

Test Group Summary Report

C17 Metals in Soil

June 2026 PT Round

Issued: August 10, 2026

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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

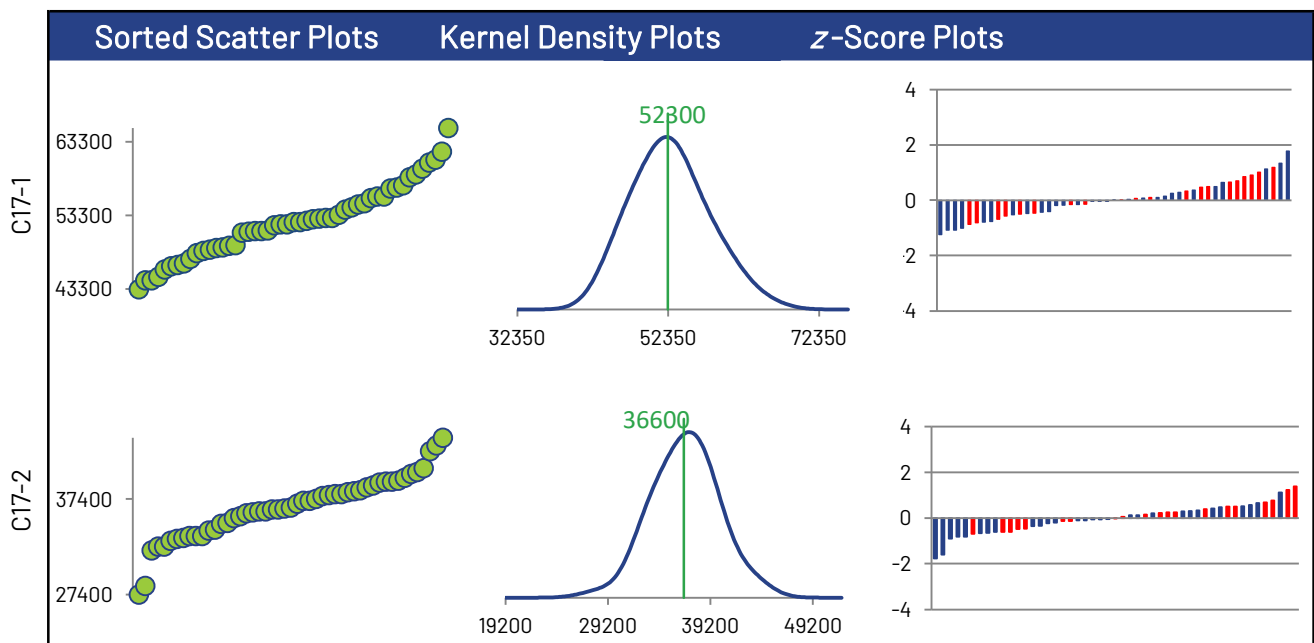
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	49	49	49	49
Median µg/g	52400	36500	31200	33900
Robust Mean µg/g	52300	36600	30900	34100
Uncertainty of the Assigned Value µg/g	923	545	343	471
Robust Standard Deviation µg/g	5170	3050	1920	2640
Regression Standard Deviation µg/g	7250	5190	4440	4870
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	7250	5190	4440	4870
Flagged Outliers	1	1	1	1
$ z > 3.0$	0	0	0	0
$2 < z < 3$	0	0	0	0
Failure Rate %*	2.0			

Methods Used

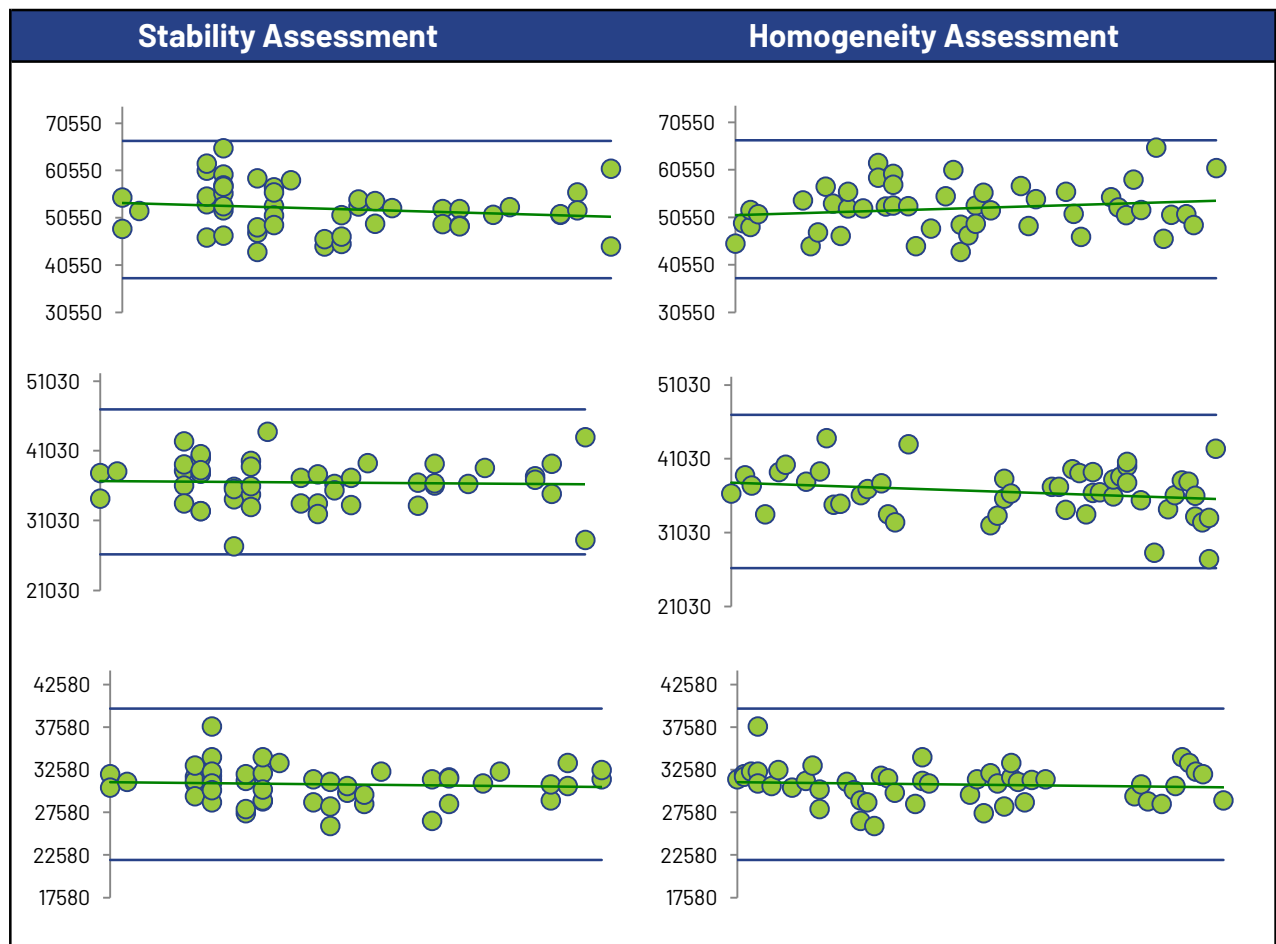
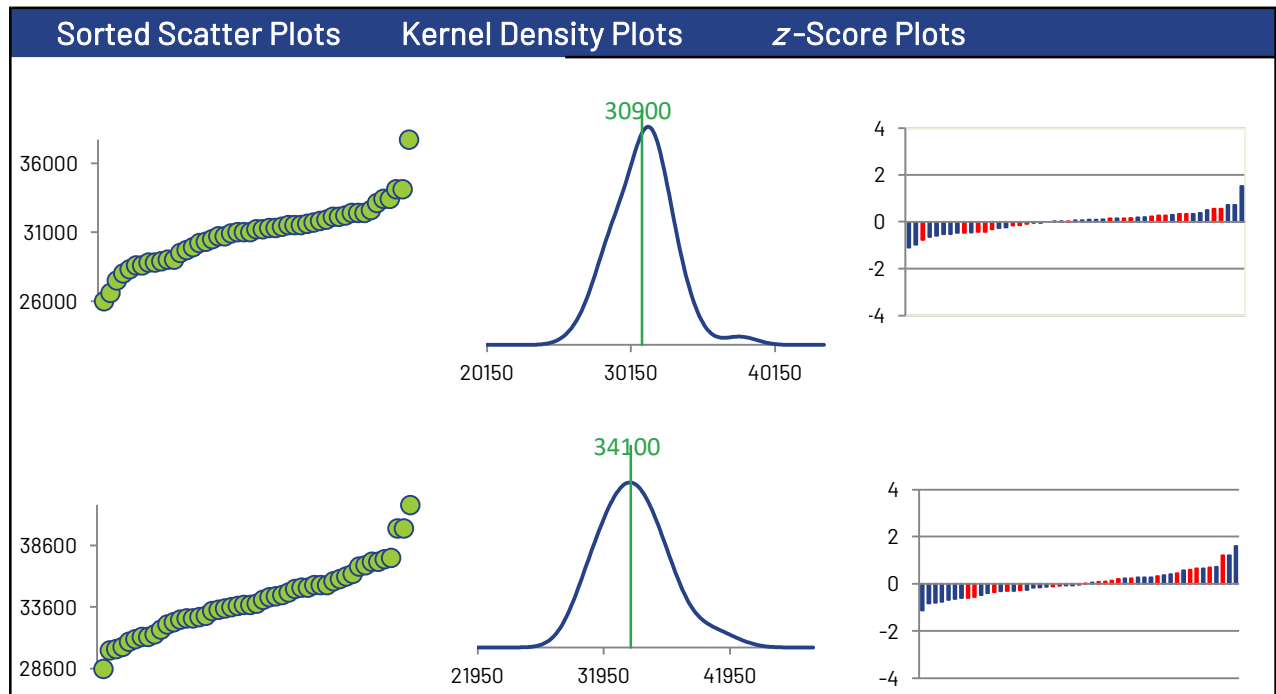
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	29	29	29	29
ICP/OES (Red)	20	20	20	20

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

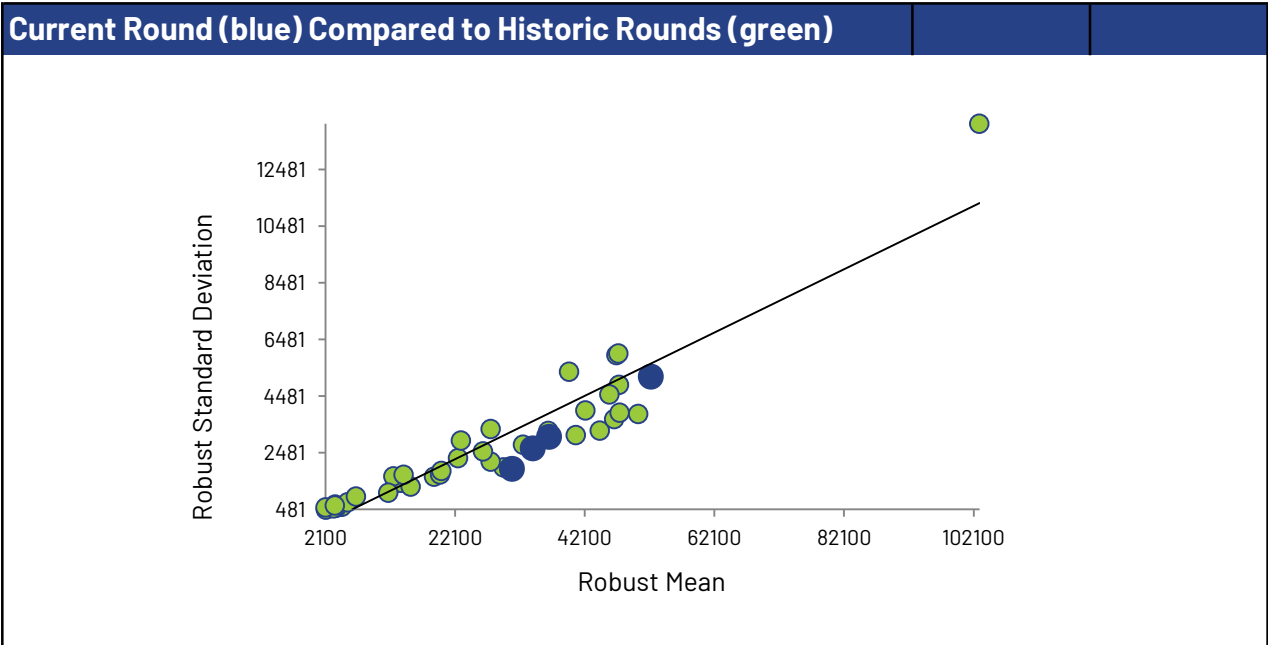
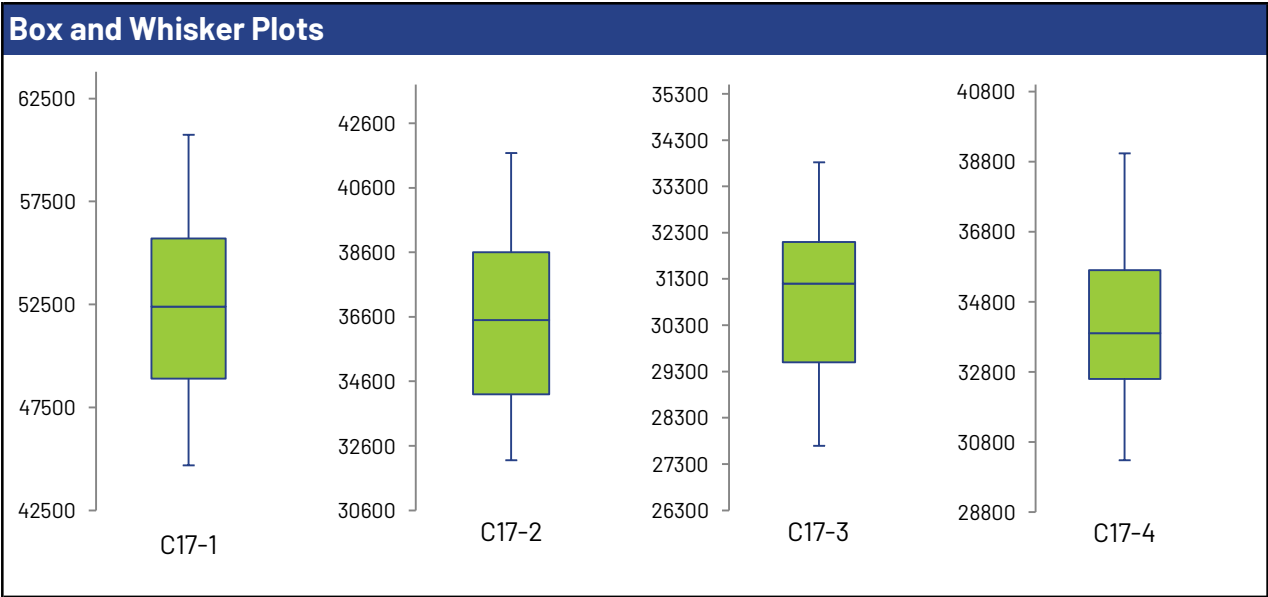
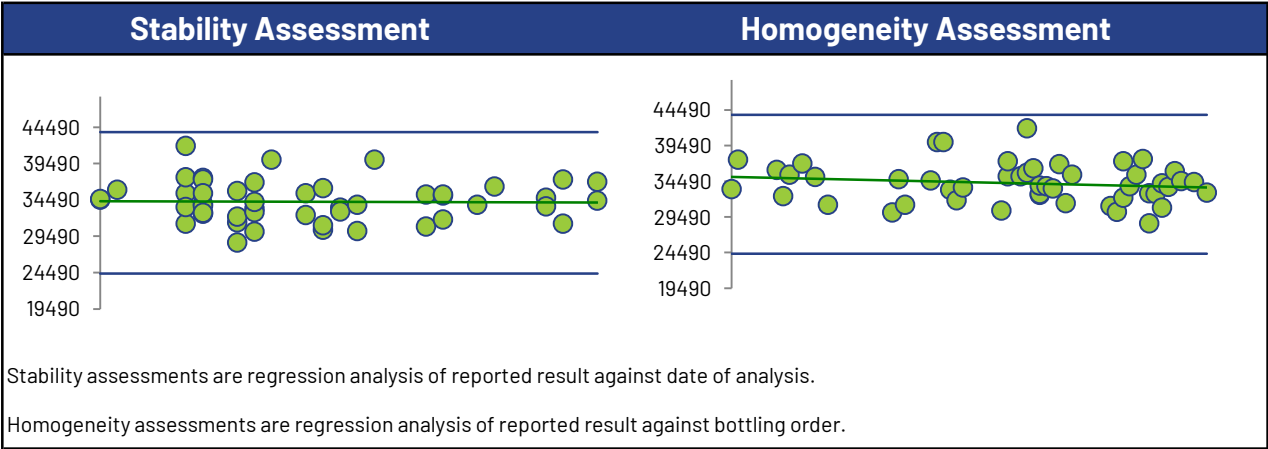


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Aluminum



Aluminum



Antimony

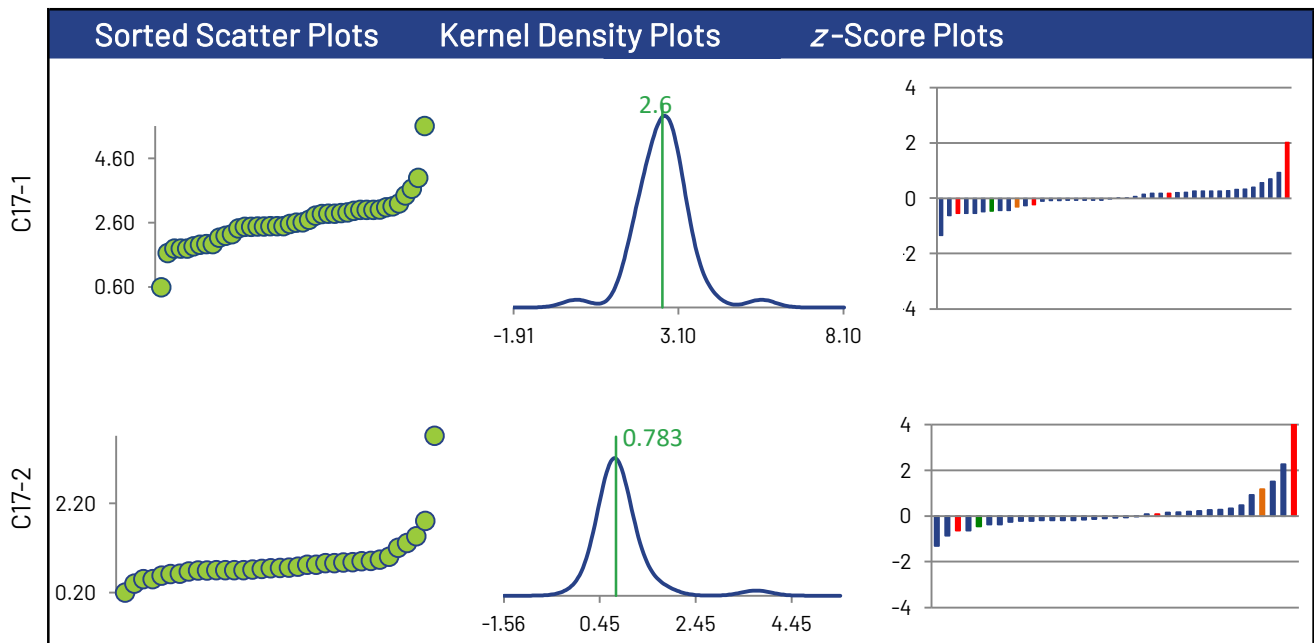
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	42	35	40	38
Median µg/g	2.59	0.752	1.16	1.03
Robust Mean µg/g	2.60	0.783	1.16	1.05
Uncertainty of the Assigned Value µg/g	0.114	0.0437	0.0549	0.0452
Robust Standard Deviation µg/g	0.593	0.207	0.278	0.223
Regression Standard Deviation µg/g	1.49	0.449	0.667	0.599
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1.49	0.449	0.667	0.599
Flagged Outliers	1	1	1	1
$ z > 3.0$	0	1	1	0
$2 < z < 3$	1	1	0	0
Failure Rate %*	1.9			

Methods Used

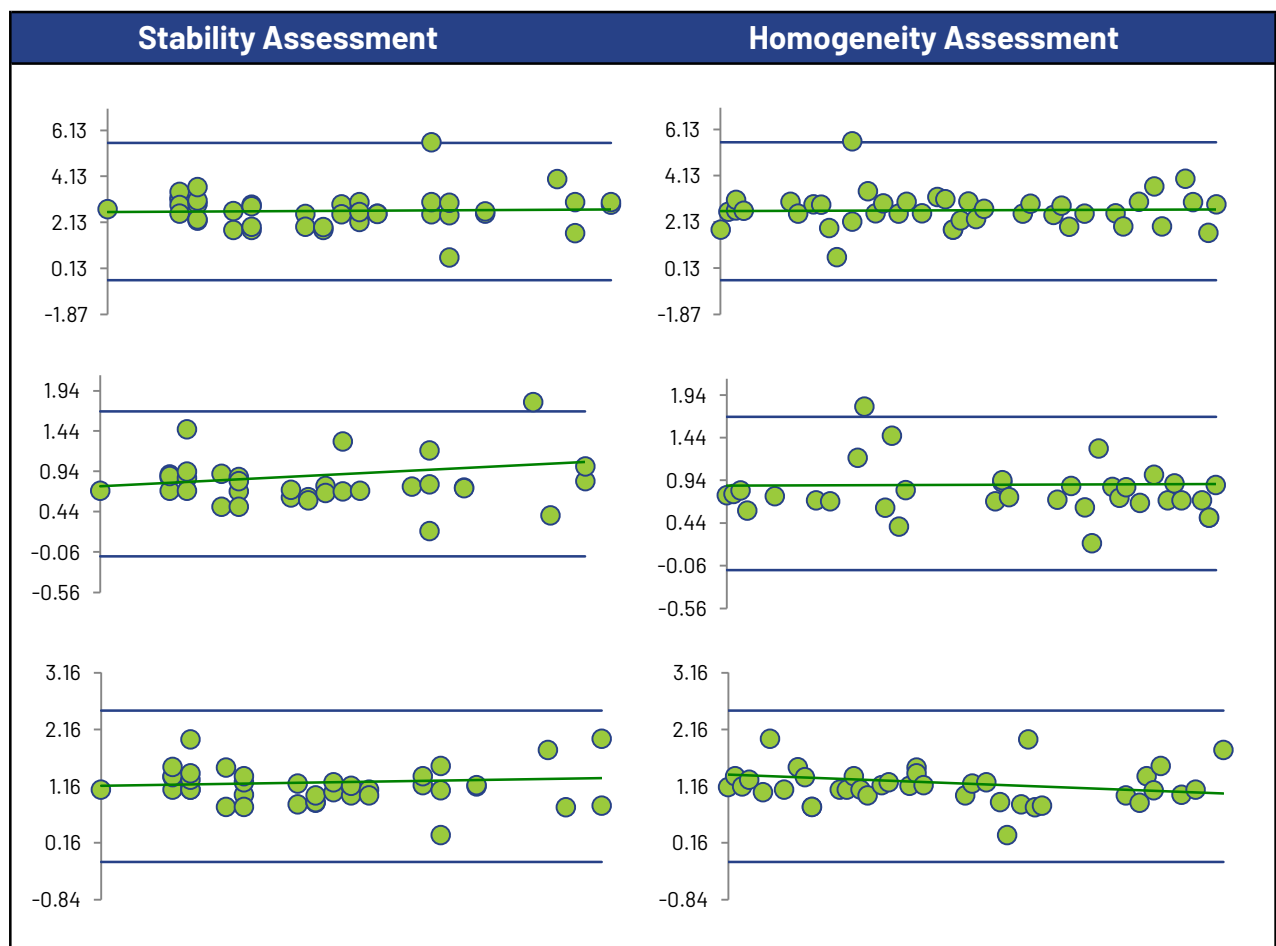
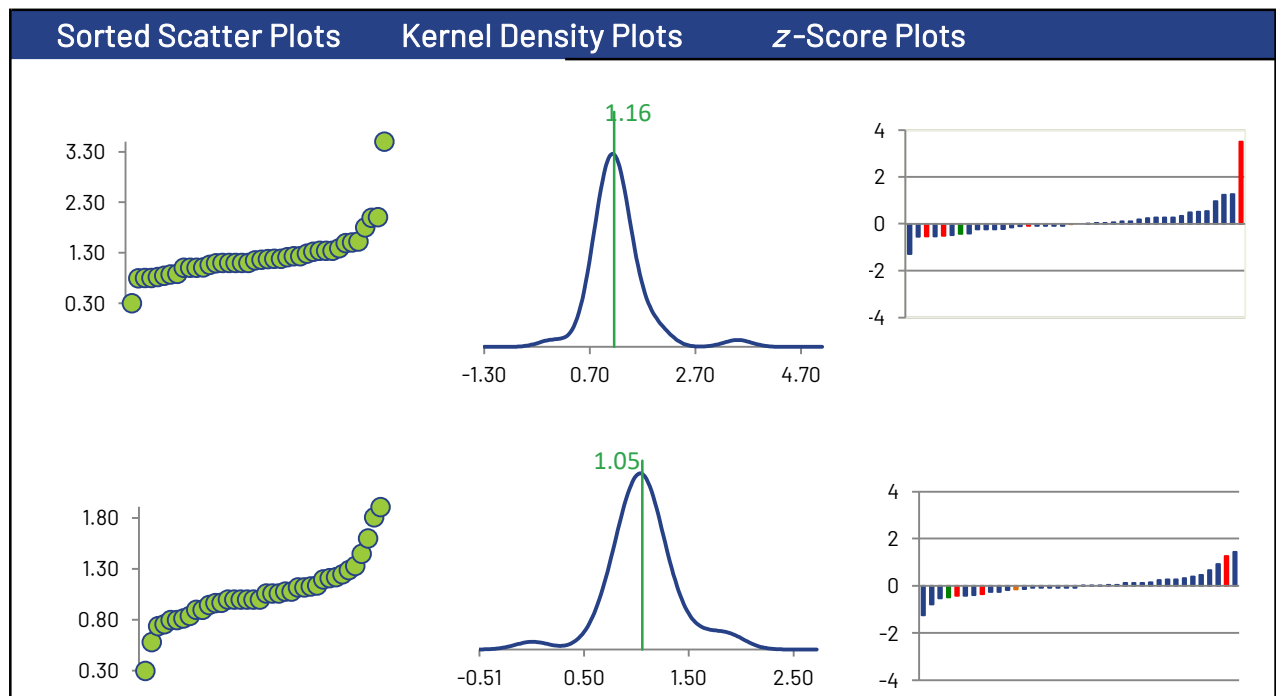
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	36	30	34	33
ICP/OES (Red)	4	3	4	3
HYDRIDE ICP (Green)	1	1	1	1
HYDRIDE AA (Orange)	1	1	1	1

