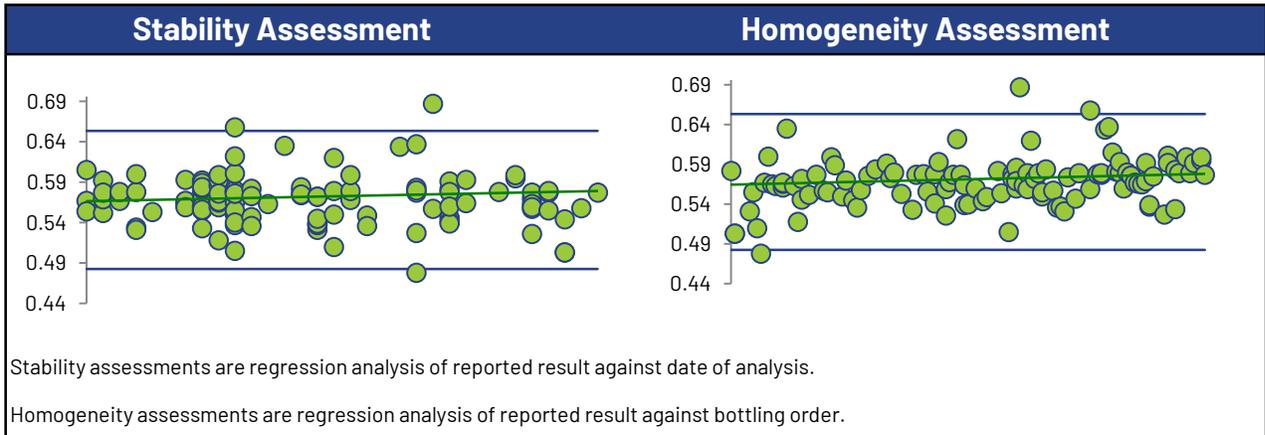


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Copper



Copper



Iron

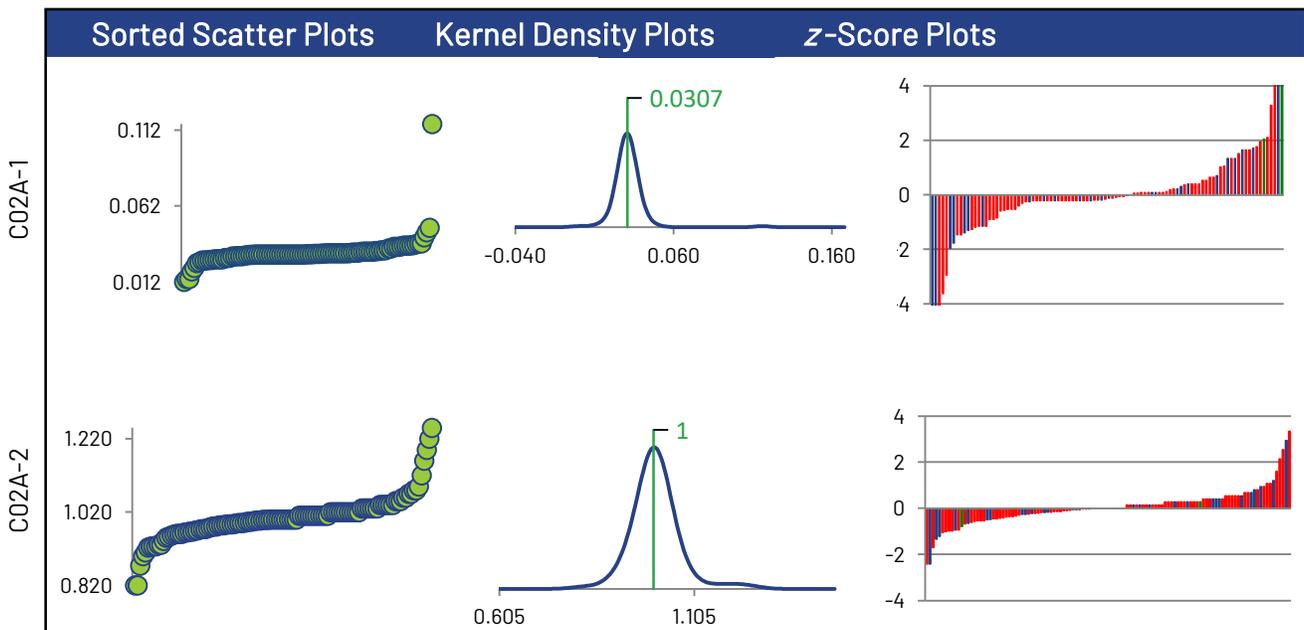
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	98	115	115	115
Median µg/L	0.0303	1.00	0.214	0.494
Robust Mean µg/L	0.0307	1.00	0.213	0.493
Uncertainty of the Assigned Value µg/L	0.000407	0.00458	0.00148	0.00255
Robust Standard Deviation µg/L	0.00322	0.0393	0.0127	0.0219
Regression Standard Deviation µg/L	0.00230	0.0751	0.0160	0.0370
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00322	0.0751	0.0160	0.0370
Flagged Outliers	1	1	1	1
$ z > 3.0$	8	1	1	1
$2 < z < 3$	3	5	6	4
Failure Rate %*	4.3			

Methods Used

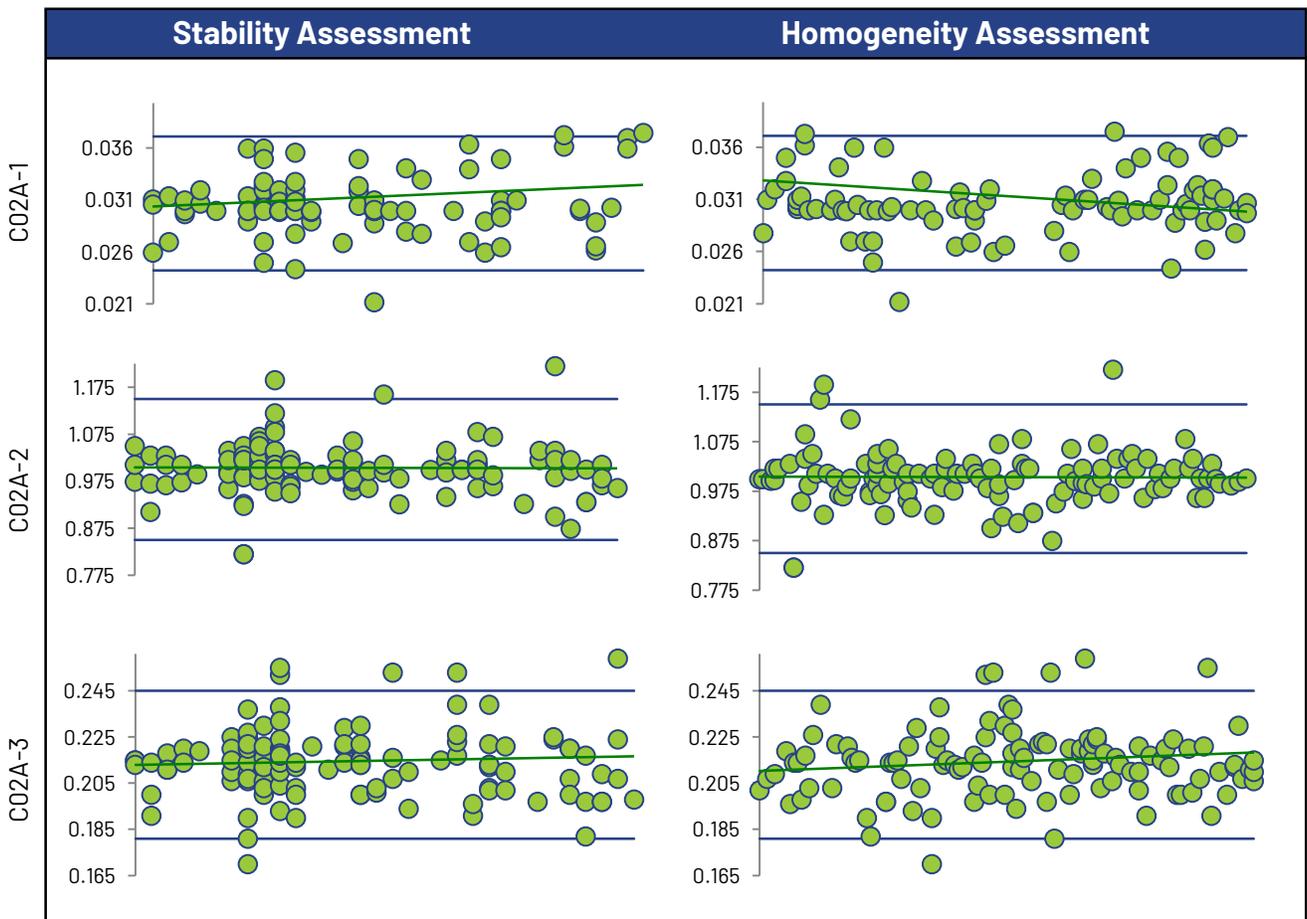
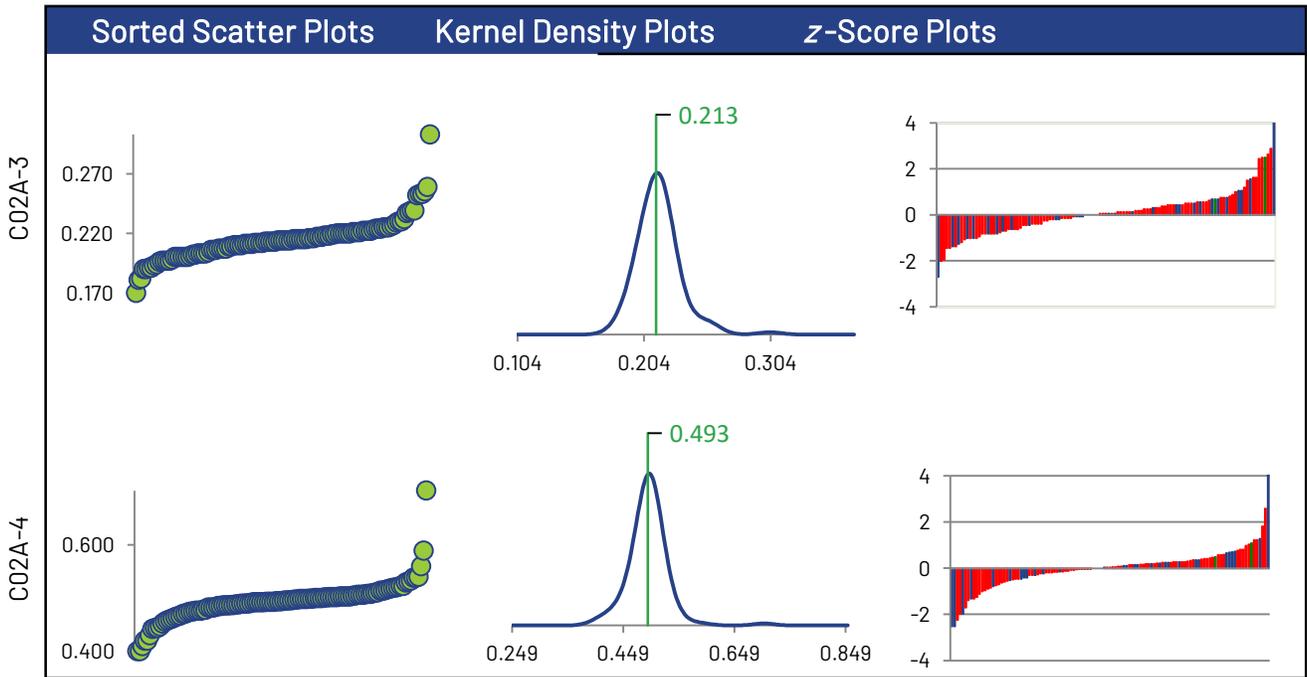
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	25	31	31	31
ICP/MS (Red)	71	82	82	82
AA FLAME (Green)	2	2	2	2

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

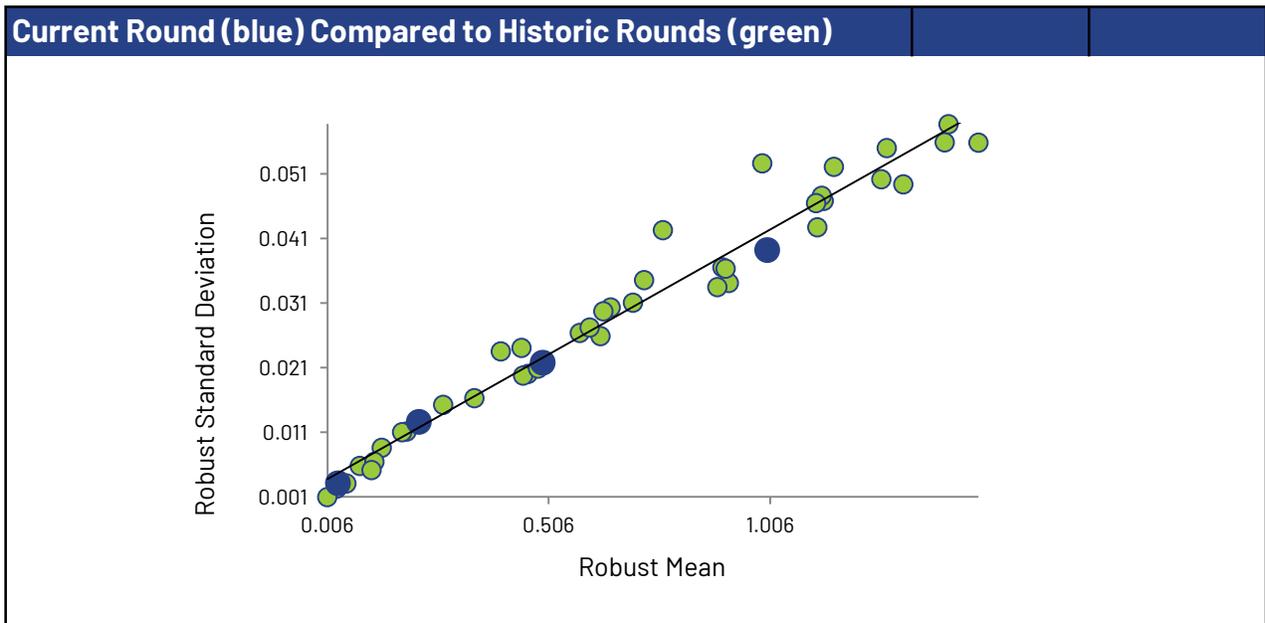
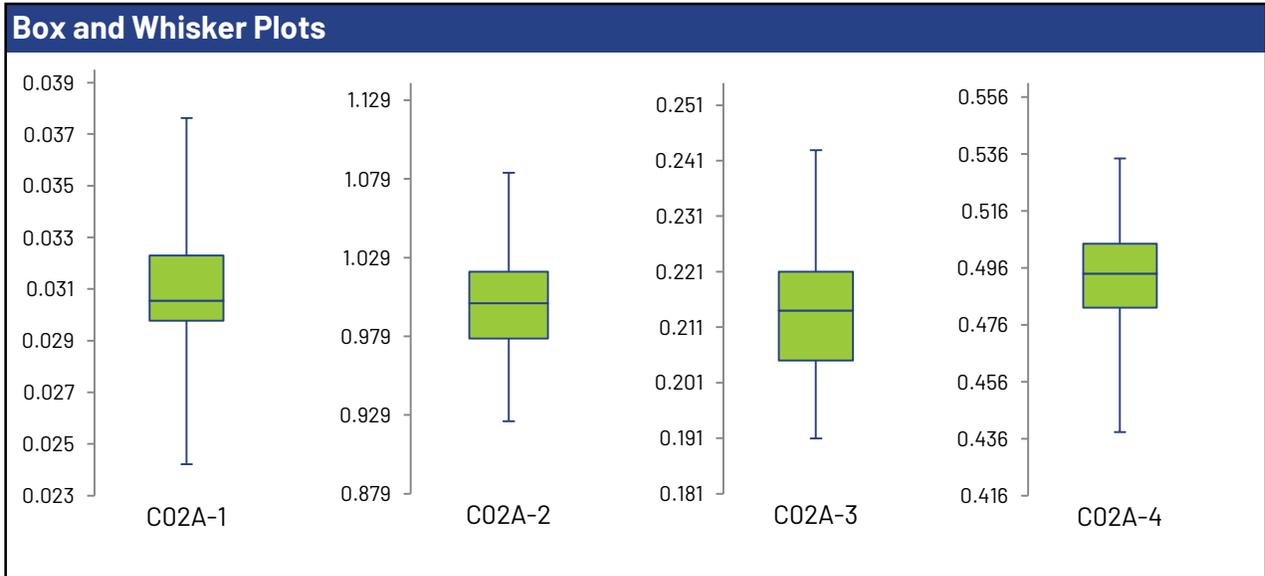
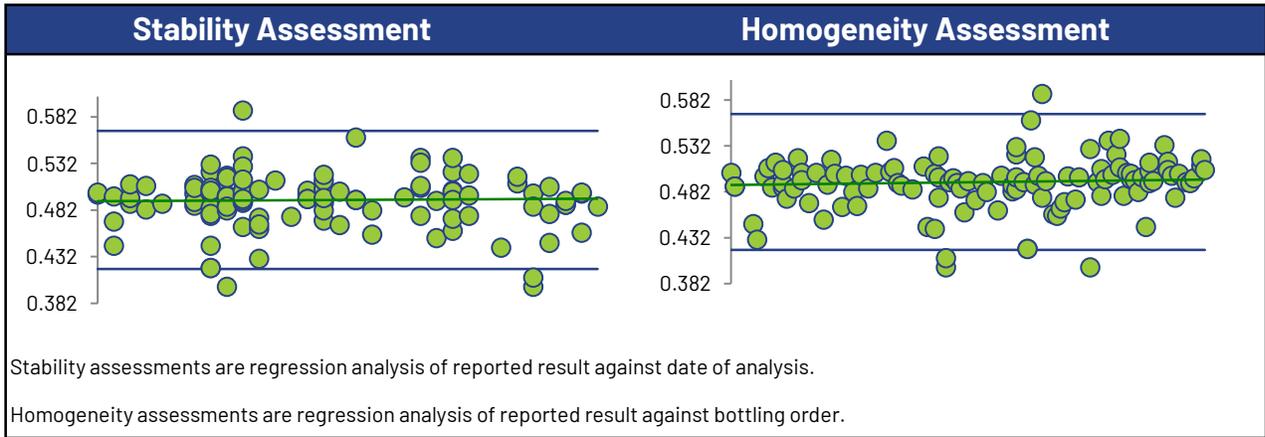


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Iron



Iron



Lead

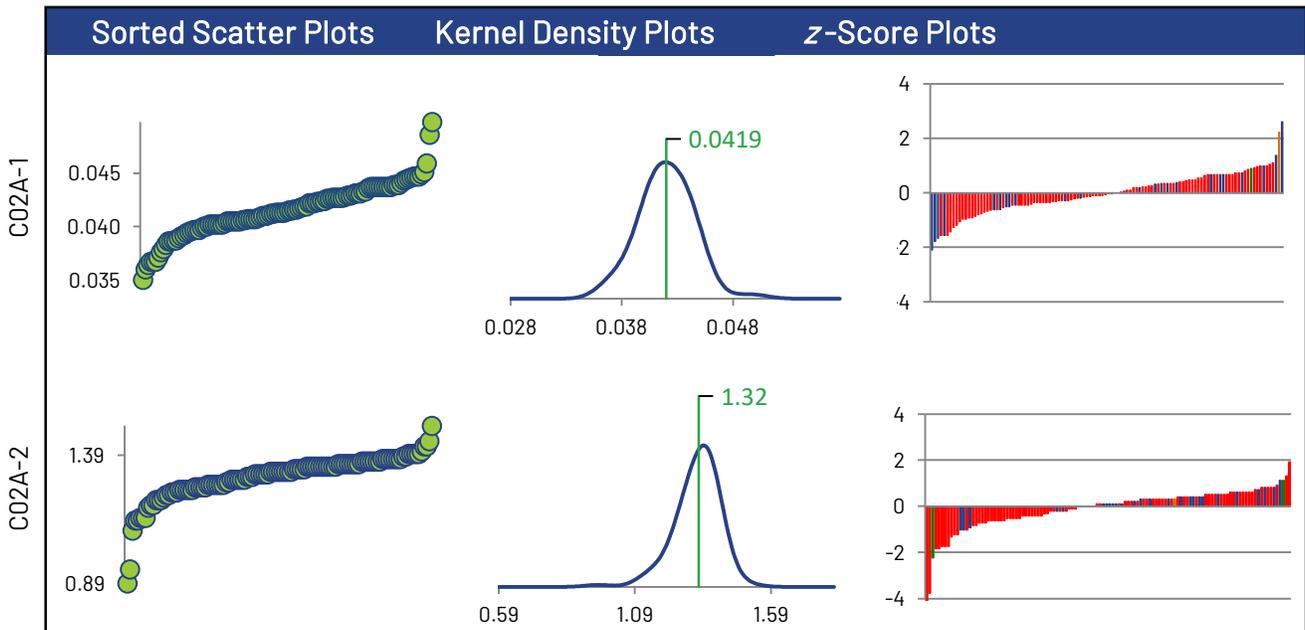
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	114	118	118	118
Median µg/L	0.0418	1.33	0.309	0.879
Robust Mean µg/L	0.0419	1.32	0.308	0.875
Uncertainty of the Assigned Value µg/L	0.000263	0.00750	0.00167	0.00449
Robust Standard Deviation µg/L	0.00225	0.0652	0.0145	0.0390
Regression Standard Deviation µg/L	0.00314	0.0989	0.0231	0.0656
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00314	0.0989	0.0231	0.0656
Flagged Outliers	5	3	3	3
z >3.0	0	2	2	4
2< z <3	3	1	2	0
Failure Rate %*	7.4			

Methods Used

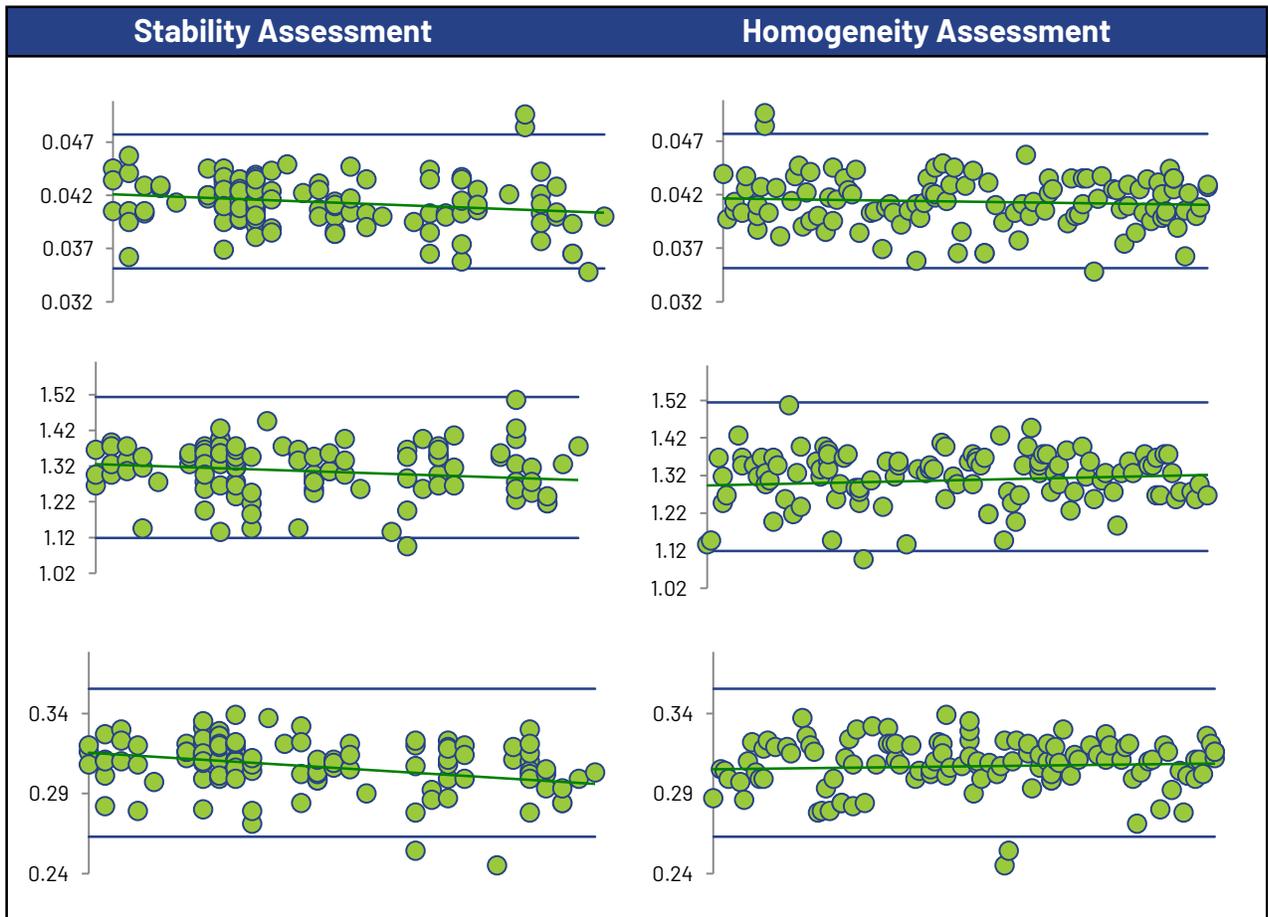
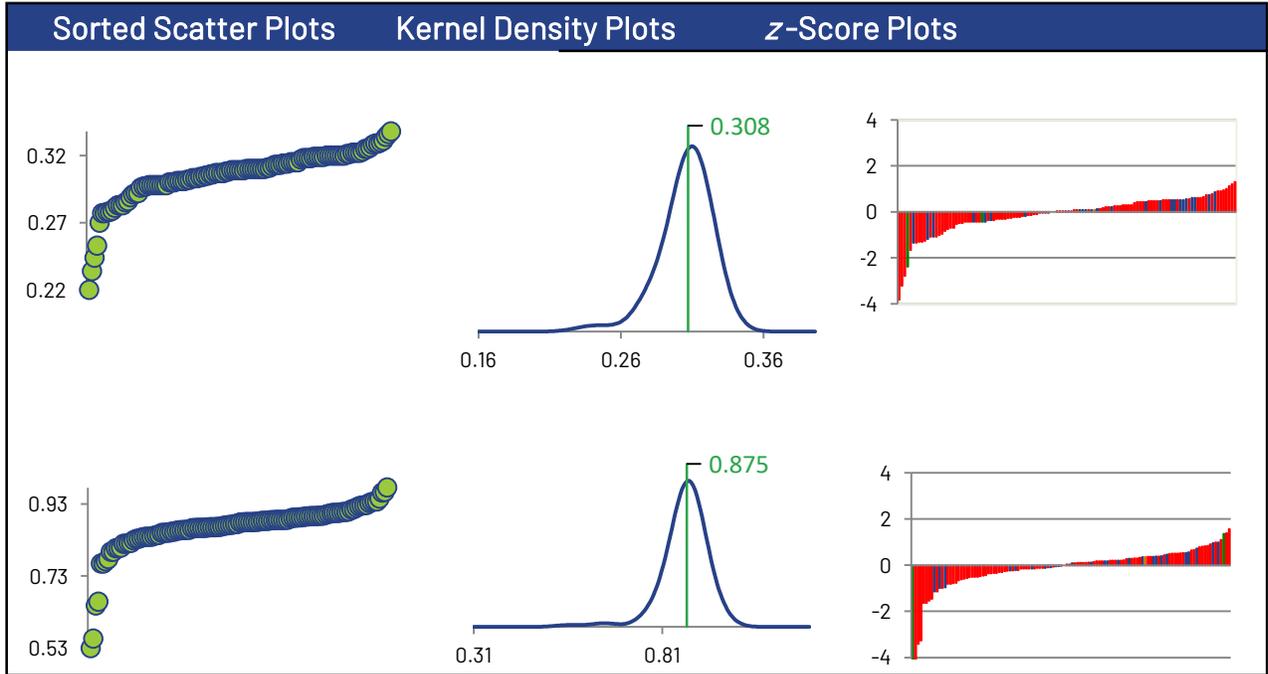
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	24	27	27	27
ICP/MS (Red)	88	88	88	88
AA GRAPHITE (Green)	1	2	2	2
AA FLAME (Orange)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