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

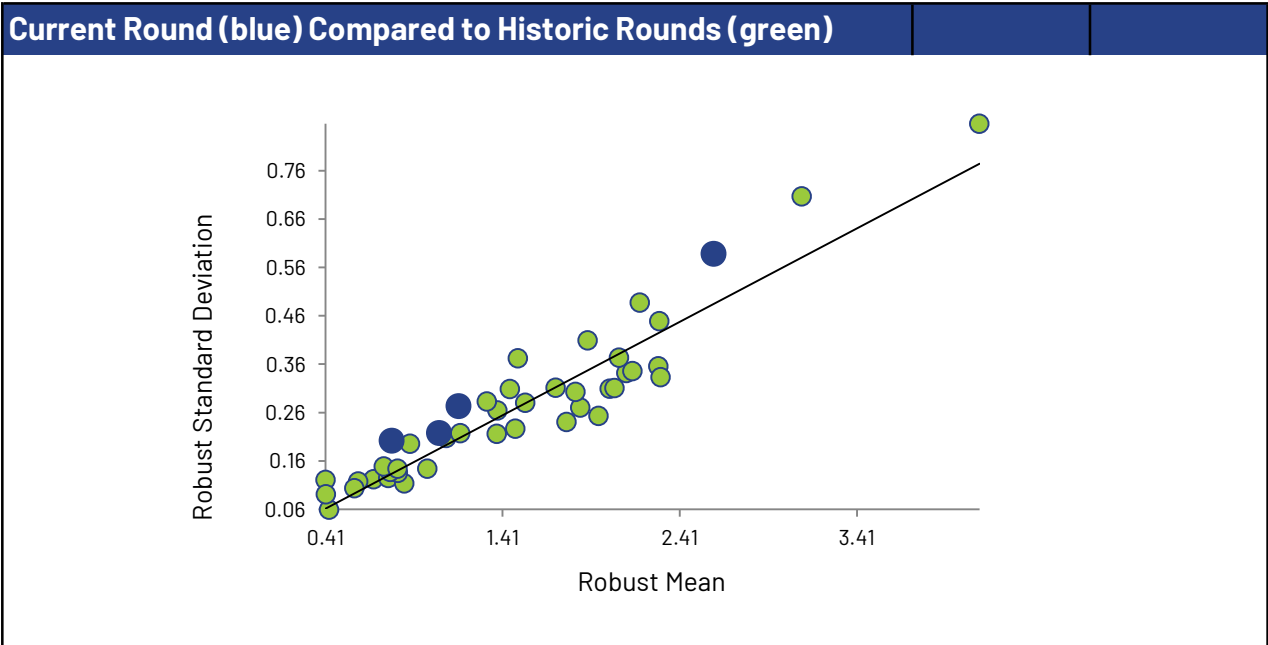
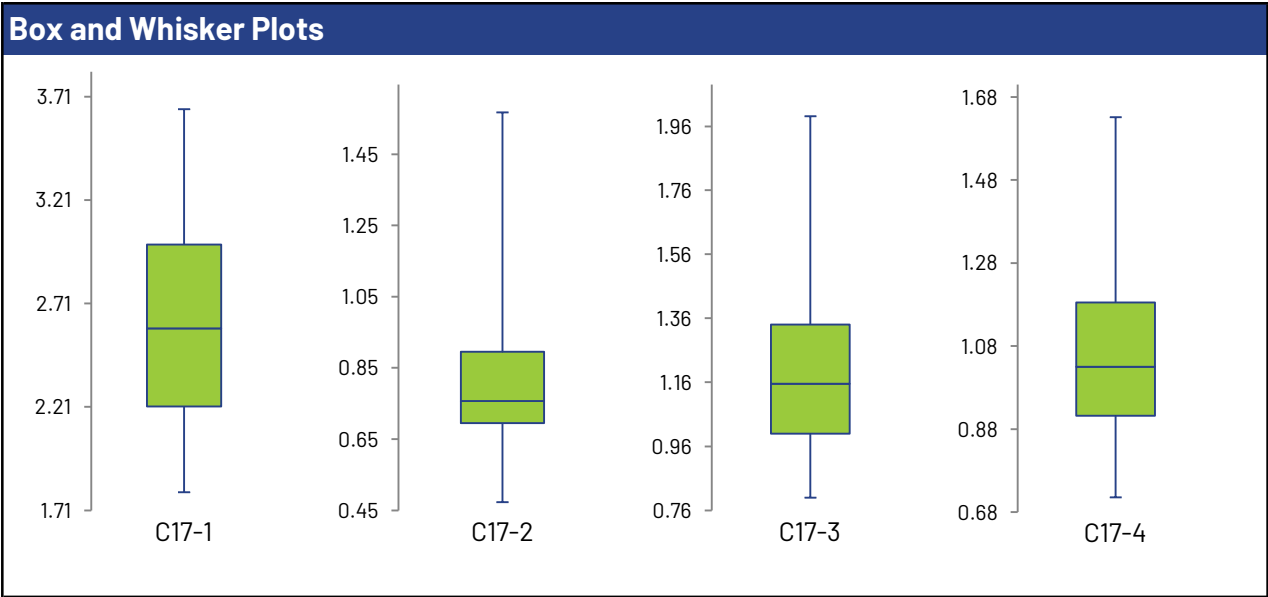
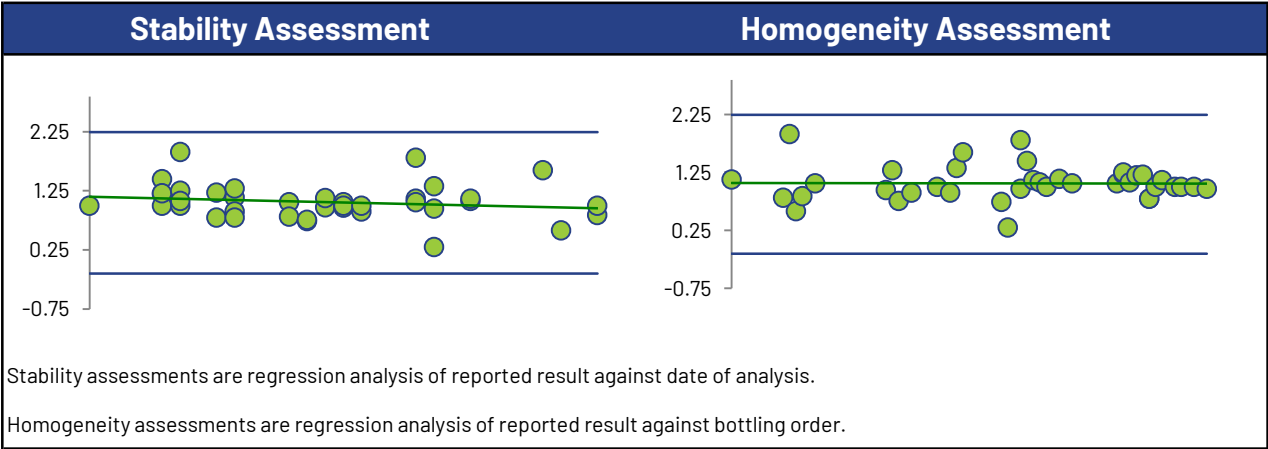


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Antimony



Antimony



Arsenic

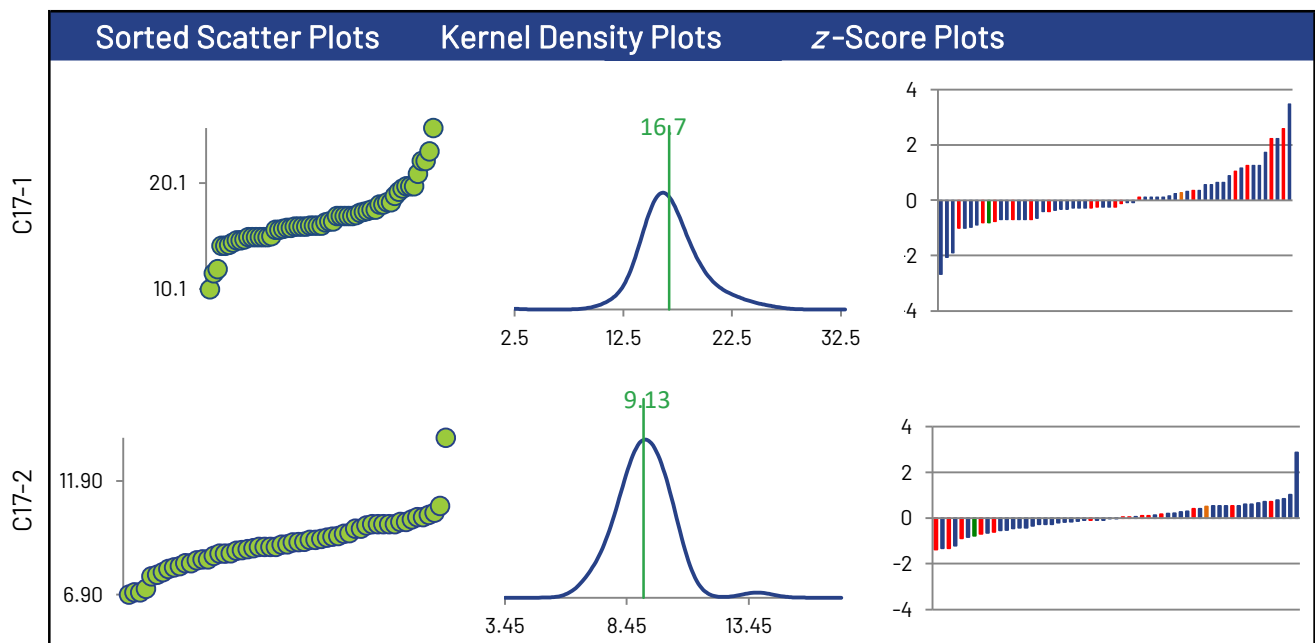
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	59	57	58	56
Median µg/g	16.1	9.10	8.02	9.44
Robust Mean µg/g	16.7	9.13	8.13	9.53
Uncertainty of the Assigned Value µg/g	0.347	0.161	0.184	0.144
Robust Standard Deviation µg/g	2.13	0.970	1.12	0.864
Regression Standard Deviation µg/g	2.47	1.63	1.52	1.68
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	2.47	1.63	1.52	1.68
Flagged Outliers	0	0	0	1
$ z > 3.0$	1	0	1	1
$2 < z < 3$	5	1	3	0
Failure Rate %*	5.1			

Methods Used

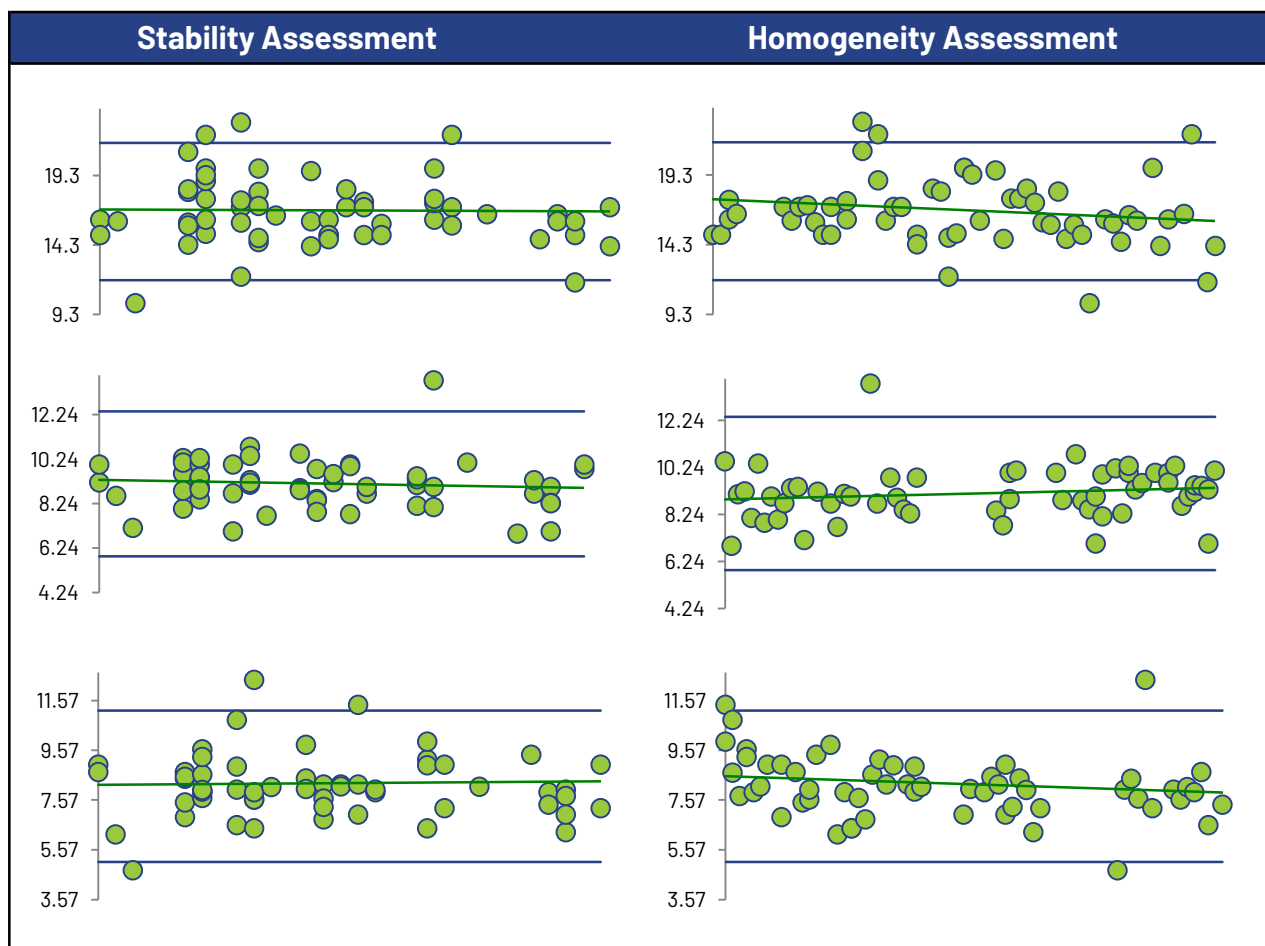
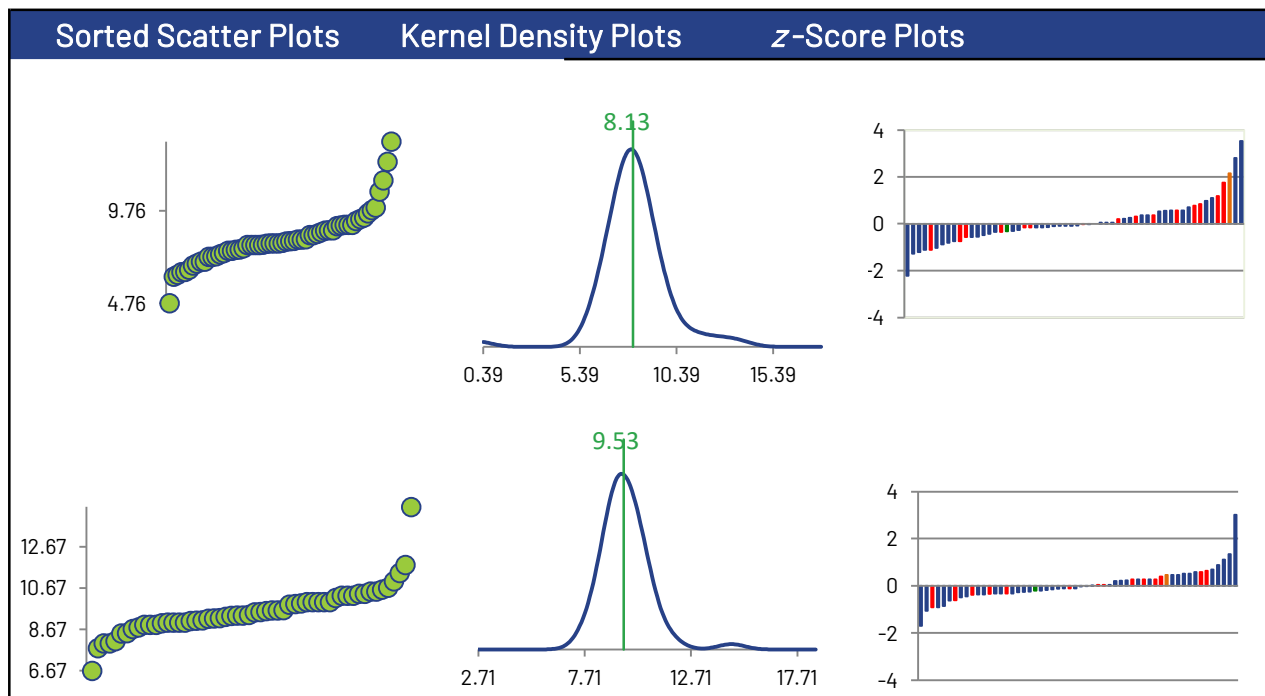
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	41	41	41	40
ICP/OES (Red)	16	14	15	14
HYDRIDE ICP (Green)	1	1	1	1
HYDRIDE AA (Orange)	1	1	1	1

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

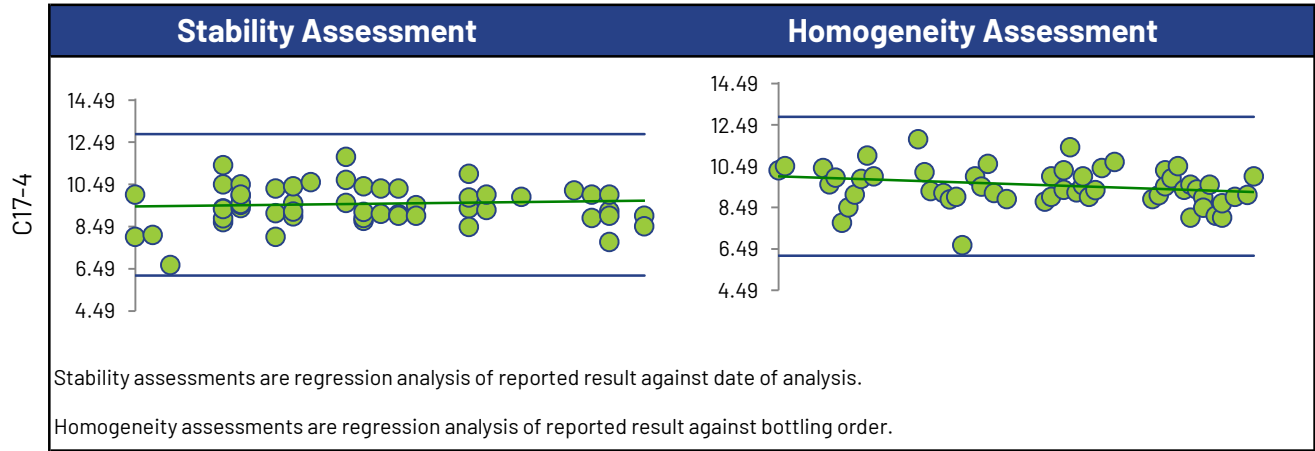


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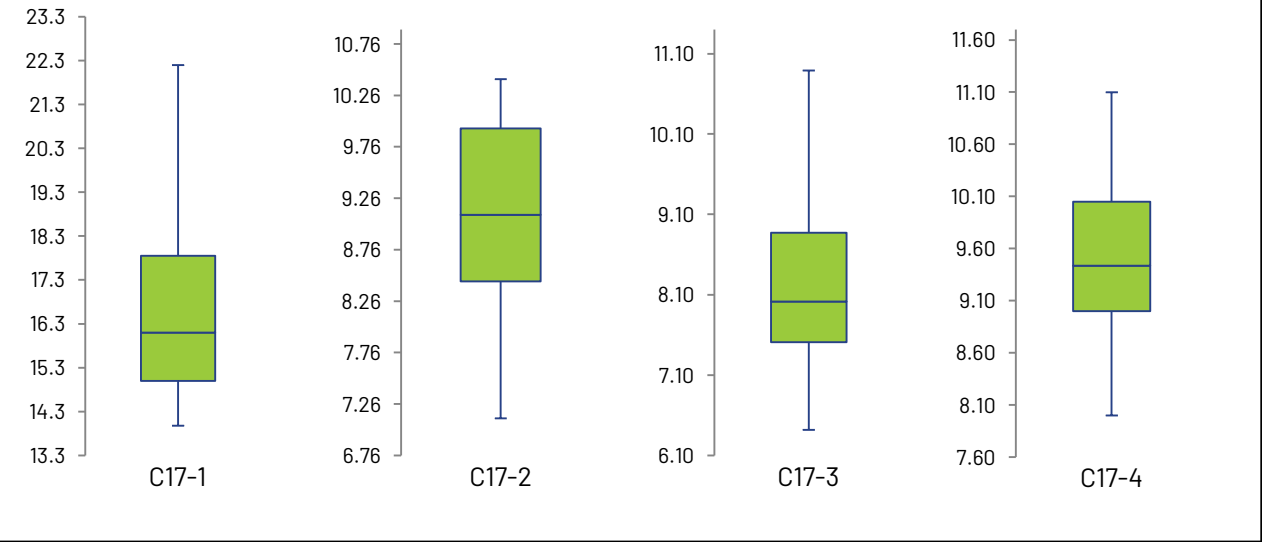
Arsenic



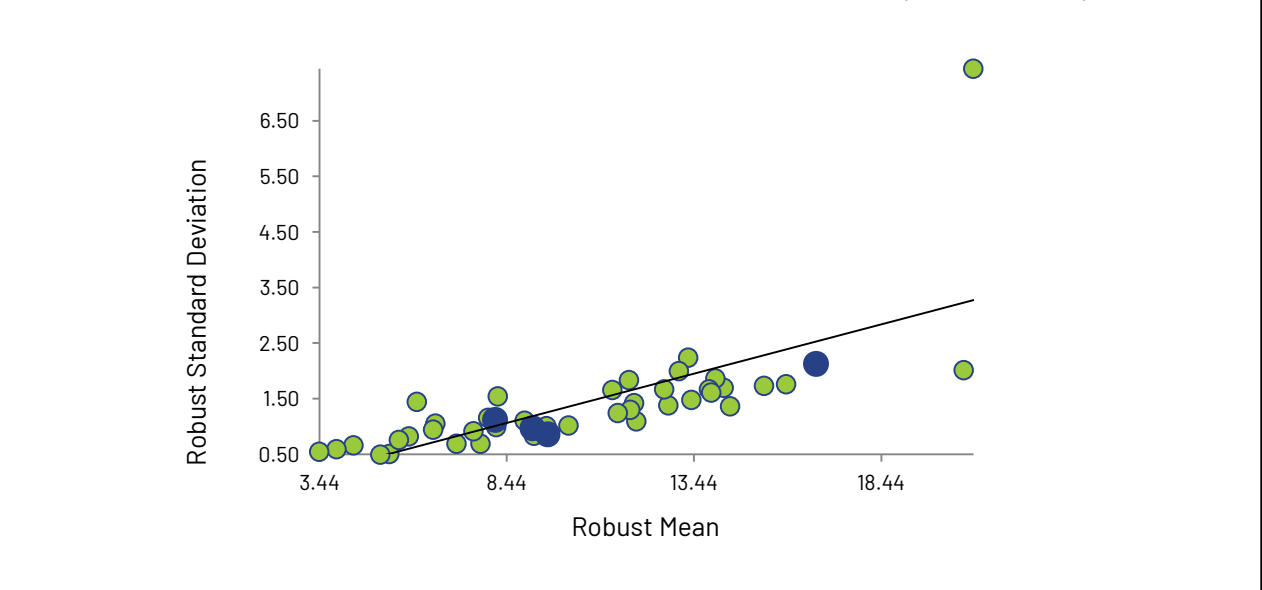
Arsenic



Box and Whisker Plots



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



Barium

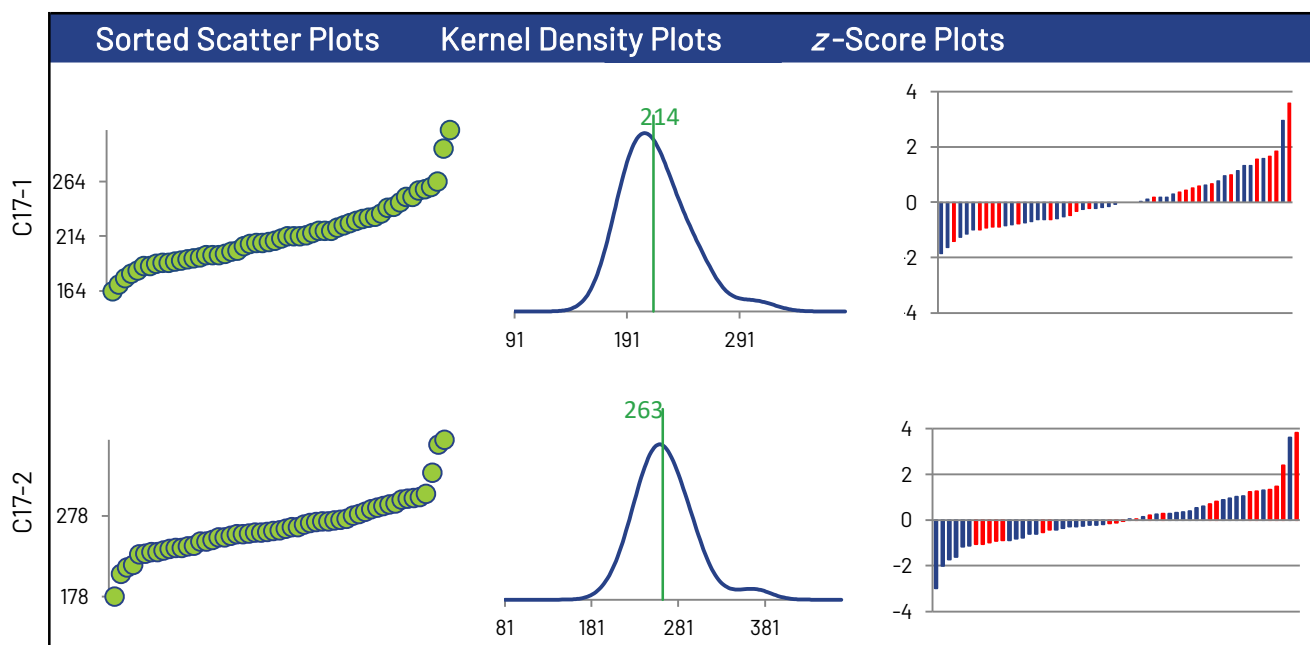
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	55	55	55	55
Median µg/g	212	260	101	158
Robust Mean µg/g	214	263	102	160
Uncertainty of the Assigned Value µg/g	4.55	4.80	1.80	2.38
Robust Standard Deviation µg/g	27.0	28.5	10.7	14.1
Regression Standard Deviation µg/g	16.9	20.3	9.12	13.1
Stability Flag			Stability	
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	27.0	28.5	12.1	14.1
Flagged Outliers	0	0	0	0
$ z > 3.0$	1	2	0	0
$2 < z < 3$	1	2	1	3
Failure Rate %*	5.5			

Methods Used

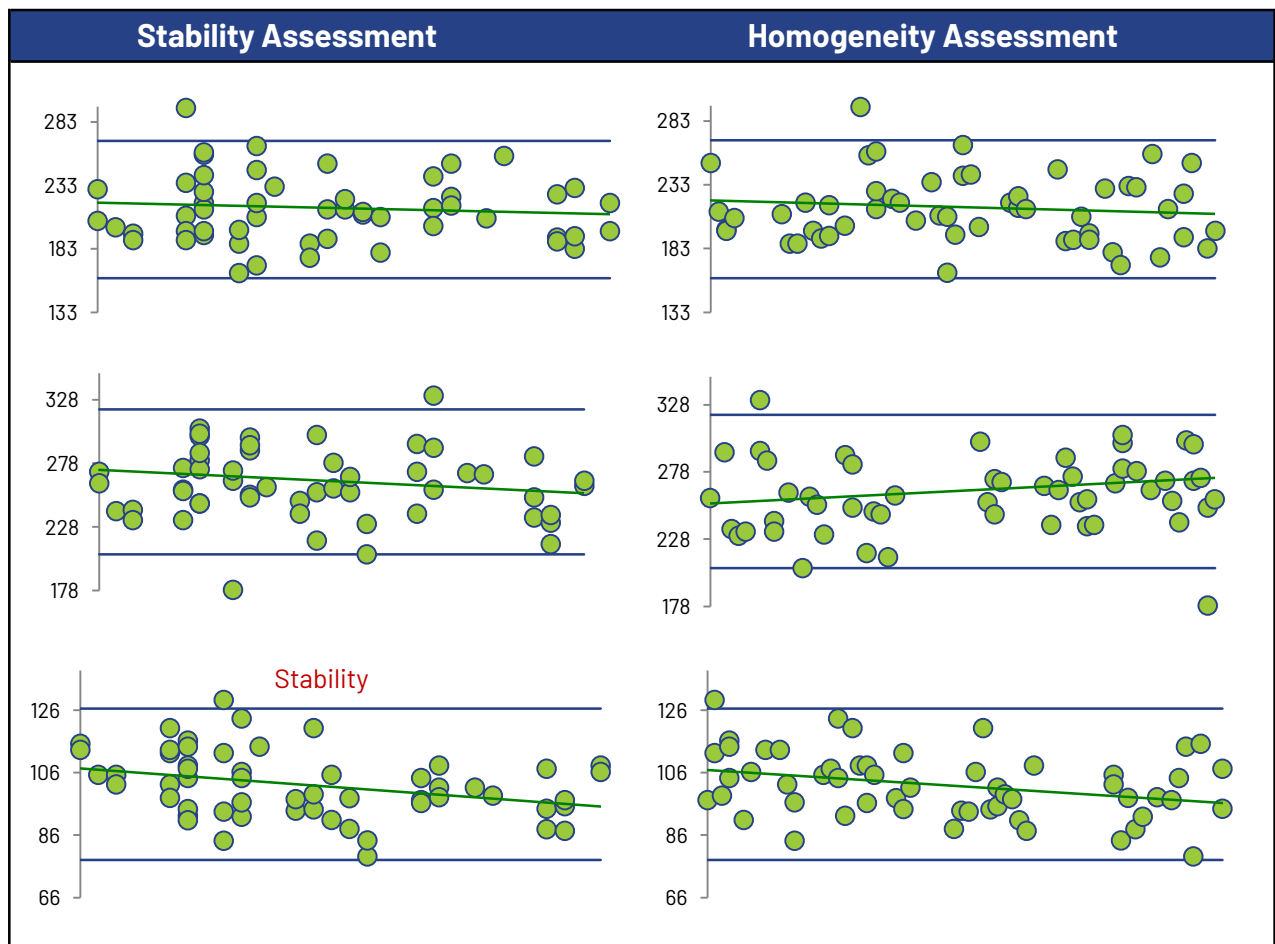
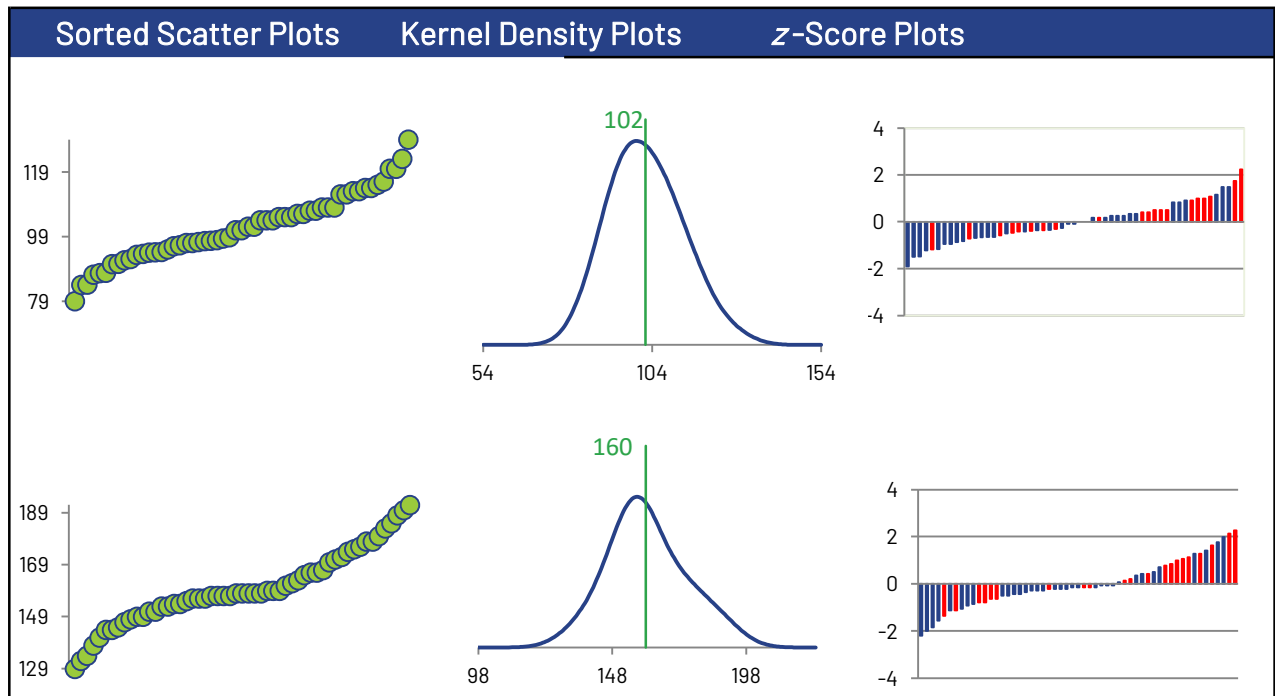
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	34	34	34	34
ICP/OES (Red)	21	21	21	21

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

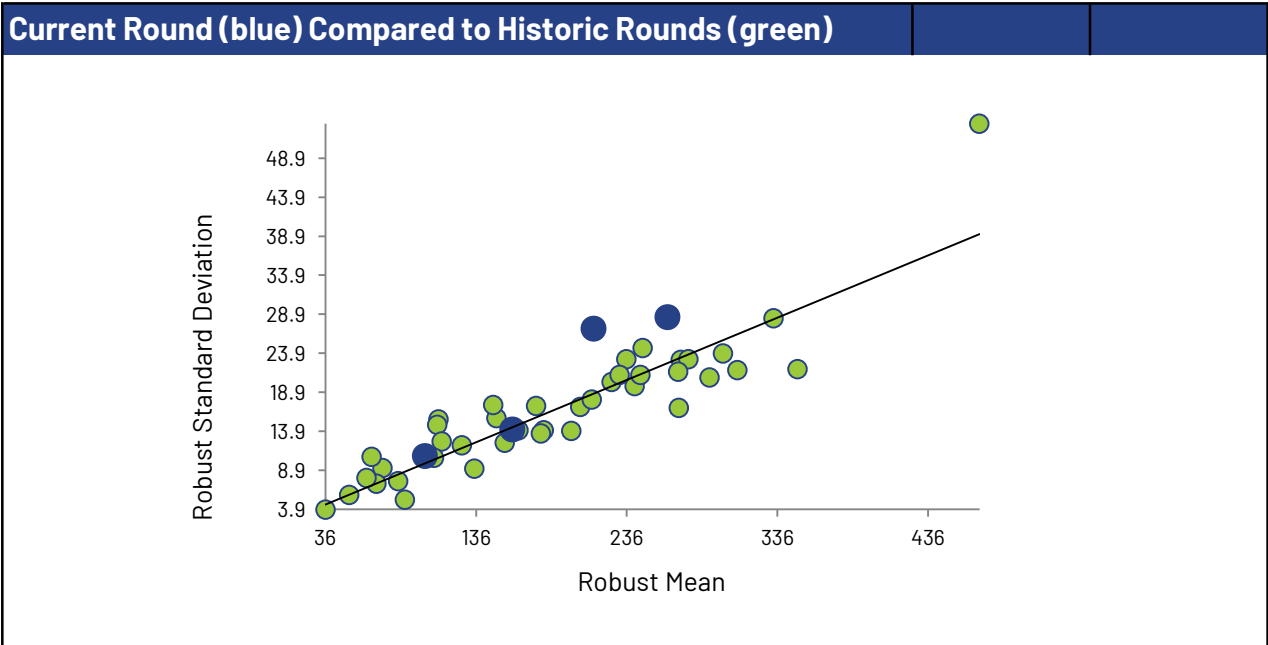
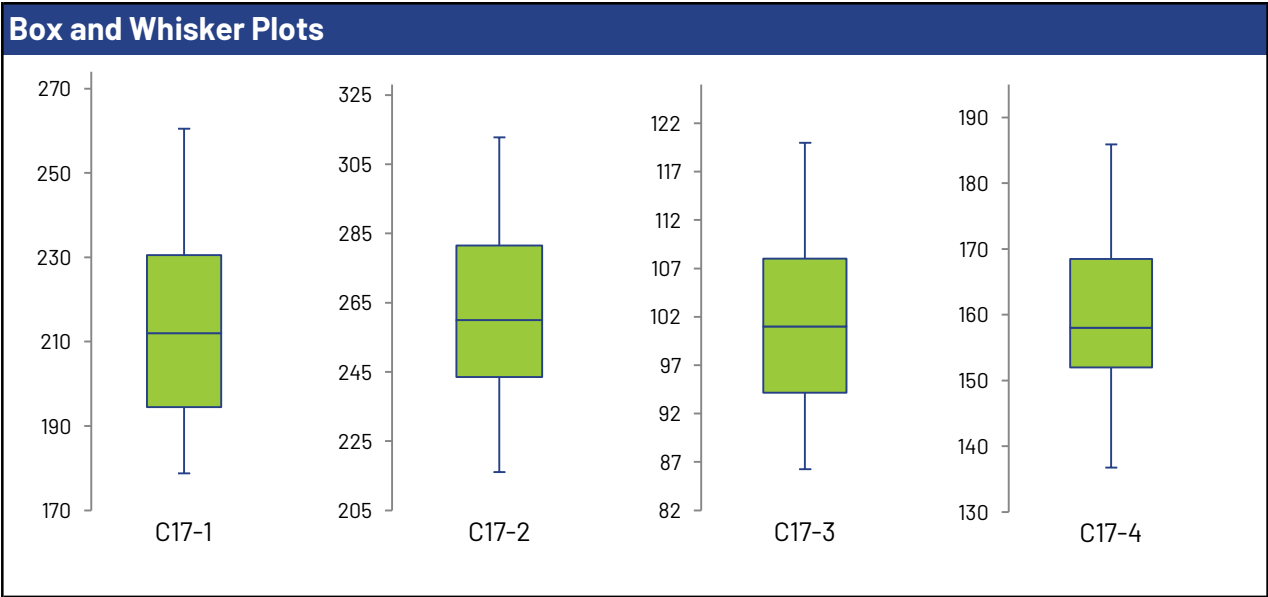
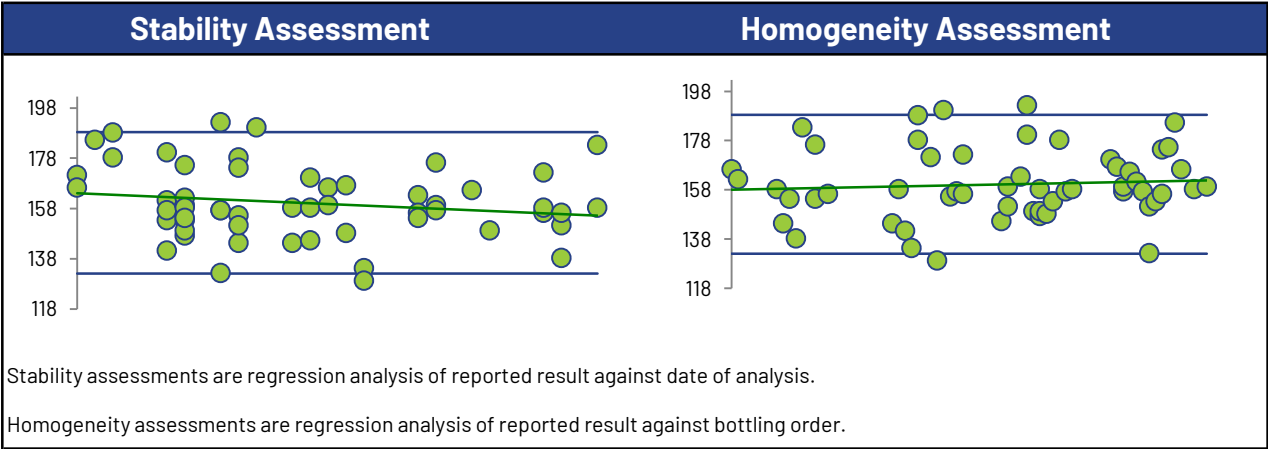


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Barium



Barium



Beryllium

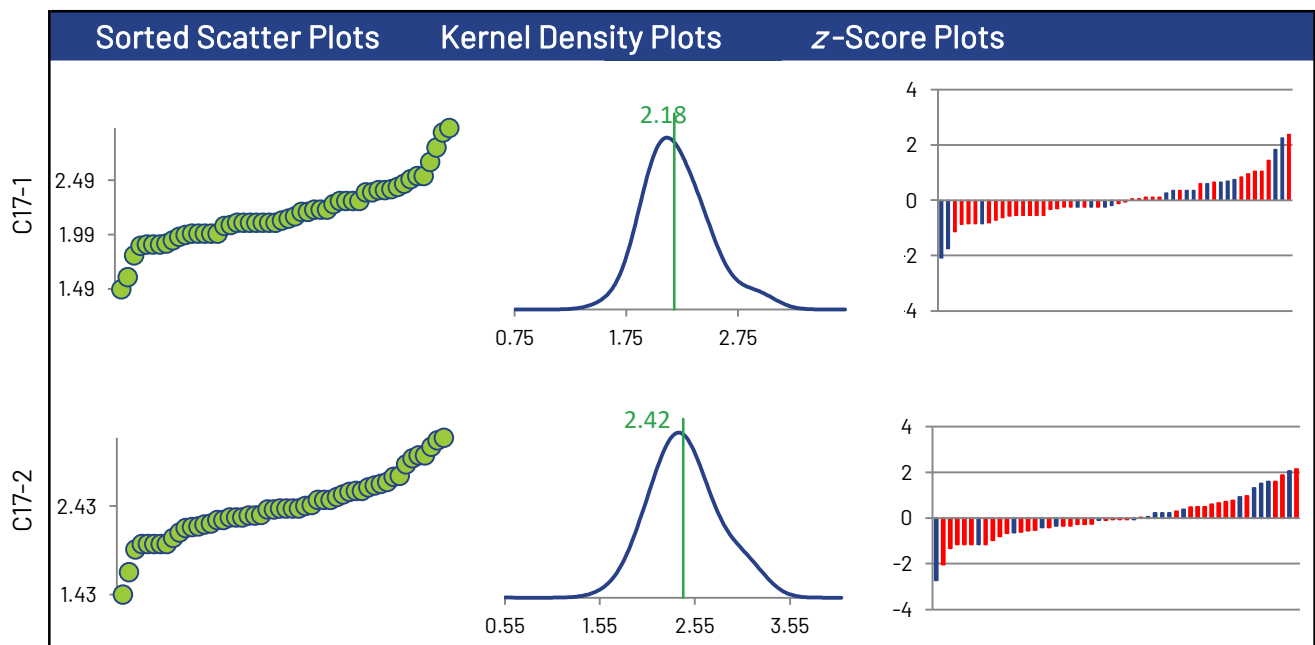
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	52	52	51	51
Median µg/g	2.13	2.40	1.78	1.23
Robust Mean µg/g	2.18	2.42	1.83	1.26
Uncertainty of the Assigned Value µg/g	0.0442	0.0593	0.0558	0.0305
Robust Standard Deviation µg/g	0.255	0.342	0.319	0.174
Regression Standard Deviation µg/g	0.332	0.364	0.287	0.212
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	0.332	0.364	0.319	0.212
Flagged Outliers	0	0	0	0
$ z > 3.0$	0	0	1	0
$2 < z < 3$	3	4	2	1
Failure Rate %*	0.0			

Methods Used

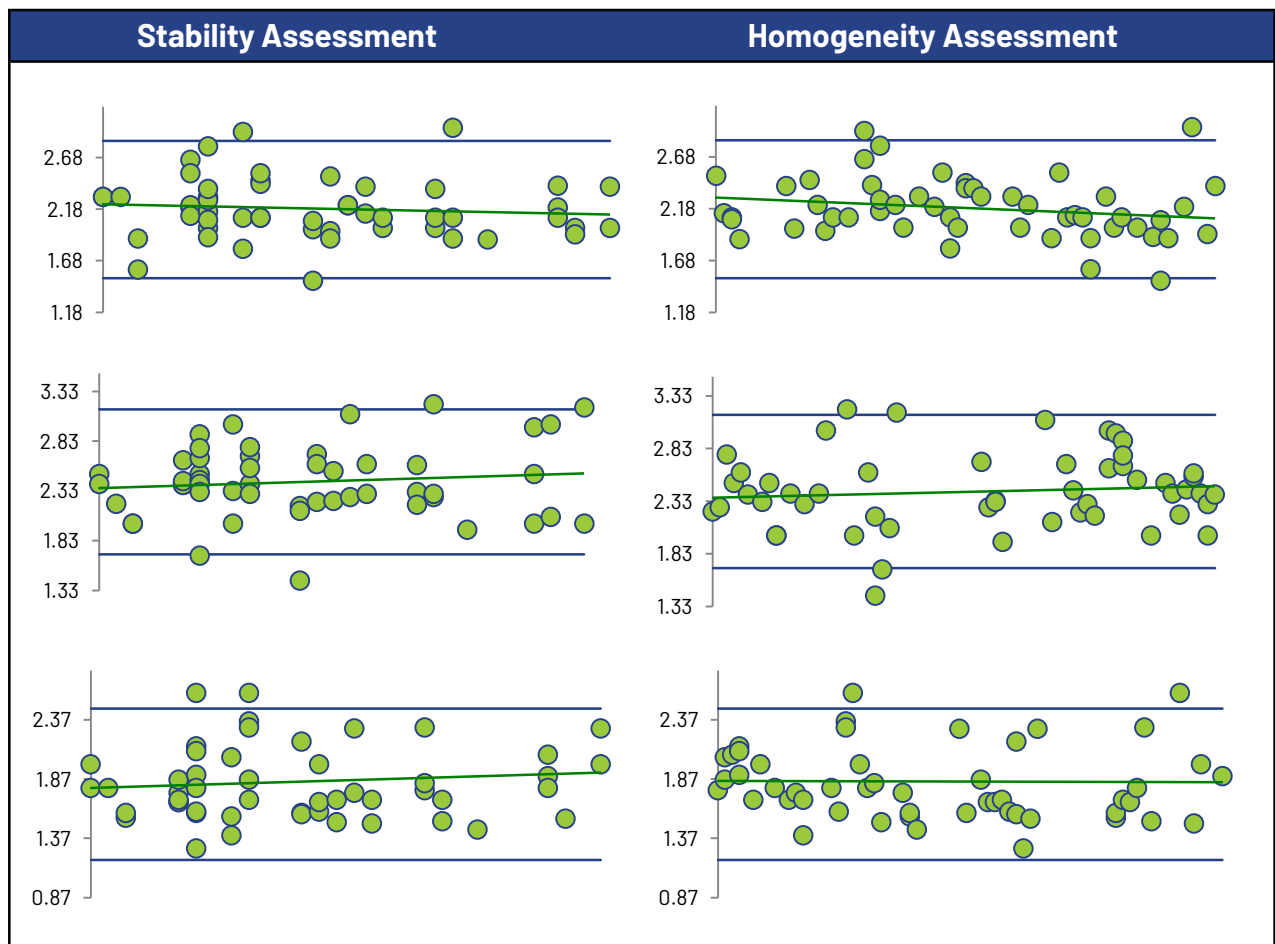
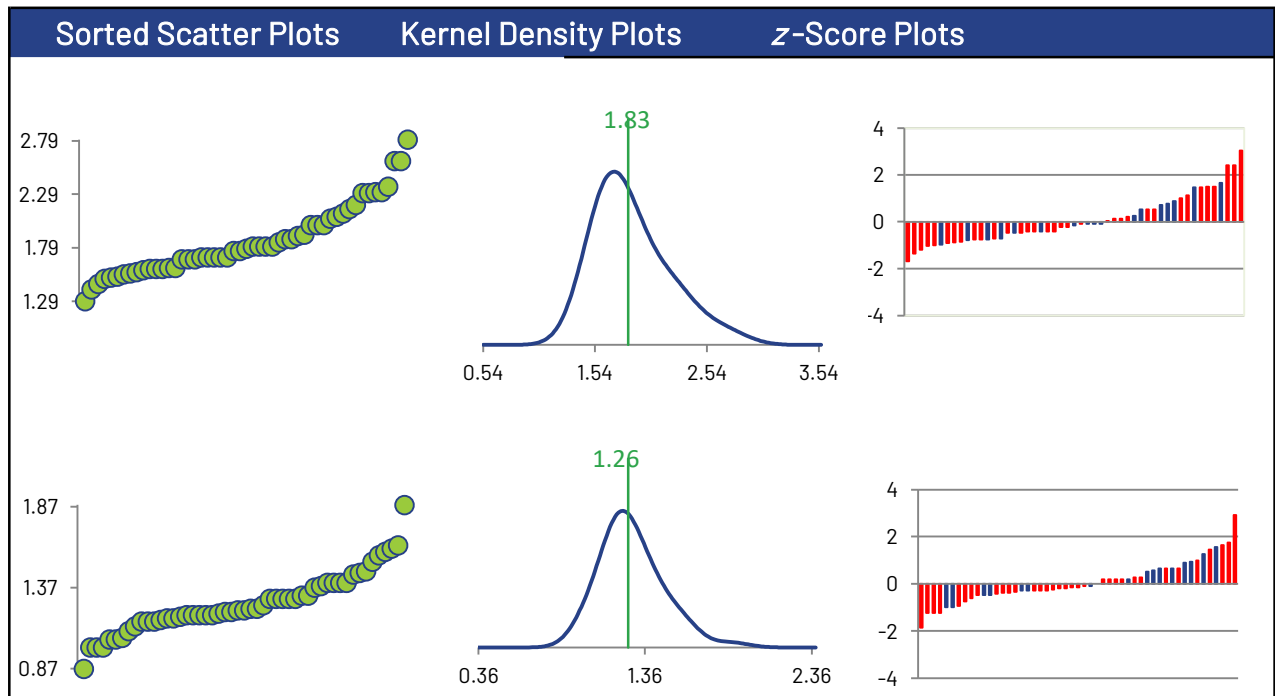
Method	C17-1	C17-2	C17-3	C17-4
ICP/OES (Blue)	17	17	17	17
ICP/MS (Red)	35	35	34	34

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

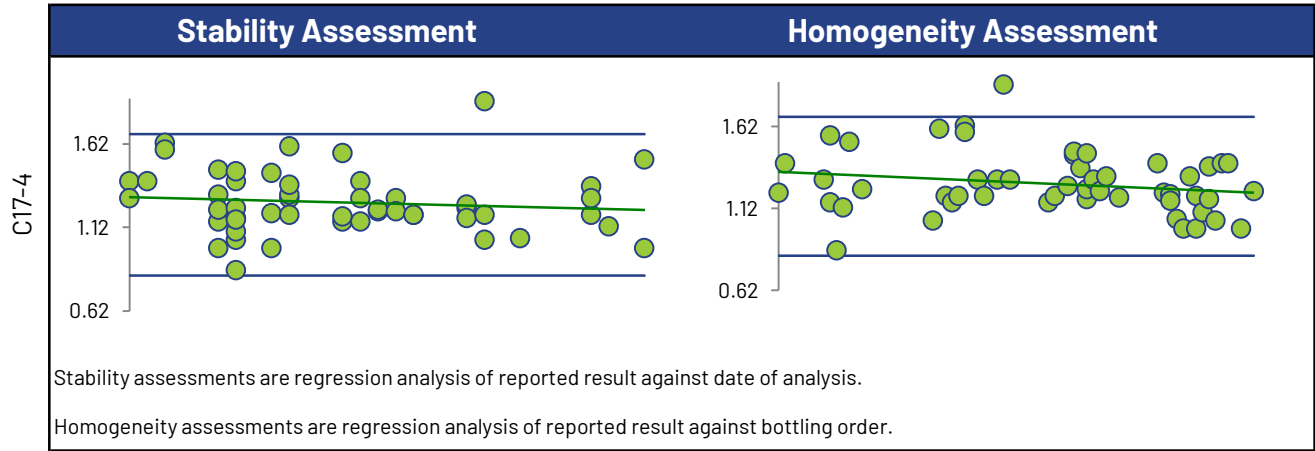


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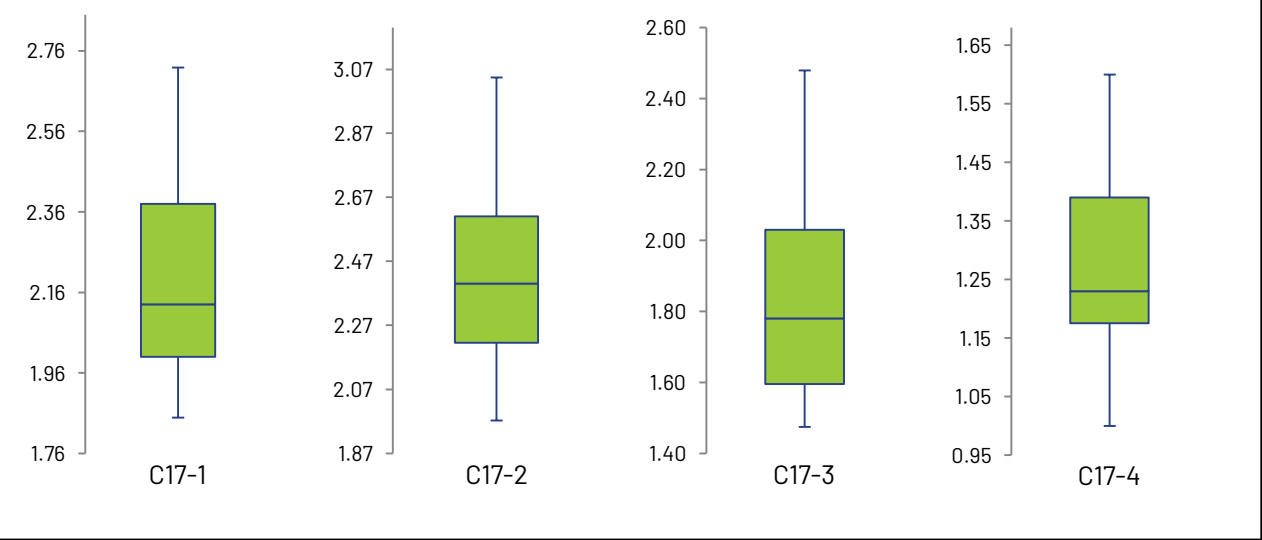
Beryllium