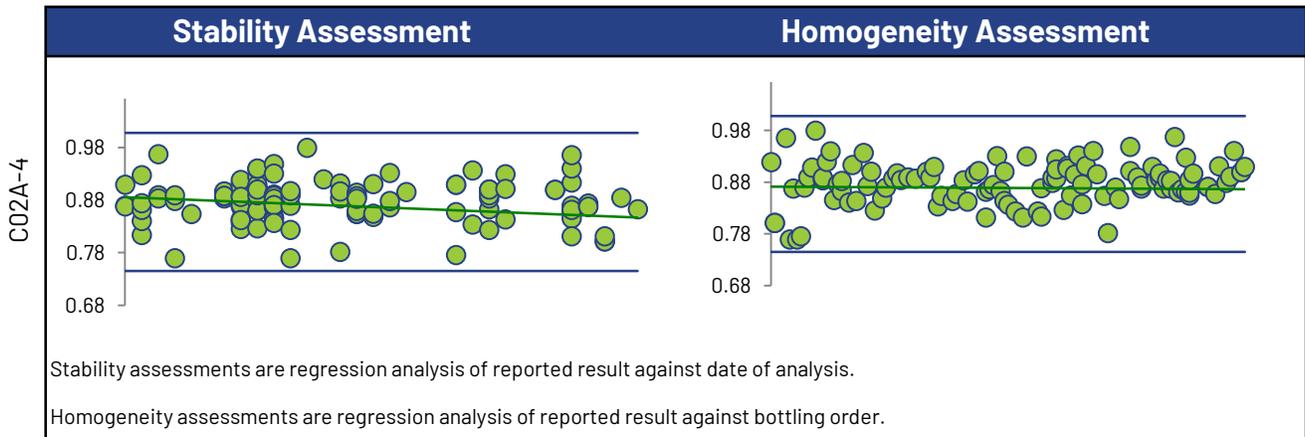


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

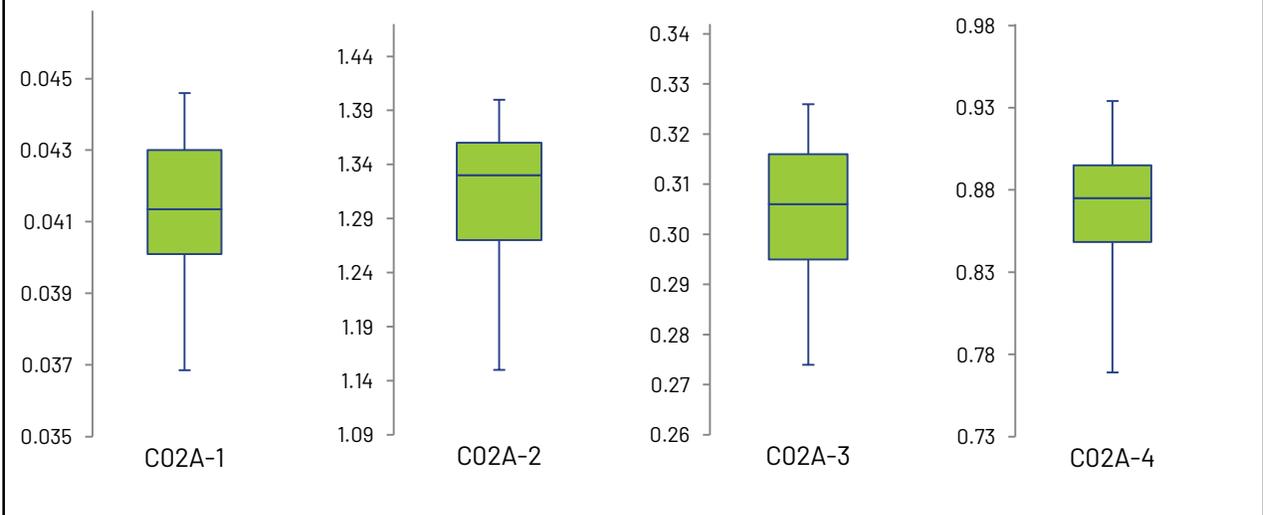
Lead



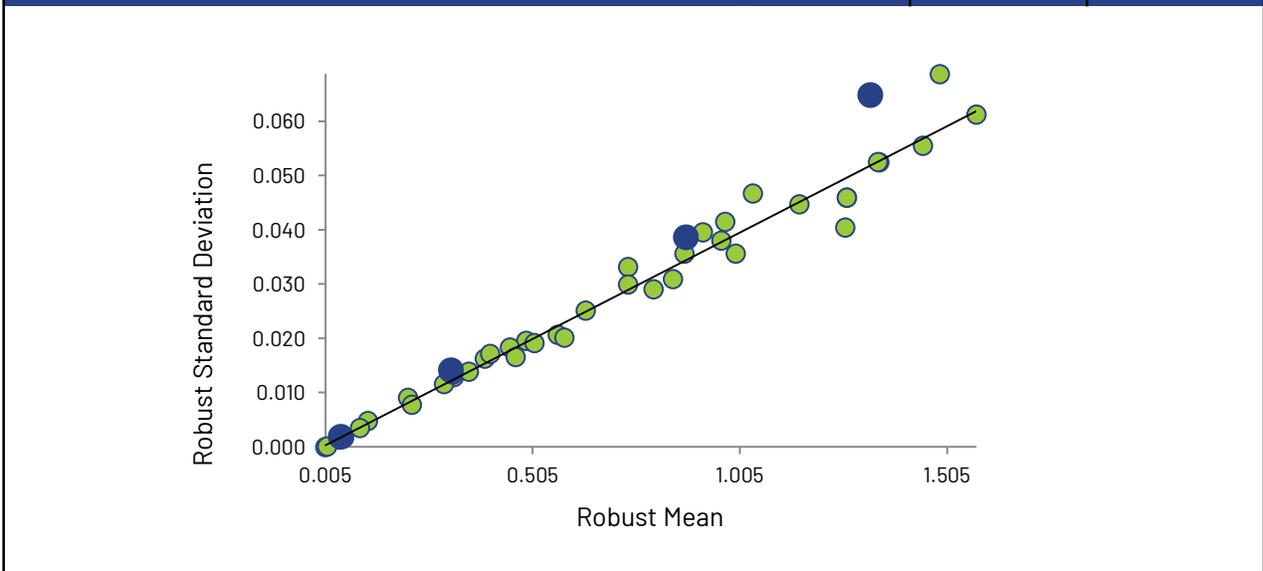
Lead



Box and Whisker Plots



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



Lithium

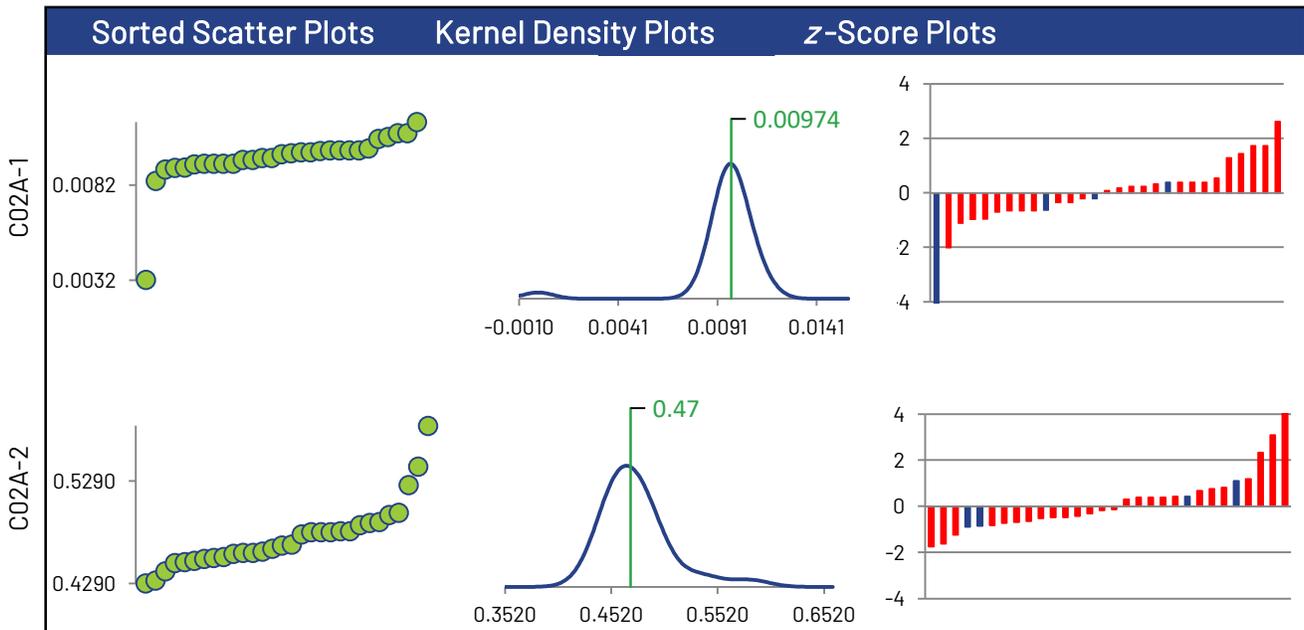
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	29	30	31	31
Median µg/L	0.00980	0.467	0.198	0.368
Robust Mean µg/L	0.00974	0.470	0.199	0.370
Uncertainty of the Assigned Value µg/L	0.000155	0.00539	0.00242	0.00449
Robust Standard Deviation µg/L	0.000668	0.0236	0.0108	0.0200
Regression Standard Deviation µg/L				
Stability Flag				
Homogeneity Flag			Homogeneity	
Standard Deviation Used (SDPA) µg/L	0.000668	0.0236	0.0143	0.0200
Flagged Outliers	0	1	0	0
z >3.0	1	2	0	0
2< z <3	2	1	0	2
Failure Rate %*	9.7			

Methods Used

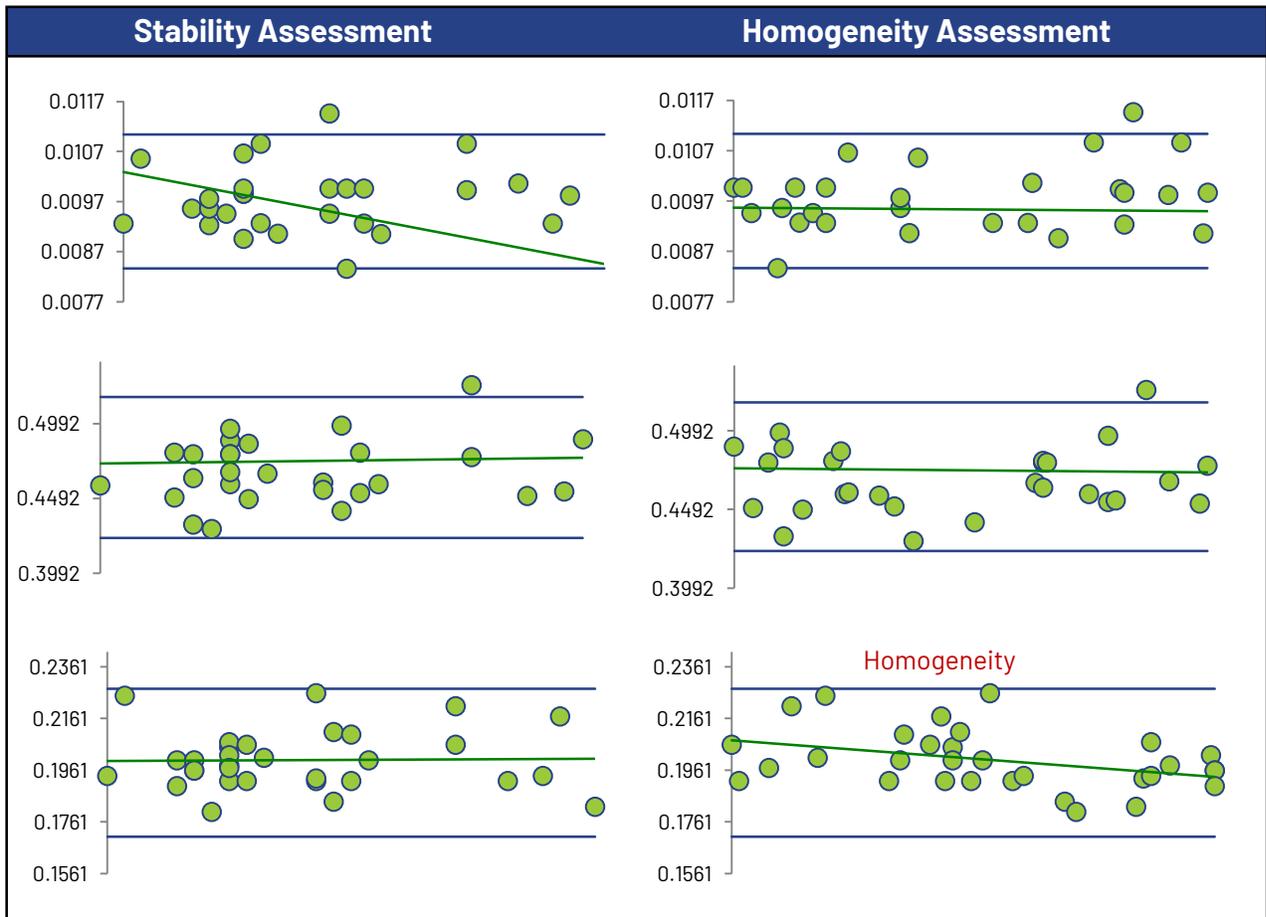
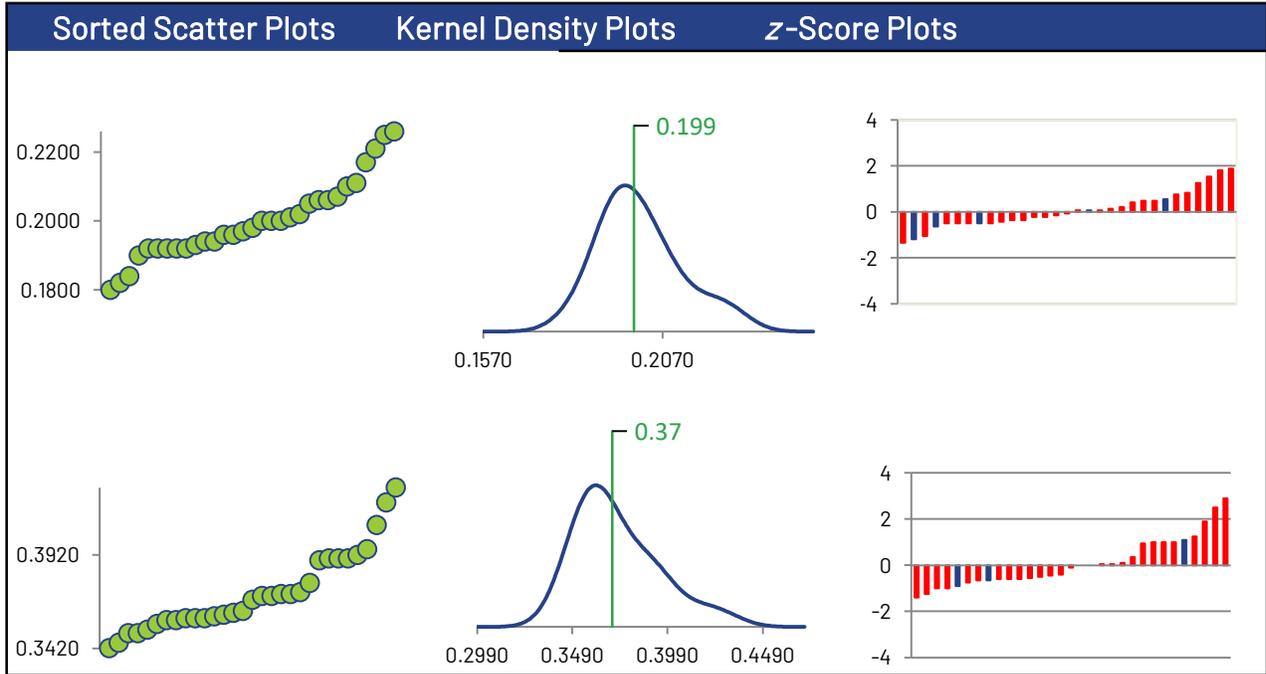
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	4	4	5	5
ICP/MS (Red)	25	26	26	26

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

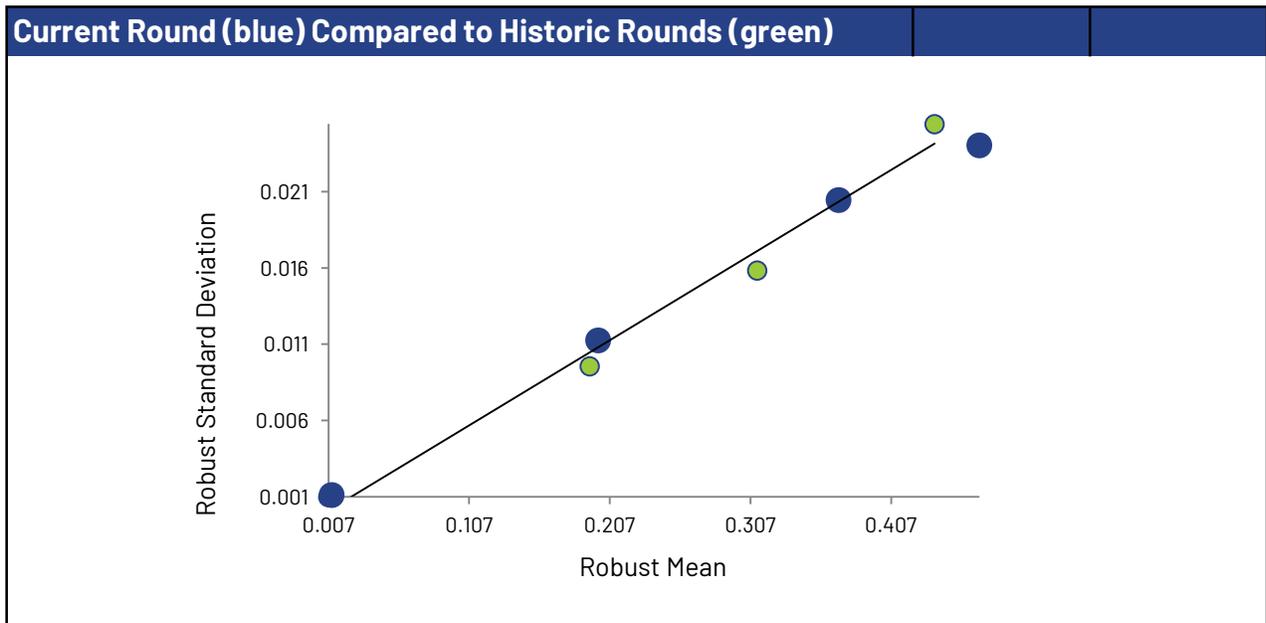
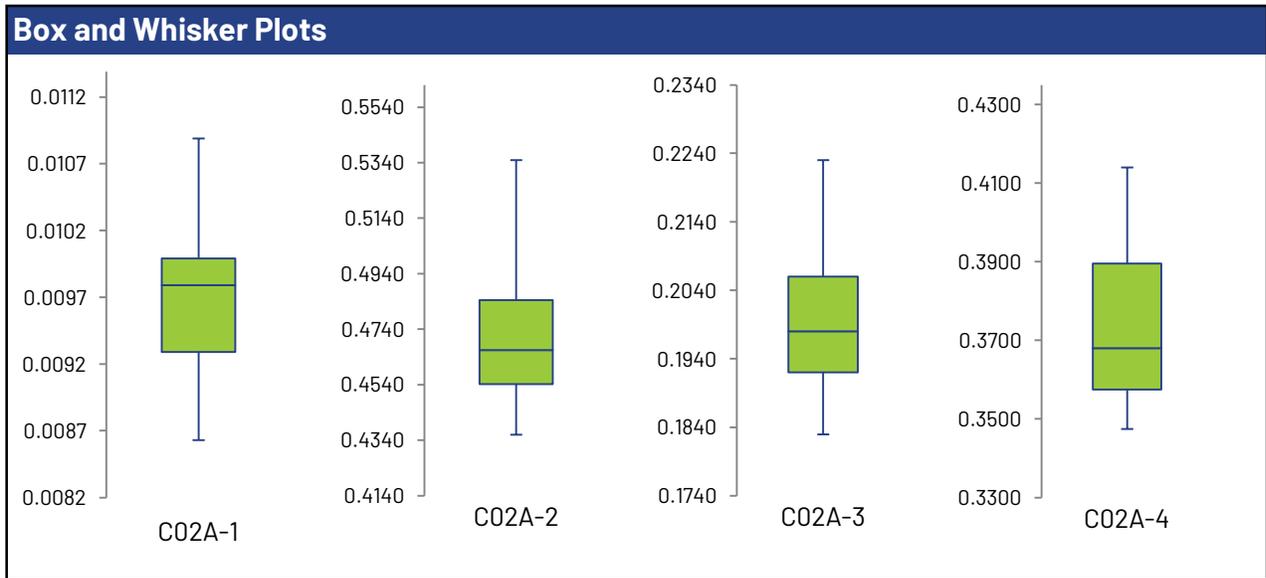
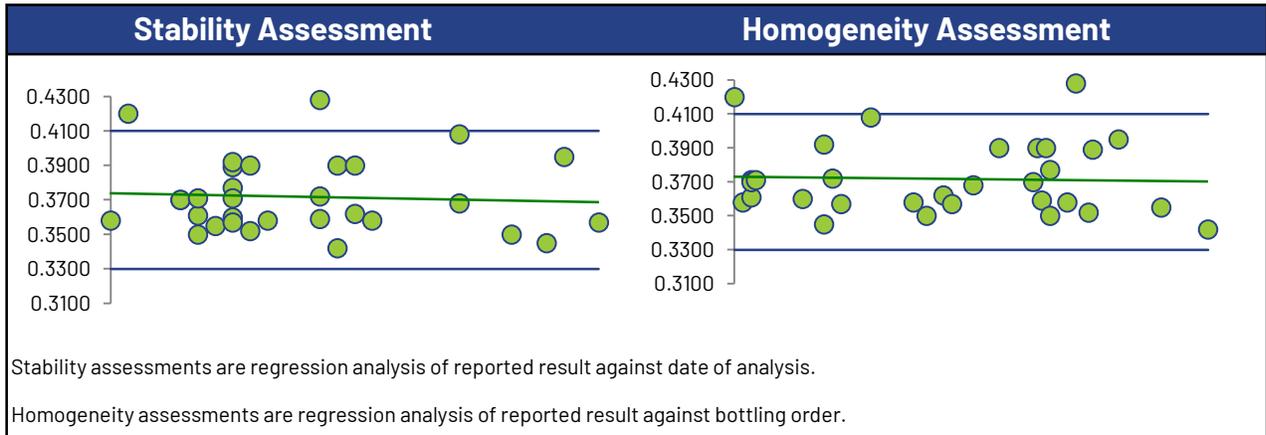


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Lithium



Lithium



Manganese

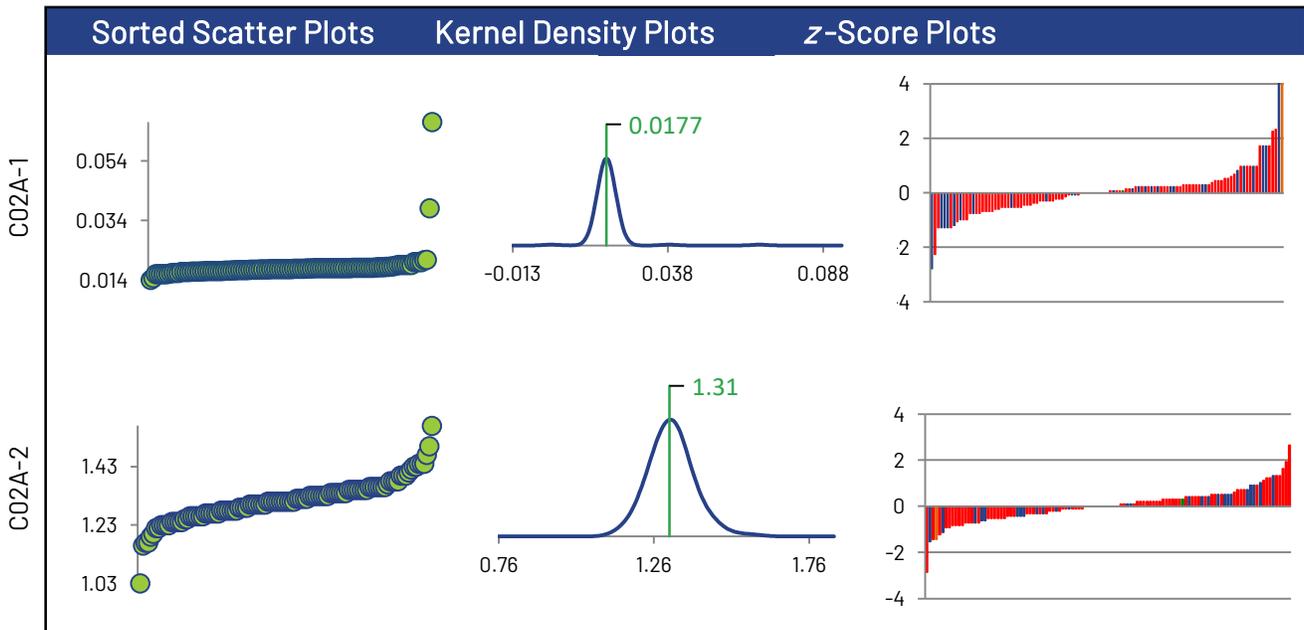
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	111	113	111	112
Median µg/L	0.0177	1.31	0.0991	0.416
Robust Mean µg/L	0.0177	1.31	0.0989	0.416
Uncertainty of the Assigned Value µg/L	0.000106	0.00728	0.000556	0.00243
Robust Standard Deviation µg/L	0.000894	0.0619	0.00469	0.0206
Regression Standard Deviation µg/L	0.00133	0.0984	0.00742	0.0312
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00133	0.0984	0.00742	0.0312
Flagged Outliers	2	1	3	2
$ z > 3.0$	2	0	0	1
$2 < z < 3$	4	2	2	1
Failure Rate %*	5.3			