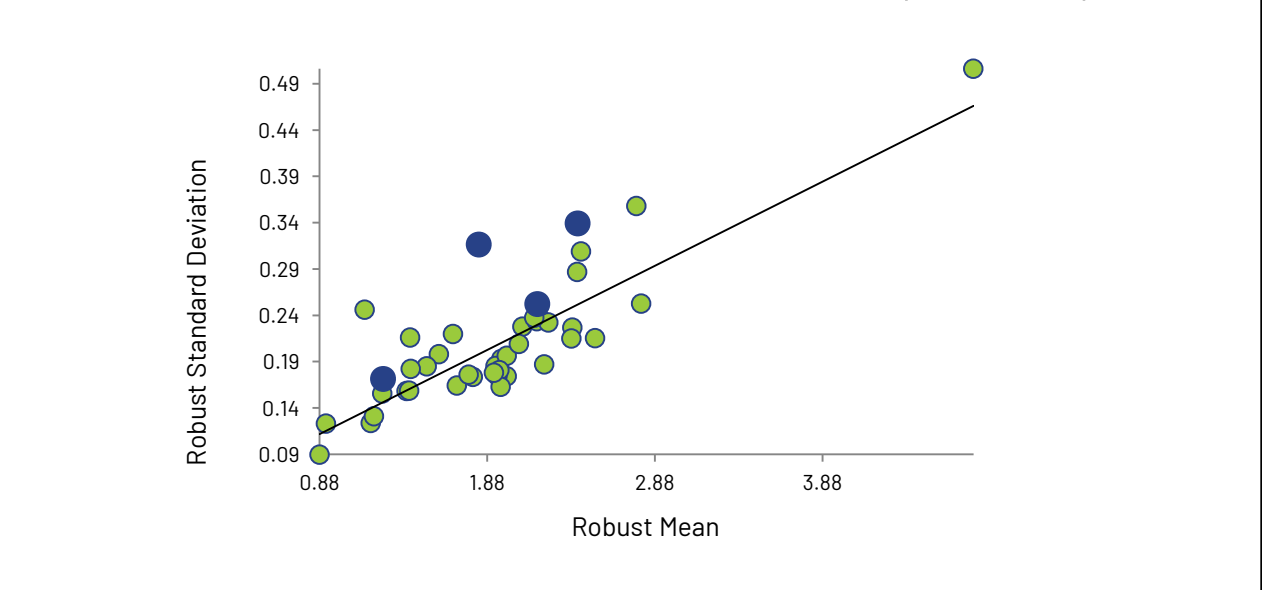
Beryllium



Box and Whisker Plots



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



Boron

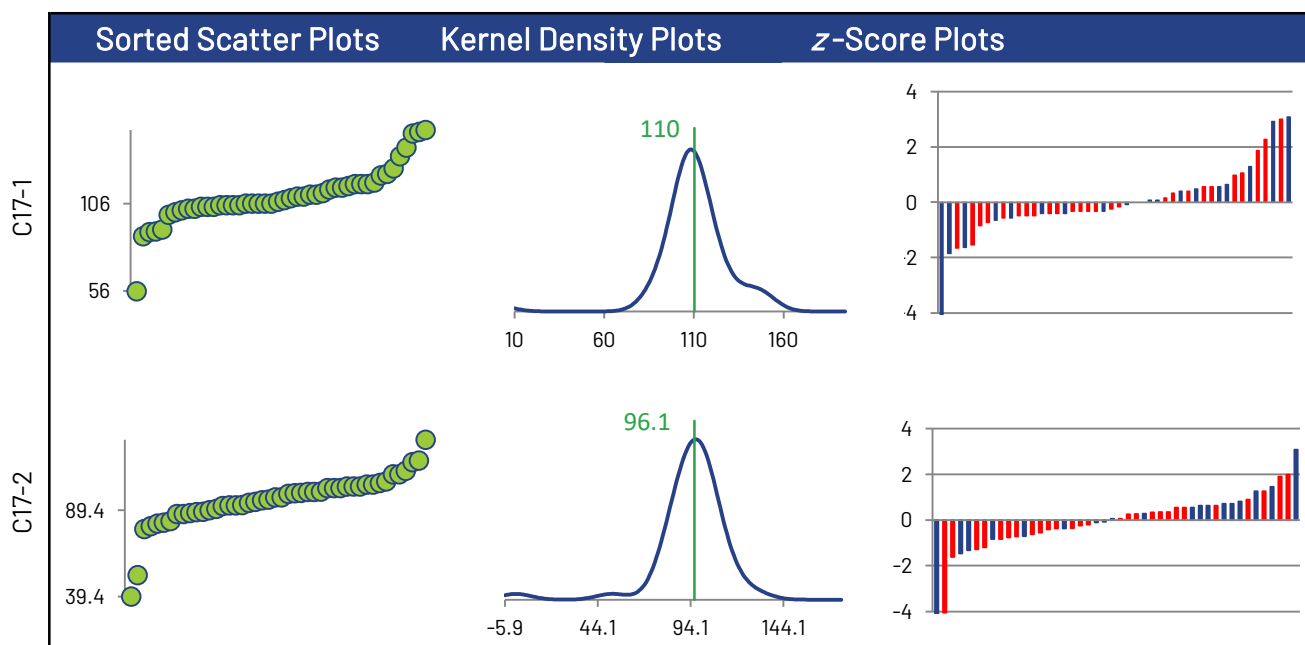
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	46	46	46	46
Median µg/g	108	96.6	74.1	88.4
Robust Mean µg/g	110	96.1	74.2	88.3
Uncertainty of the Assigned Value µg/g	2.05	2.03	1.63	1.57
Robust Standard Deviation µg/g	11.1	11.0	8.84	8.52
Regression Standard Deviation µg/g	12.3	10.9	8.60	10.1
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	12.3	11.0	8.84	10.1
Flagged Outliers	0	0	0	0
z >3.0	3	3	2	1
2< z <3	2	0	1	4
Failure Rate %*	8.7			

Methods Used

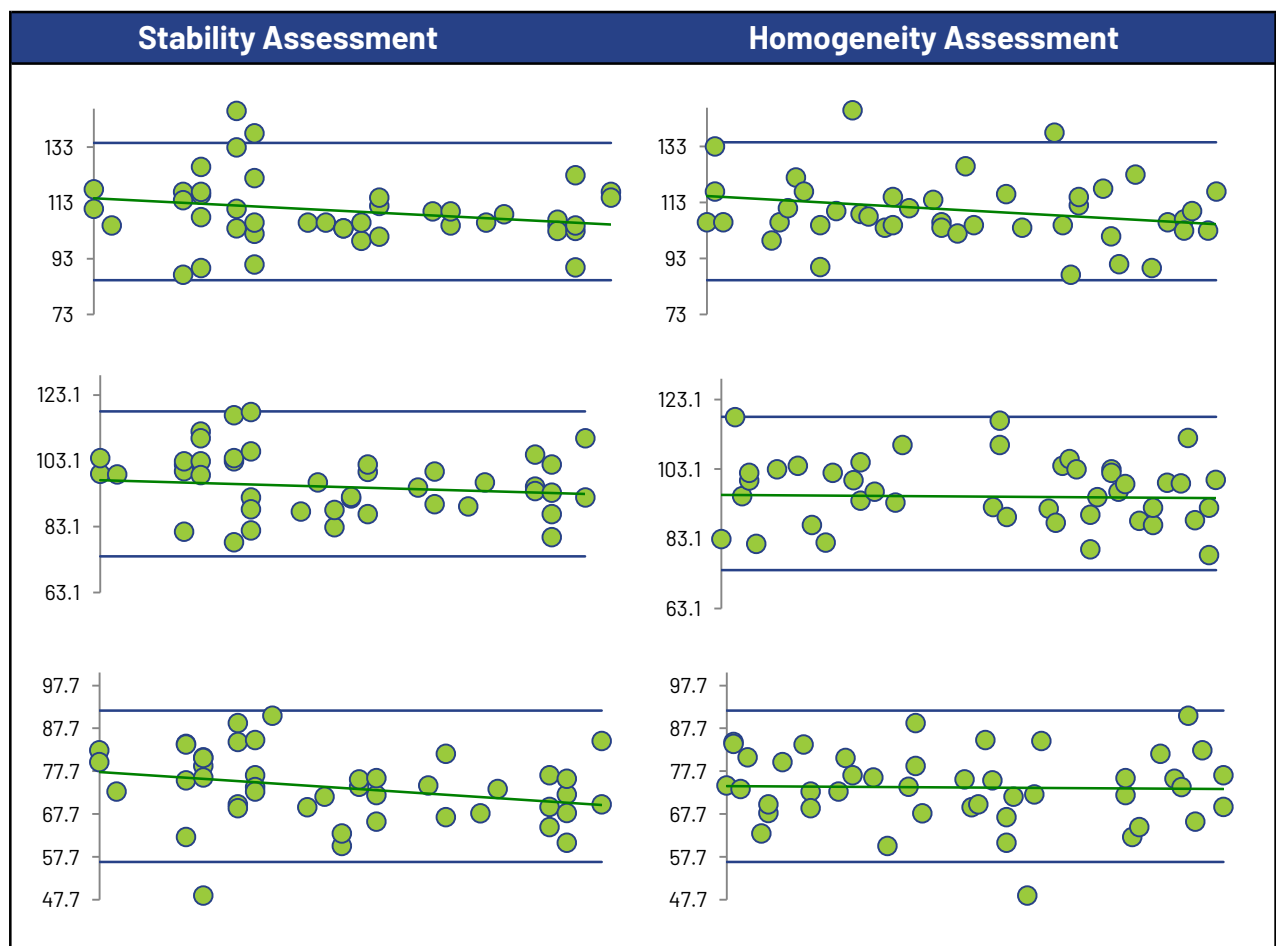
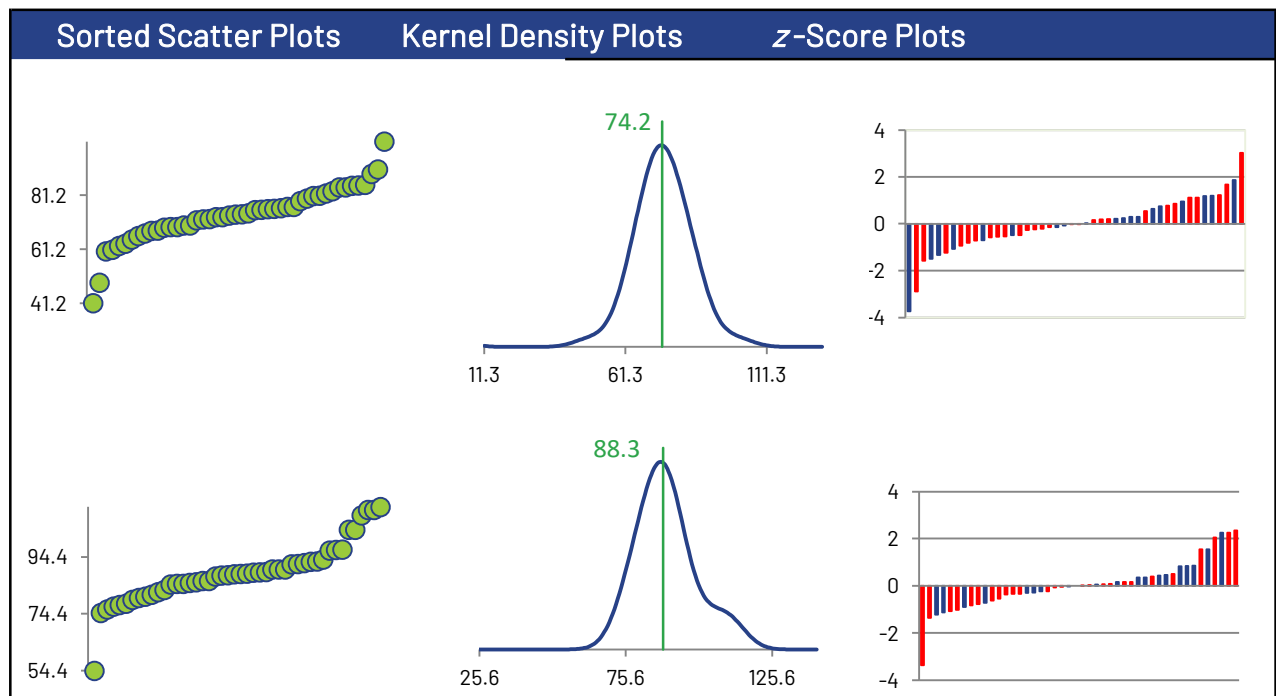
Method	C17-1	C17-2	C17-3	C17-4
ICP/OES (Blue)	19	19	19	19
ICP/MS (Red)	27	27	27	27

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

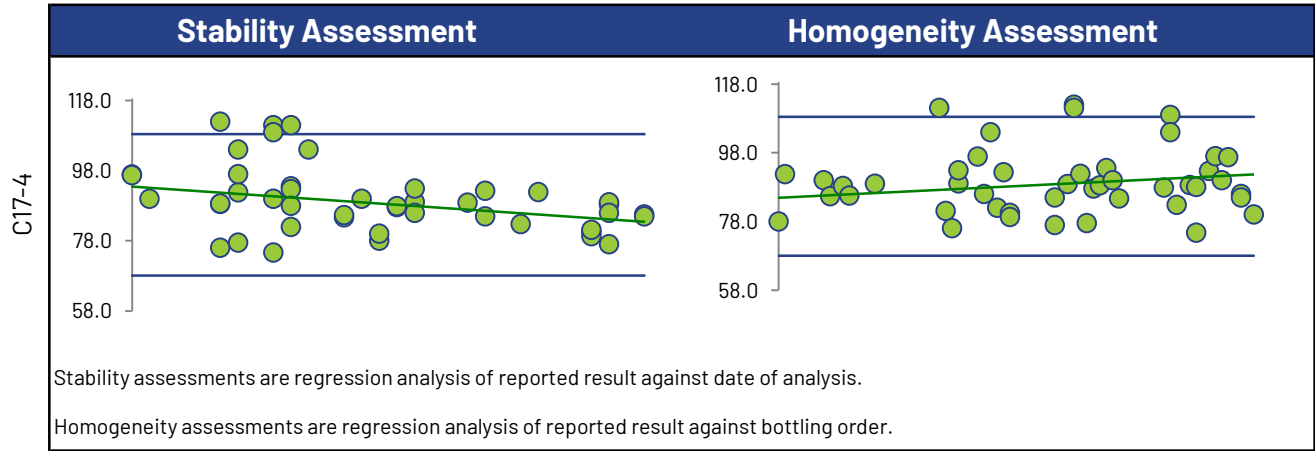


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

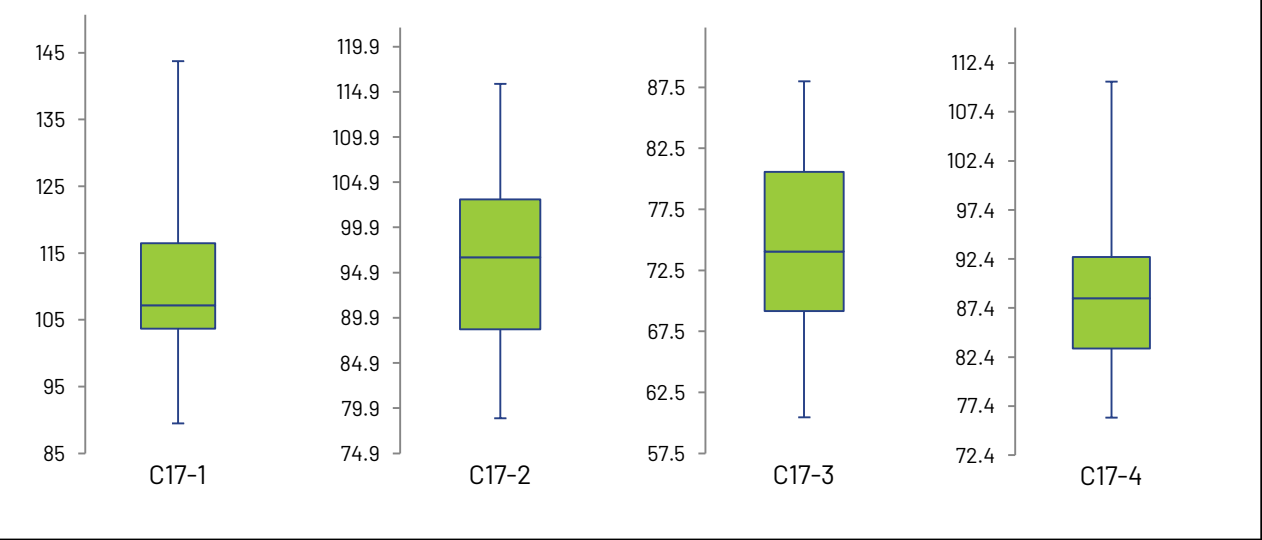
Boron



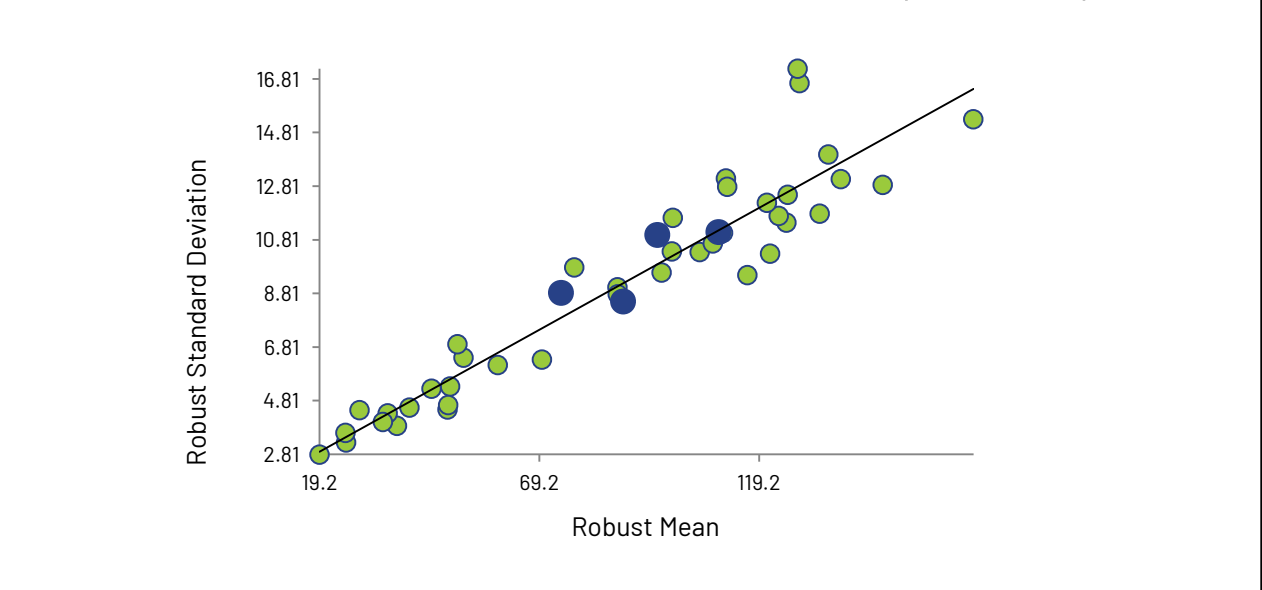
Boron



Box and Whisker Plots



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



Cadmium

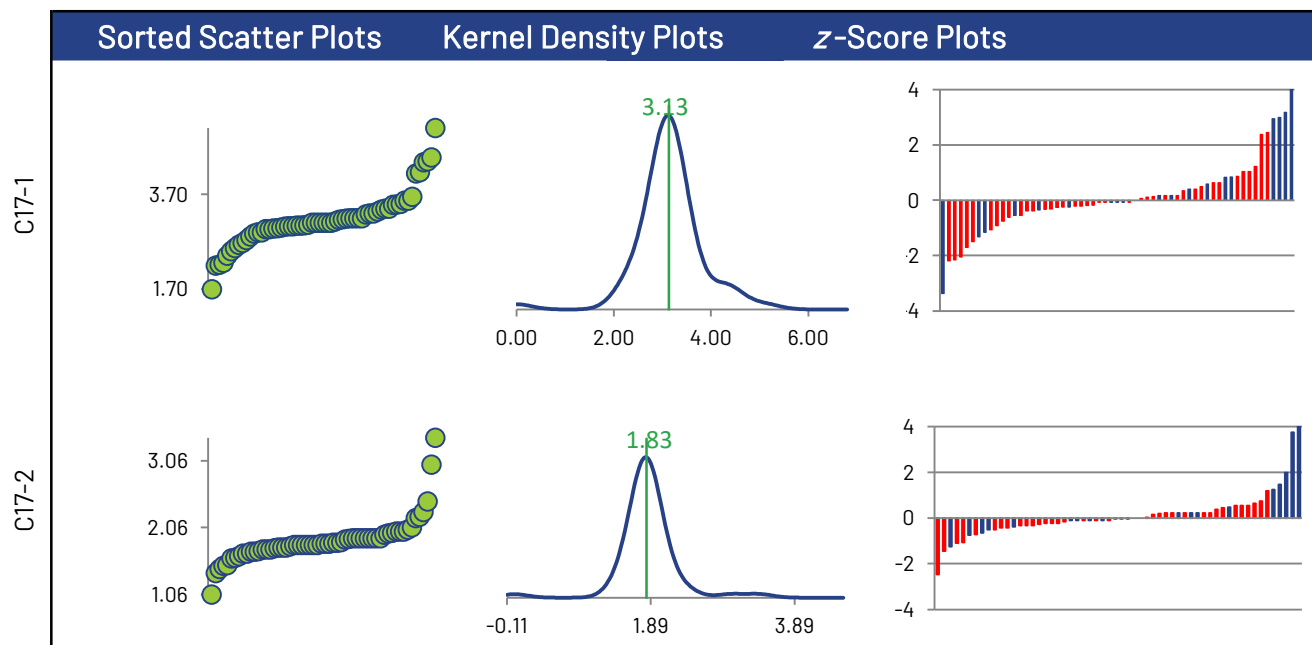
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	59	58	58	58
Median µg/g	3.10	1.82	2.20	1.96
Robust Mean µg/g	3.13	1.83	2.24	1.97
Uncertainty of the Assigned Value µg/g	0.0633	0.0284	0.0384	0.0268
Robust Standard Deviation µg/g	0.389	0.173	0.234	0.163
Regression Standard Deviation µg/g	0.424	0.312	0.347	0.324
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	0.424	0.312	0.347	0.324
Flagged Outliers	0	0	0	0
$ z > 3.0$	3	2	0	0
$2 < z < 3$	7	1	3	0
Failure Rate %*	3.3			

Methods Used

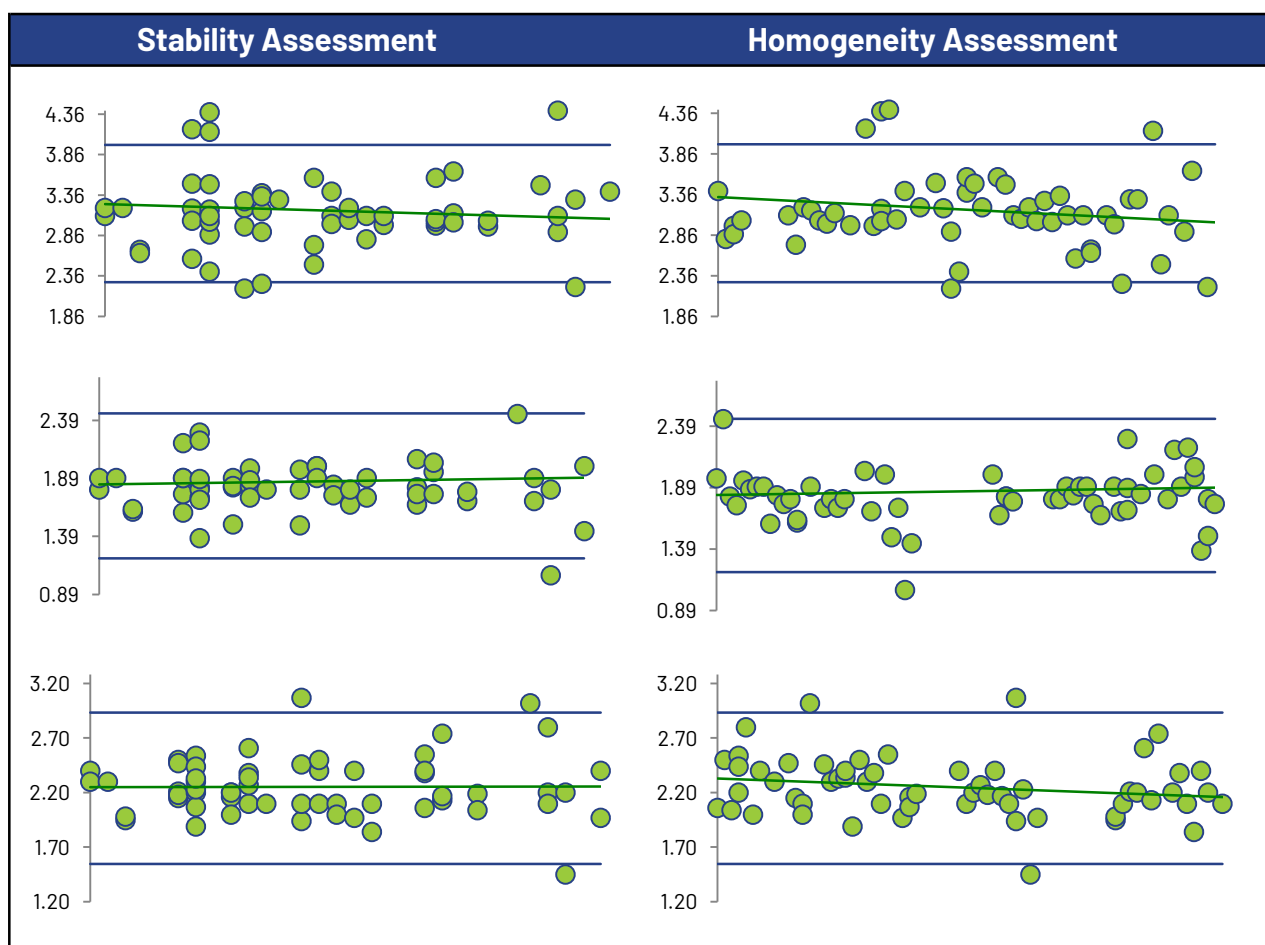
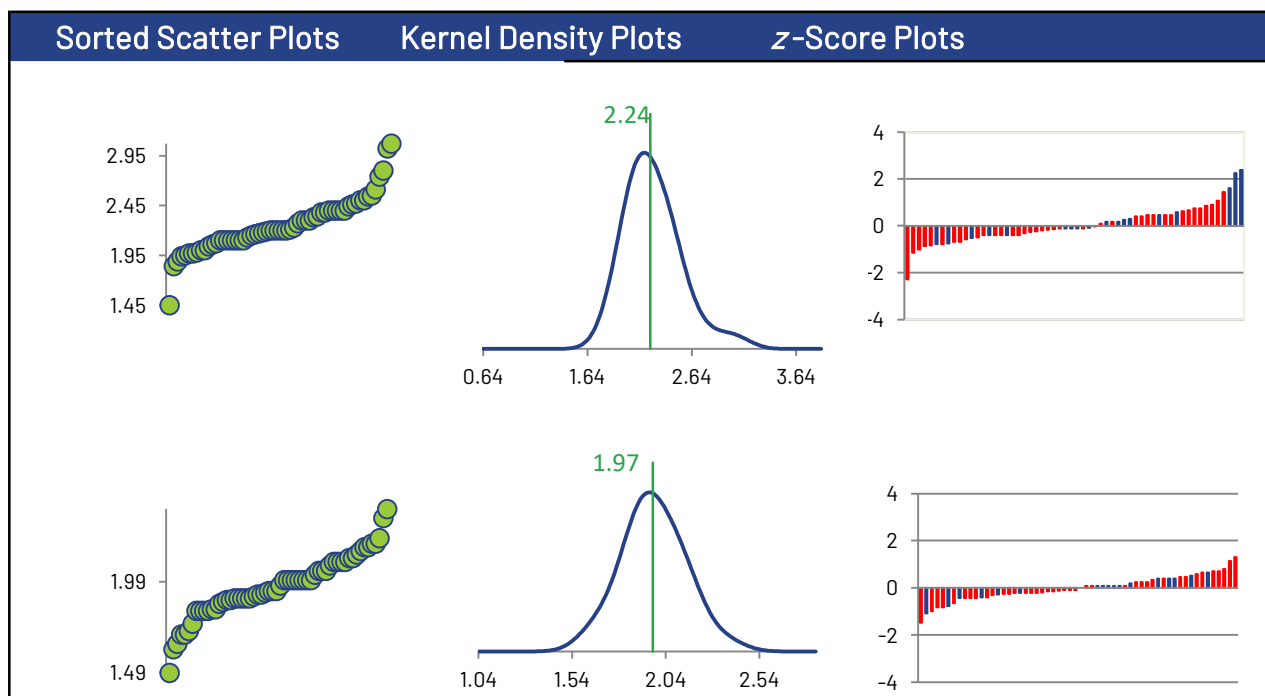
Method	C17-1	C17-2	C17-3	C17-4
ICP/OES (Blue)	19	18	18	18
ICP/MS (Red)	40	40	40	40