Methods Used

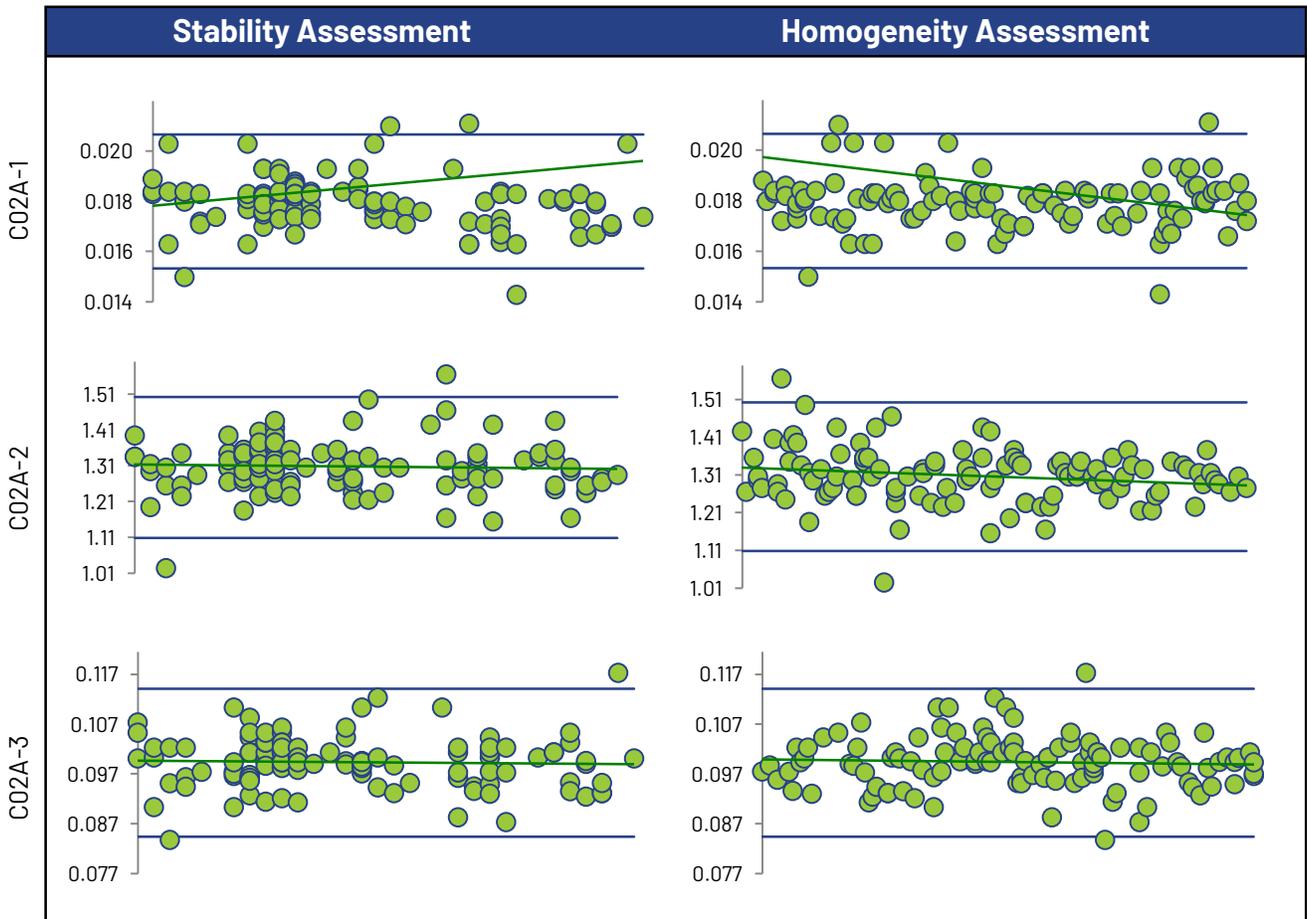
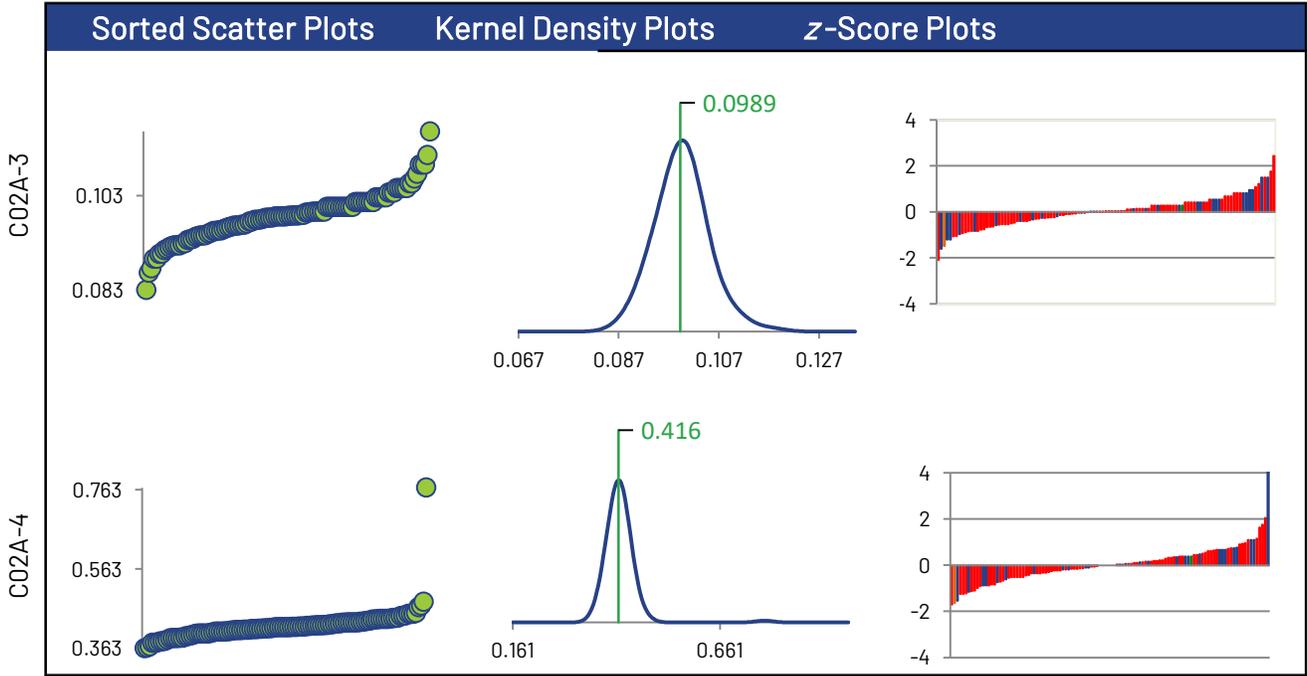
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	28	30	28	30
ICP/MS (Red)	81	81	81	80
AA FLAME (Green)	1	1	1	1
AA GRAPHITE (Orange)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

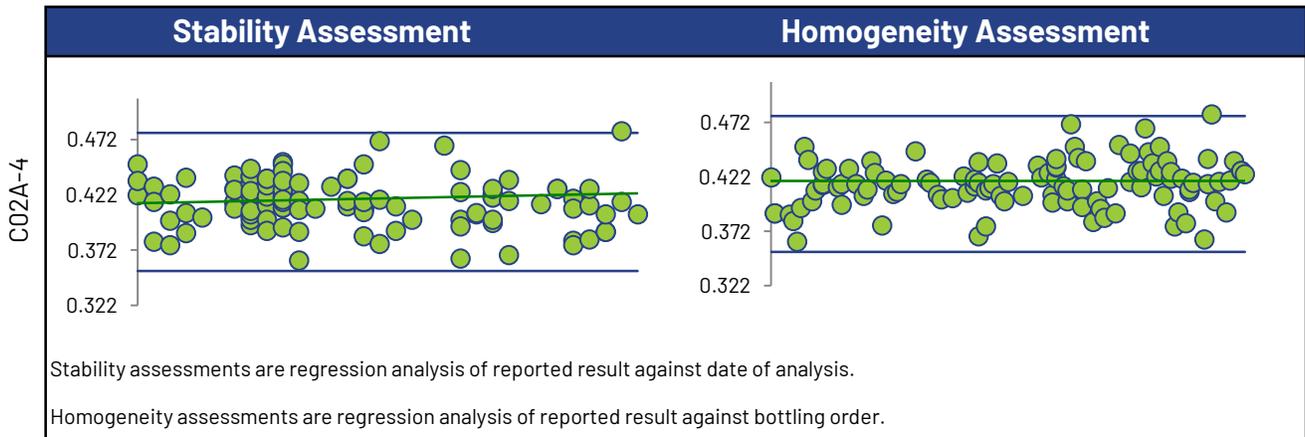


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

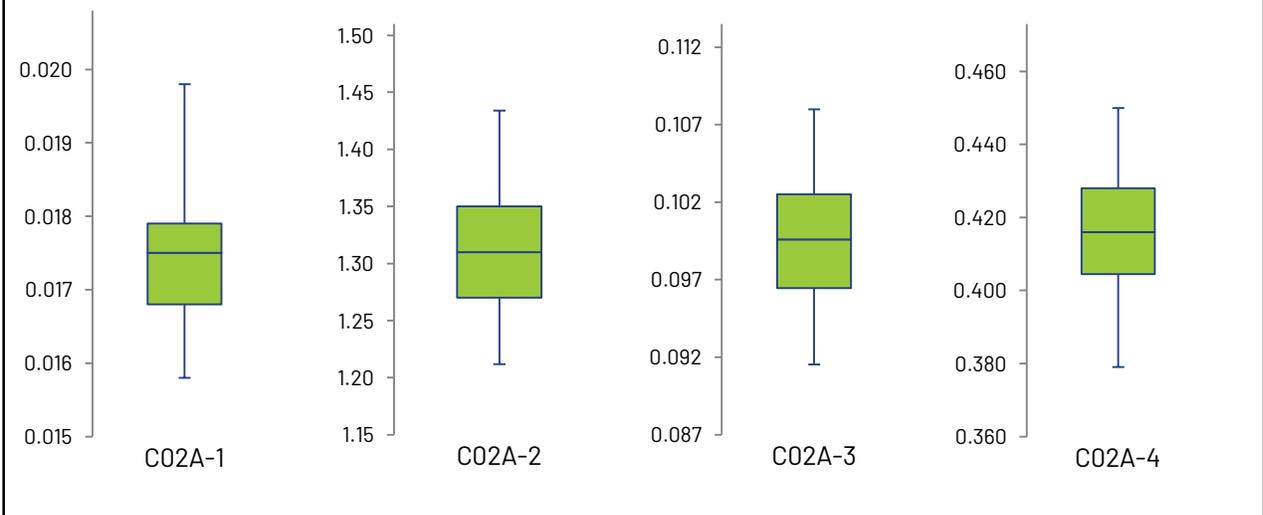
Manganese



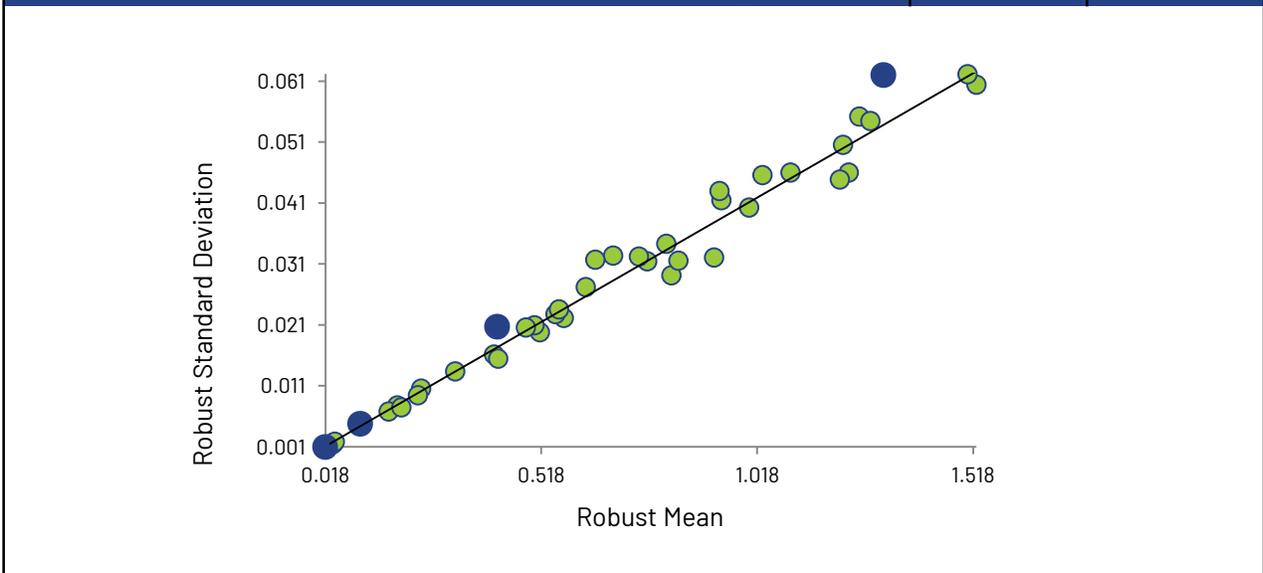
Manganese



Box and Whisker Plots



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



Molybdenum

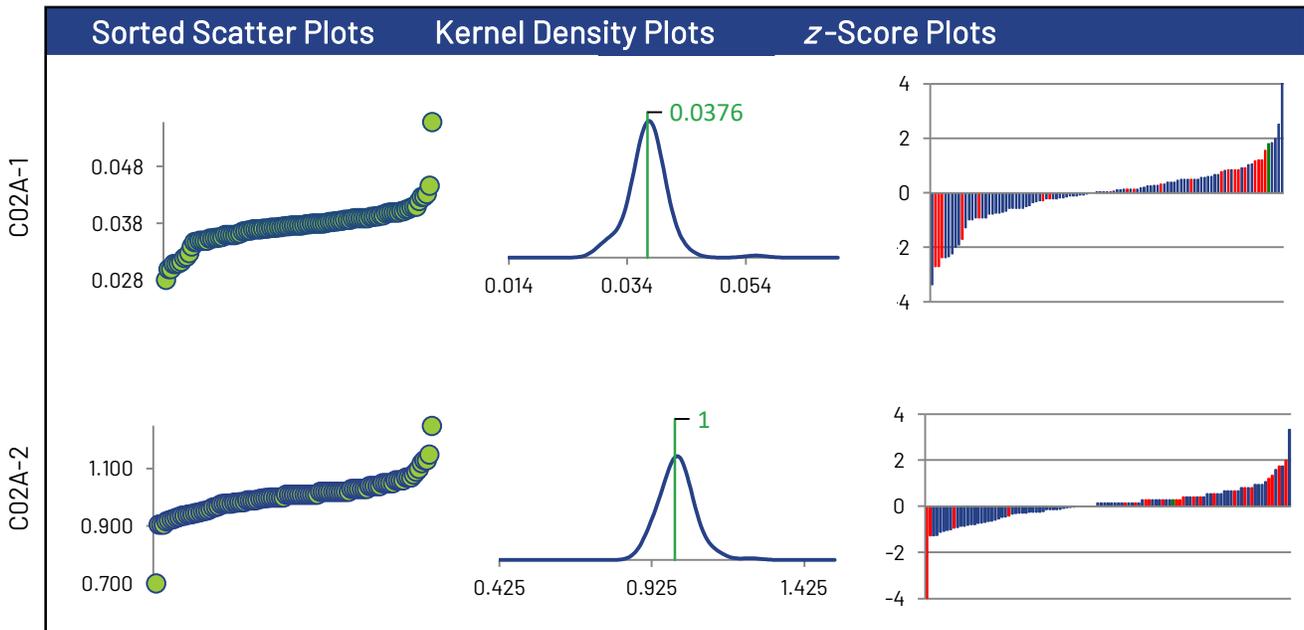
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	105	107	107	107
Median µg/L	0.0377	1.01	0.468	0.446
Robust Mean µg/L	0.0376	1.00	0.467	0.444
Uncertainty of the Assigned Value µg/L	0.000283	0.00595	0.00257	0.00205
Robust Standard Deviation µg/L	0.00232	0.0492	0.0213	0.0170
Regression Standard Deviation µg/L	0.00282	0.0753	0.0350	0.0333
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00282	0.0753	0.0350	0.0333
Flagged Outliers	3	2	2	2
$ z > 3.0$	2	2	1	2
$2 < z < 3$	7	0	1	1
Failure Rate %*	4.6			

Methods Used

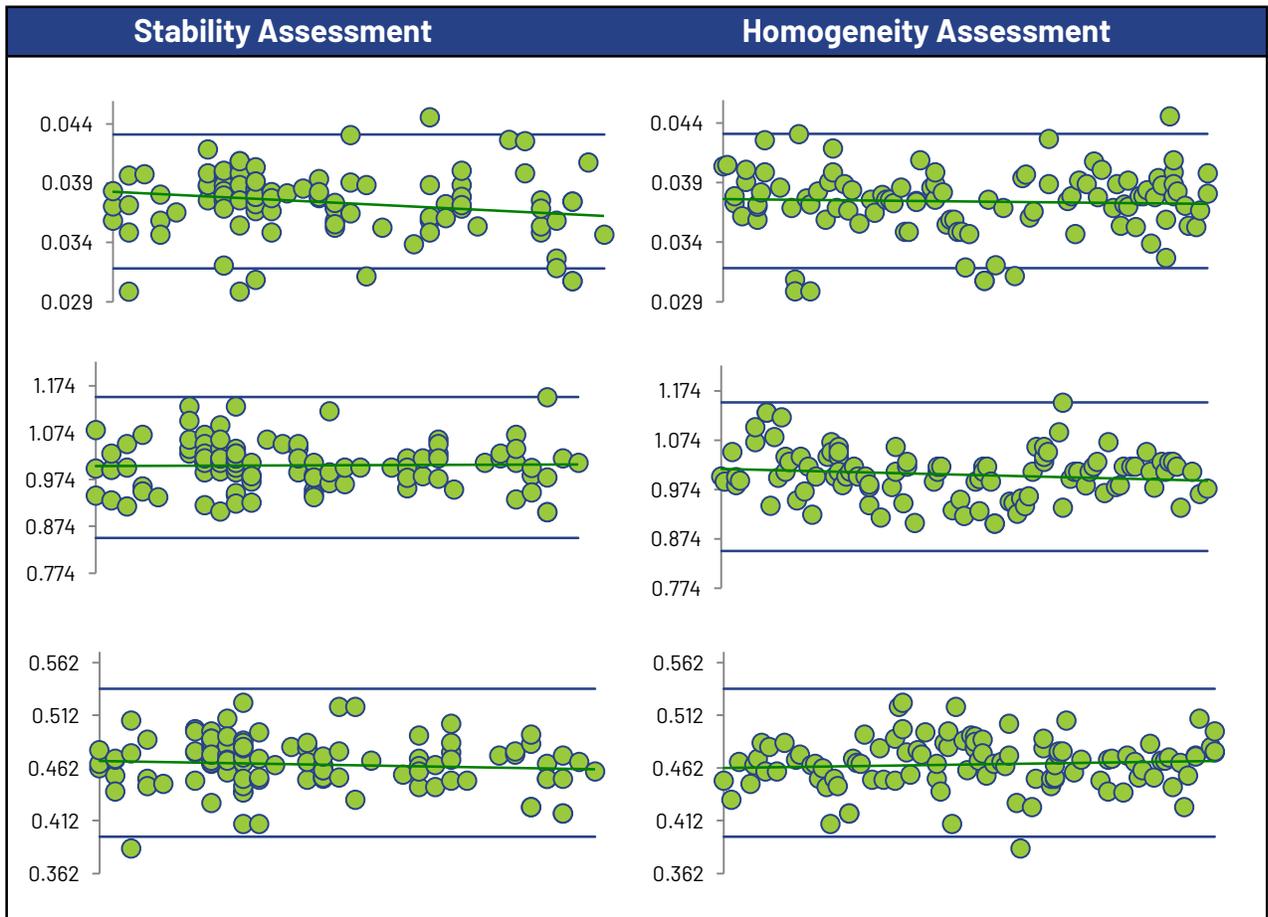
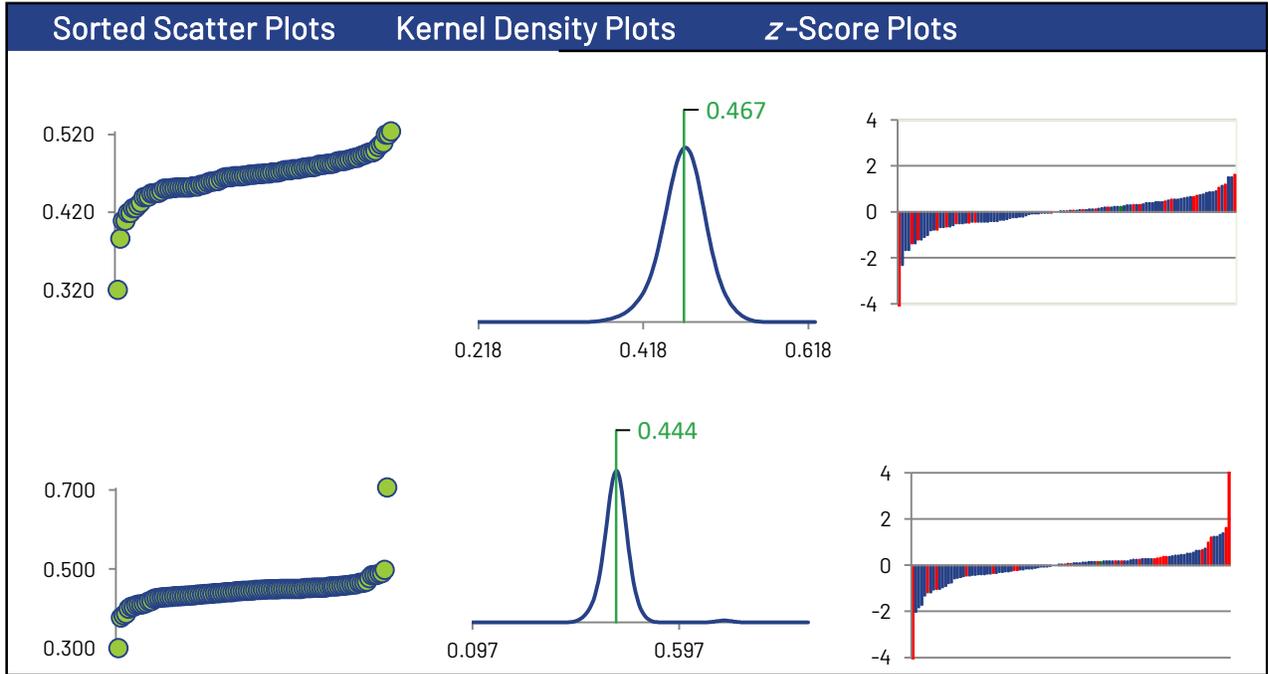
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	82	83	83	83
ICP/OES (Red)	22	23	23	23
AA FLAME (Green)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers



* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Molybdenum



Nickel

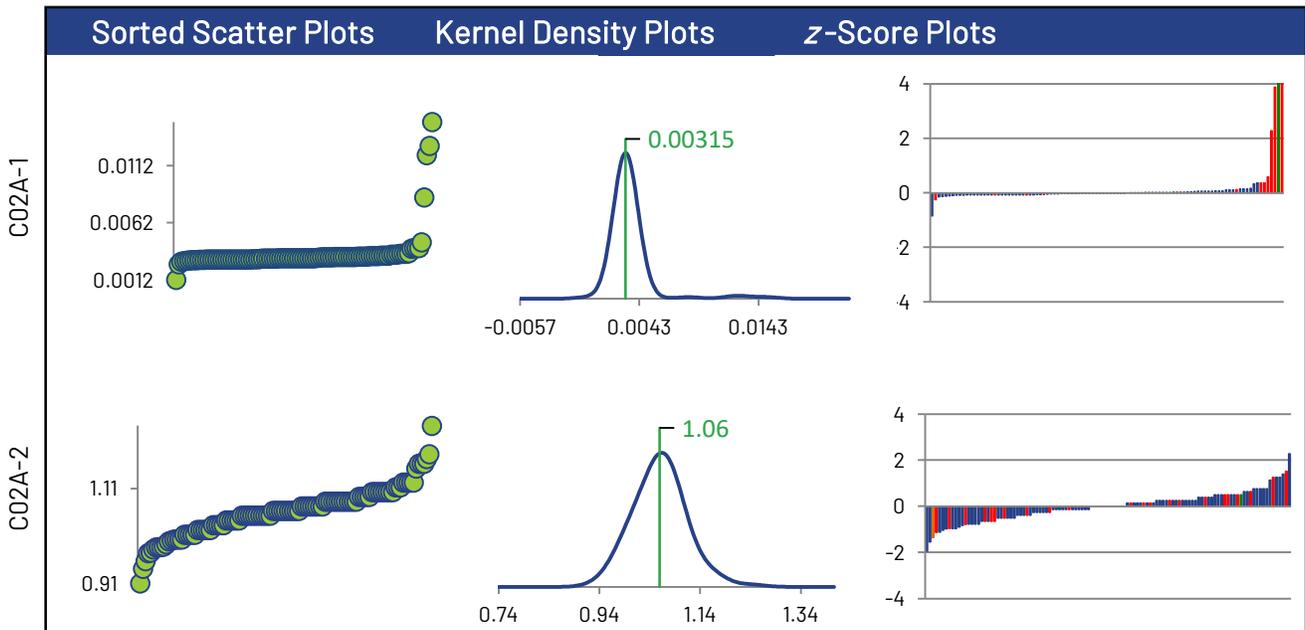
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	101	113	113	113
Median µg/L	0.00310	1.06	0.332	0.719
Robust Mean µg/L	0.00315	1.06	0.332	0.717
Uncertainty of the Assigned Value µg/L	0.0000241	0.00554	0.00176	0.00347
Robust Standard Deviation µg/L	0.000194	0.0471	0.0150	0.0295
Regression Standard Deviation µg/L	0.000236	0.0793	0.0249	0.0538
Stability Flag	Stability			
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00230	0.0793	0.0249	0.0538
Flagged Outliers	4	2	2	2
$ z > 3.0$	3	0	0	0
$2 < z < 3$	1	1	0	1
Failure Rate %*	3.5			

Methods Used

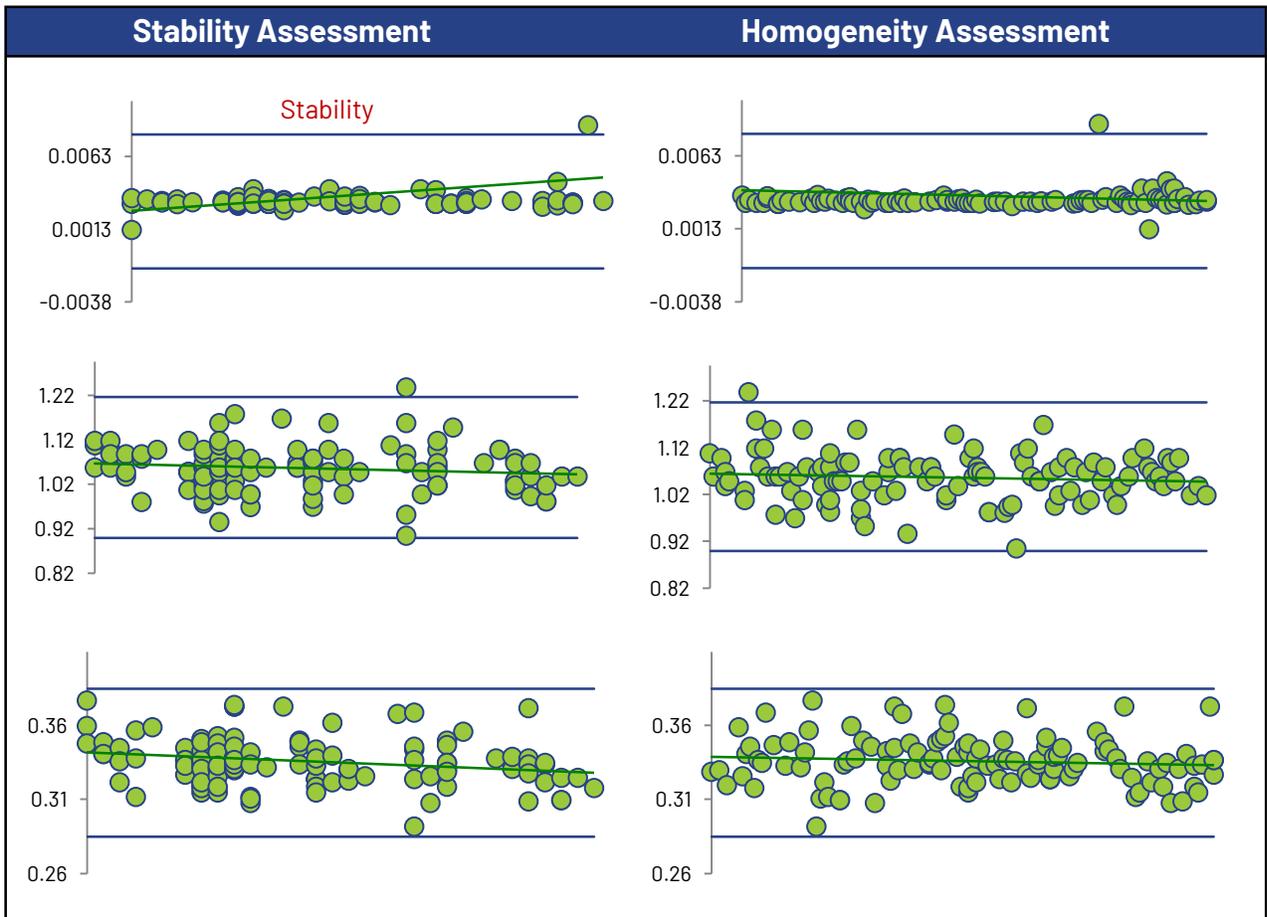
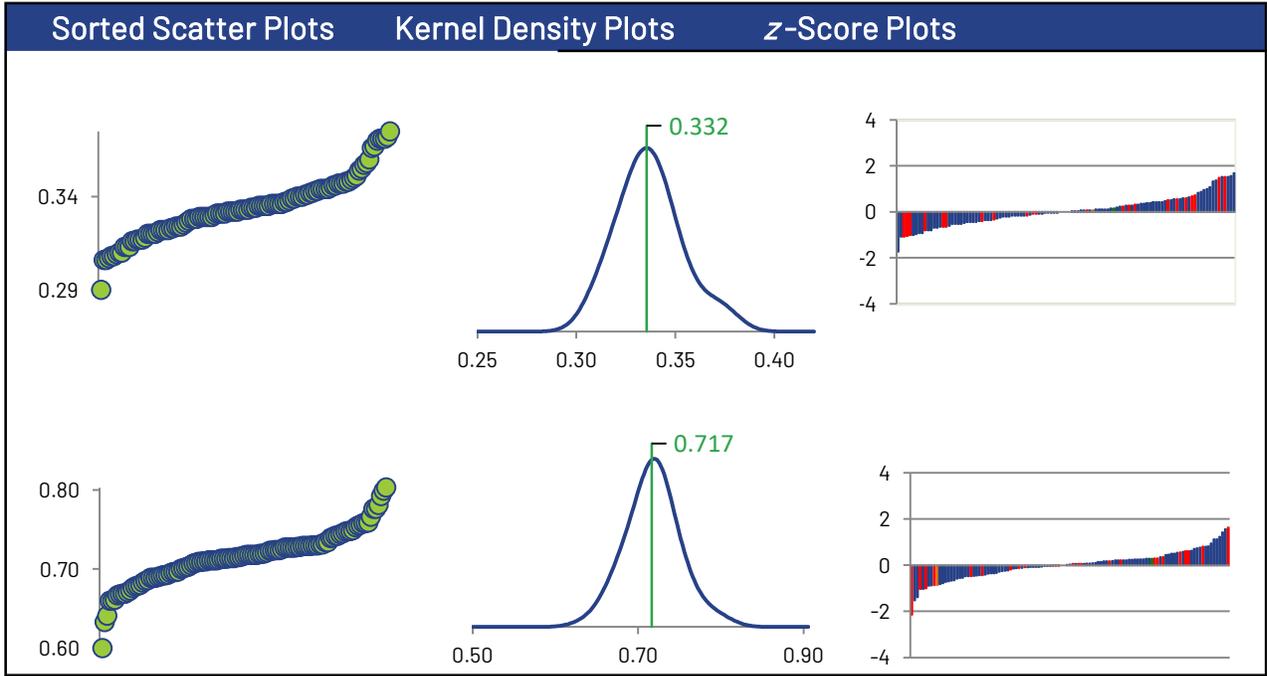
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	86	87	87	87
ICP/OES (Red)	14	24	24	24
AA FLAME (Green)	1	1	1	1
AA GRAPHITE (Orange)	0	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

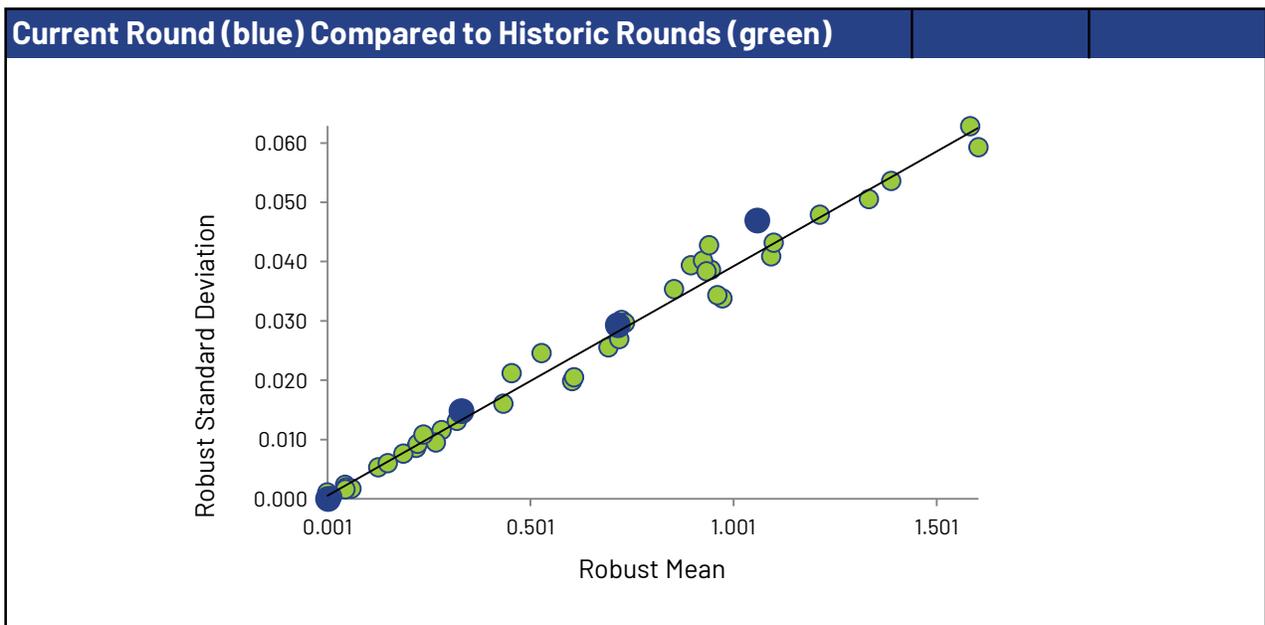
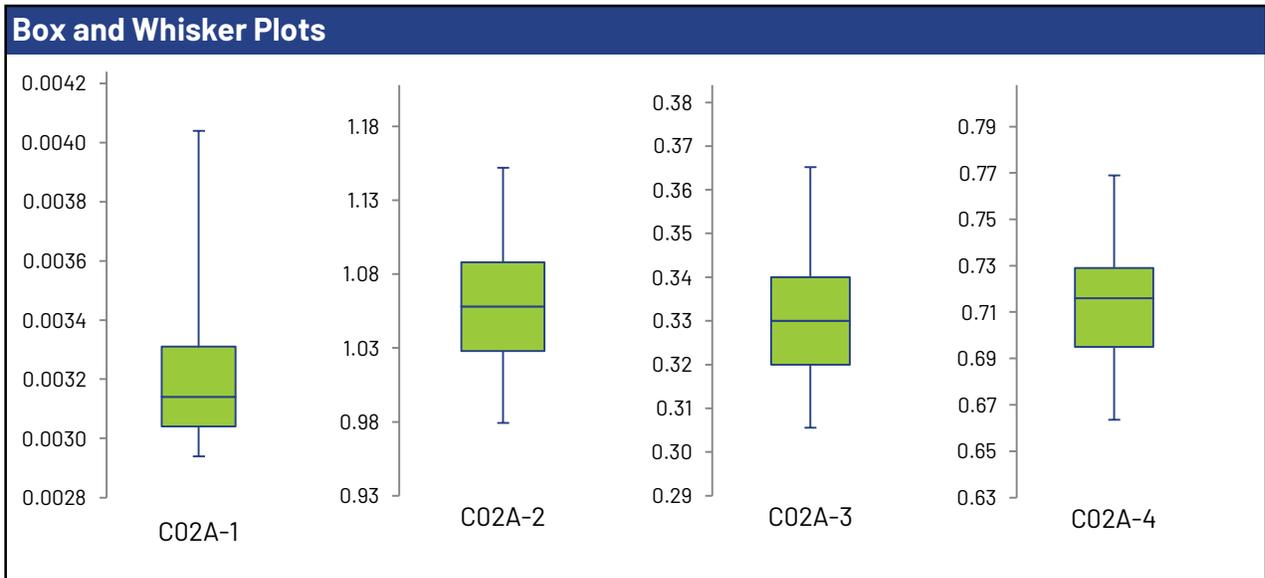
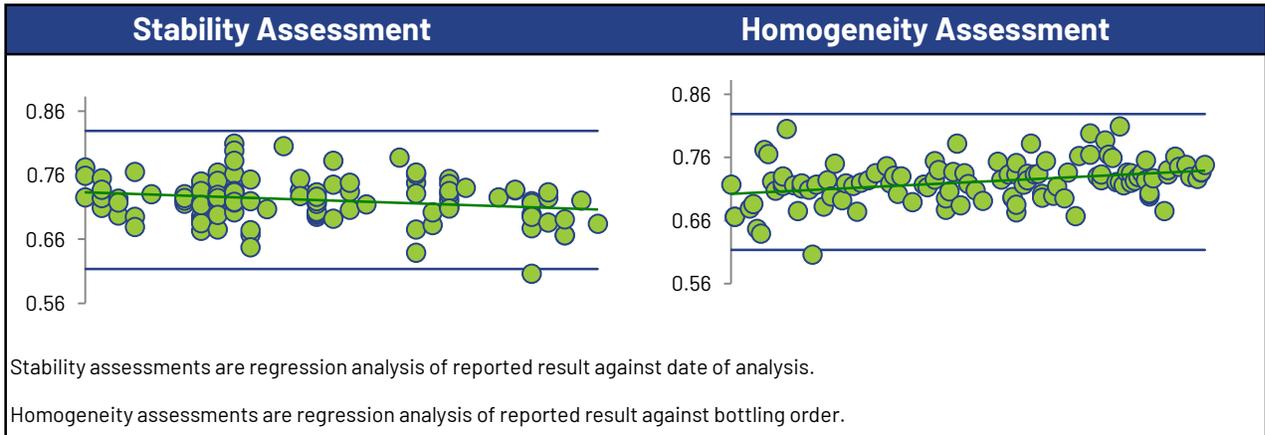


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Nickel



Nickel



Selenium

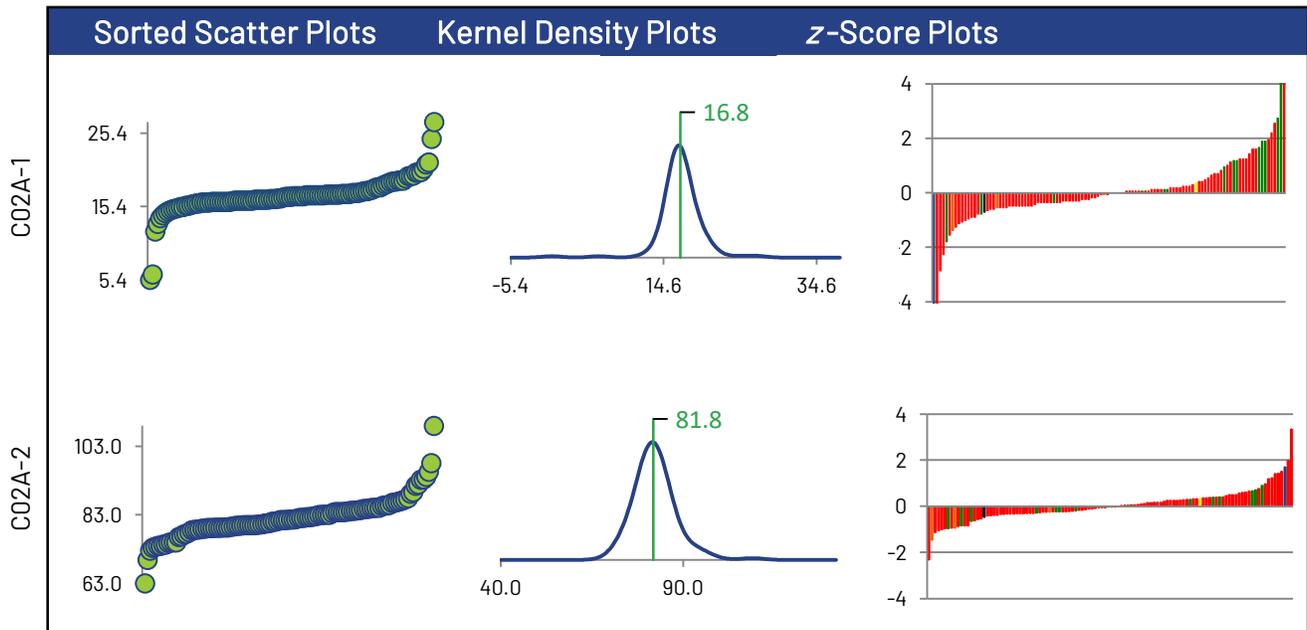
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	112	112	112	112
Median µg/L	16.8	81.7	49.0	52.6
Robust Mean µg/L	16.8	81.8	49.0	52.6
Uncertainty of the Assigned Value µg/L	0.163	0.519	0.353	0.398
Robust Standard Deviation µg/L	1.38	4.39	2.99	3.37
Regression Standard Deviation µg/L	1.68	8.18	4.90	5.26
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	1.68	8.18	4.90	5.26
Flagged Outliers	0	1	1	1
$ z > 3.0$	4	1	2	3
$2 < z < 3$	5	1	3	3
Failure Rate %*	4.4			

Methods Used

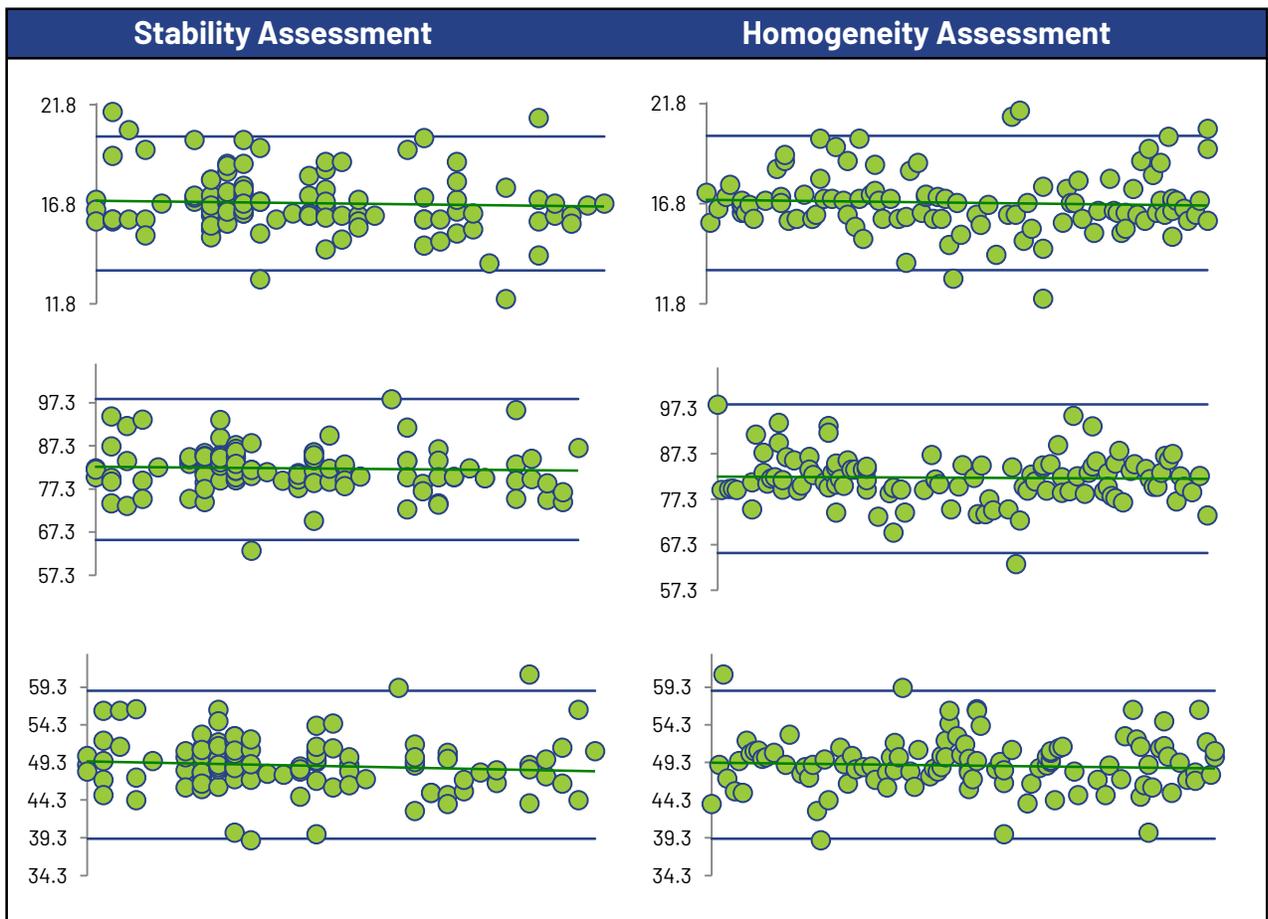
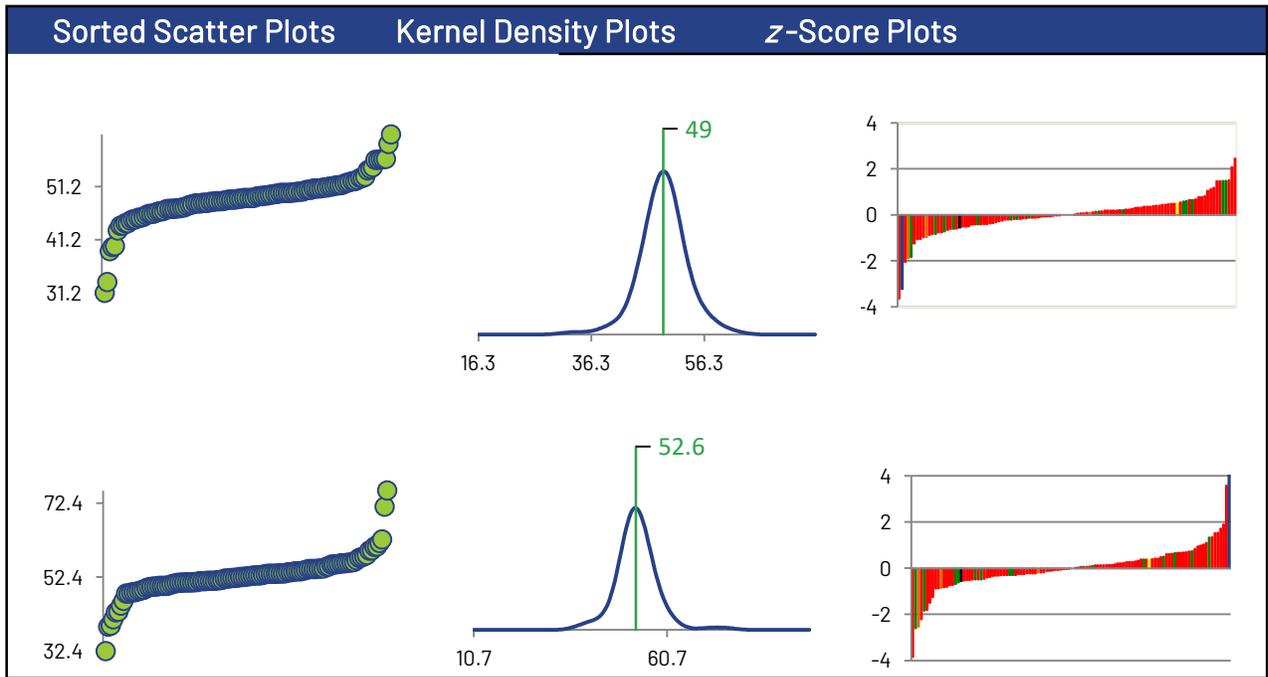
Method	C02A-1	C02A-2	C02A-3	C02A-4
HYDRIDE ICP (Blue)	1	1	1	1
ICP/MS (Red)	92	91	91	91
ICP/OES (Green)	14	15	15	15
HYDRIDE AA (Orange)	3	3	3	3
ATOMIC FLUORESCENCE SPECTROMETER (Black)	1	1	1	1
ATOMIC FLUORESCENCE SPECTROPHOTOMETRY (Yellow)	1	1	1	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

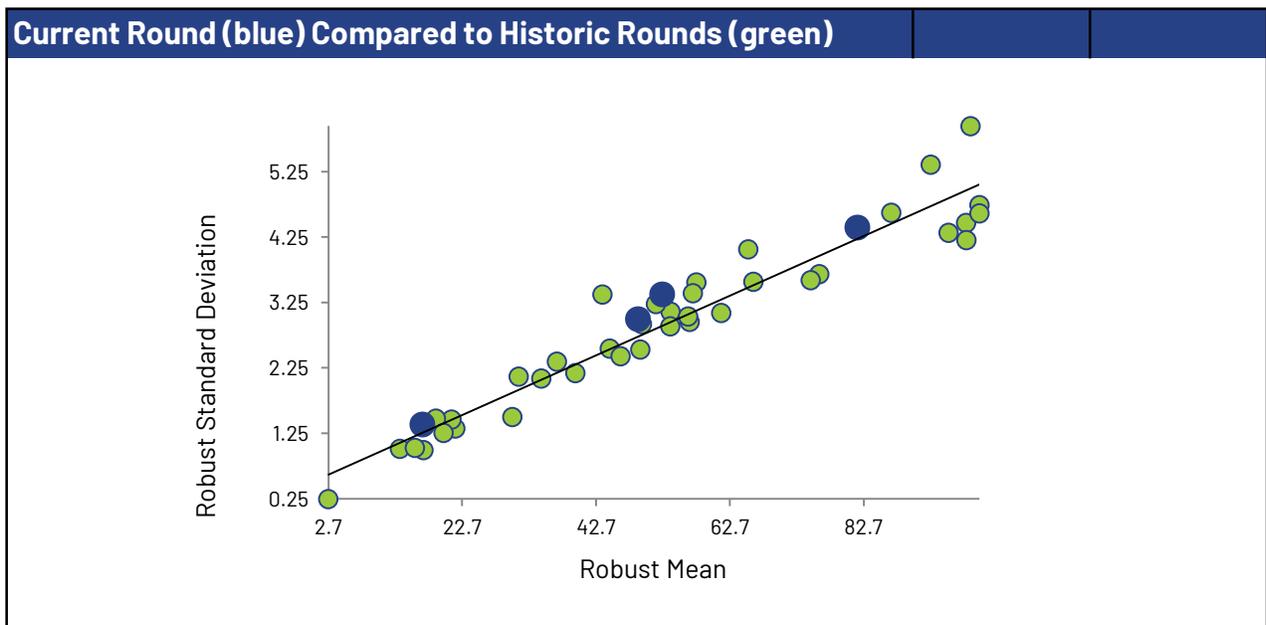
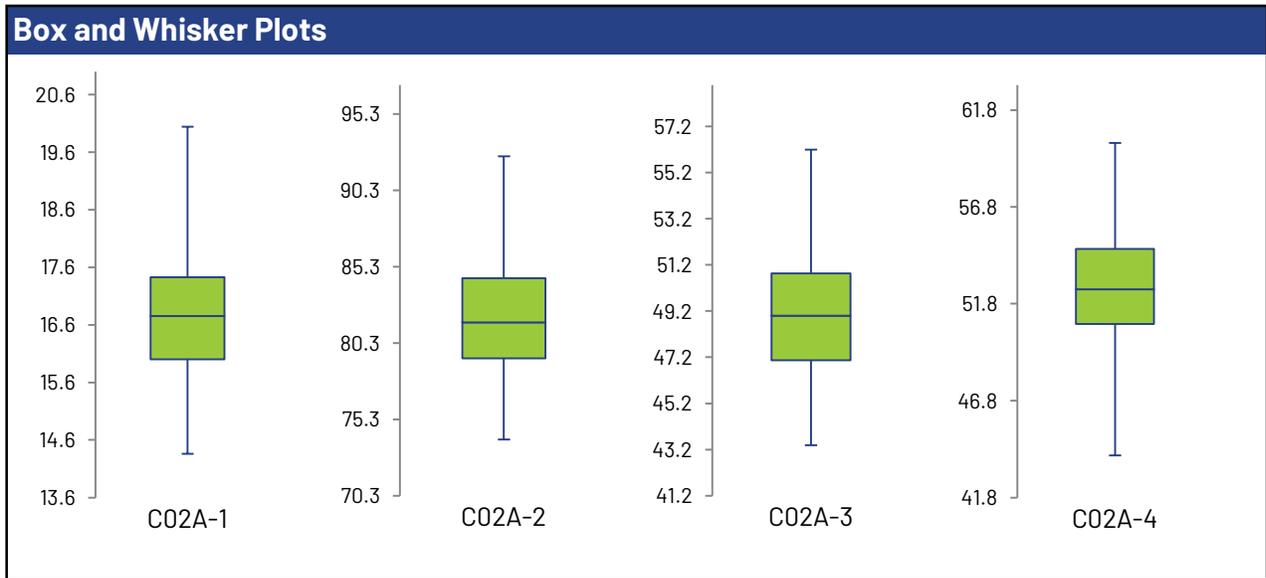
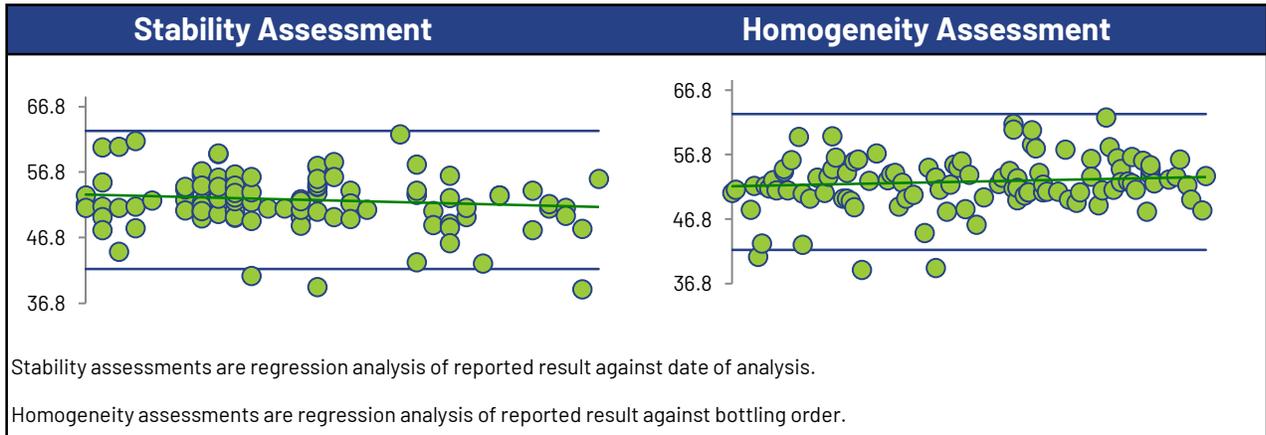


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Selenium



Selenium



Silver

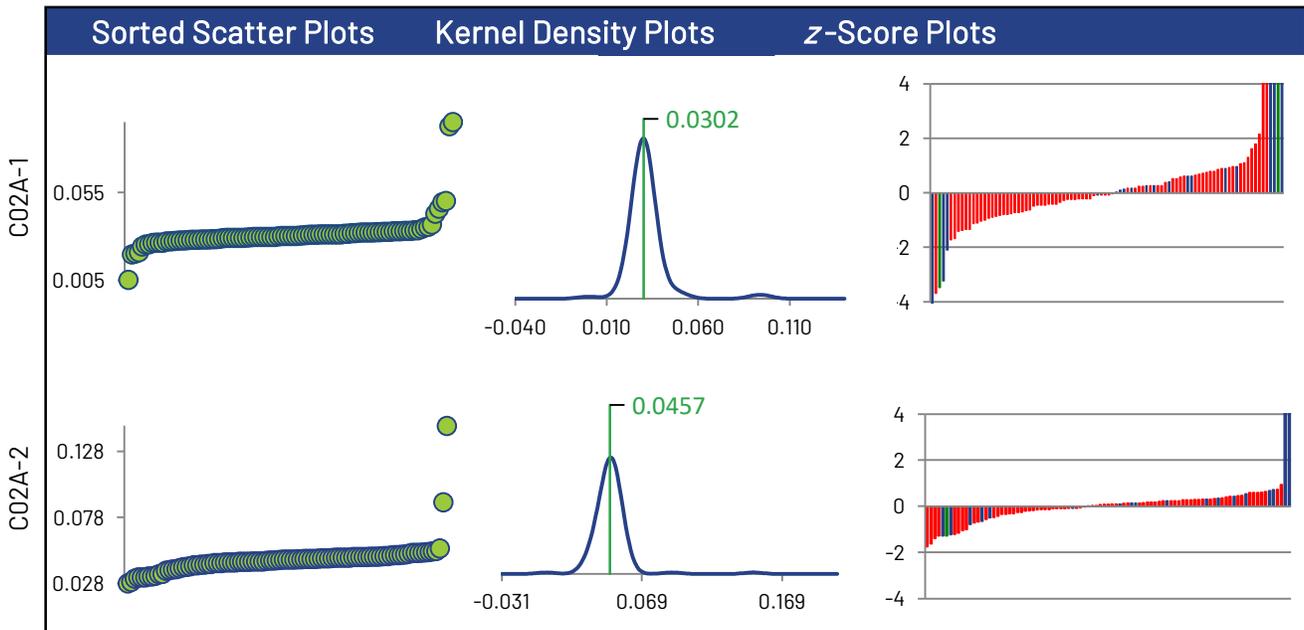
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	94	93	94	93
Median µg/L	0.0300	0.0465	0.0475	0.0459
Robust Mean µg/L	0.0302	0.0457	0.0474	0.0456
Uncertainty of the Assigned Value µg/L	0.000375	0.000636	0.000353	0.000445
Robust Standard Deviation µg/L	0.00291	0.00491	0.00274	0.00343
Regression Standard Deviation µg/L	0.00226	0.00343	0.00355	0.00342
Stability Flag				
Homogeneity Flag		Homogeneity		
Standard Deviation Used (SDPA) µg/L	0.00291	0.00995	0.00355	0.00343
Flagged Outliers	2	3	2	3
z >3.0	10	2	6	7
2< z <3	2	0	2	2
Failure Rate %*	12.5			