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

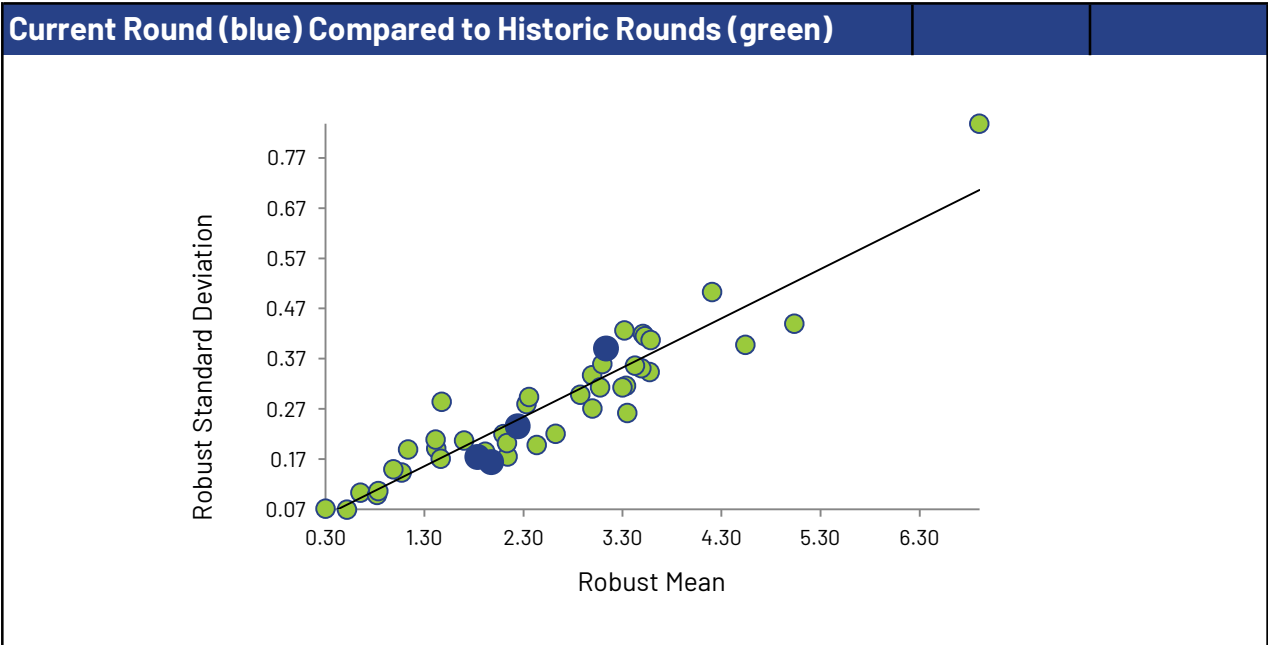
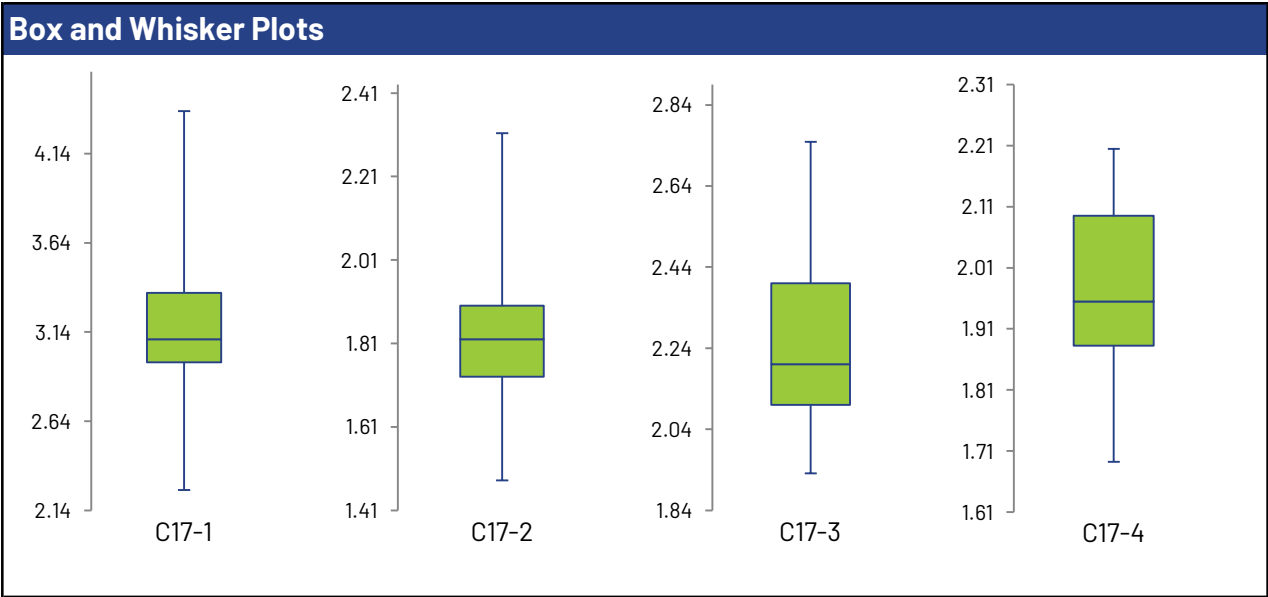
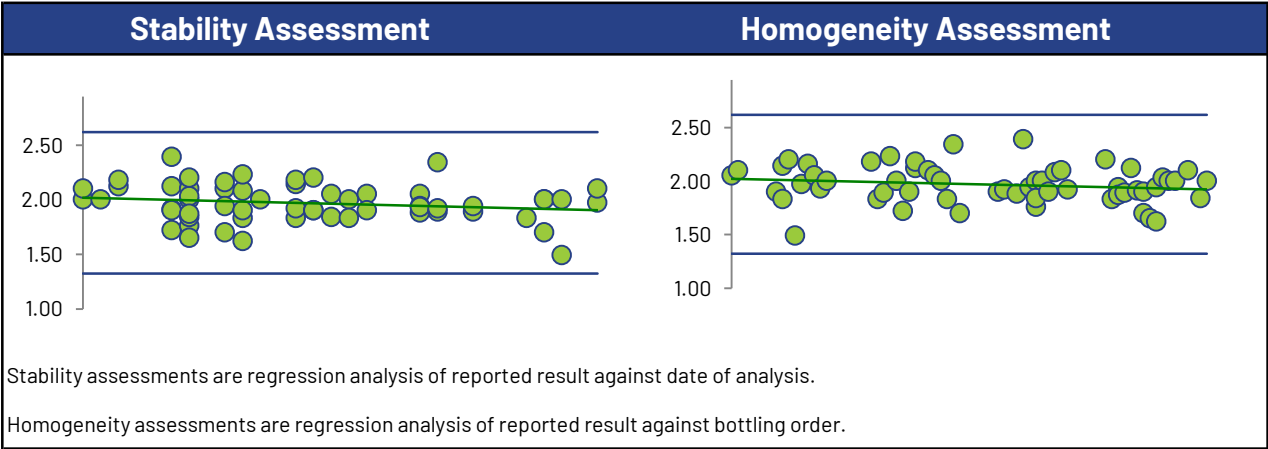


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Cadmium



Cadmium



Chromium

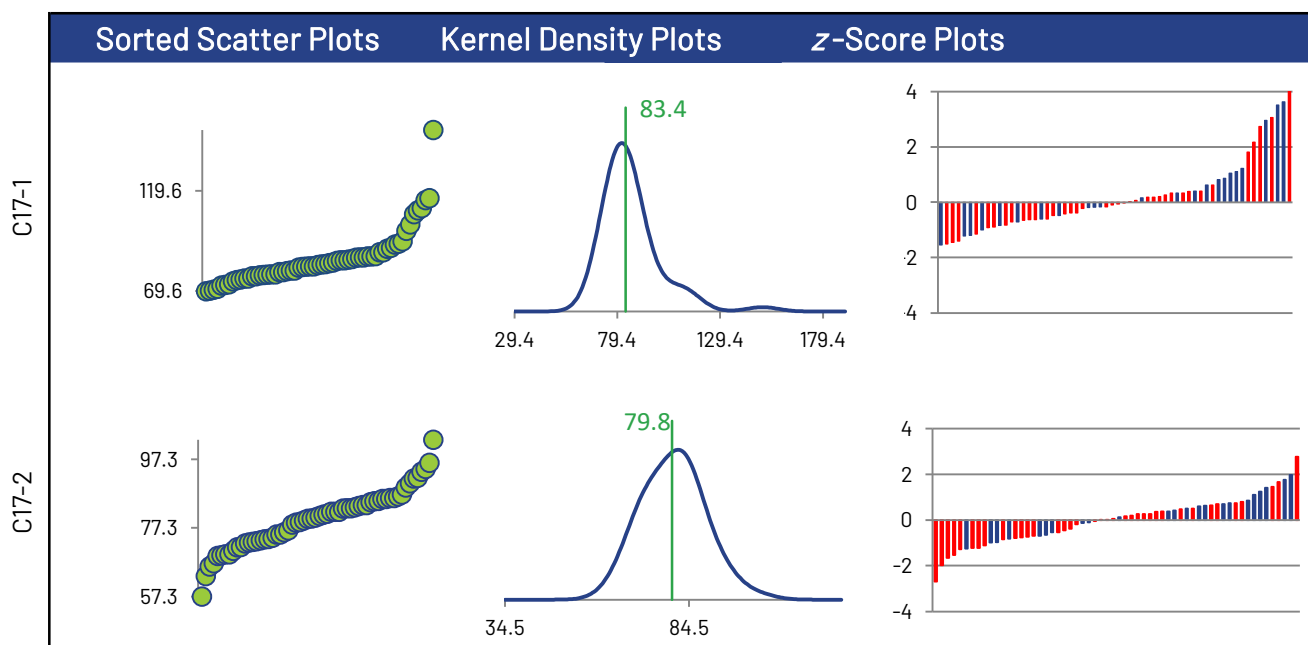
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	60	60	60	60
Median µg/g	82.8	80.6	65.9	49.2
Robust Mean µg/g	83.4	79.8	66.9	49.4
Uncertainty of the Assigned Value µg/g	1.45	1.35	0.881	0.549
Robust Standard Deviation µg/g	8.99	8.37	5.46	3.40
Regression Standard Deviation µg/g	7.88	7.60	6.62	5.29
Stability Flag				
Homogeneity Flag				Homogeneity
Standard Deviation Used (SDPA) µg/g	8.99	8.37	6.62	5.73
Flagged Outliers	0	0	0	0
$ z > 3.0$	4	0	2	1
$2 < z < 3$	3	2	2	4
Failure Rate %*	3.3			

Methods Used

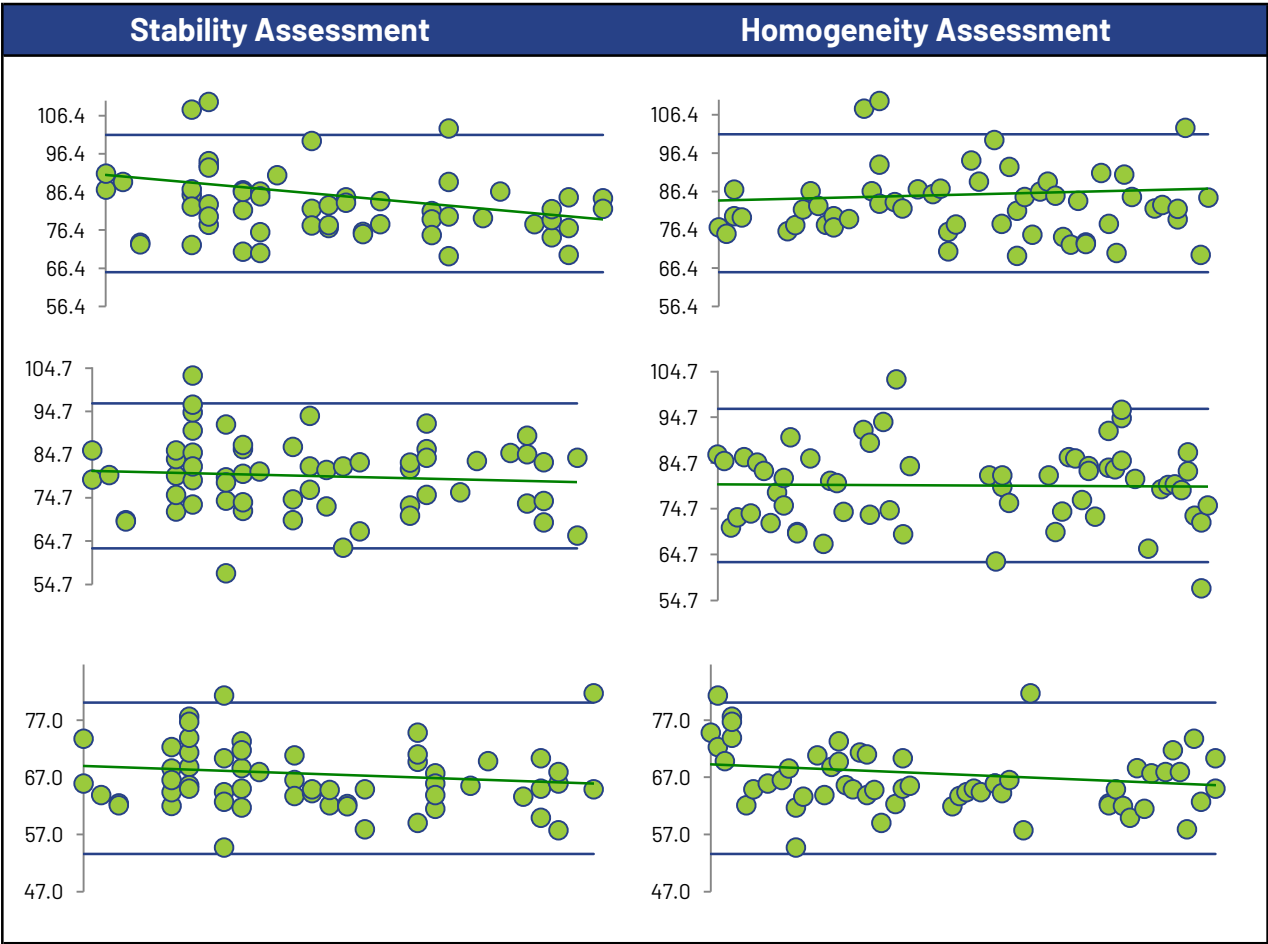
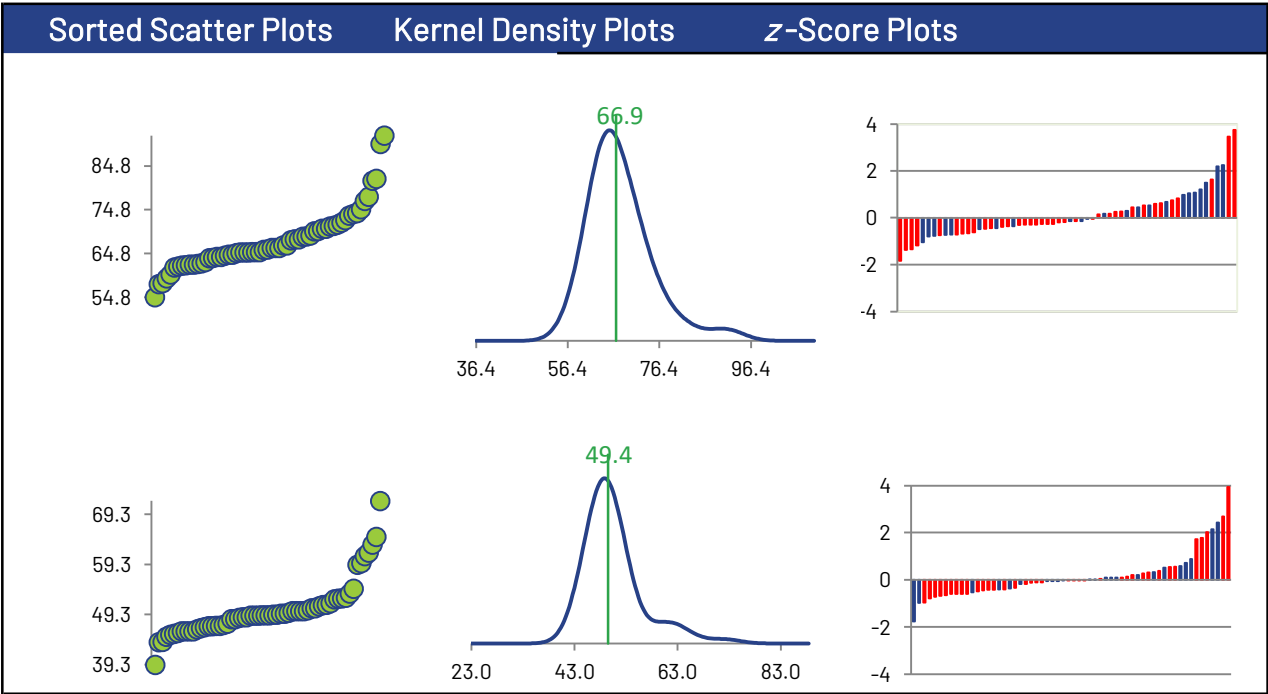
Method	C17-1	C17-2	C17-3	C17-4
ICP/OES (Blue)	23	23	23	23
ICP/MS (Red)	37	37	37	37

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

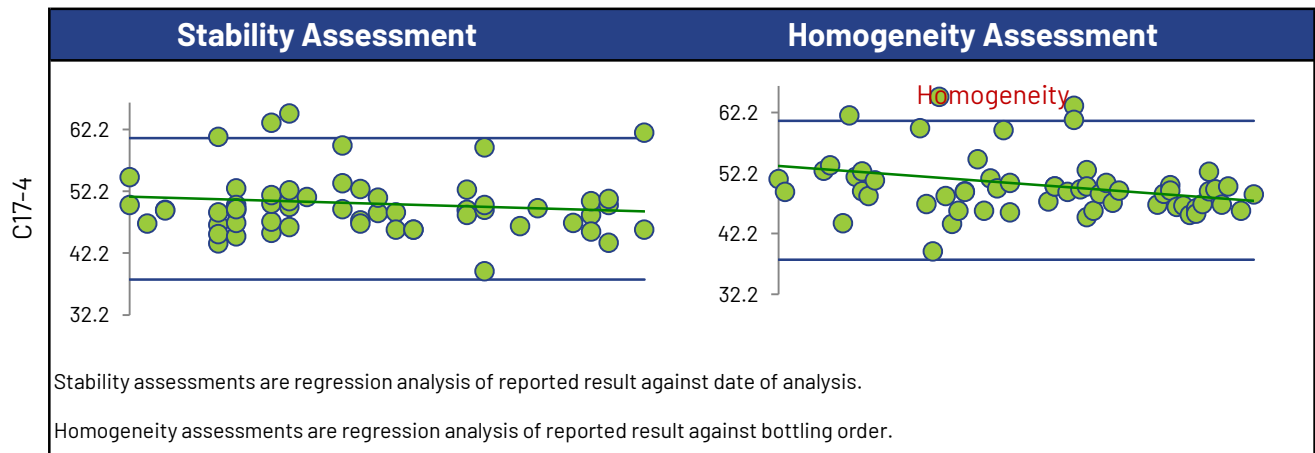


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

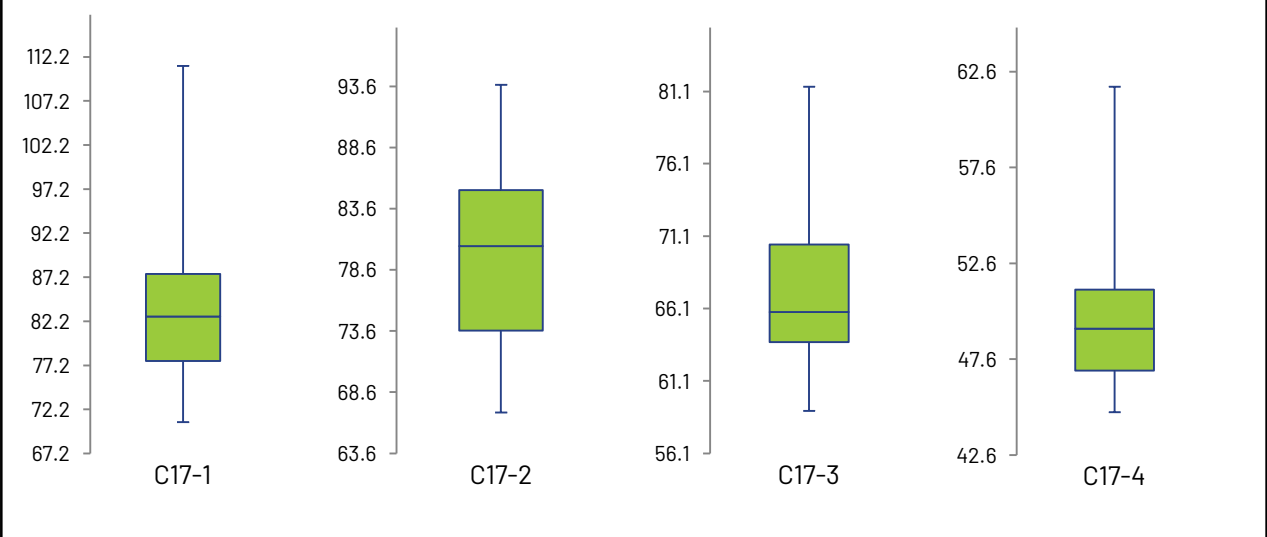
Chromium



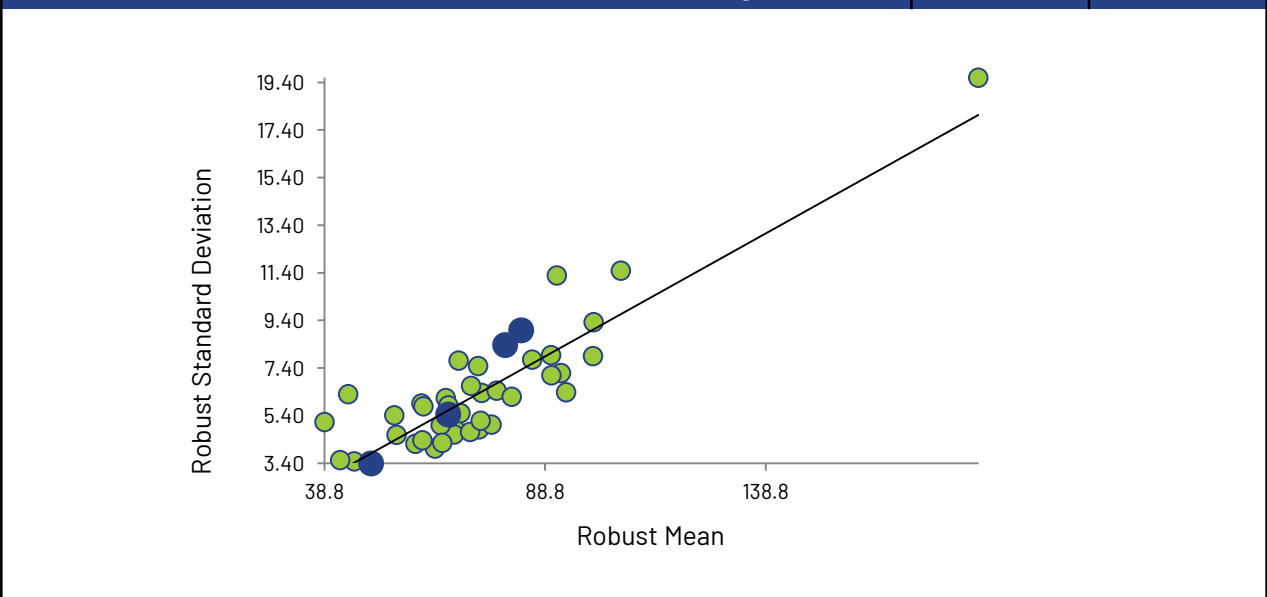
Chromium



Box and Whisker Plots



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



Cobalt

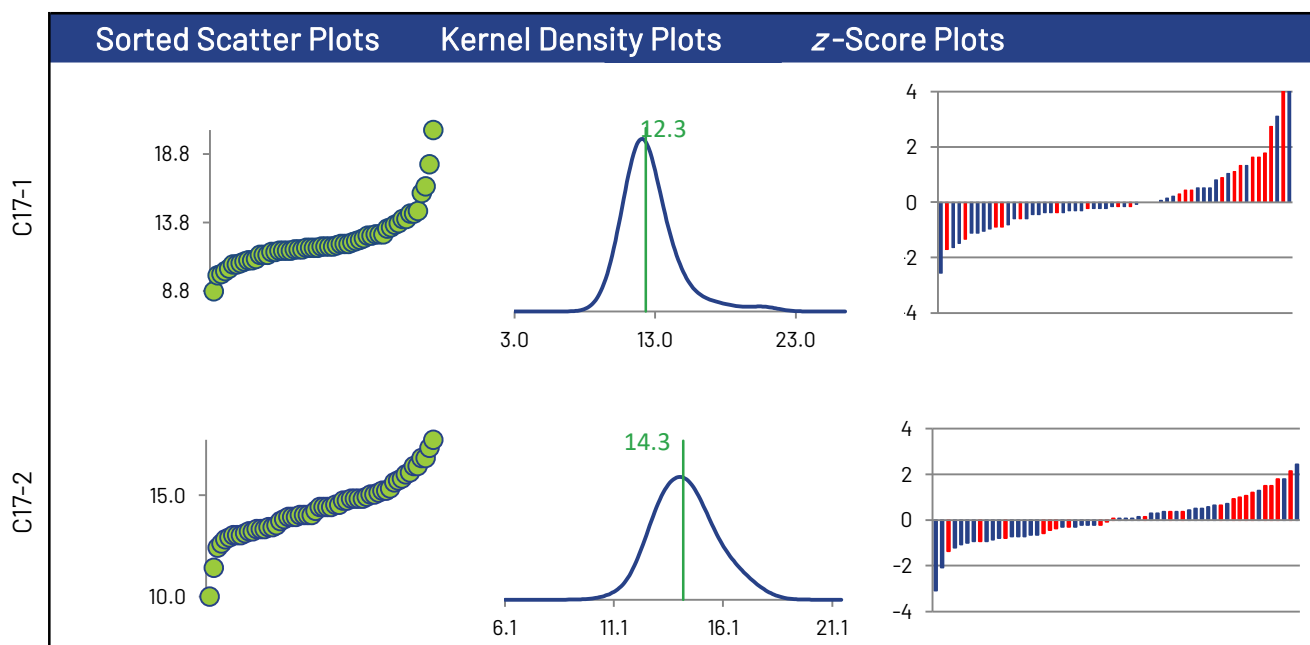
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	58	58	58	58
Median µg/g	12.1	14.4	12.8	9.66
Robust Mean µg/g	12.3	14.3	13.0	9.70
Uncertainty of the Assigned Value µg/g	0.222	0.215	0.220	0.134
Robust Standard Deviation µg/g	1.35	1.31	1.34	0.818
Regression Standard Deviation µg/g	1.20	1.40	1.27	0.949
Stability Flag			Stability	Stability
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1.35	1.40	1.40	1.14
Flagged Outliers	0	0	0	0
z >3.0	3	1	1	1
2< z <3	2	3	1	4
Failure Rate %*	5.2			