Methods Used

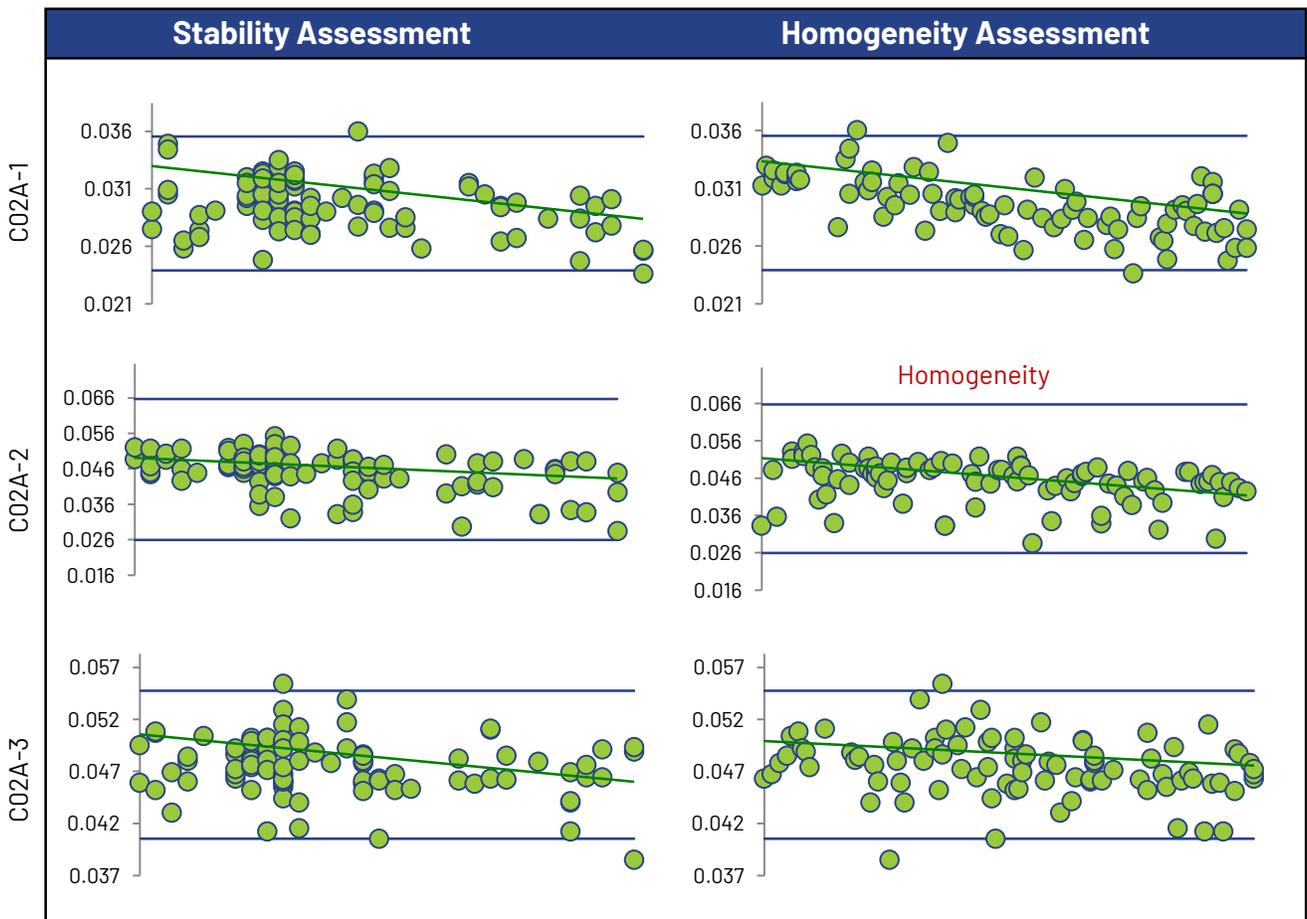
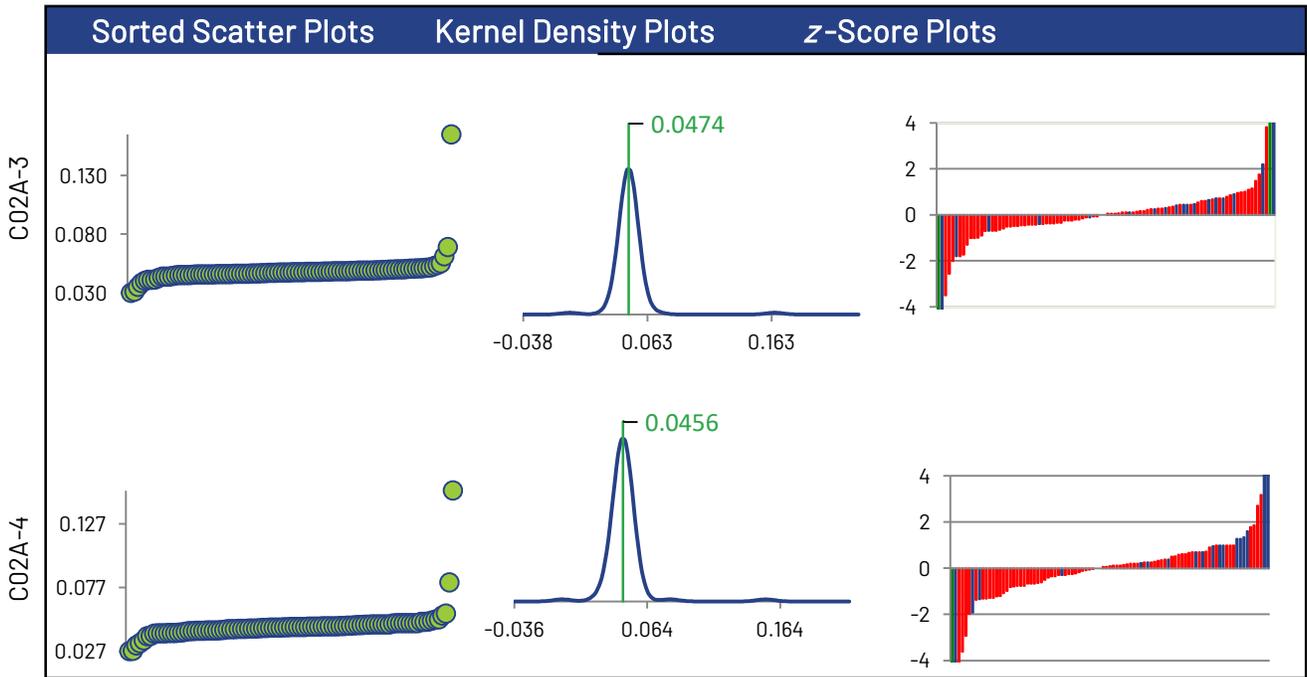
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	18	18	18	18
ICP/MS (Red)	74	74	74	74
AA FLAME (Green)	2	1	2	1

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

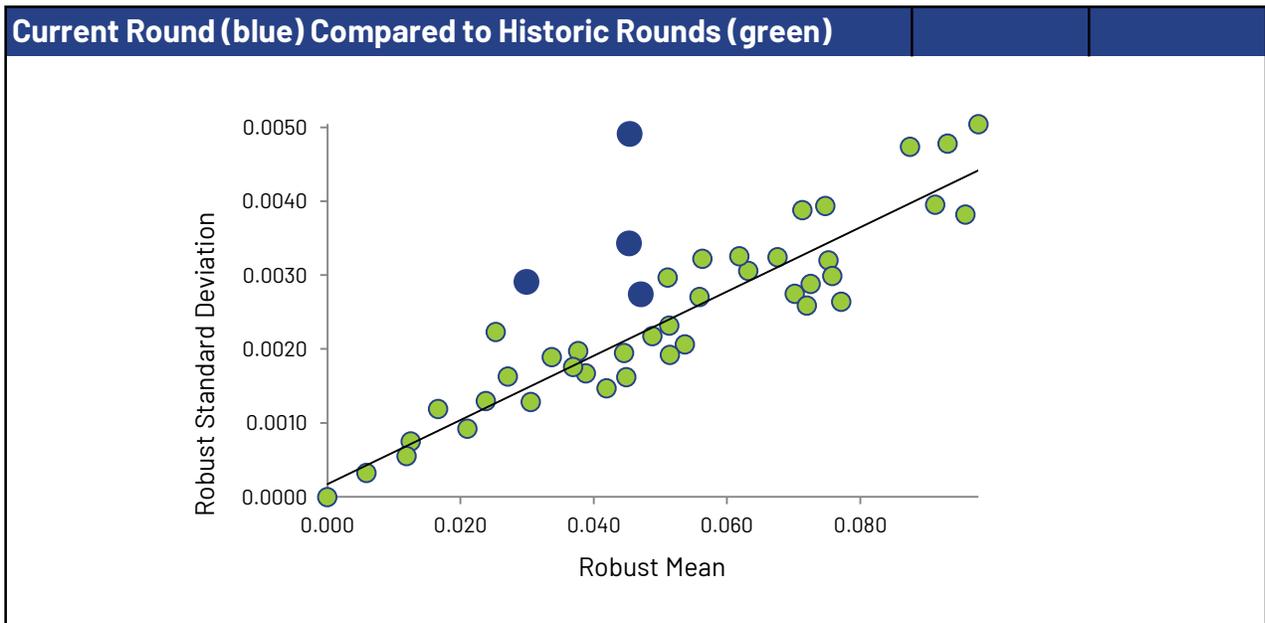
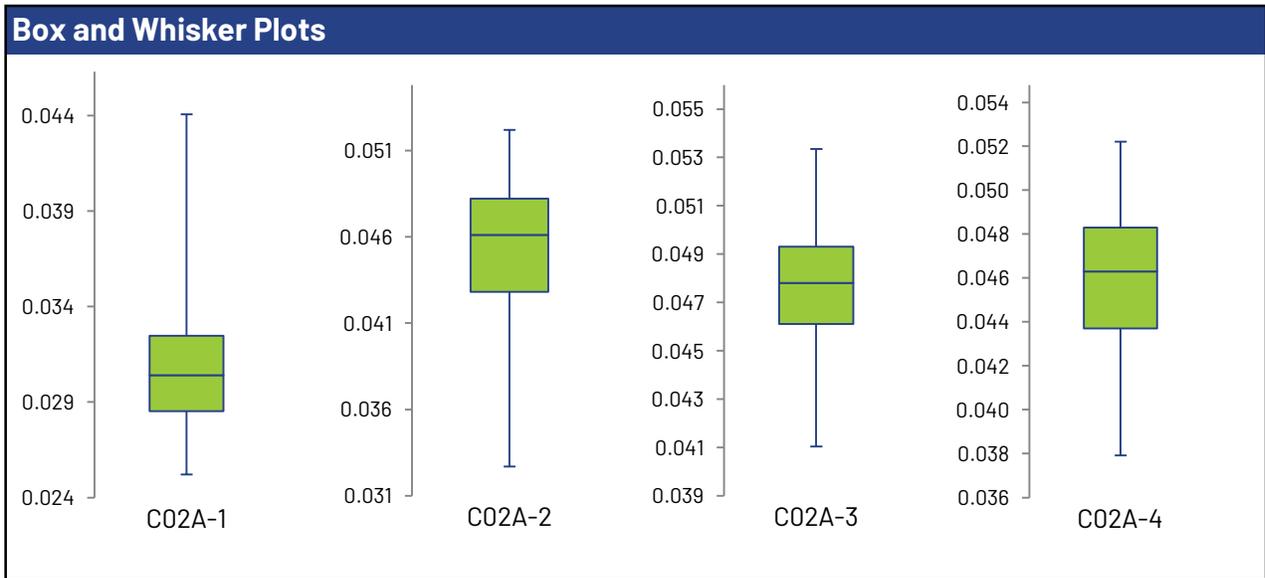
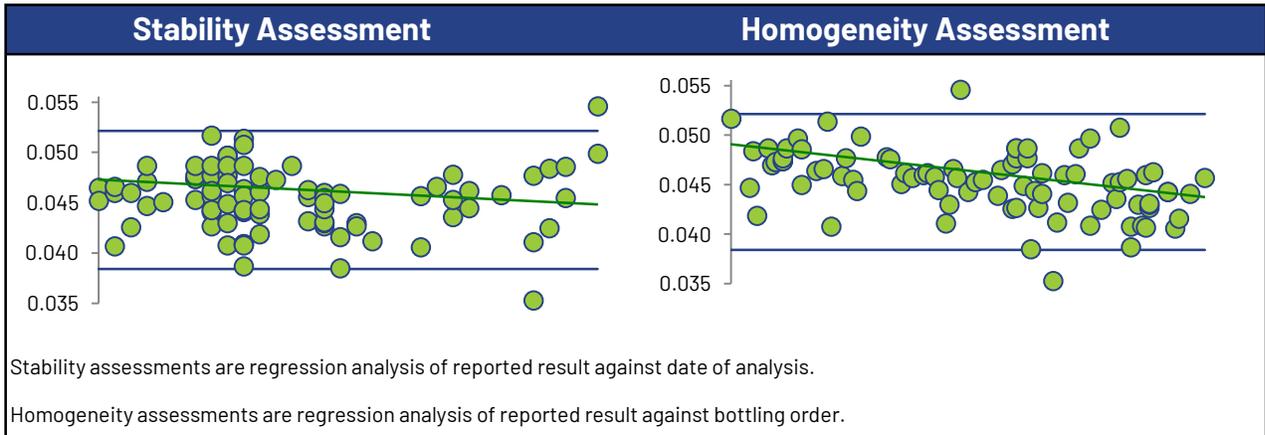


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Silver



Silver



Strontium

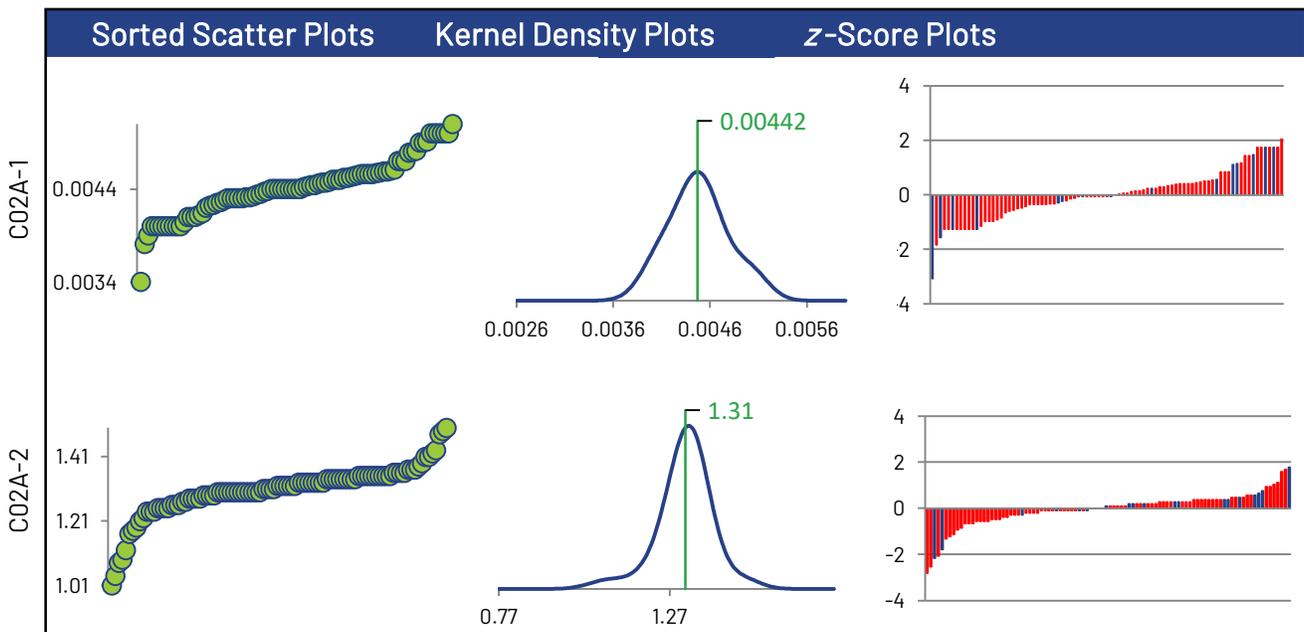
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	87	96	97	96
Median µg/L	0.00440	1.32	0.454	0.589
Robust Mean µg/L	0.00442	1.31	0.454	0.588
Uncertainty of the Assigned Value µg/L	0.0000410	0.00693	0.00201	0.00265
Robust Standard Deviation µg/L	0.000306	0.0543	0.0158	0.0208
Regression Standard Deviation µg/L	0.000331	0.0984	0.0340	0.0441
Stability Flag		Stability	Stability	
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.000331	0.107	0.0345	0.0441
Flagged Outliers	2	1	0	1
$ z > 3.0$	1	0	2	0
$2 < z < 3$	1	4	1	1
Failure Rate %*	3.1			

Methods Used

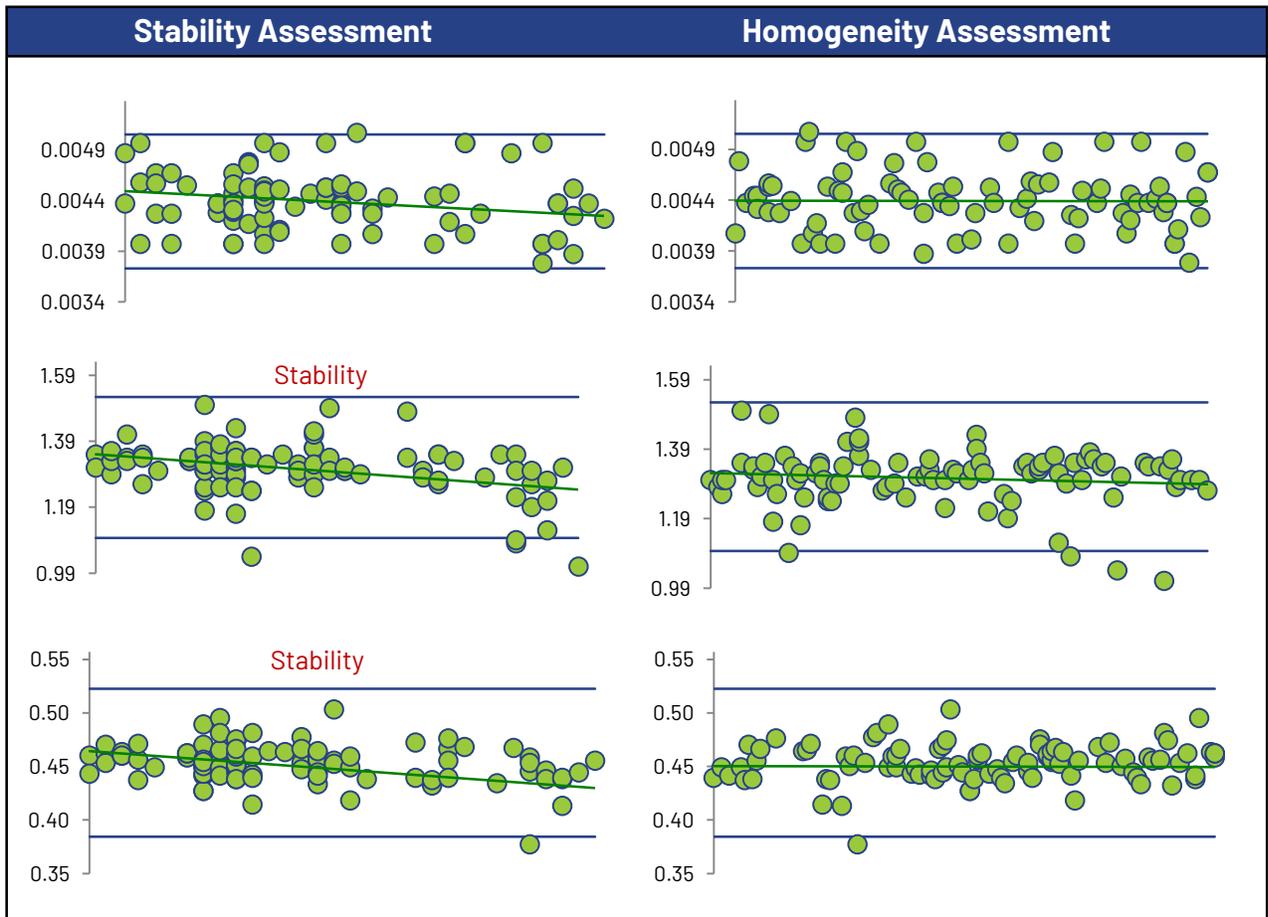
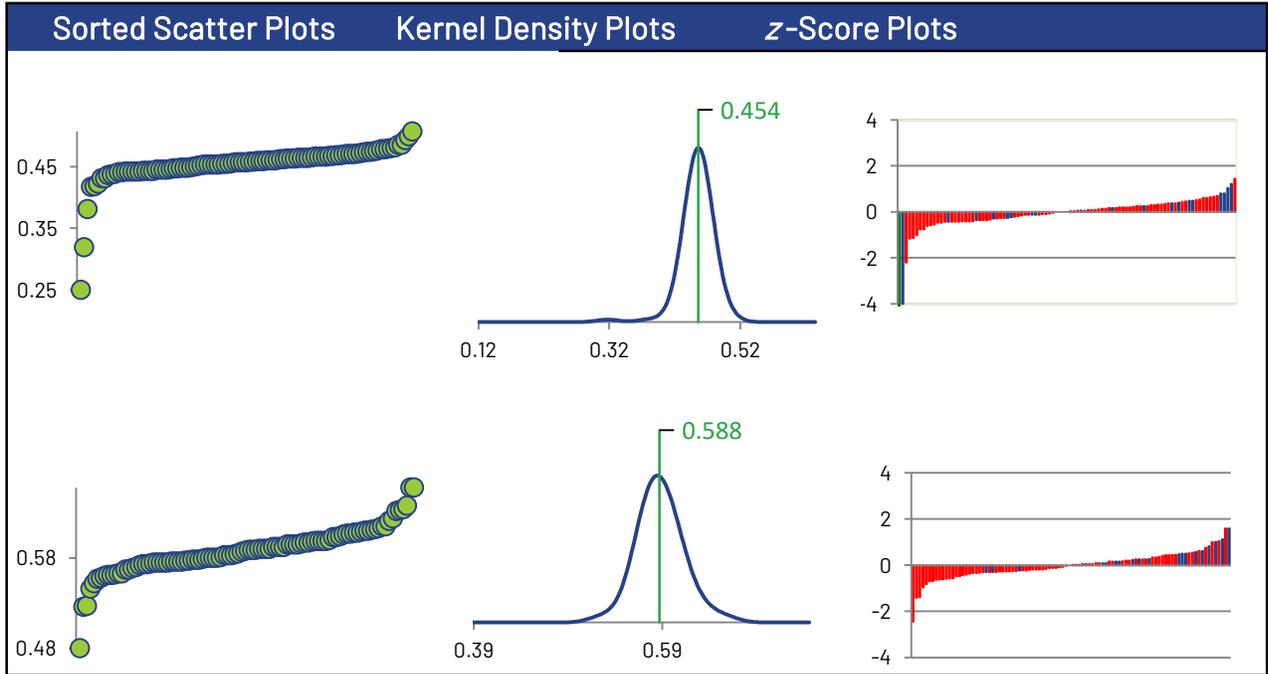
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	15	20	20	20
ICP/MS (Red)	72	76	76	76
AA FLAME (Green)	0	0	1	0

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers



* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Strontium



Thallium

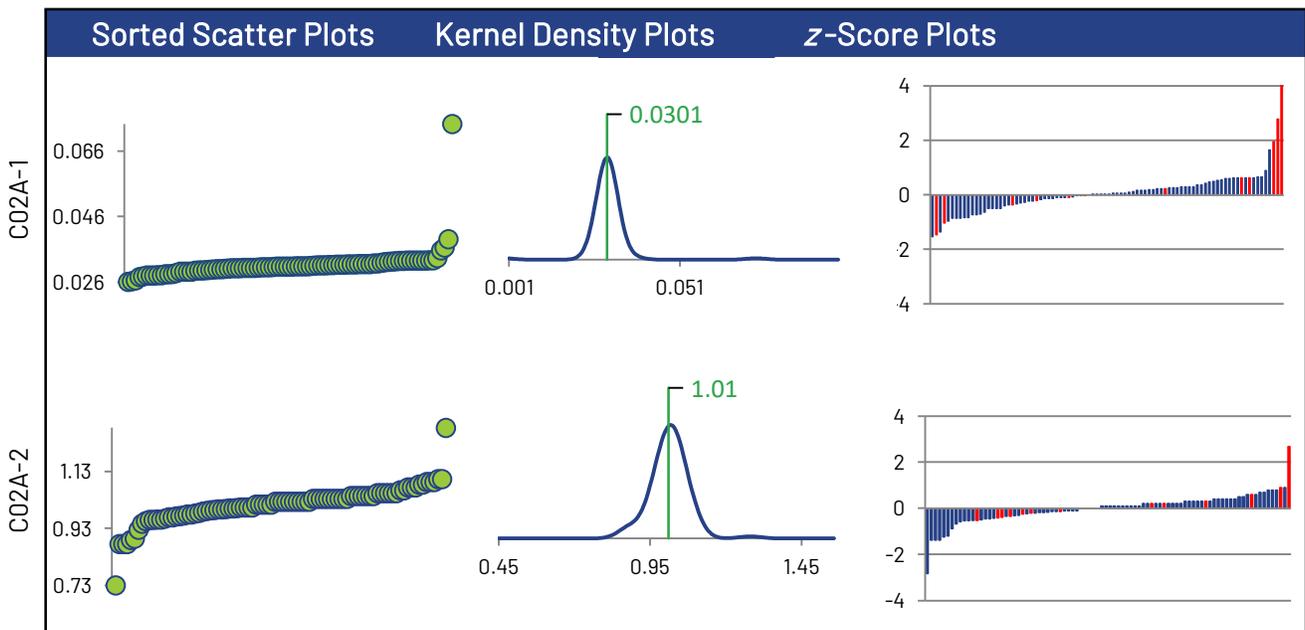
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	88	88	88	88
Median µg/L	0.0302	1.02	0.353	0.823
Robust Mean µg/L	0.0301	1.01	0.353	0.821
Uncertainty of the Assigned Value µg/L	0.000220	0.00621	0.00225	0.00449
Robust Standard Deviation µg/L	0.00165	0.0466	0.0169	0.0337
Regression Standard Deviation µg/L	0.00301	0.101	0.0353	0.0821
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00301	0.101	0.0353	0.0821
Flagged Outliers	2	3	3	3
$ z > 3.0$	1	0	0	0
$2 < z < 3$	1	2	1	1
Failure Rate %*	3.3			

Methods Used

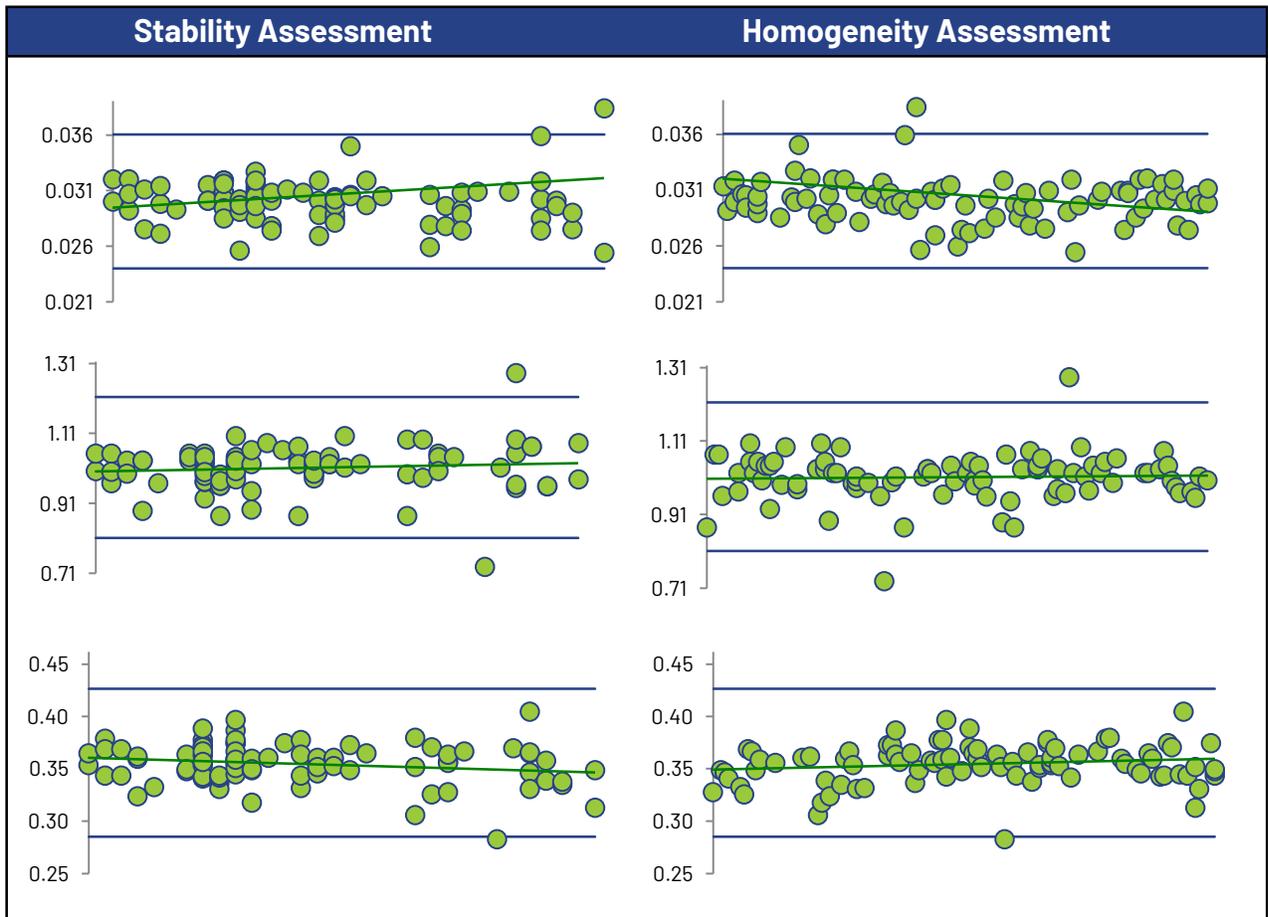
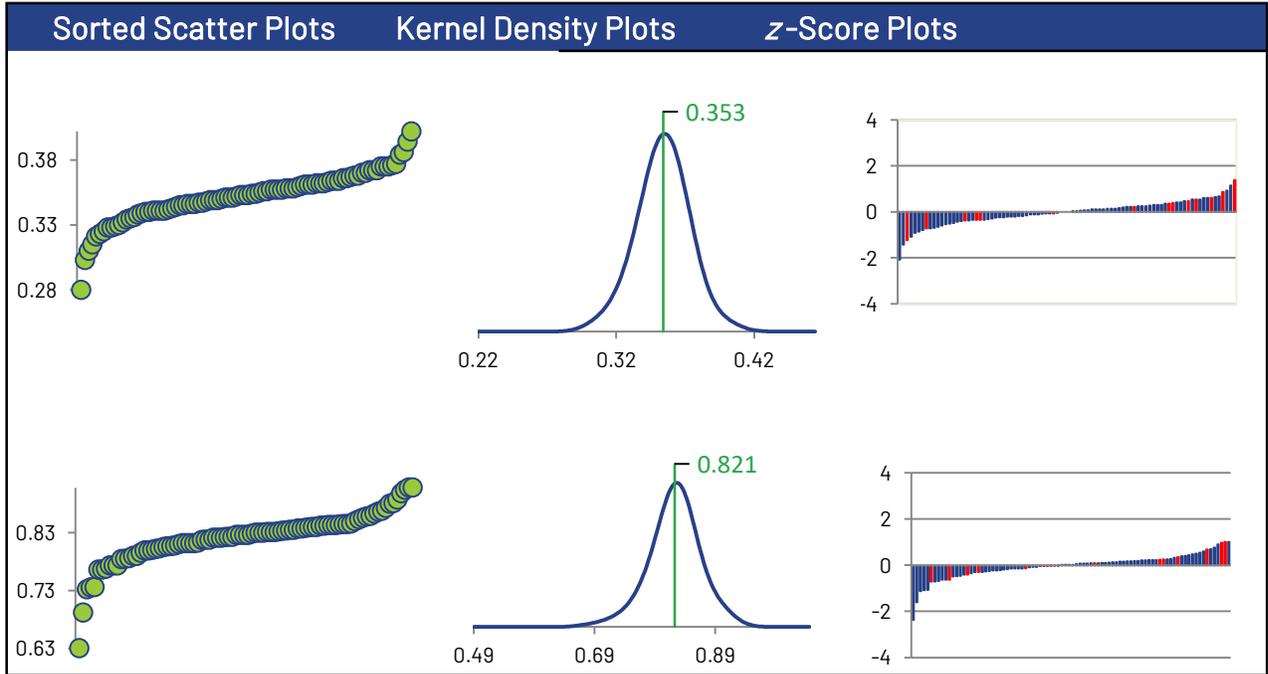
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	75	74	74	74
ICP/OES (Red)	13	14	14	14

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

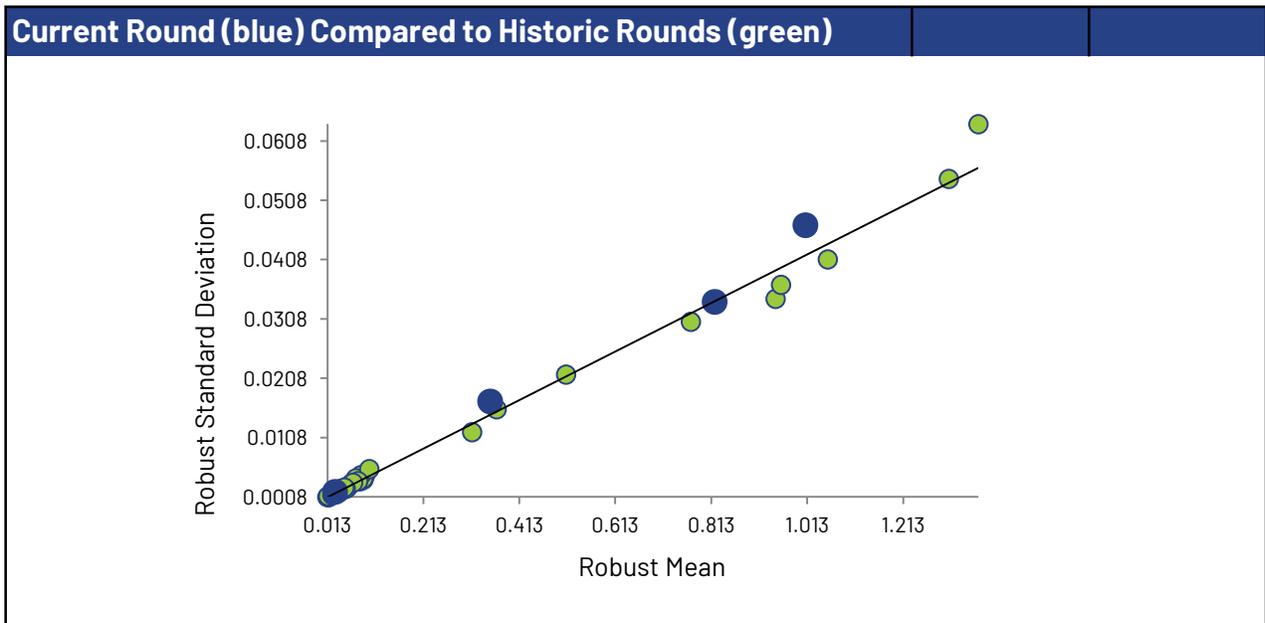
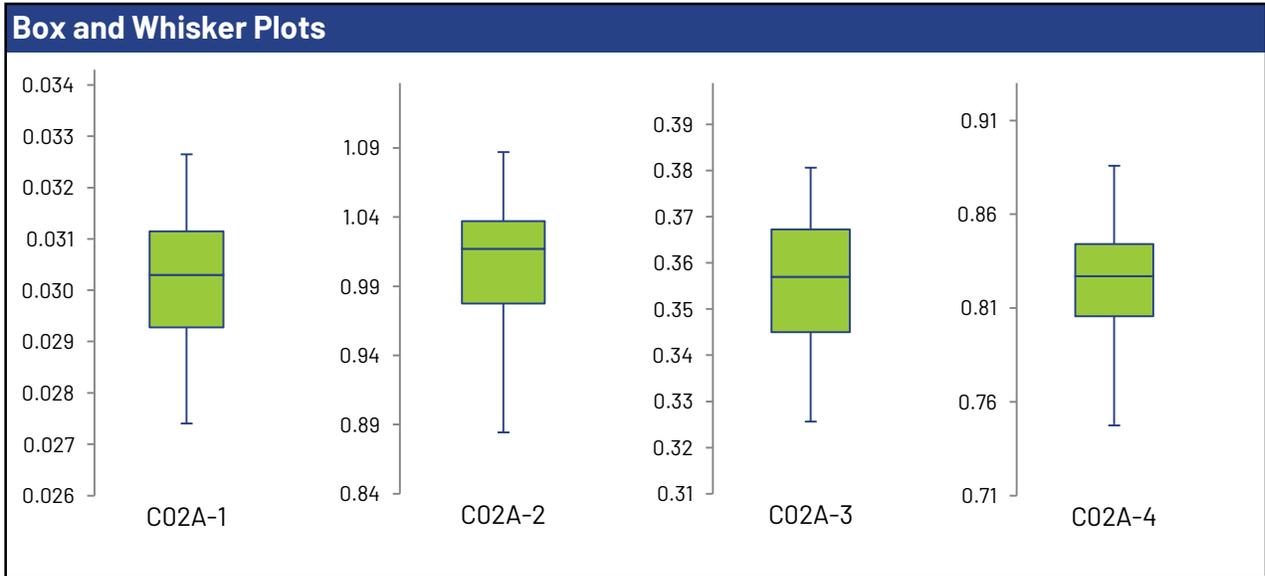
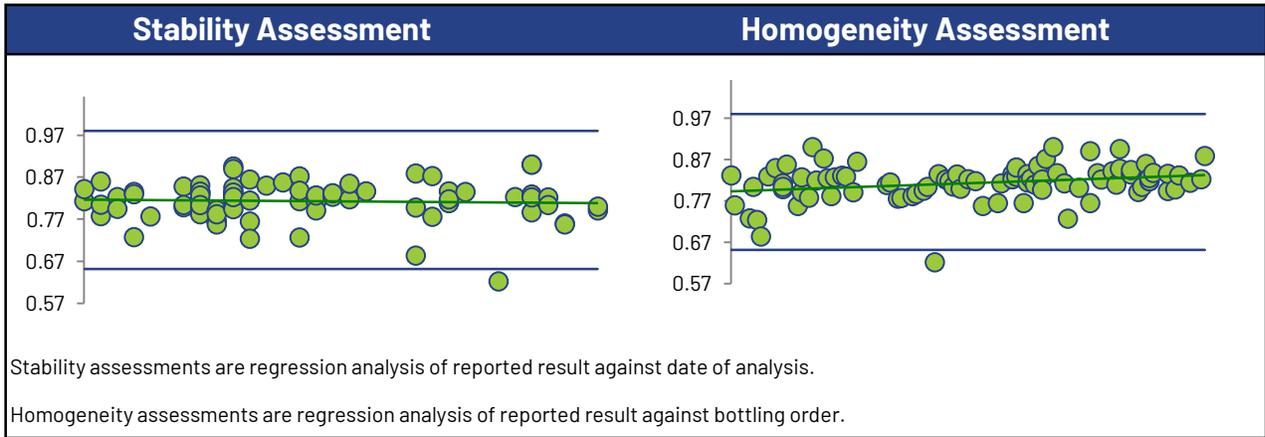


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Thallium



Thallium



Tin

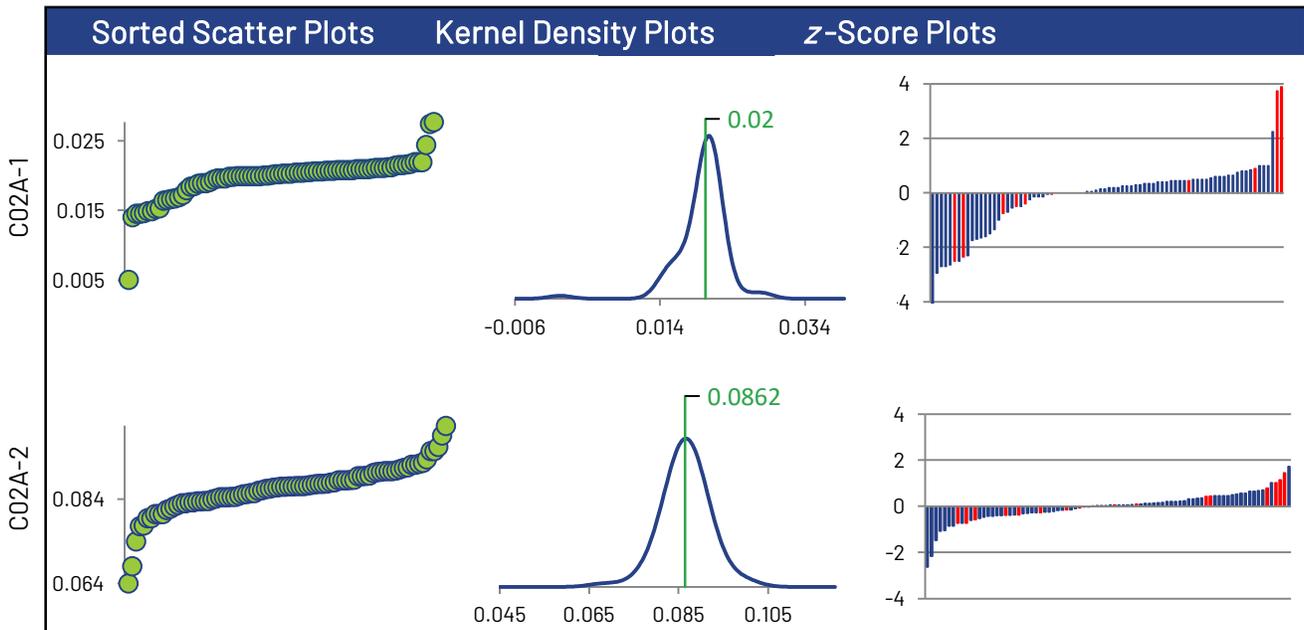
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	80	84	86	86
Median µg/L	0.0204	0.0866	0.0480	0.0539
Robust Mean µg/L	0.0200	0.0862	0.0475	0.0534
Uncertainty of the Assigned Value µg/L	0.000242	0.000610	0.000390	0.000404
Robust Standard Deviation µg/L	0.00173	0.00447	0.00289	0.00300
Regression Standard Deviation µg/L	0.00200	0.00862	0.00475	0.00534
Stability Flag				Stability
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00200	0.00862	0.00475	0.0102
Flagged Outliers	1	2	1	1
$ z > 3.0$	3	0	3	1
$2 < z < 3$	9	2	1	0
Failure Rate %*	3.4			

Methods Used

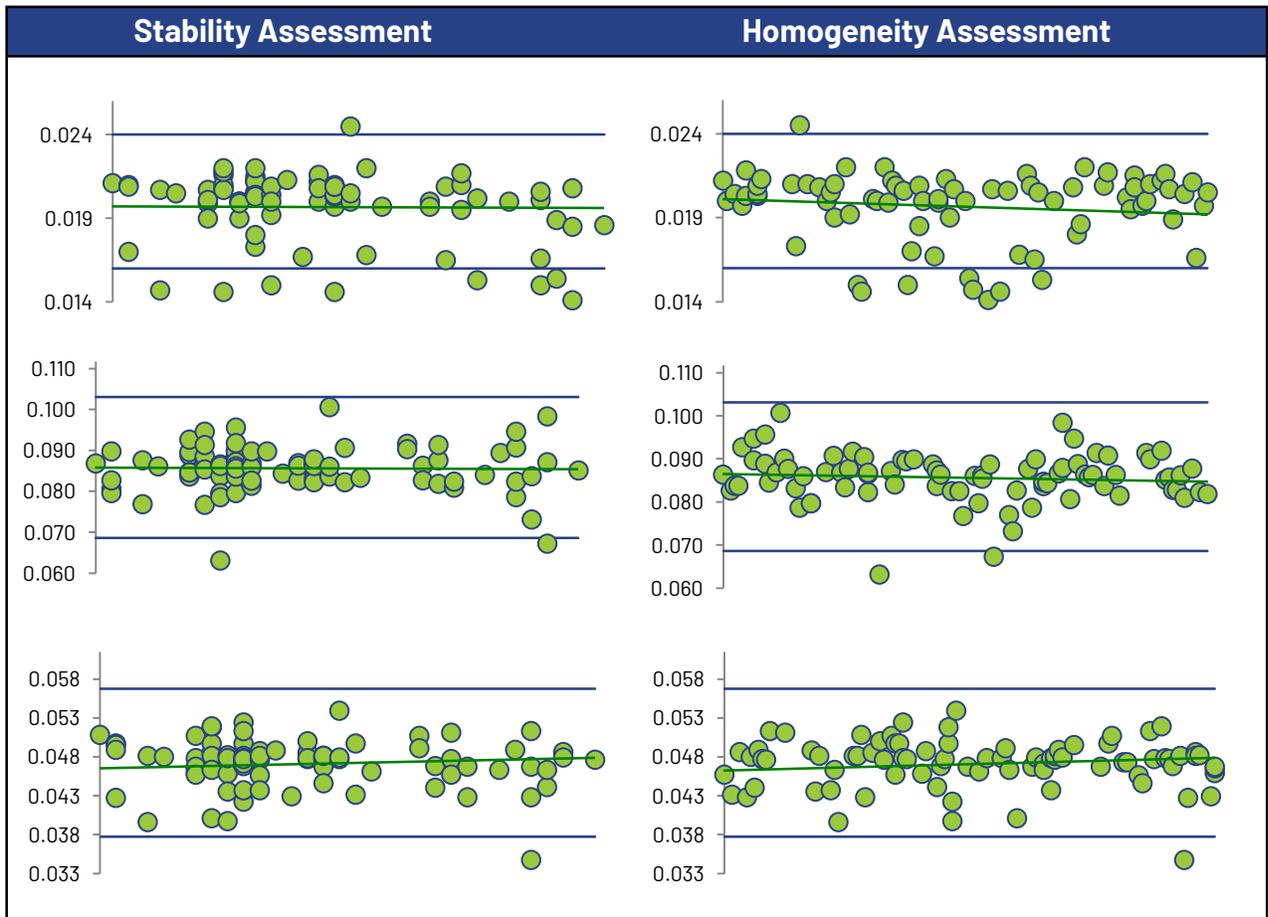
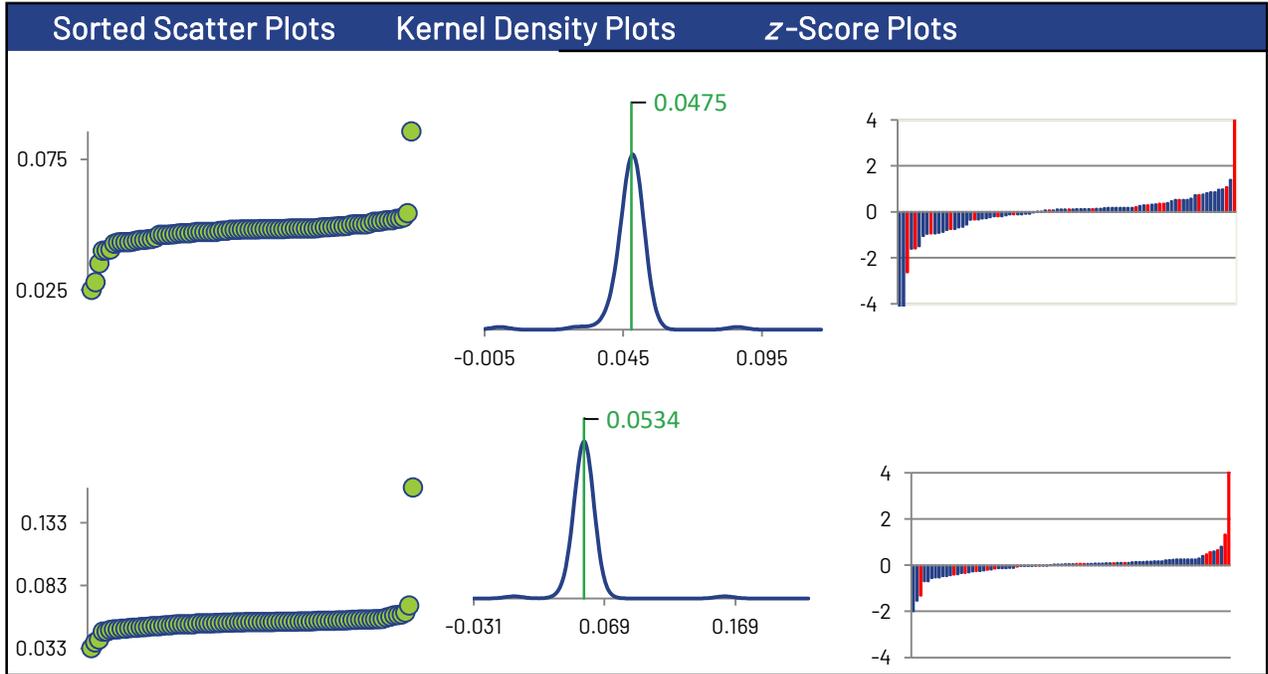
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	68	67	68	68
ICP/OES (Red)	12	17	18	18

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

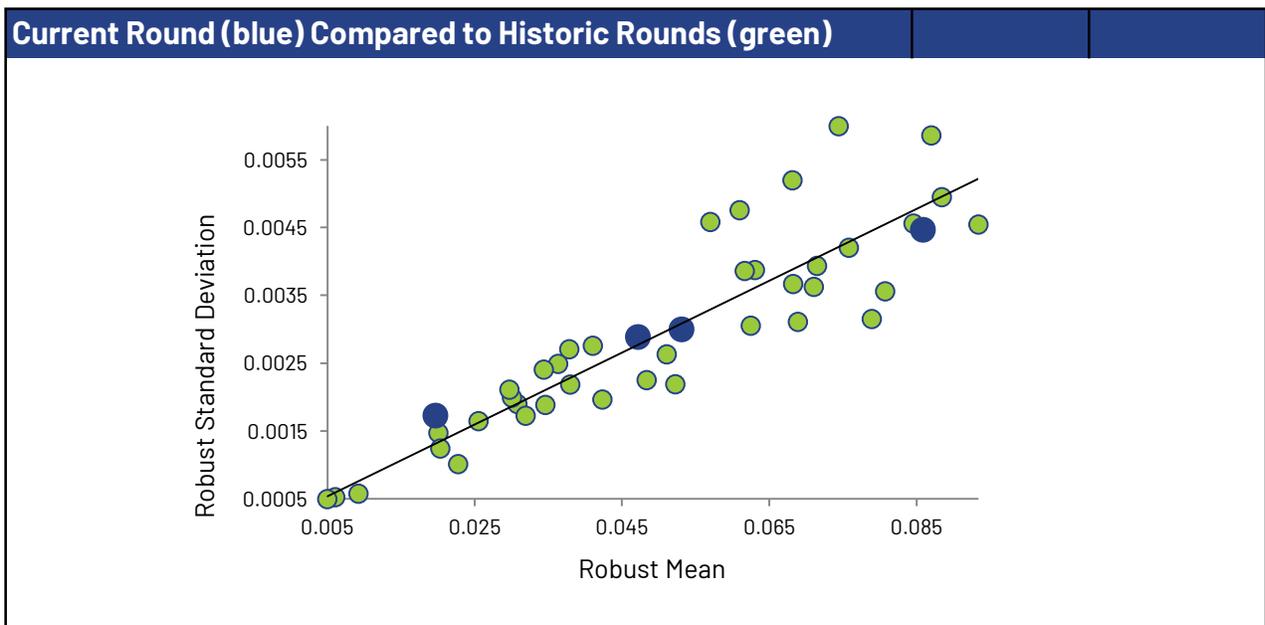
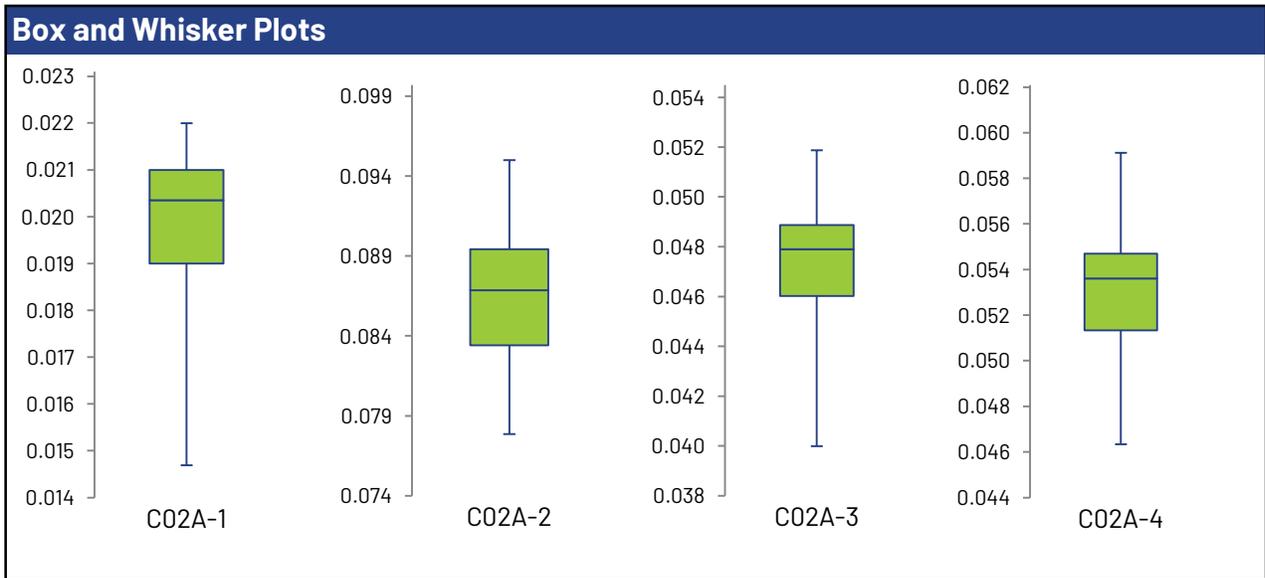
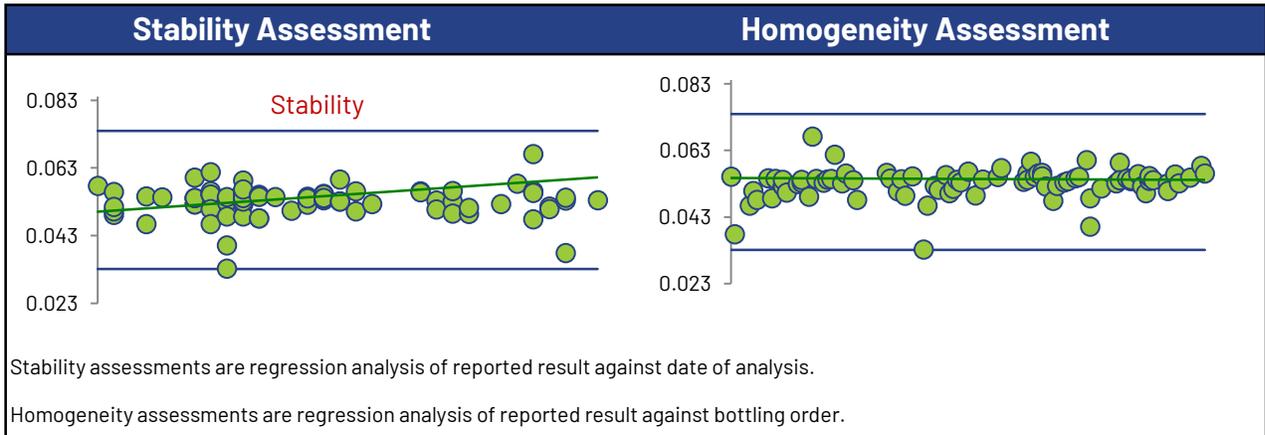


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Tin



Tin



Titanium

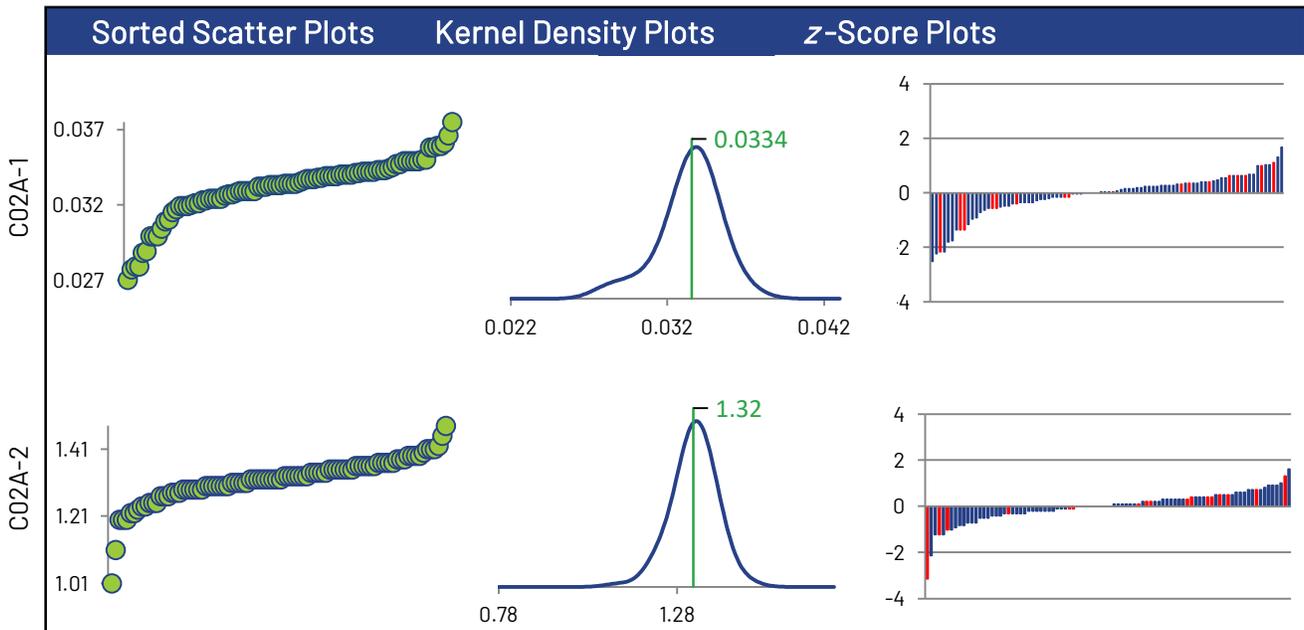
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	88	90	90	90
Median µg/L	0.0335	1.32	0.130	0.621
Robust Mean µg/L	0.0334	1.32	0.131	0.619
Uncertainty of the Assigned Value µg/L	0.000208	0.00726	0.000758	0.00295
Robust Standard Deviation µg/L	0.00156	0.0551	0.00575	0.0224
Regression Standard Deviation µg/L	0.00250	0.0992	0.00982	0.0465
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00250	0.0992	0.00982	0.0465
Flagged Outliers	1	1	1	1
$ z > 3.0$	0	1	1	0
$2 < z < 3$	4	1	0	0
Failure Rate %*	2.2			