Methods Used

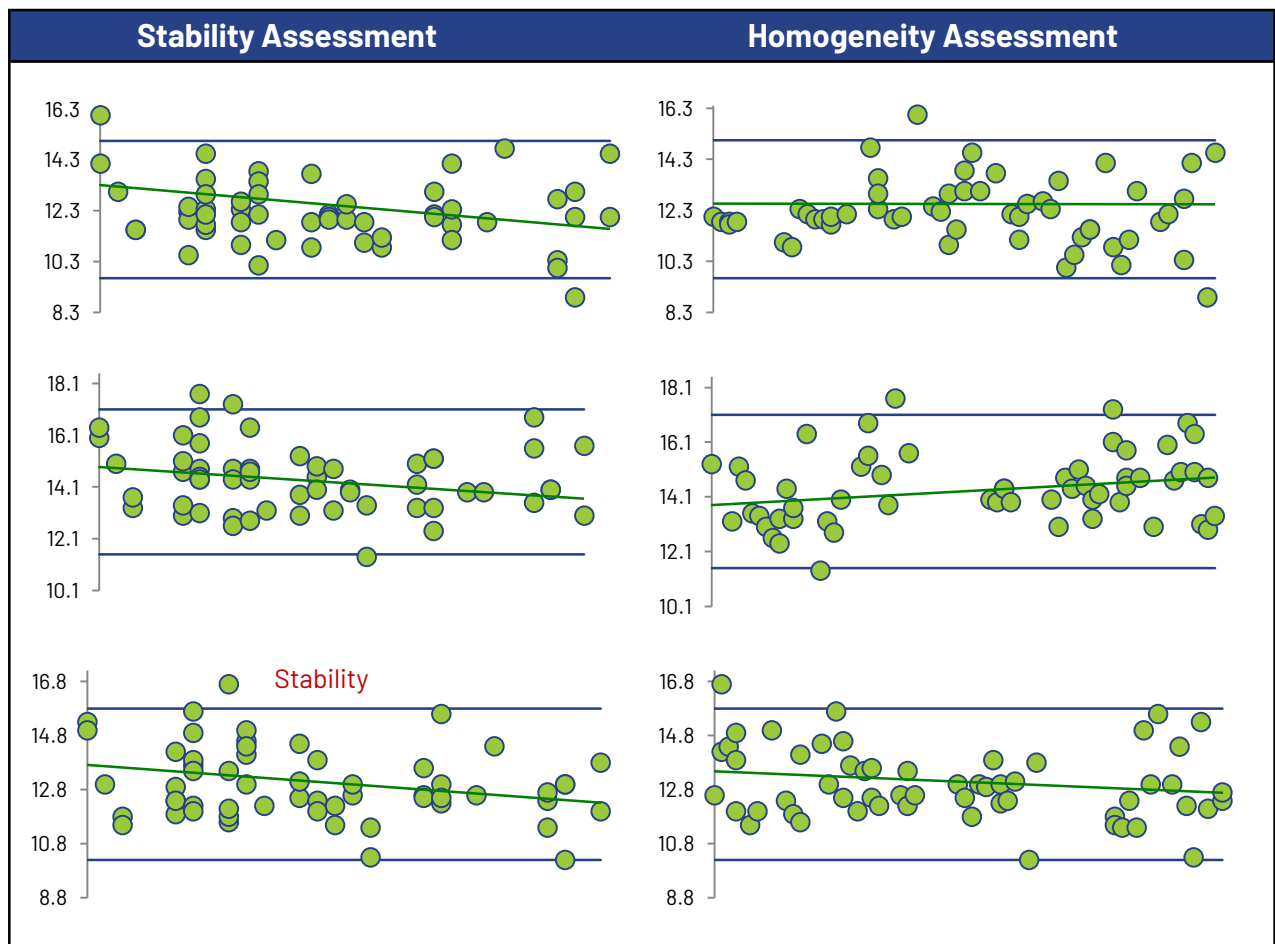
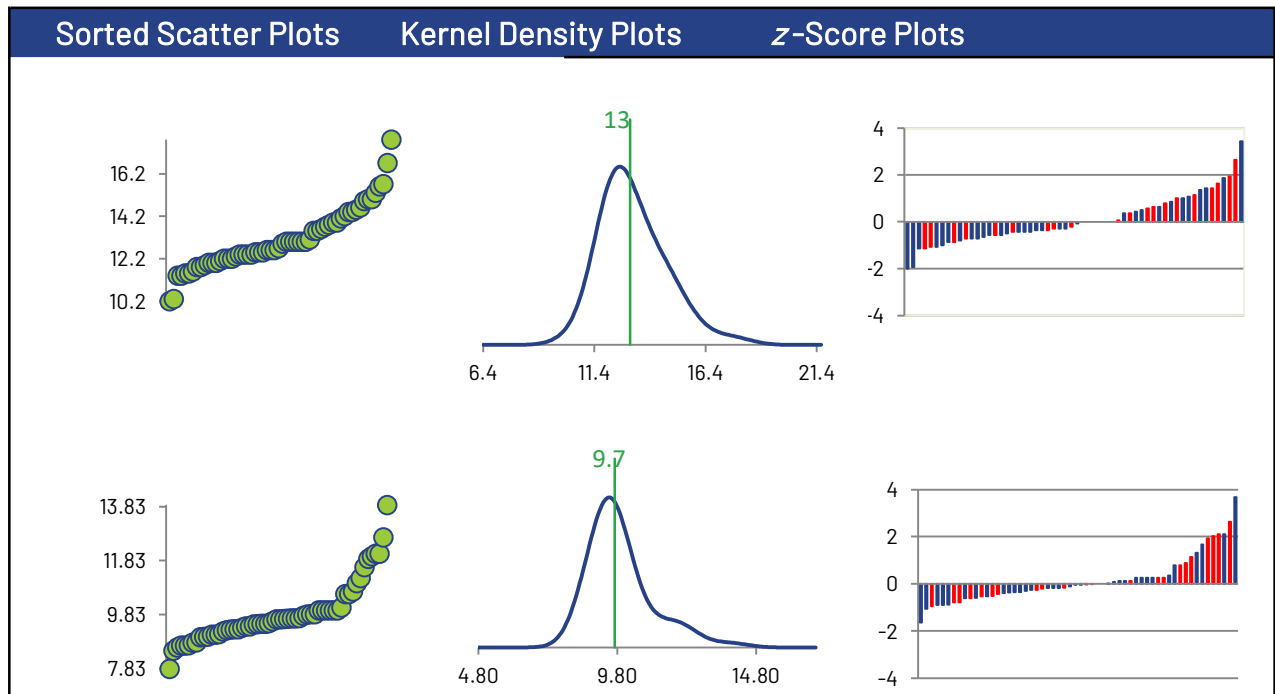
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	36	36	36	36
ICP/OES (Red)	22	22	22	22

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

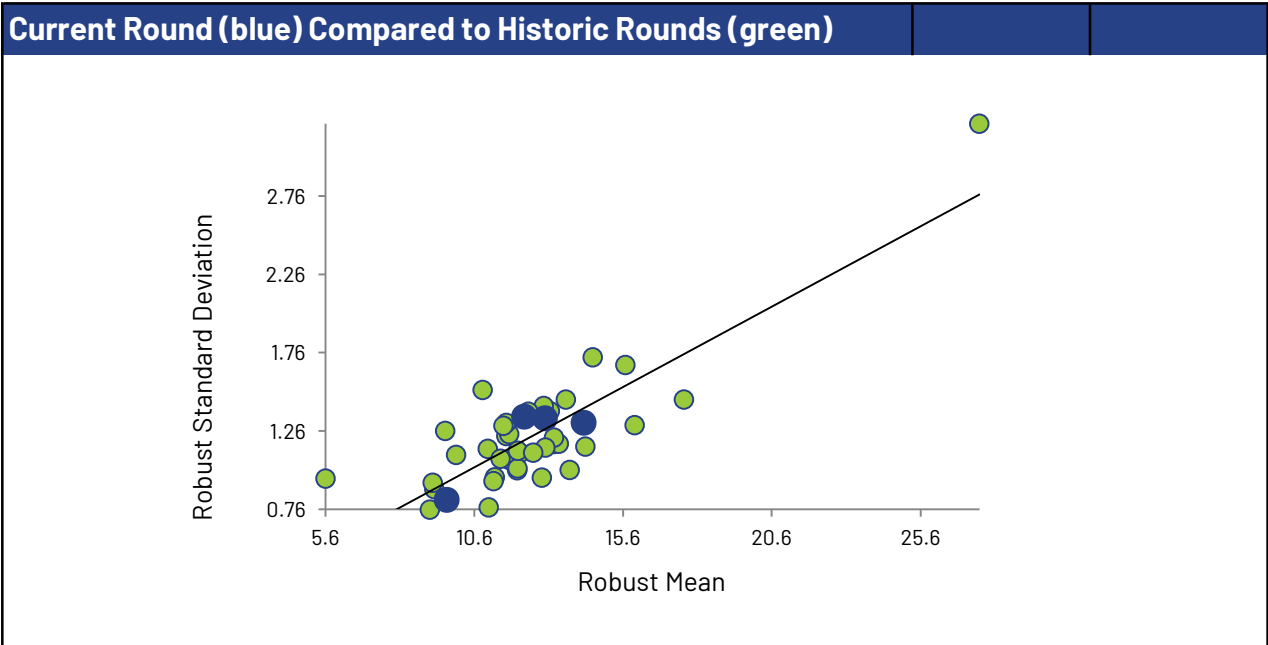
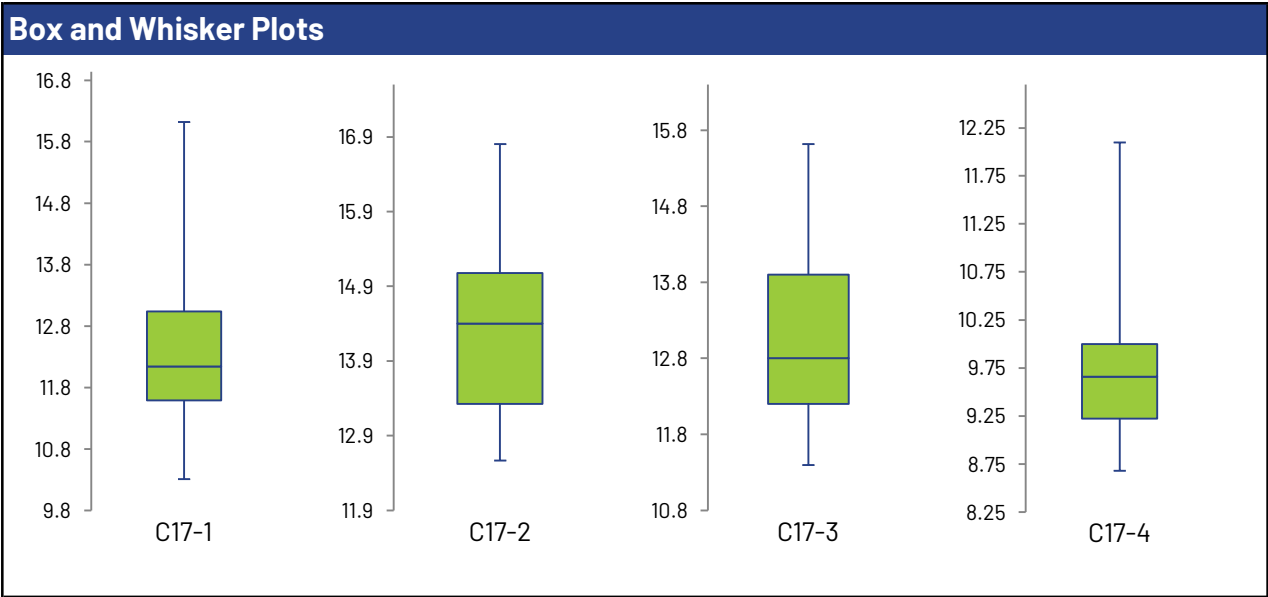
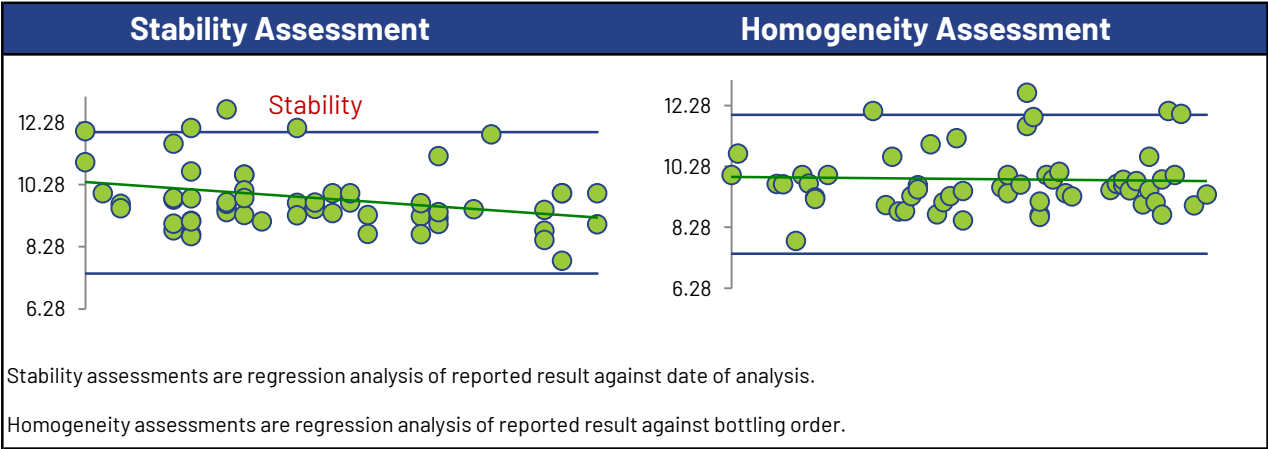


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Cobalt



Cobalt



Copper

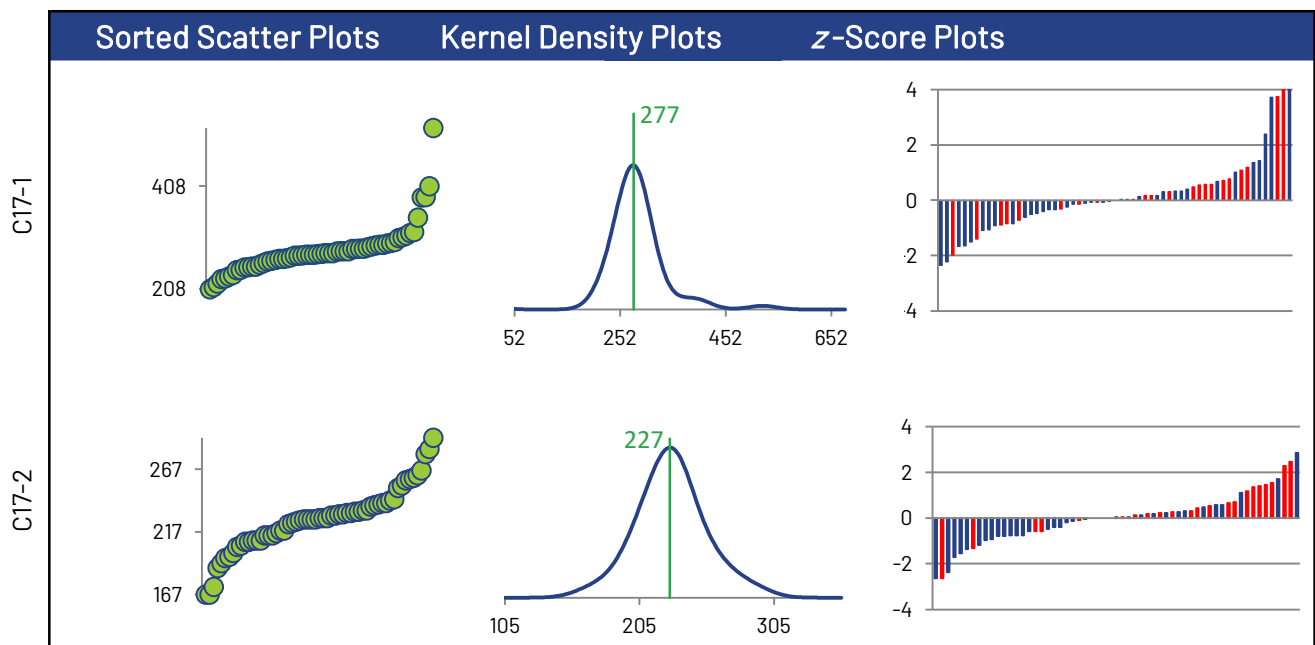
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	59	59	59	59
Median µg/g	277	228	185	153
Robust Mean µg/g	277	227	186	154
Uncertainty of the Assigned Value µg/g	4.77	3.71	2.67	2.39
Robust Standard Deviation µg/g	29.3	22.8	16.4	14.7
Regression Standard Deviation µg/g	23.1	19.0	15.5	12.8
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	29.3	22.8	16.4	14.7
Flagged Outliers	0	0	0	0
$ z > 3.0$	4	0	2	1
$2 < z < 3$	3	6	0	2
Failure Rate %*	5.1			

Methods Used

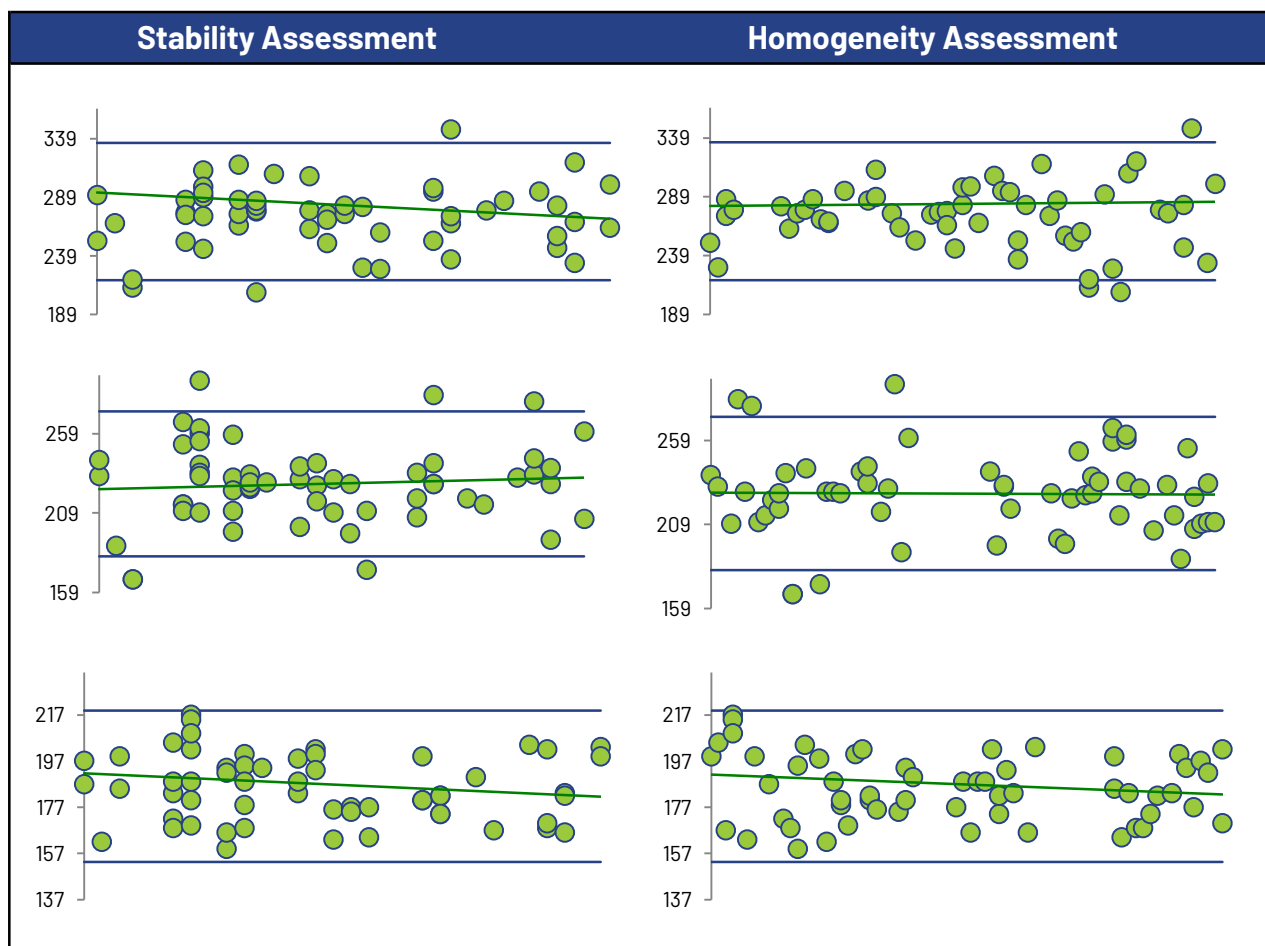
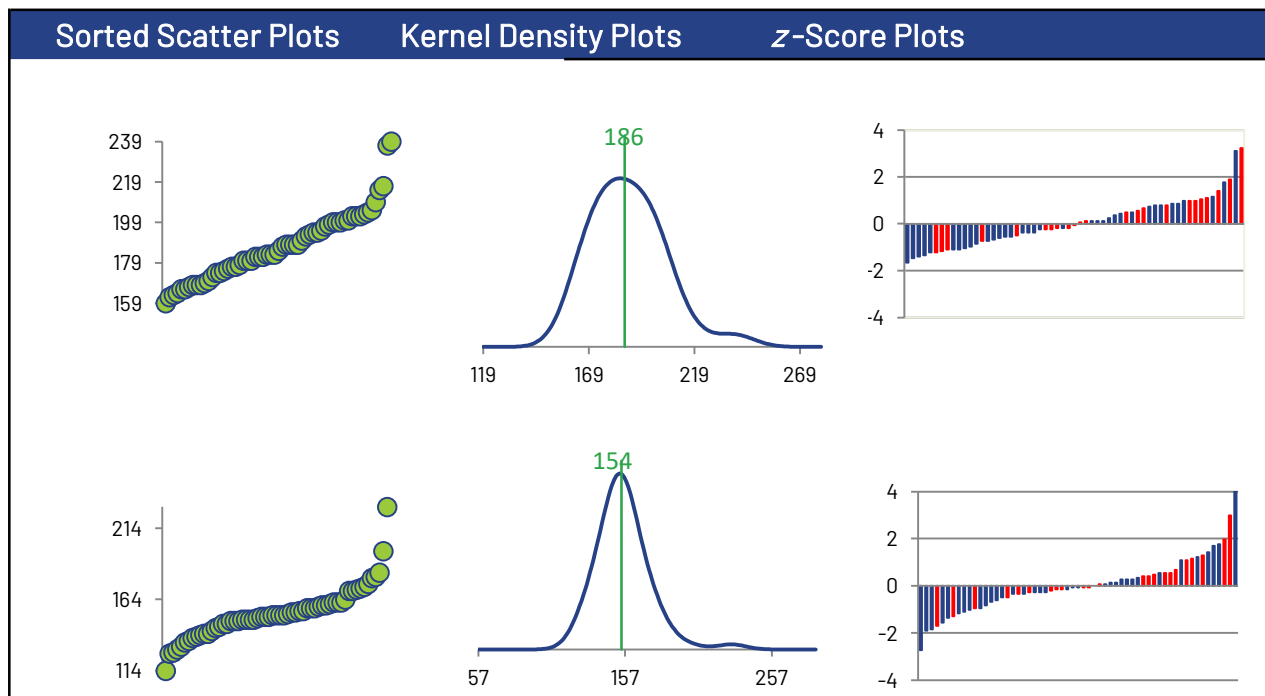
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	36	36	36	36
ICP/OES (Red)	23	23	23	23

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

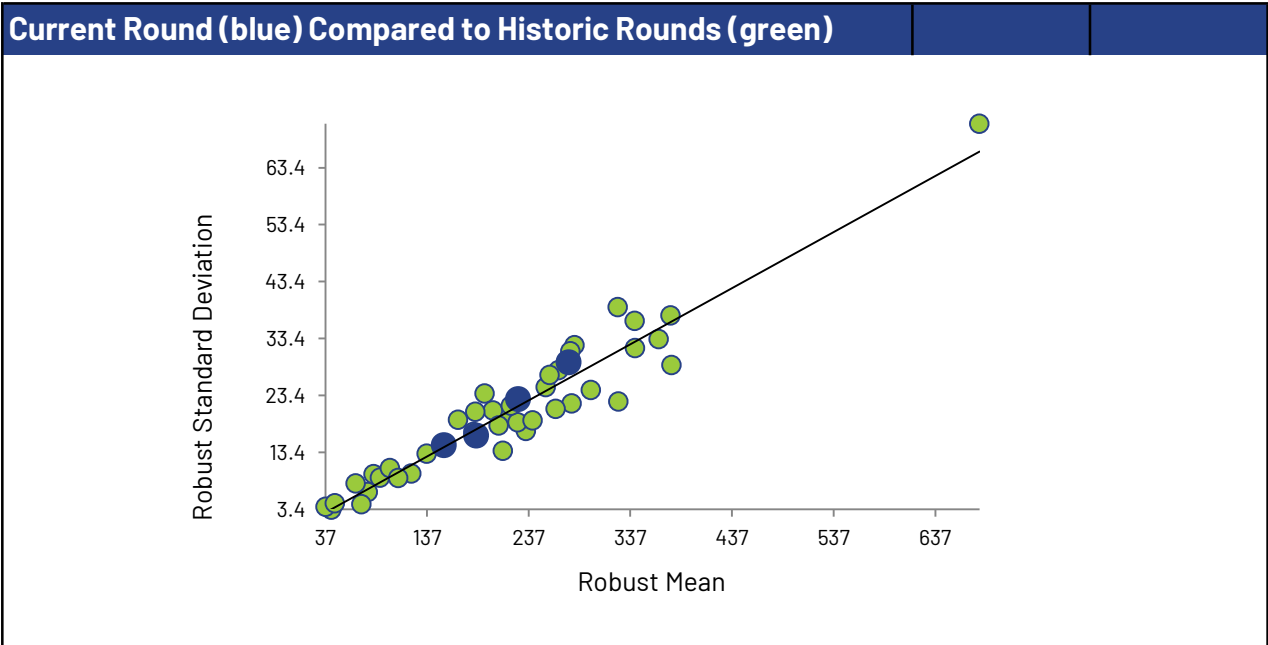
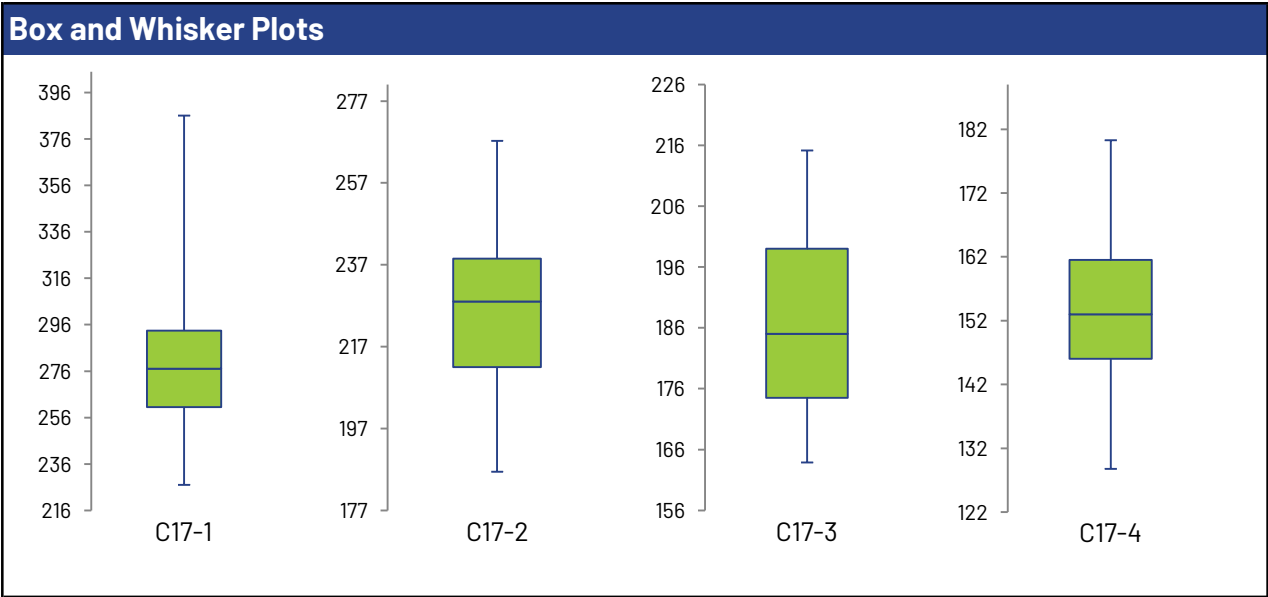
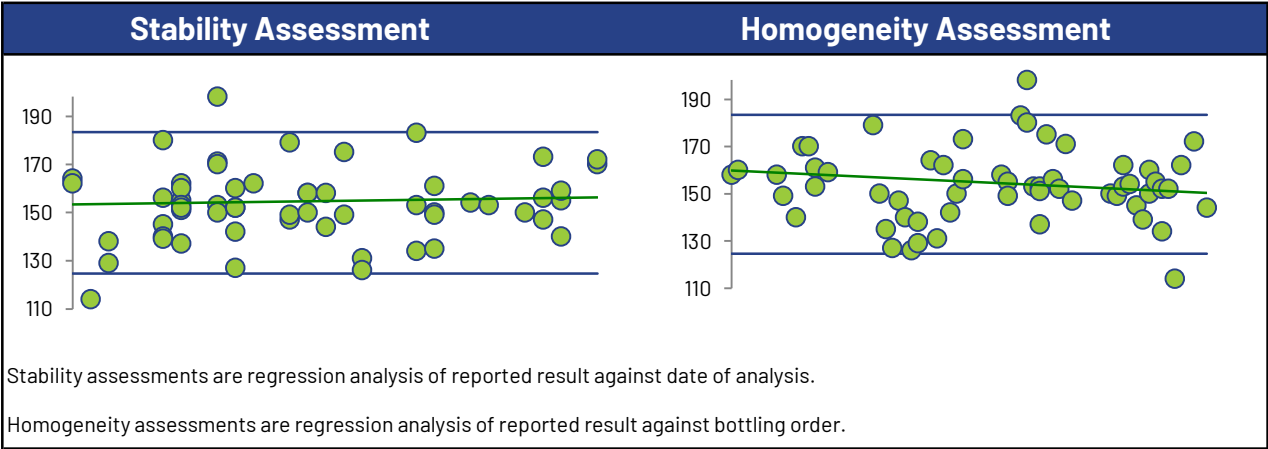