Methods Used

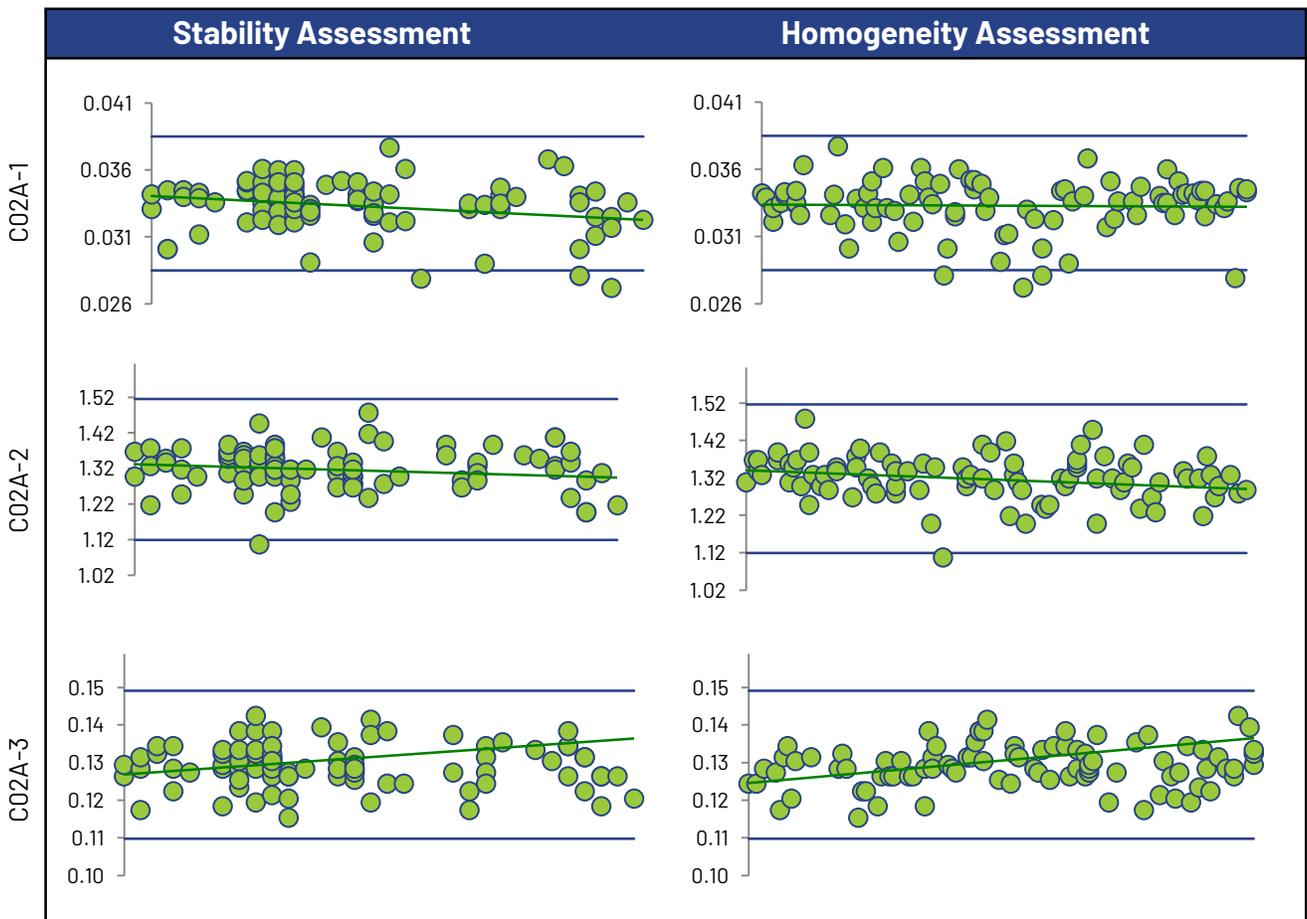
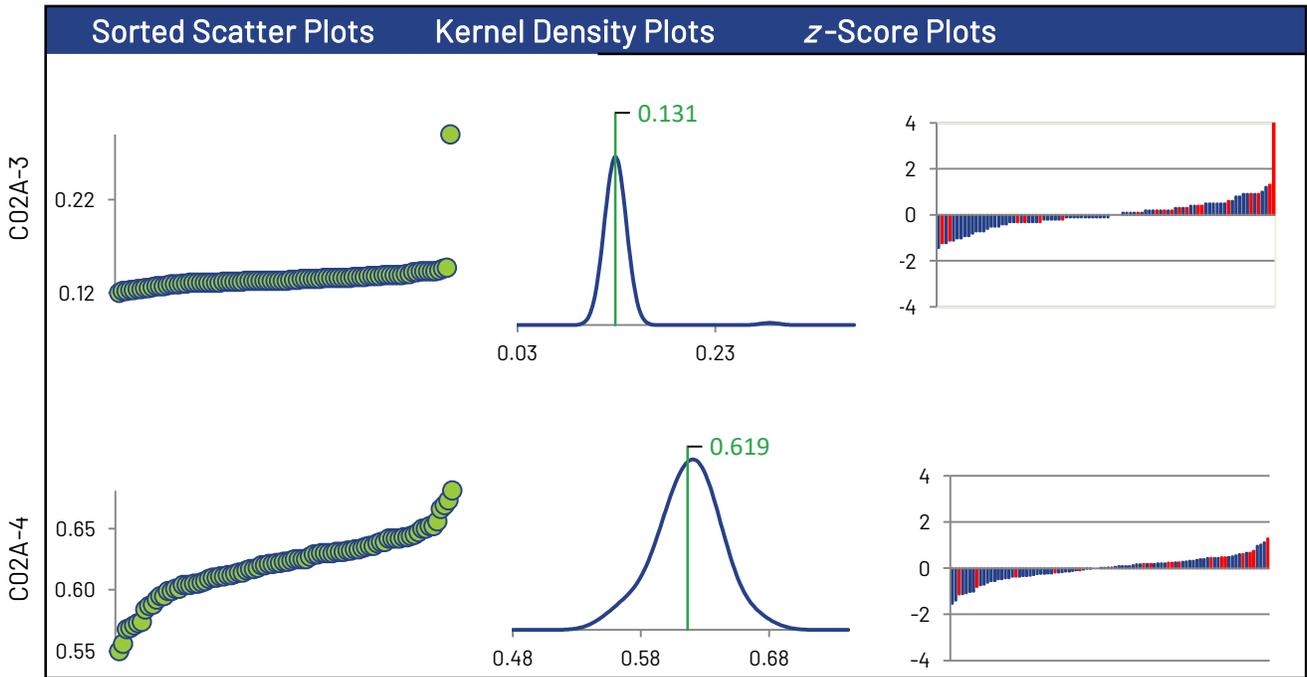
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/MS (Blue)	71	71	71	71
ICP/OES (Red)	17	19	19	19

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

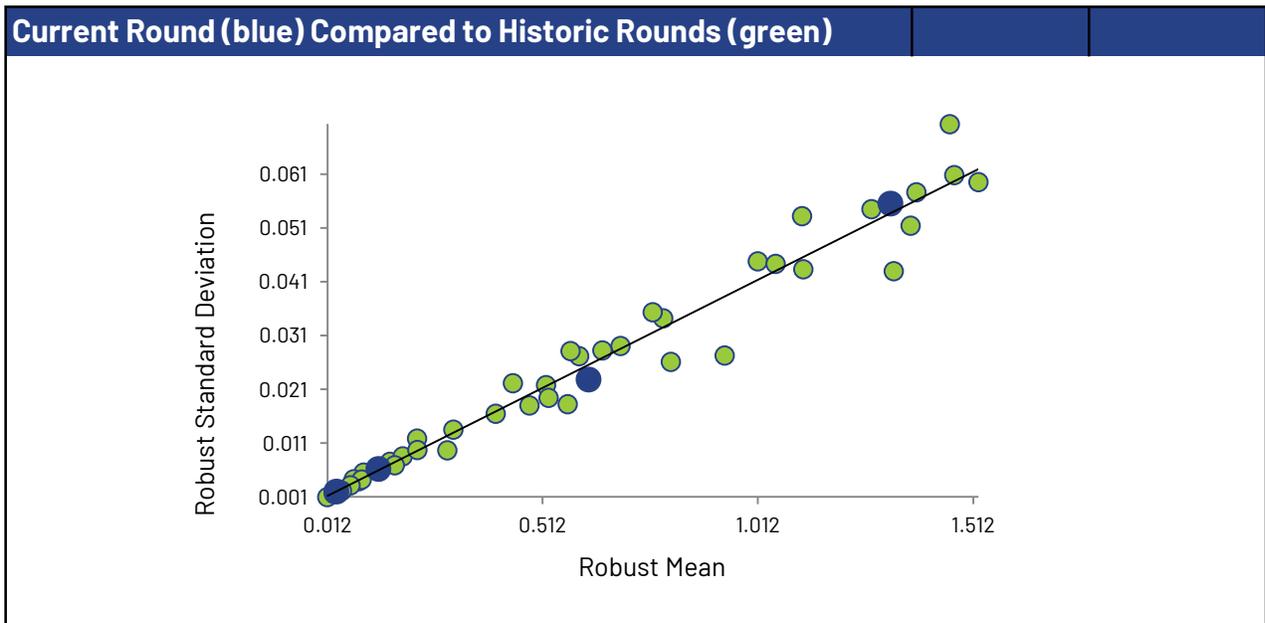
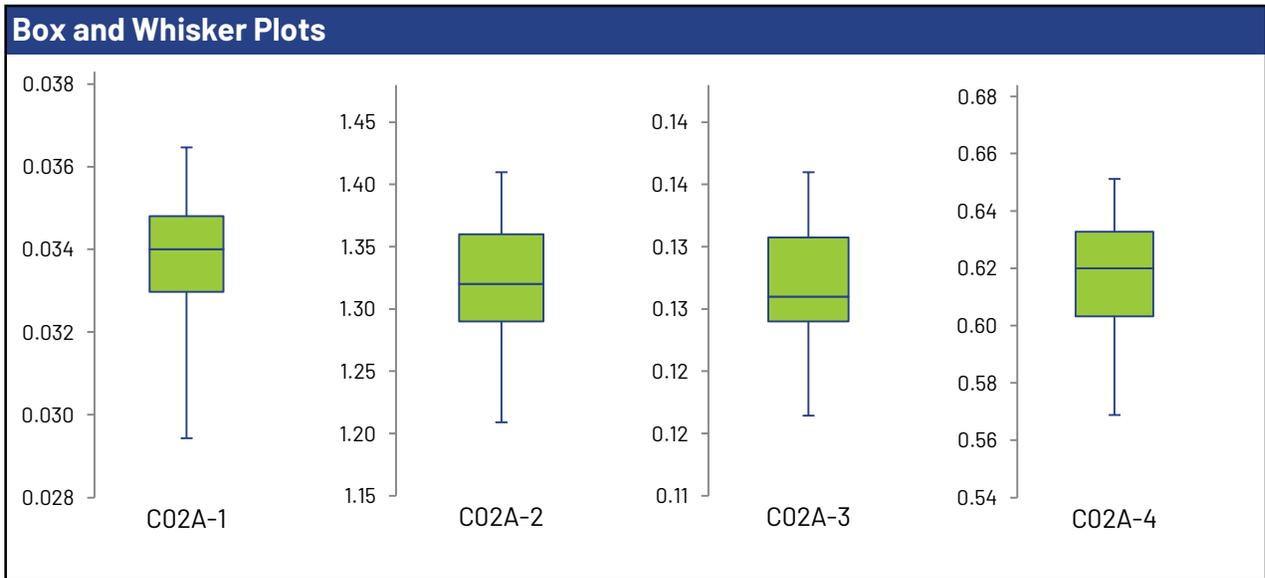
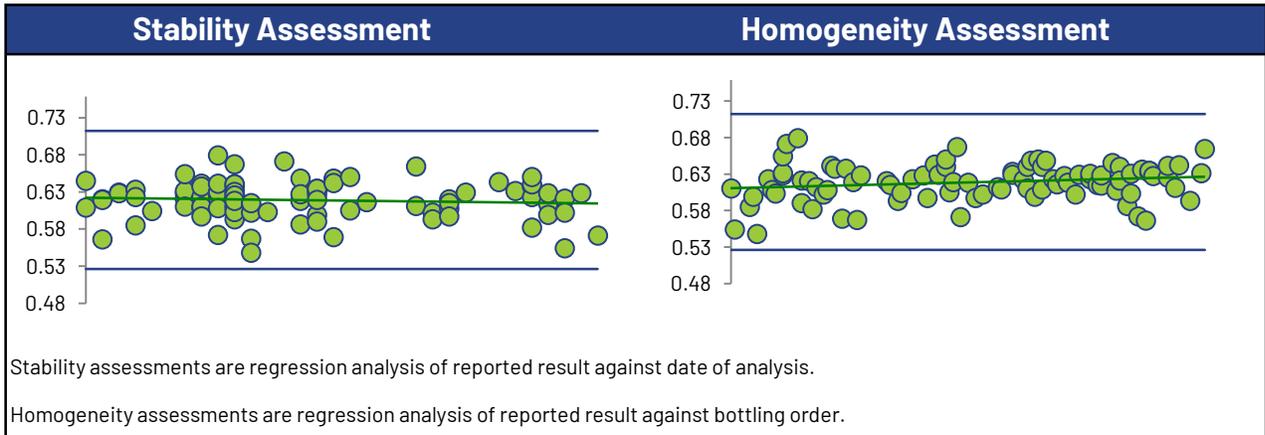


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Titanium



Titanium



Uranium

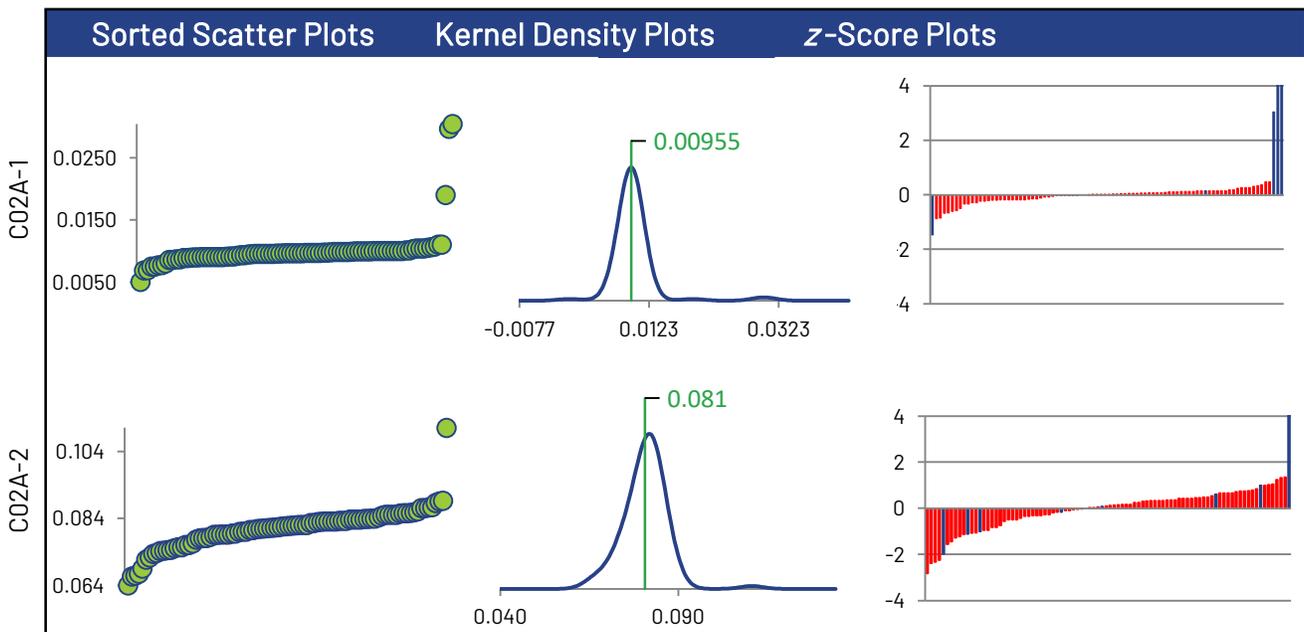
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	88	90	91	89
Median µg/L	0.00961	0.0817	0.0480	0.0419
Robust Mean µg/L	0.00955	0.0810	0.0476	0.0415
Uncertainty of the Assigned Value µg/L	0.0000921	0.000623	0.000390	0.000339
Robust Standard Deviation µg/L	0.000691	0.00473	0.00298	0.00256
Regression Standard Deviation µg/L	0.000716	0.00607	0.00357	0.00311
Stability Flag	Stability			
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00310	0.00607	0.00357	0.00311
Flagged Outliers	2	3	2	4
$ z > 3.0$	3	1	3	3
$2 < z < 3$	0	4	3	4
Failure Rate %*	0.0			

Methods Used

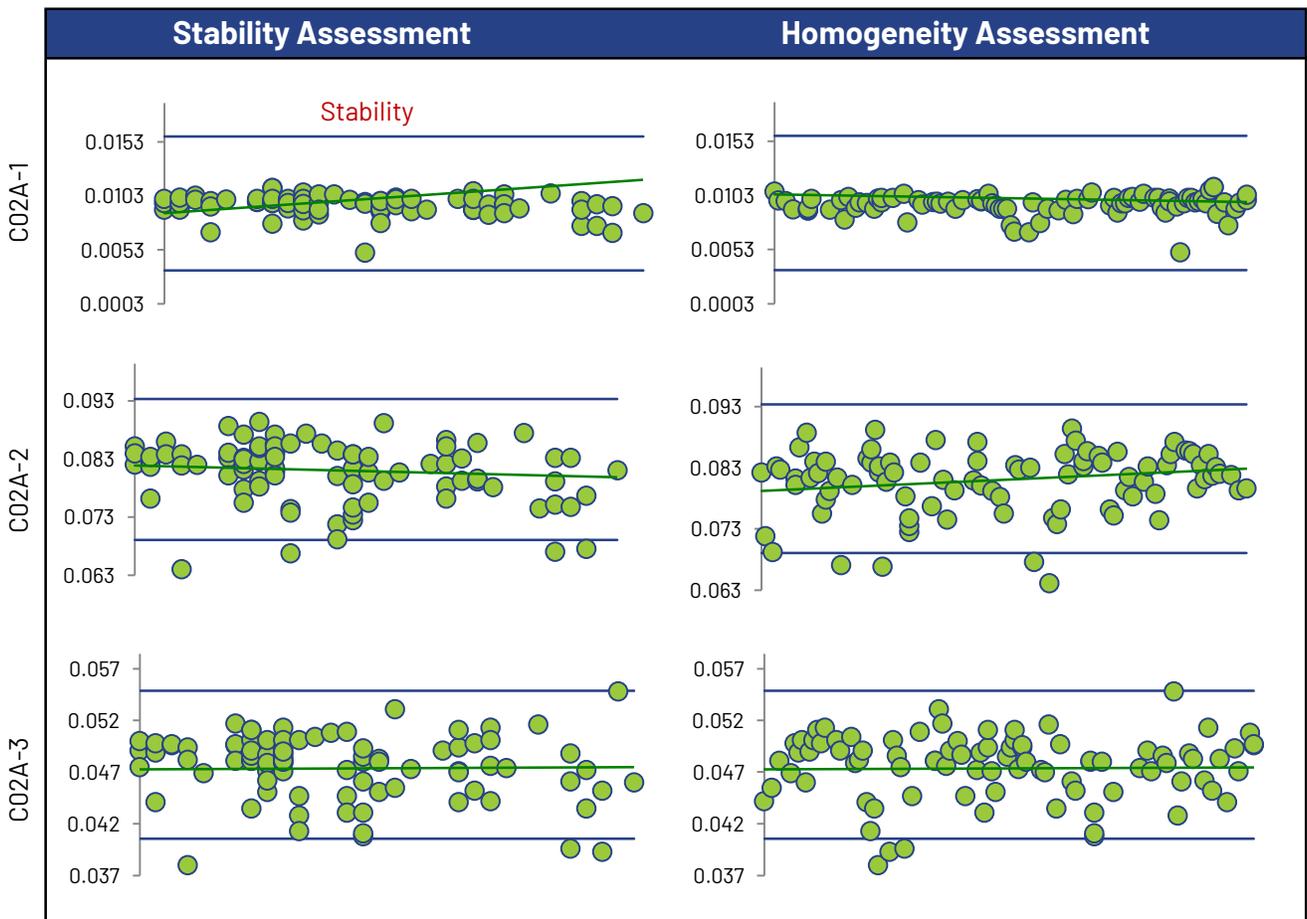
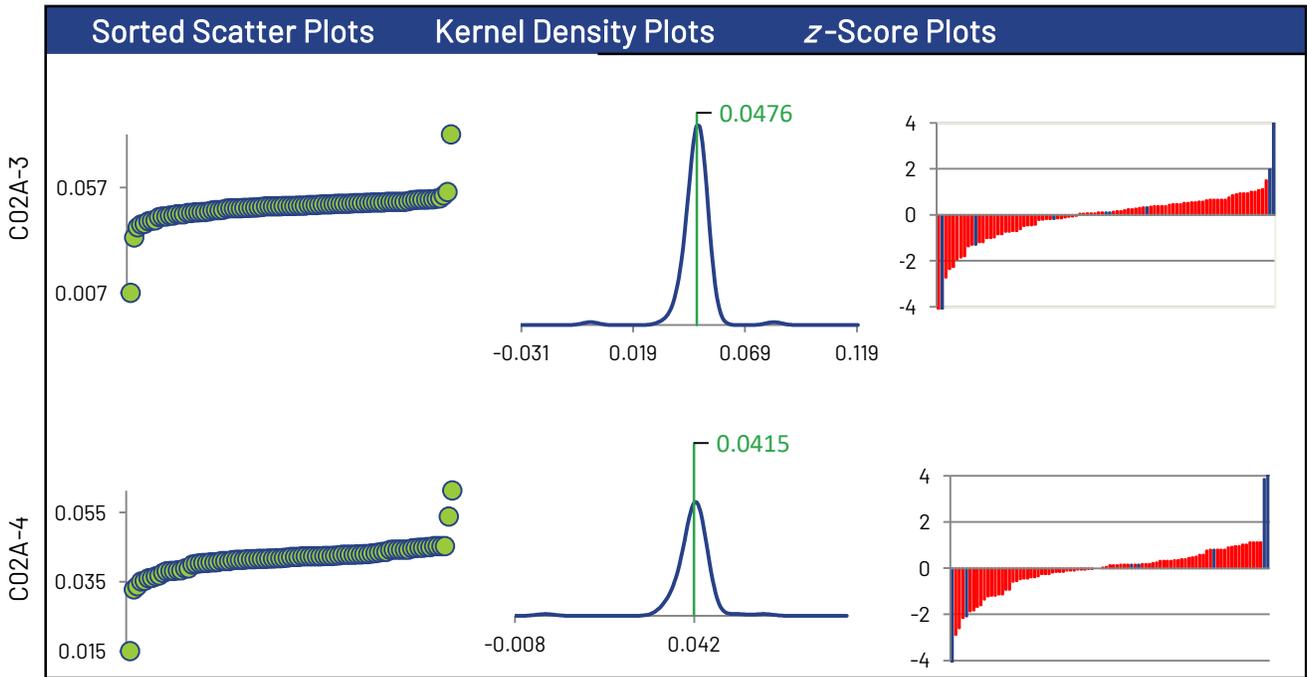
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	5	8	8	8
ICP/MS (Red)	83	82	83	81

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

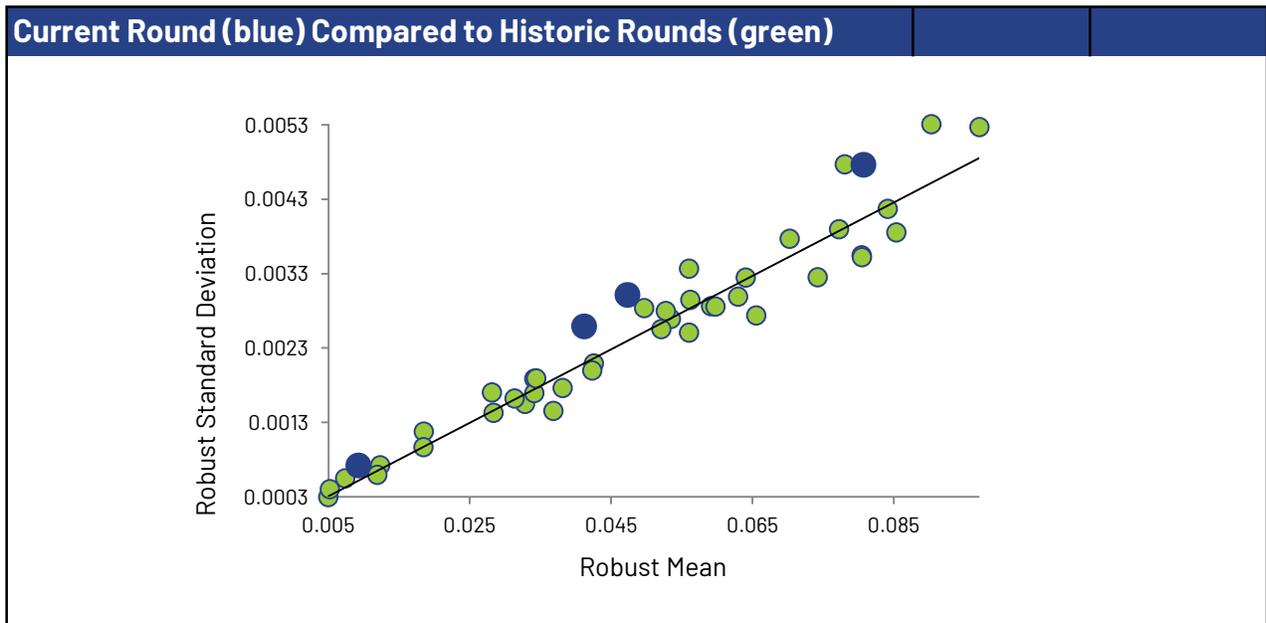
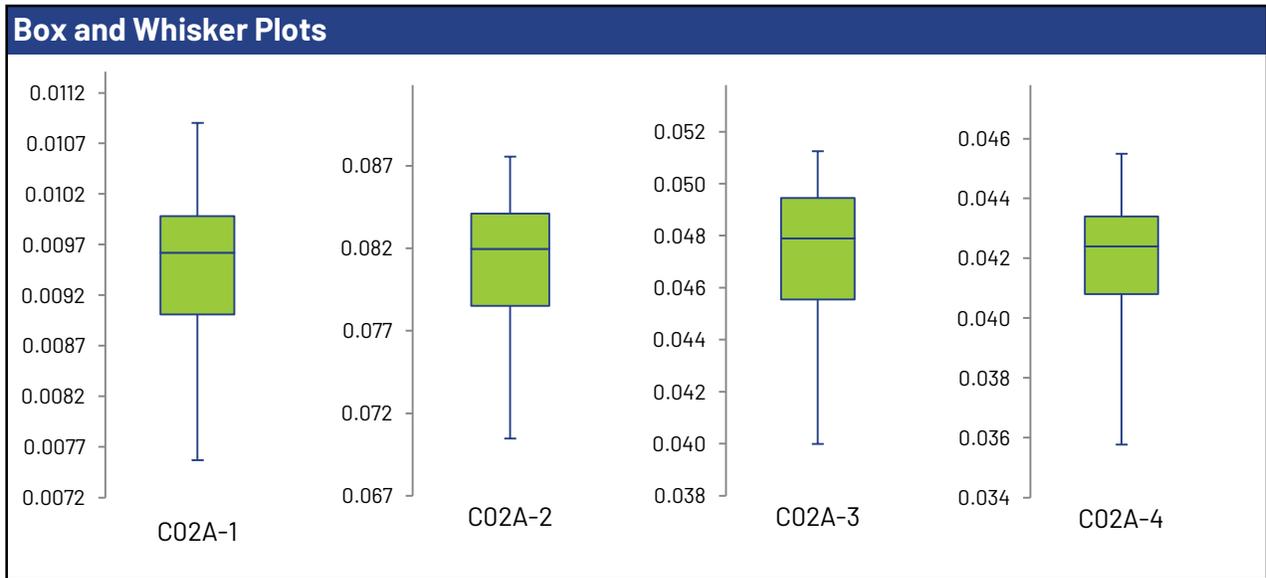
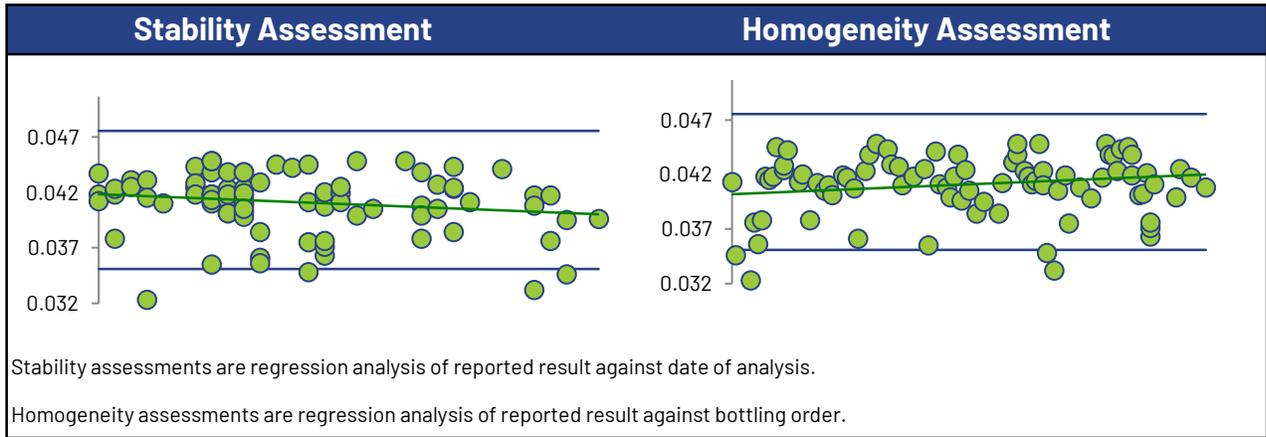


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Uranium



Uranium



Vanadium

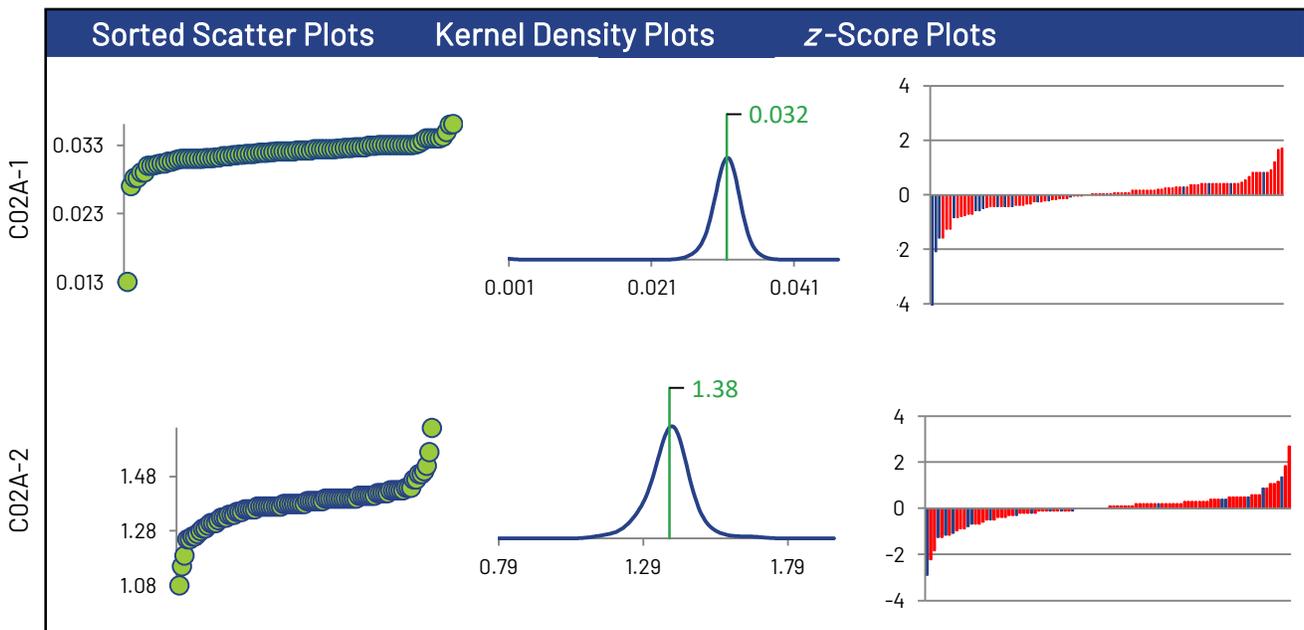
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	97	98	98	98
Median µg/L	0.0321	1.39	0.351	0.596
Robust Mean µg/L	0.0320	1.38	0.351	0.598
Uncertainty of the Assigned Value µg/L	0.000157	0.00654	0.00192	0.00287
Robust Standard Deviation µg/L	0.00124	0.0518	0.0152	0.0227
Regression Standard Deviation µg/L	0.00240	0.104	0.0264	0.0448
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00240	0.104	0.0264	0.0448
Flagged Outliers	2	2	2	2
$ z > 3.0$	1	0	1	1
$2 < z < 3$	1	3	0	0
Failure Rate %*	3.0			

Methods Used

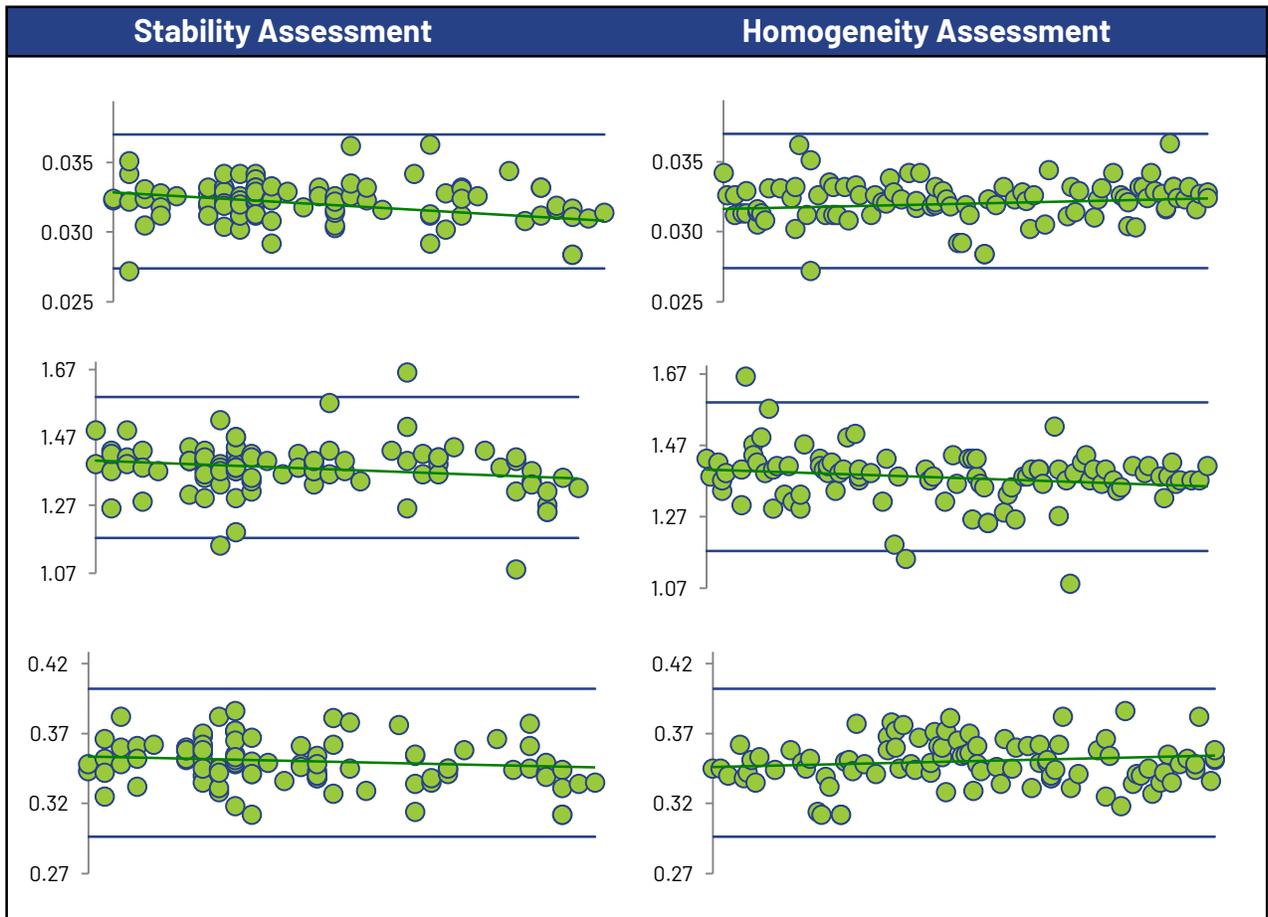
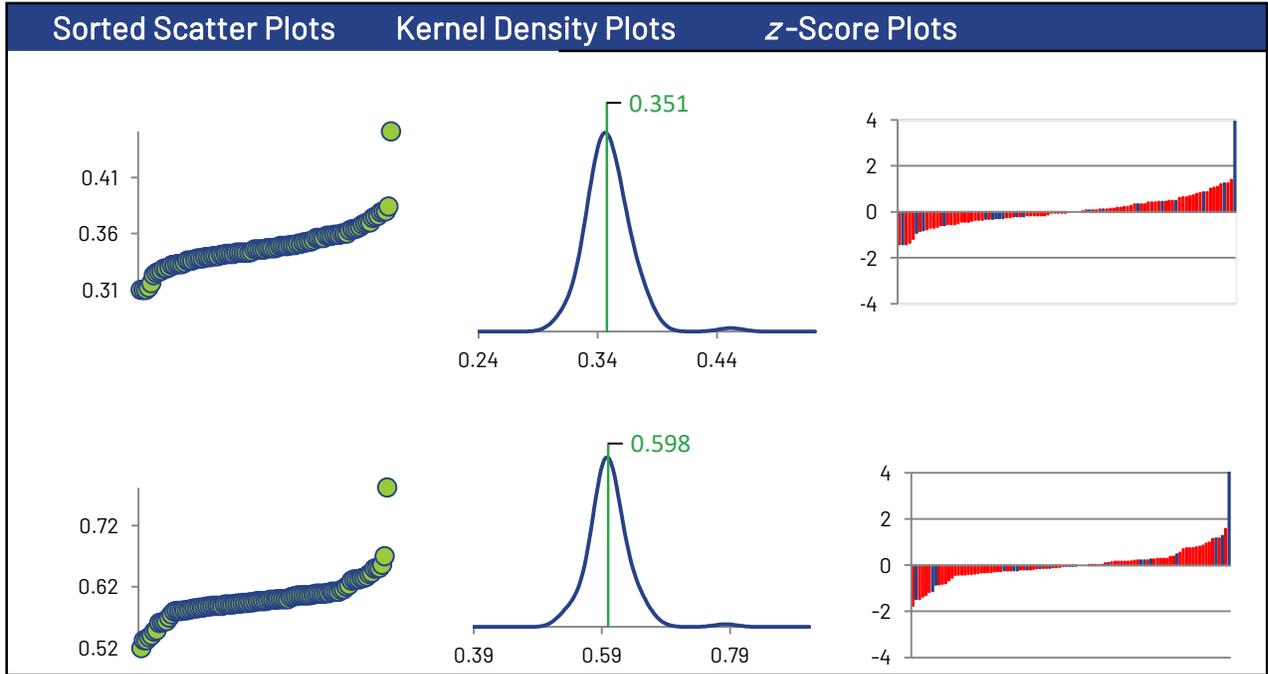
Method	C02A-1	C02A-2	C02A-3	C02A-4
ICP/OES (Blue)	18	19	19	19
ICP/MS (Red)	79	79	79	79

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers

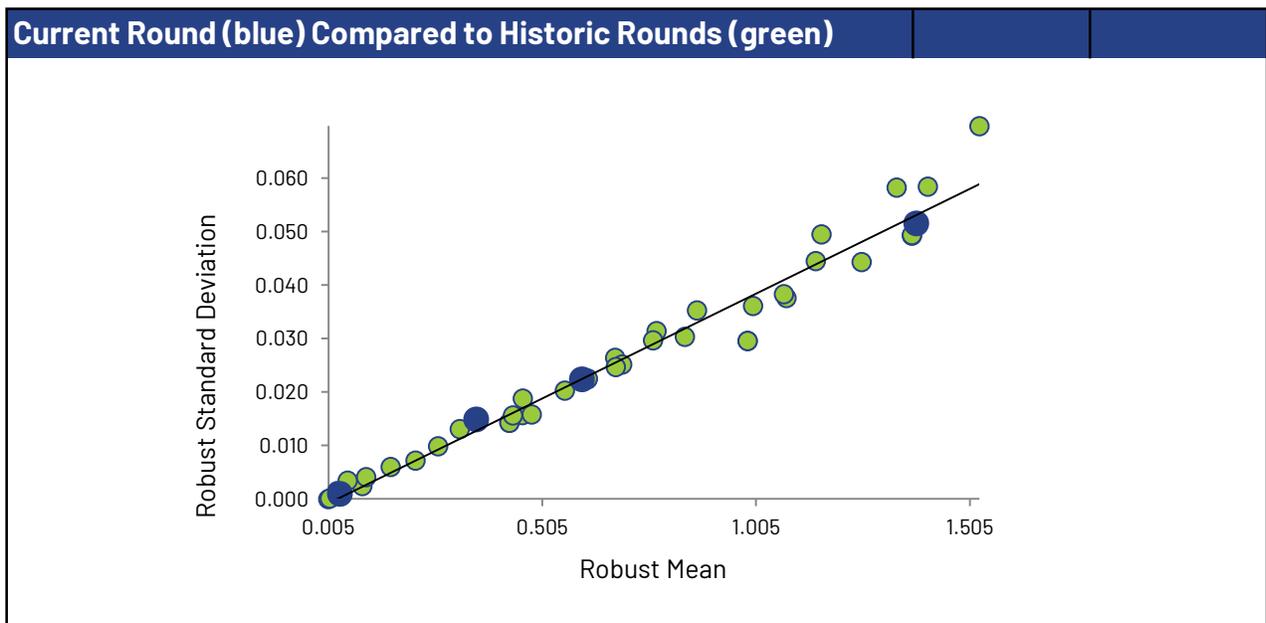
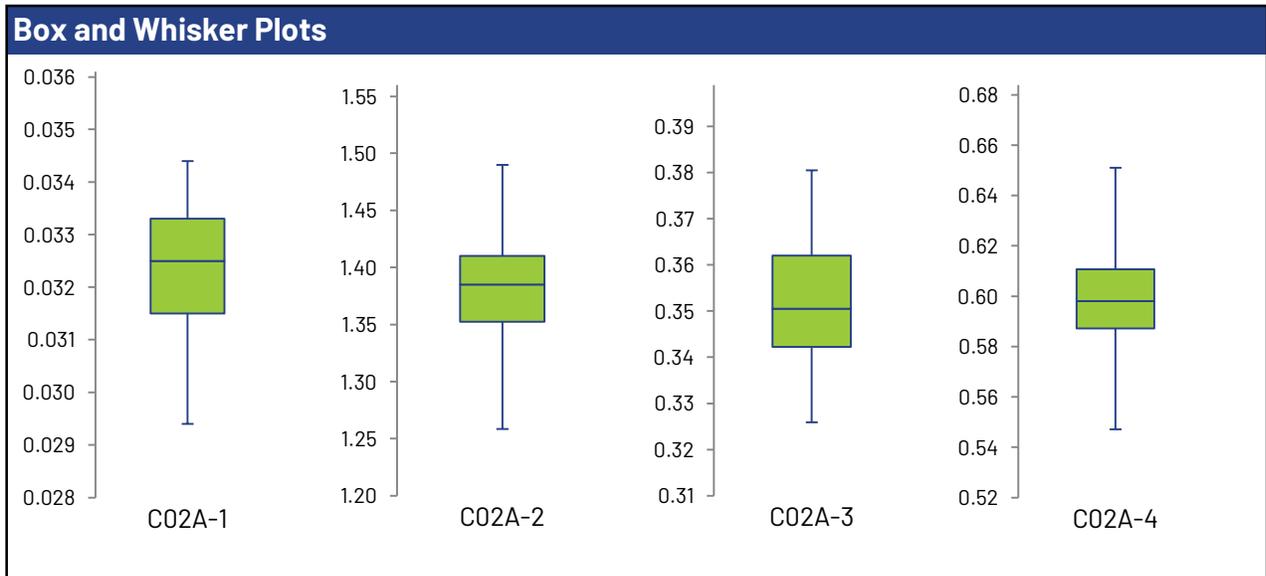
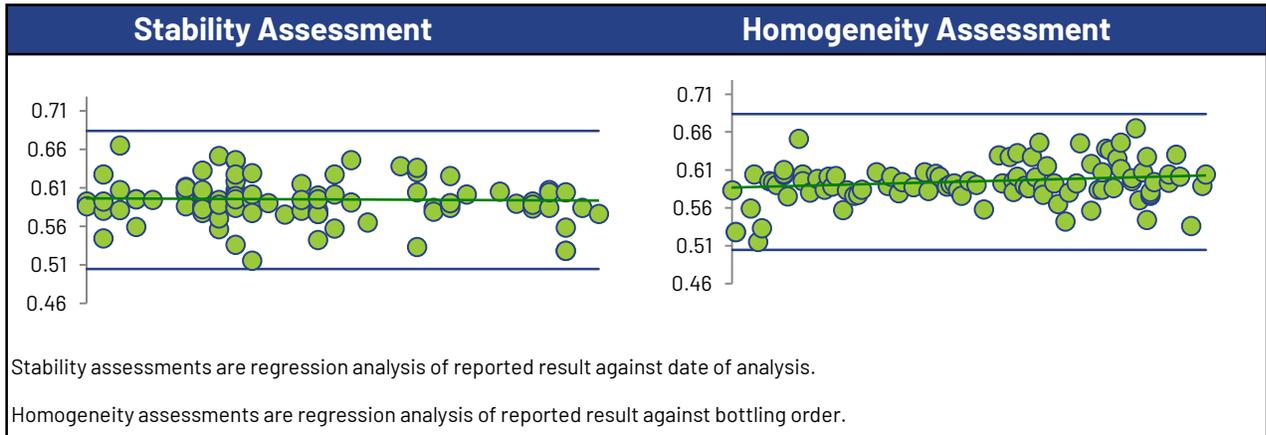


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Vanadium



Vanadium



Zinc

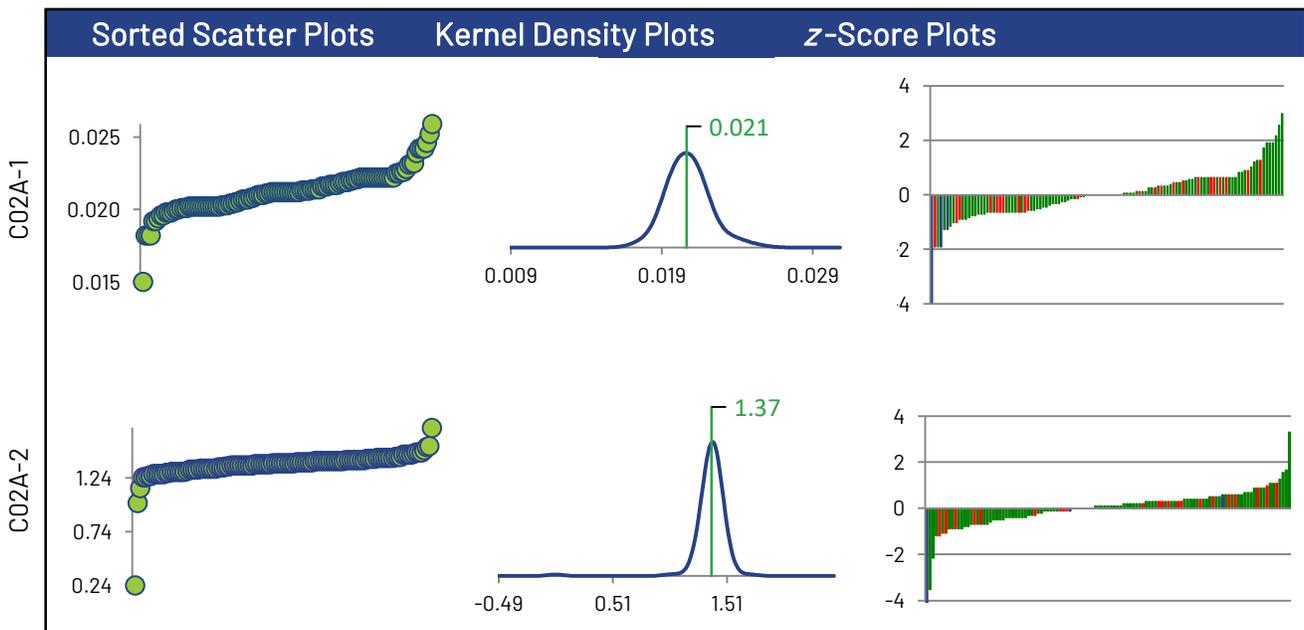
Summary Statistics

Statistic	C02A-1	C02A-2	C02A-3	C02A-4
No. of results used for summary statistics	114	115	115	115
Median µg/L	0.0210	1.38	0.215	0.690
Robust Mean µg/L	0.0210	1.37	0.215	0.691
Uncertainty of the Assigned Value µg/L	0.000138	0.00739	0.00122	0.00335
Robust Standard Deviation µg/L	0.00118	0.0634	0.0105	0.0287
Regression Standard Deviation µg/L	0.00157	0.103	0.0162	0.0518
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/L	0.00157	0.103	0.0162	0.0518
Flagged Outliers	2	2	2	2
$ z > 3.0$	1	3	3	1
$2 < z < 3$	3	1	3	2
Failure Rate %*	5.1			

Methods Used

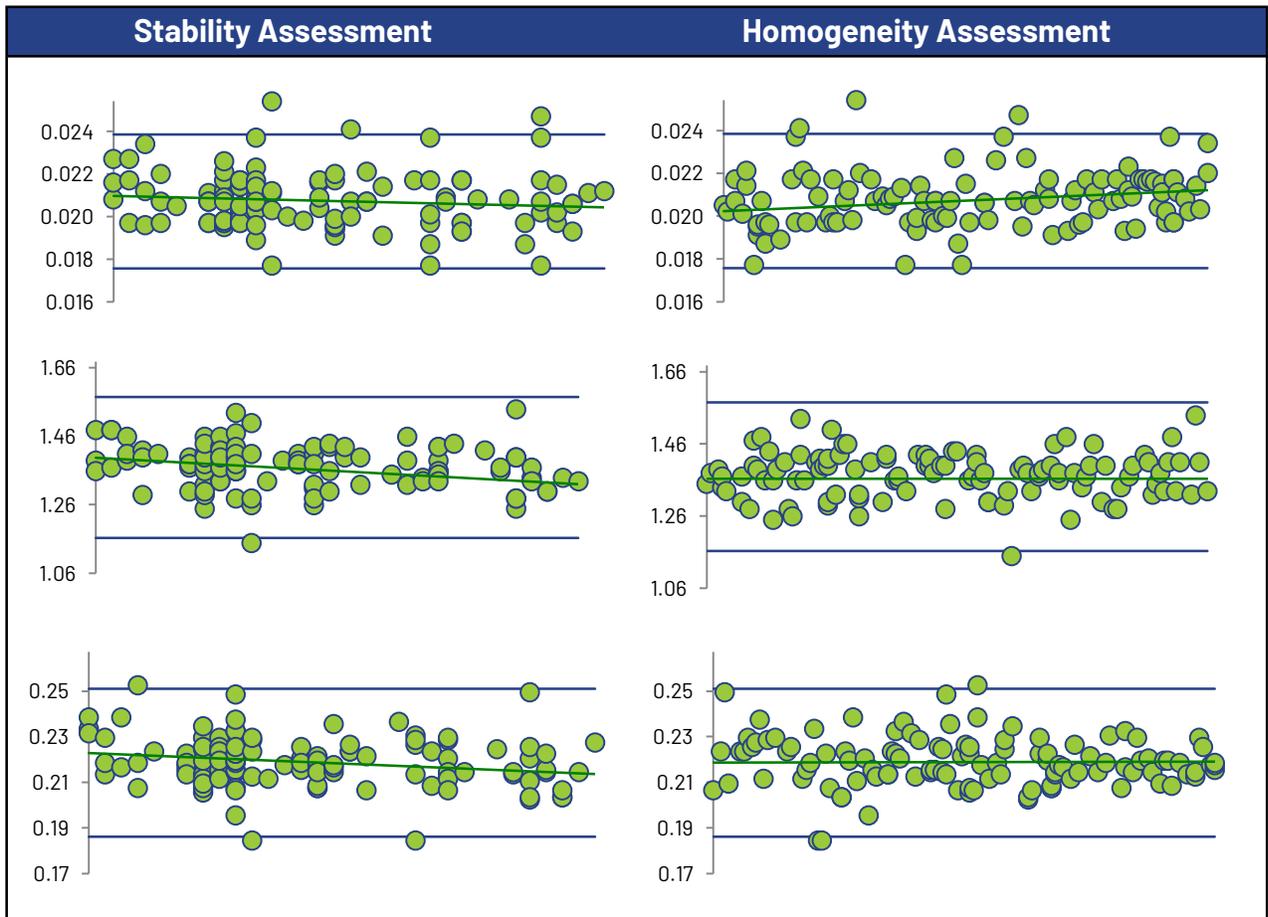
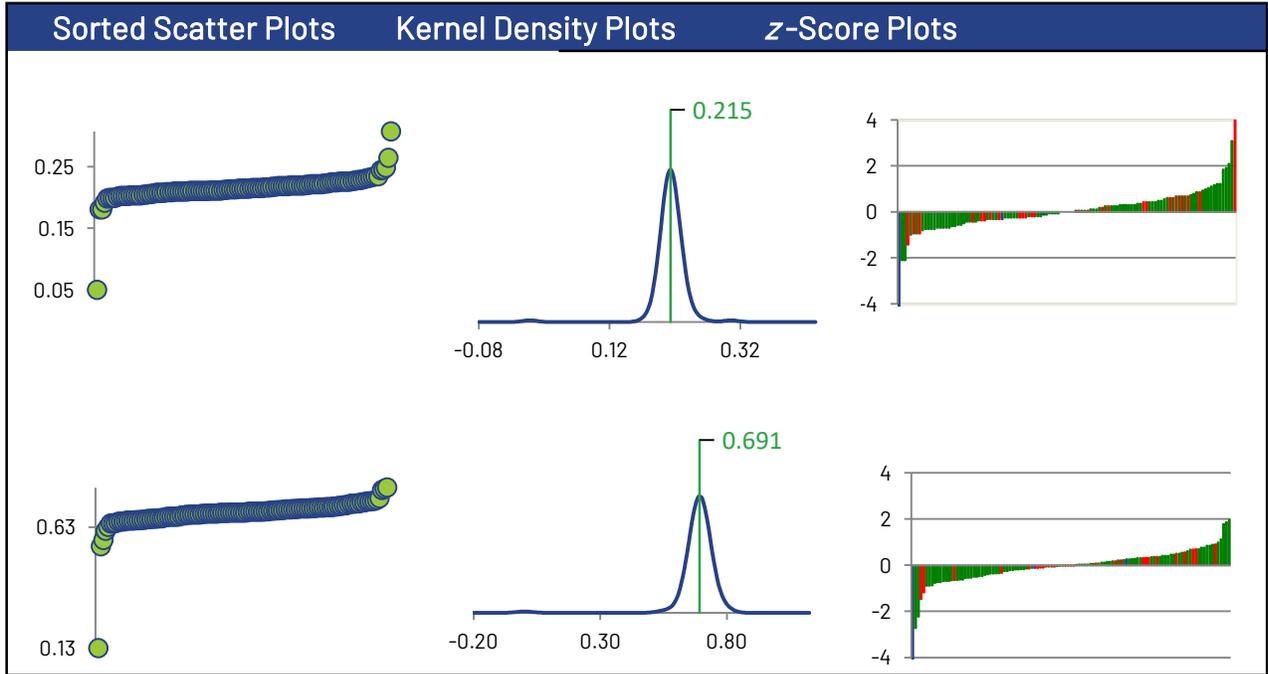
Method	C02A-1	C02A-2	C02A-3	C02A-4
AA FLAME (Blue)	3	3	3	3
ICP/OES (Red)	25	26	26	26
ICP/MS (Green)	86	86	86	86

All summary stats, except the failure rate, and the plots below are based on the data excluding any flagged outliers



* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Zinc



Zinc