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Copper



Copper



Iron

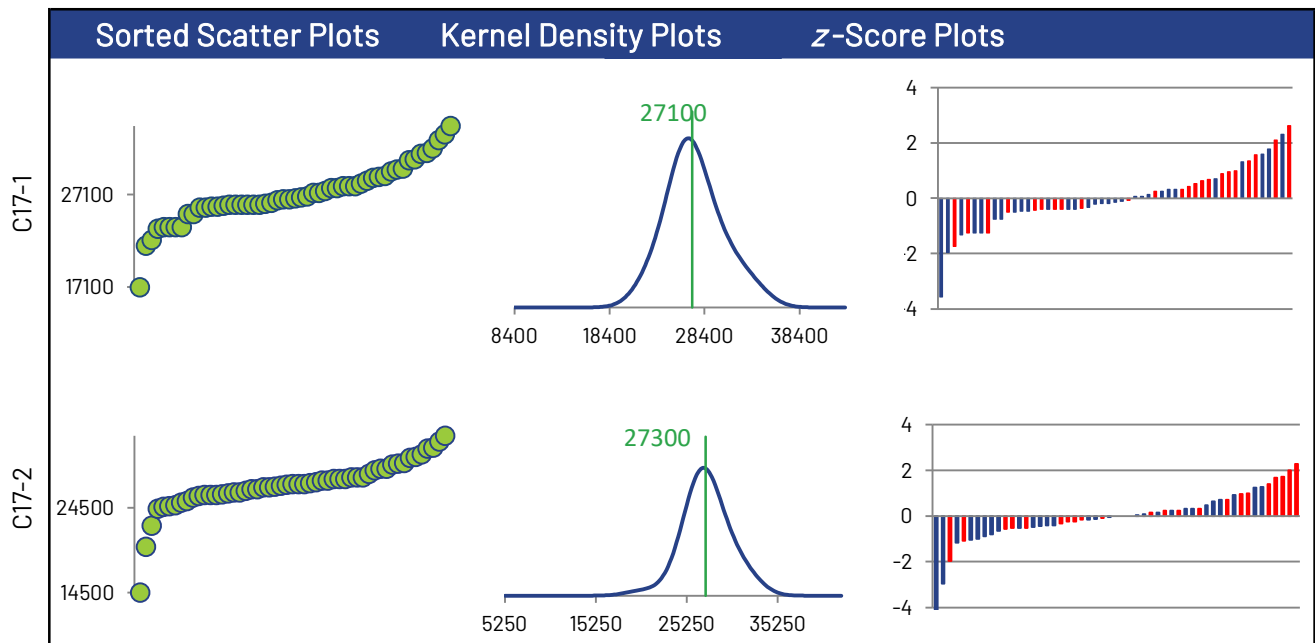
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	53	53	53	53
Median µg/g	26700	27300	15600	3580
Robust Mean µg/g	27100	27300	15600	3580
Uncertainty of the Assigned Value µg/g	482	371	290	45.0
Robust Standard Deviation µg/g	2810	2160	1690	262
Regression Standard Deviation µg/g	2480	2500	1420	327
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	2810	2500	1690	327
Flagged Outliers	0	0	0	0
$ z > 3.0$	1	1	2	1
$2 < z < 3$	3	2	2	1
Failure Rate %*	1.9			

Methods Used

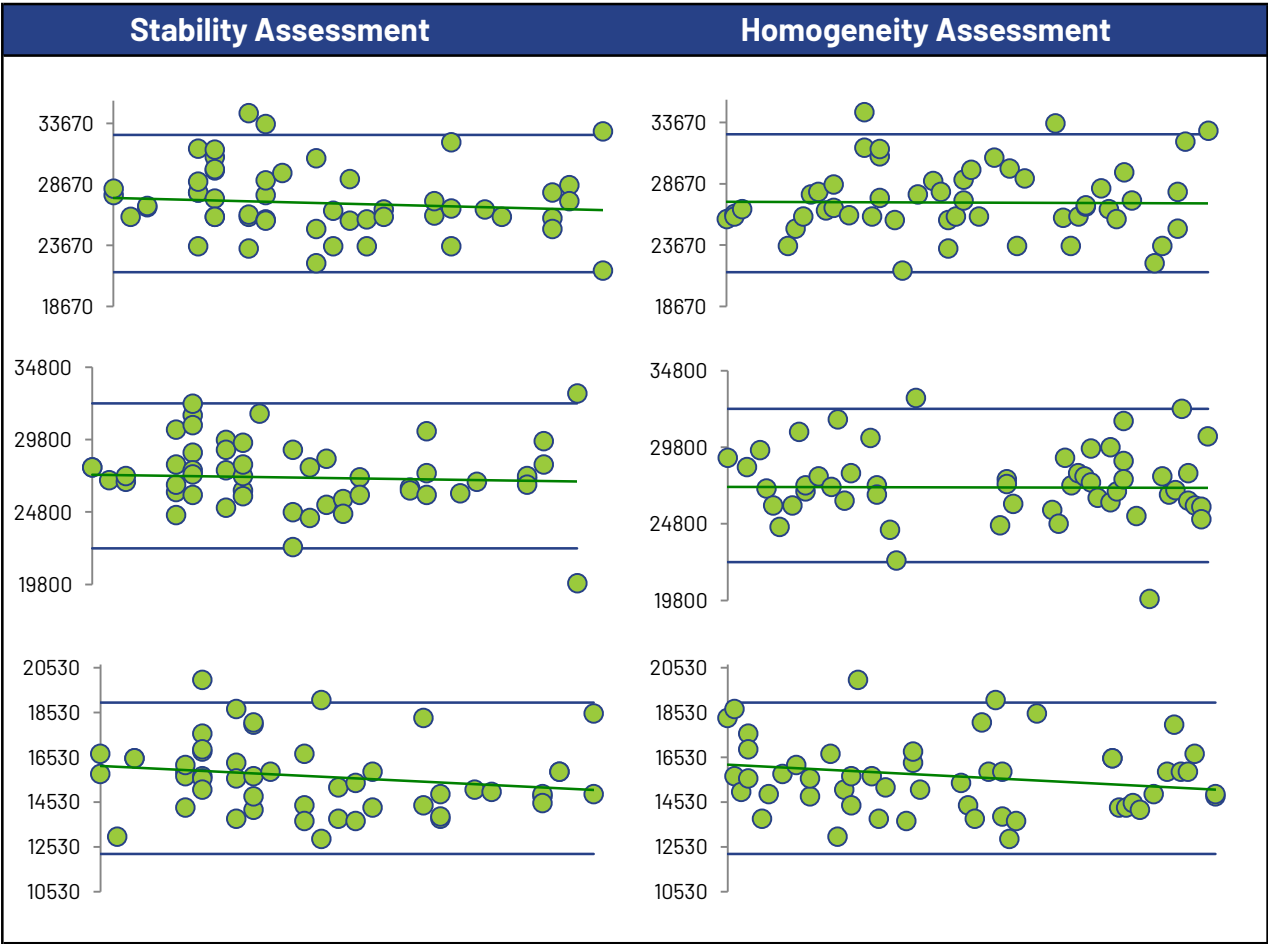
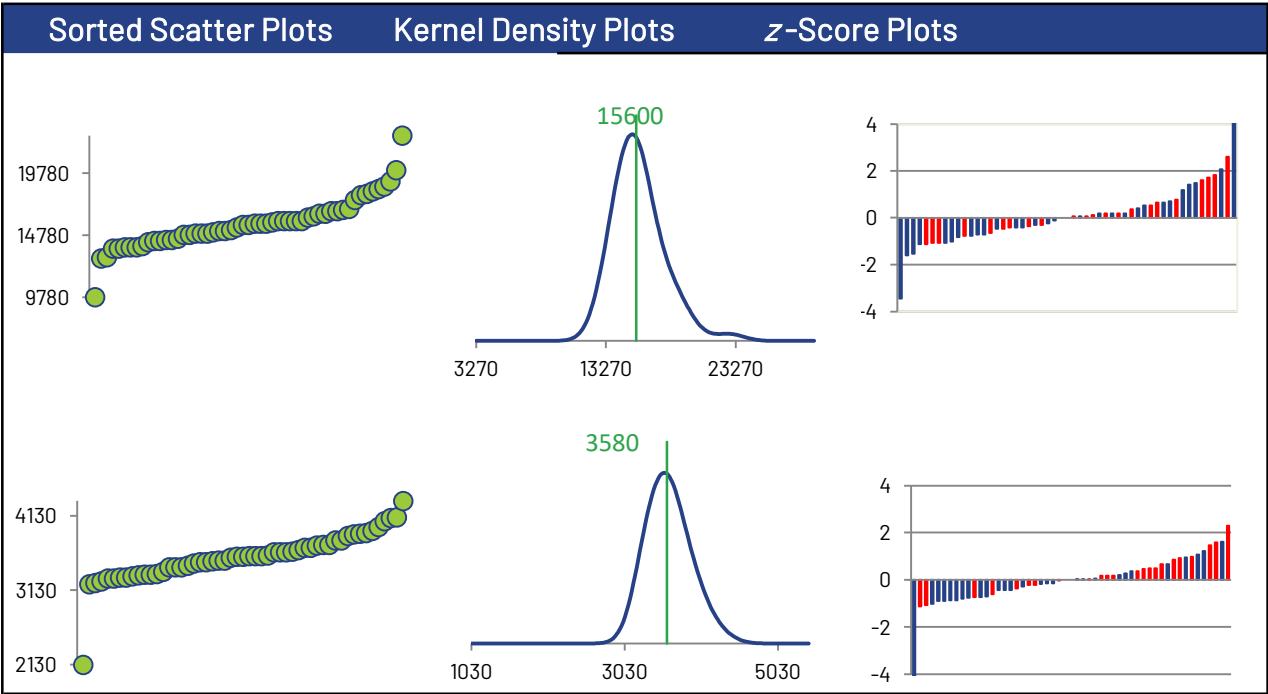
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	30	30	30	30
ICP/OES (Red)	23	23	23	23

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

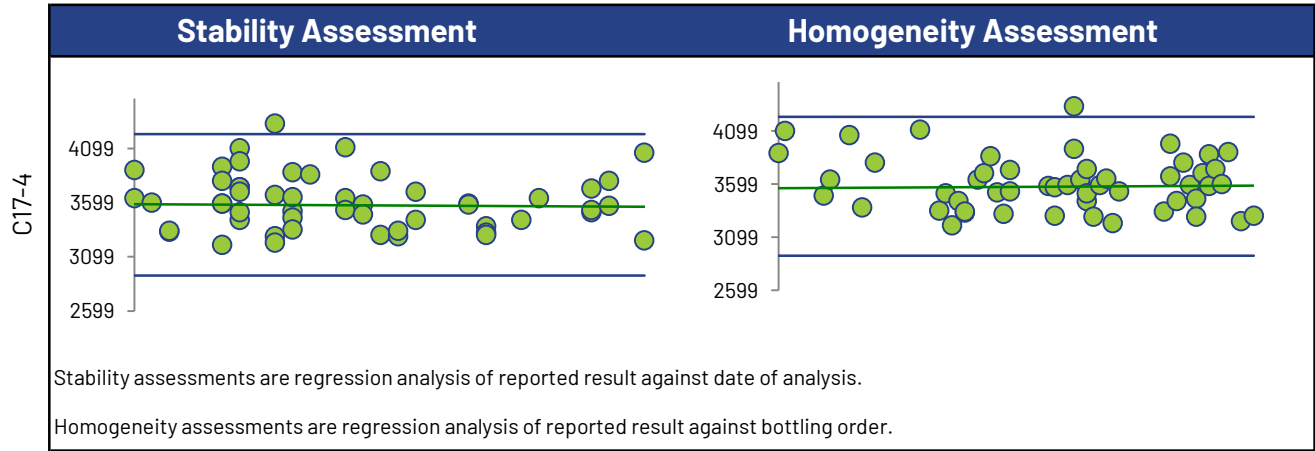


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

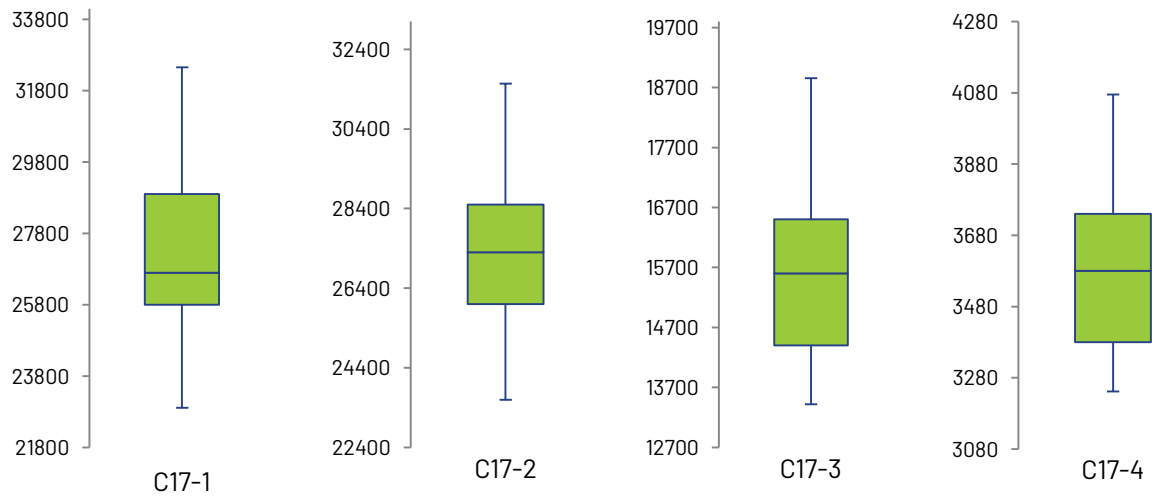
Iron



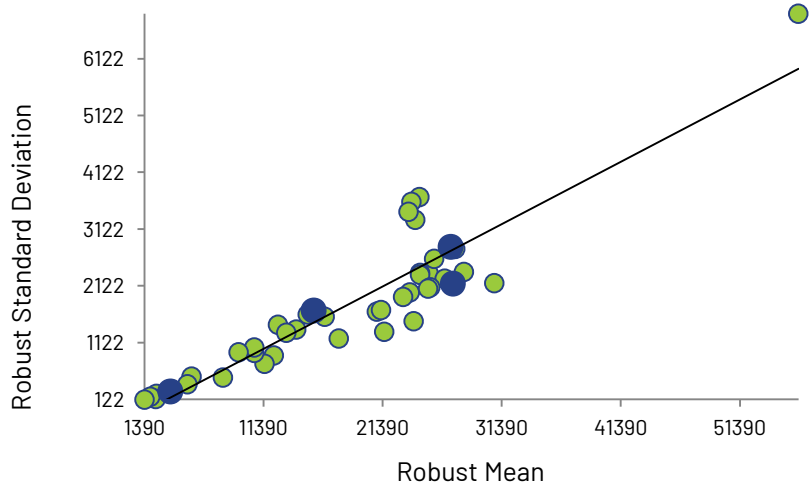
Iron



Box and Whisker Plots



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



Lead

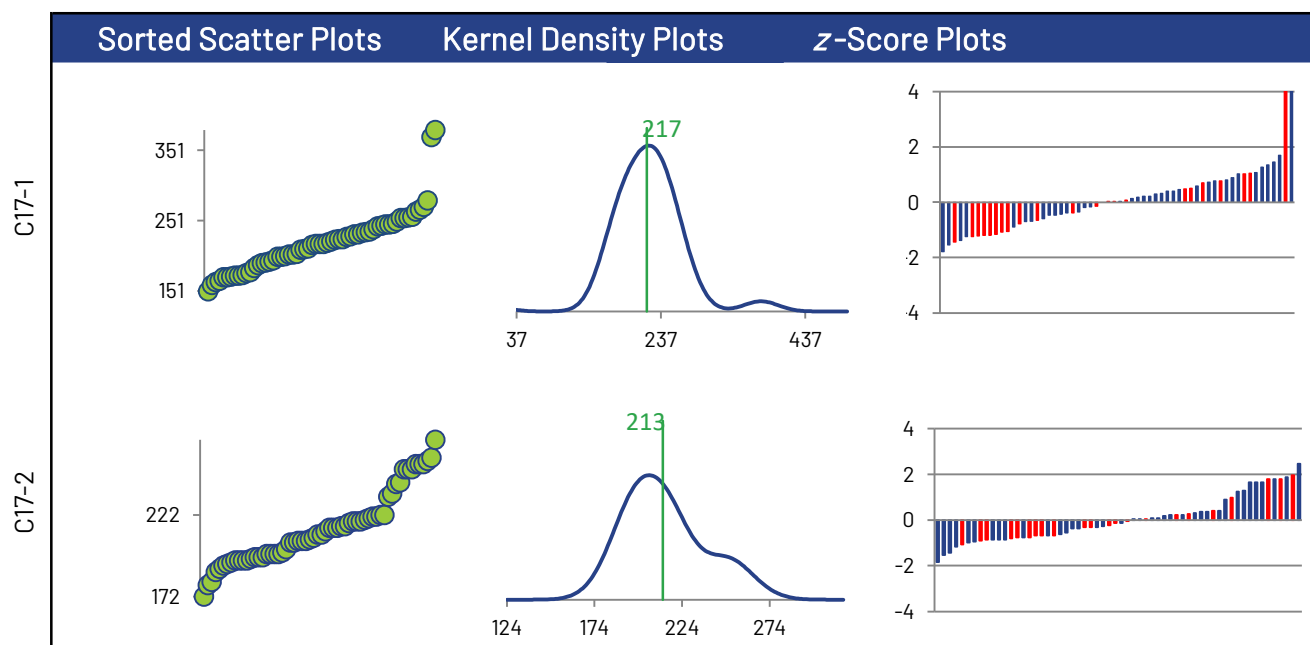
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	60	60	60	60
Median µg/g	218	210	132	156
Robust Mean µg/g	217	213	134	157
Uncertainty of the Assigned Value µg/g	5.97	3.61	2.40	2.05
Robust Standard Deviation µg/g	37.0	22.4	14.9	12.7
Regression Standard Deviation µg/g	17.8	17.5	11.7	13.4
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	37.0	22.4	14.9	13.4
Flagged Outliers	0	0	0	0
$ z > 3.0$	2	0	1	2
$2 < z < 3$	0	1	6	3
Failure Rate %*	5.0			

Methods Used

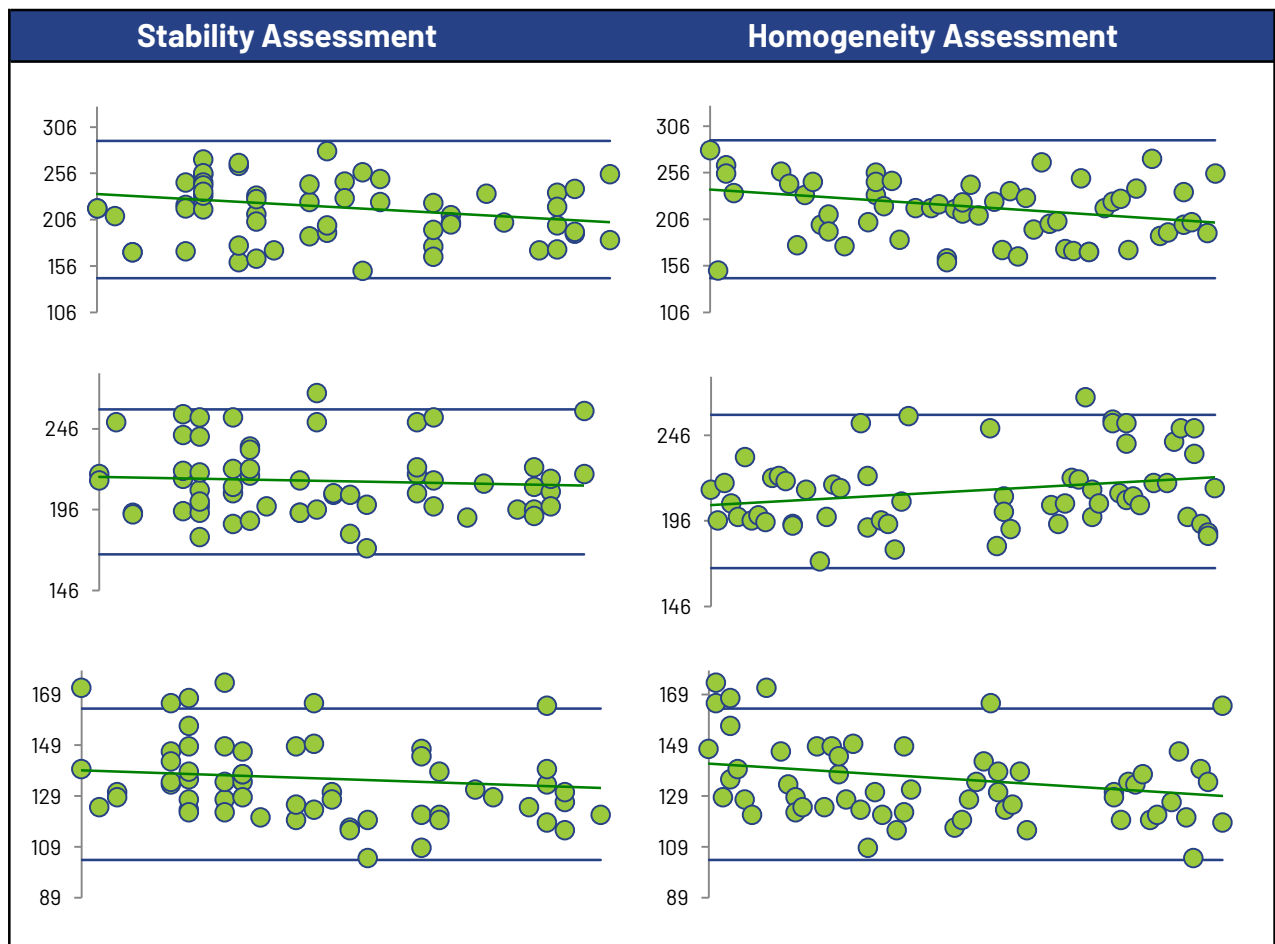
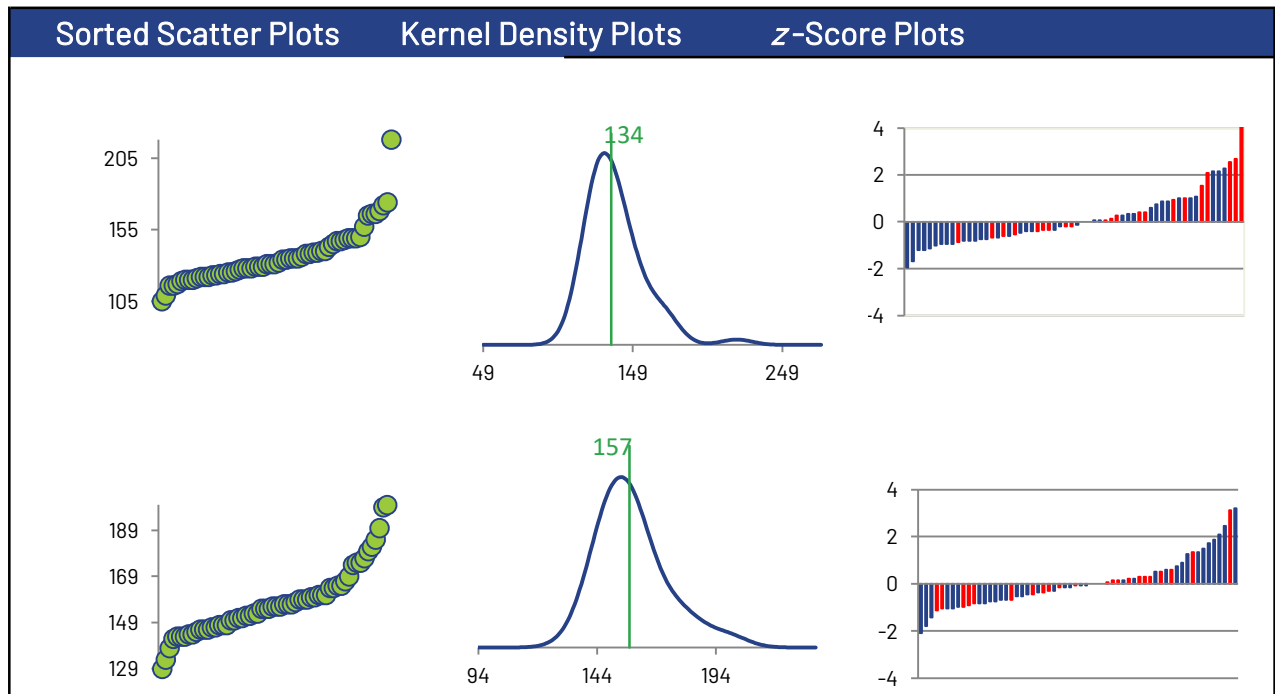
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	38	38	38	38
ICP/OES (Red)	22	22	22	22

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

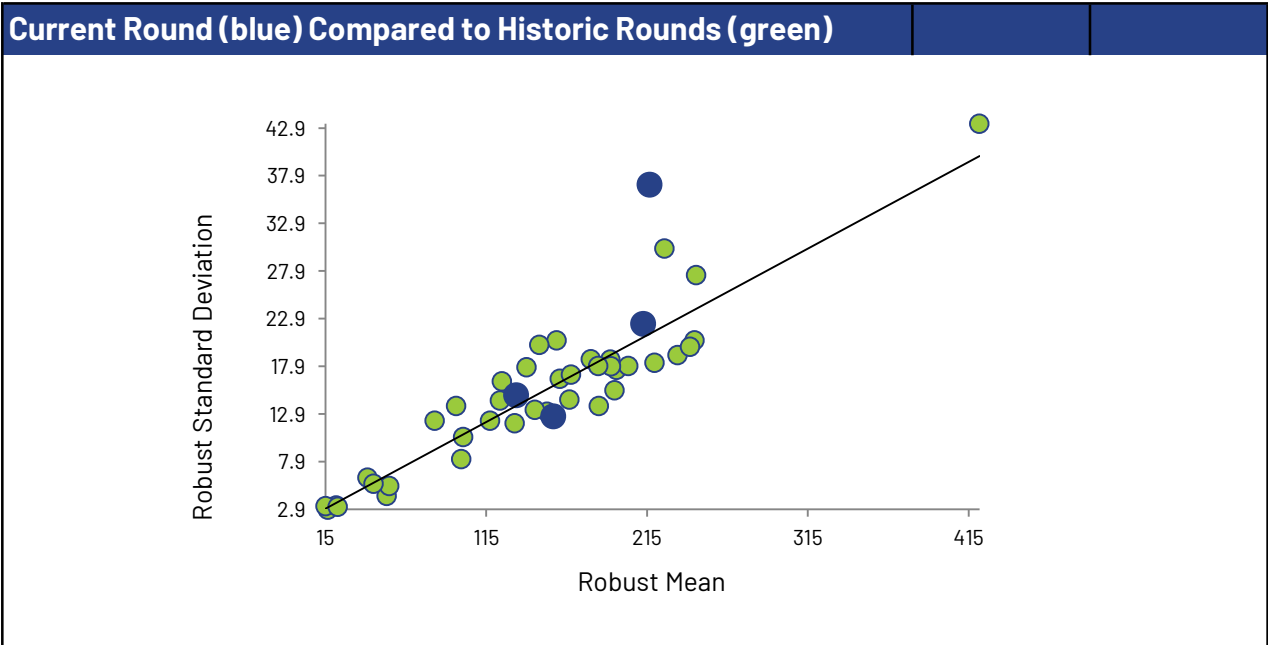
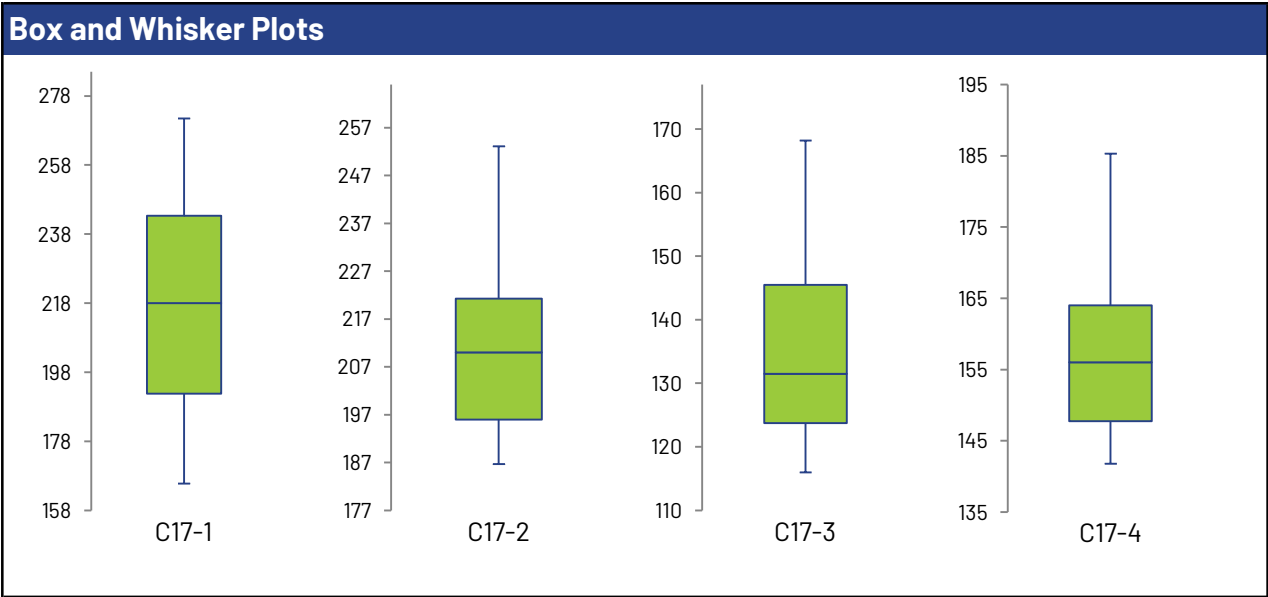
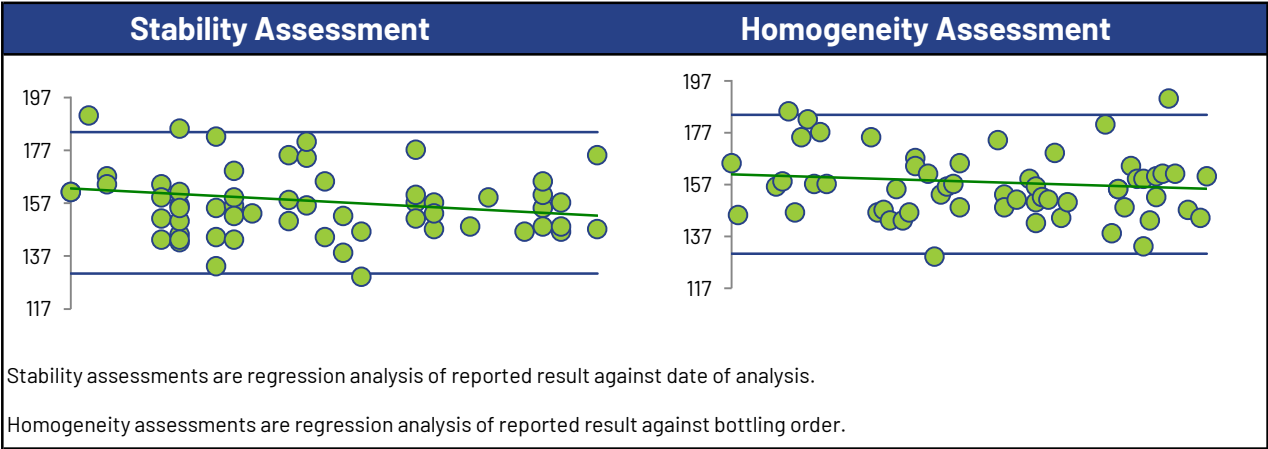


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Lead



Lead



Manganese

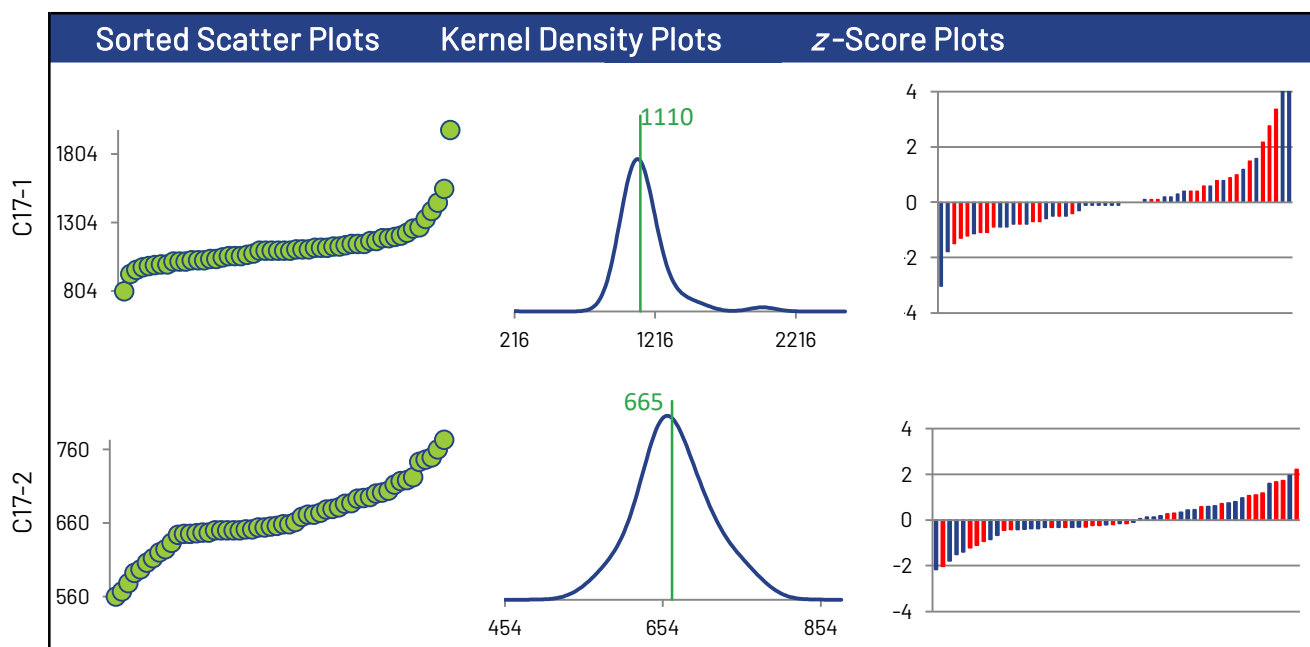
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	54	54	54	54
Median µg/g	1100	657	667	557
Robust Mean µg/g	1110	665	669	559
Uncertainty of the Assigned Value µg/g	17.2	7.30	8.79	7.79
Robust Standard Deviation µg/g	101	42.9	51.7	45.8
Regression Standard Deviation µg/g	81.1	48.8	49.0	40.9
Stability Flag				
Homogeneity Flag				Homogeneity
Standard Deviation Used (SDPA) µg/g	101	48.8	51.7	65.2
Flagged Outliers	0	0	0	0
$ z > 3.0$	4	0	2	0
$2 < z < 3$	2	3	0	1
Failure Rate %*	3.7			

Methods Used

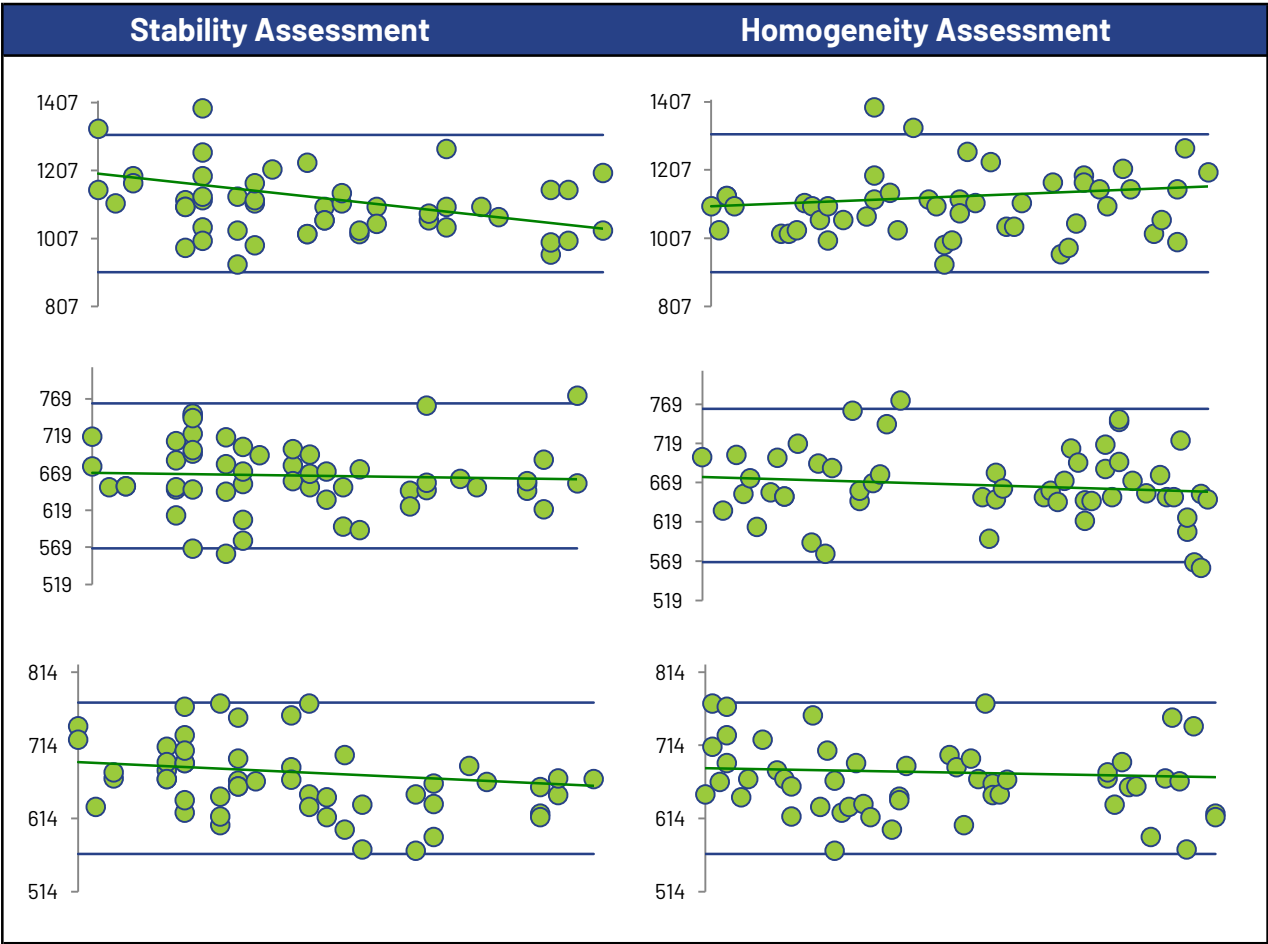
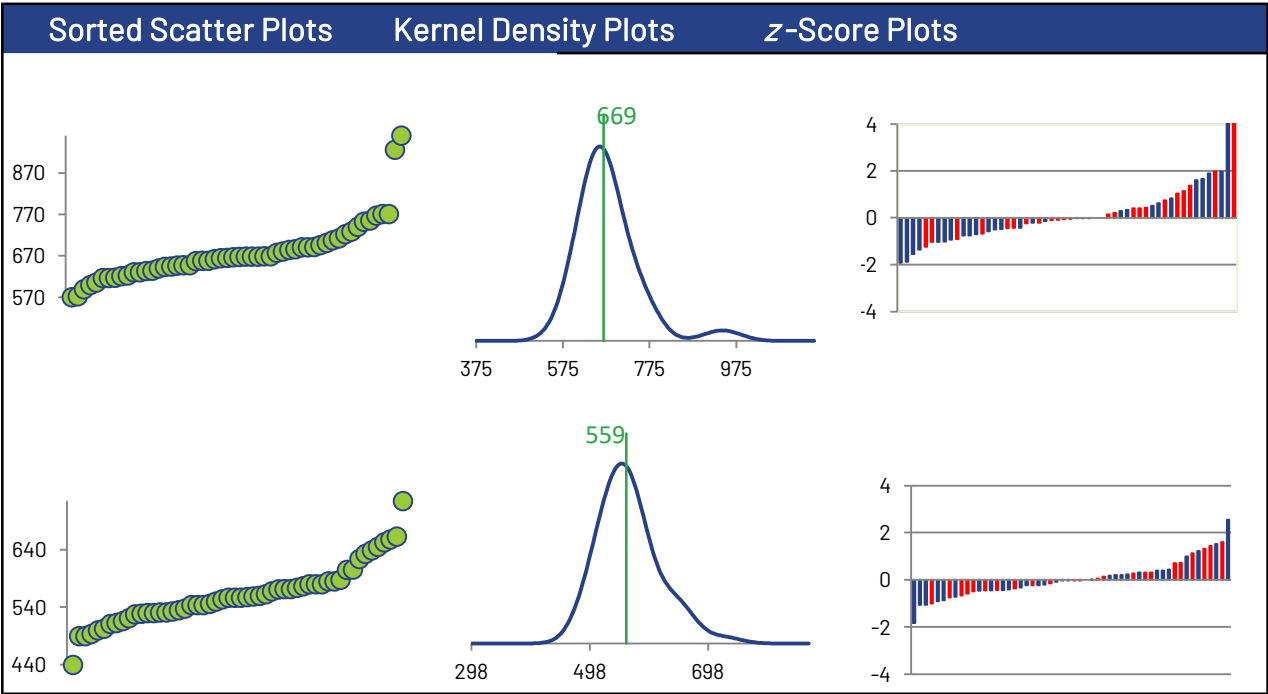
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	31	31	31	31
ICP/OES (Red)	23	23	23	23

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

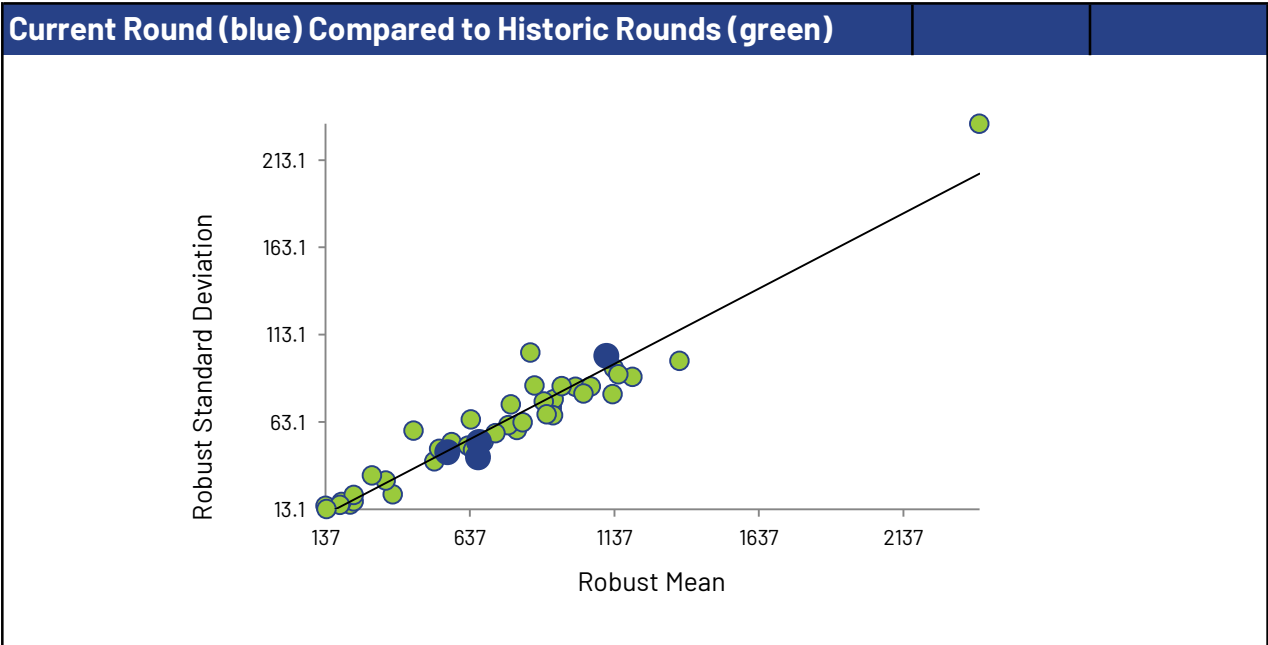
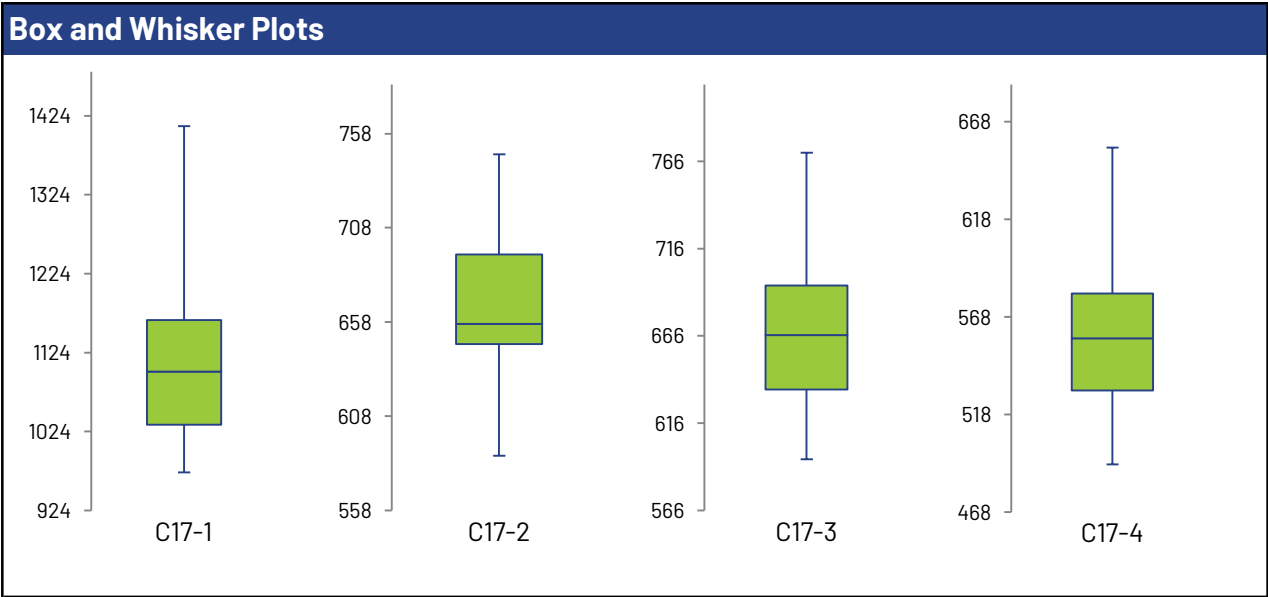
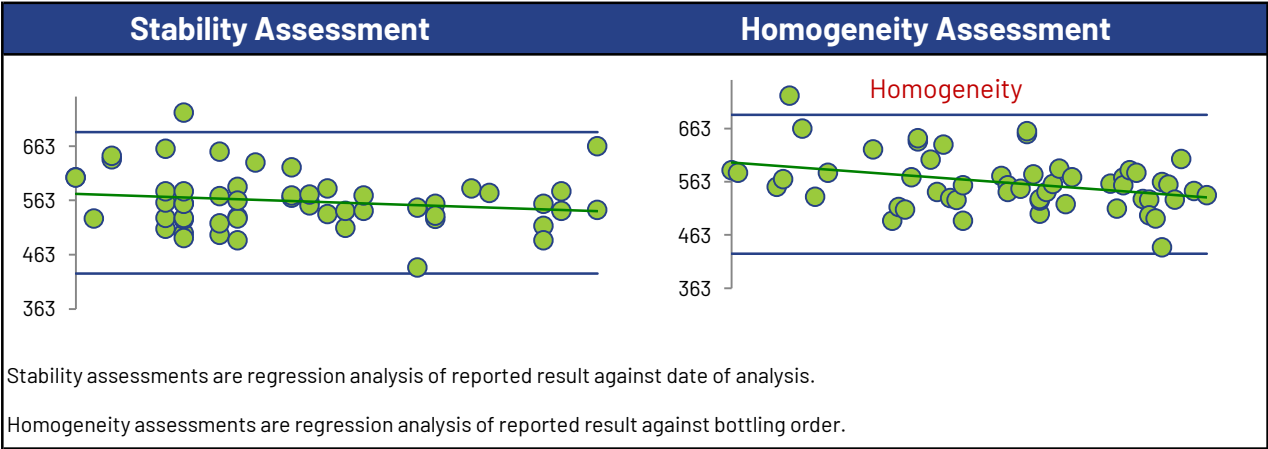


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Manganese



Manganese



Mercury

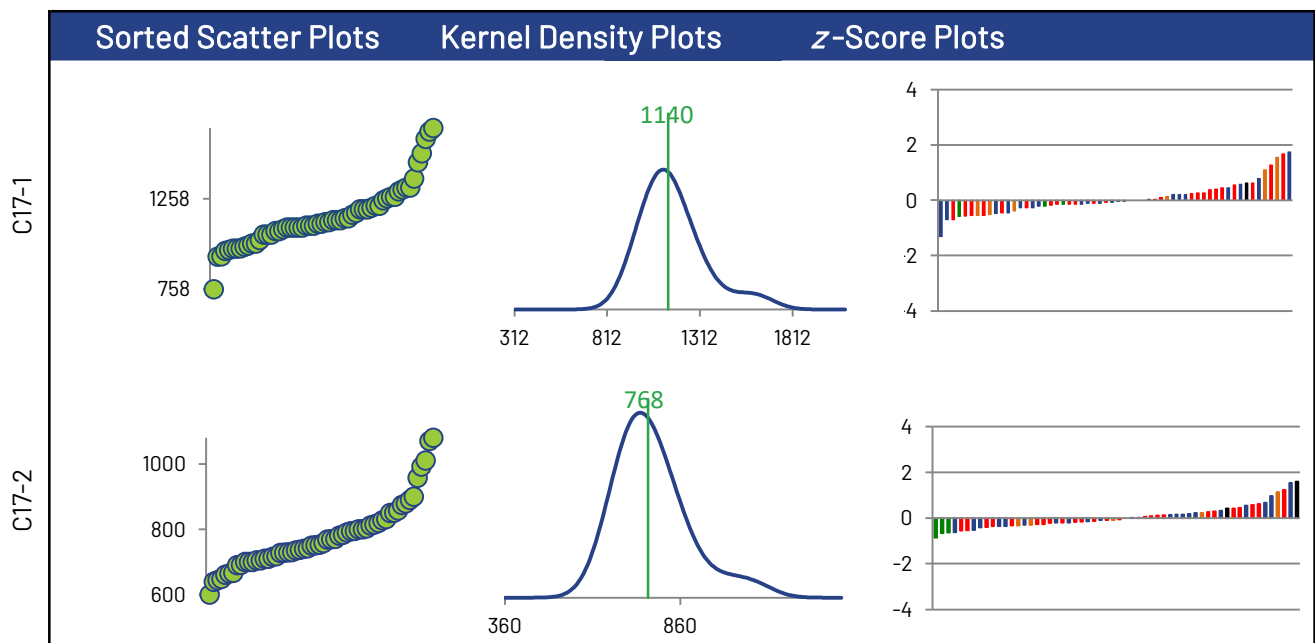
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	58	58	58	55
Median µg/g	1130	755	769	480
Robust Mean µg/g	1140	768	766	478
Uncertainty of the Assigned Value µg/g	22.8	14.2	14.7	9.05
Robust Standard Deviation µg/g	139	86.8	89.8	53.7
Regression Standard Deviation µg/g	291	196	195	122
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	291	196	195	122
Flagged Outliers	2	2	2	2
$ z > 3.0$	0	0	0	0
$2 < z < 3$	0	0	0	0
Failure Rate %*	3.3			

Methods Used

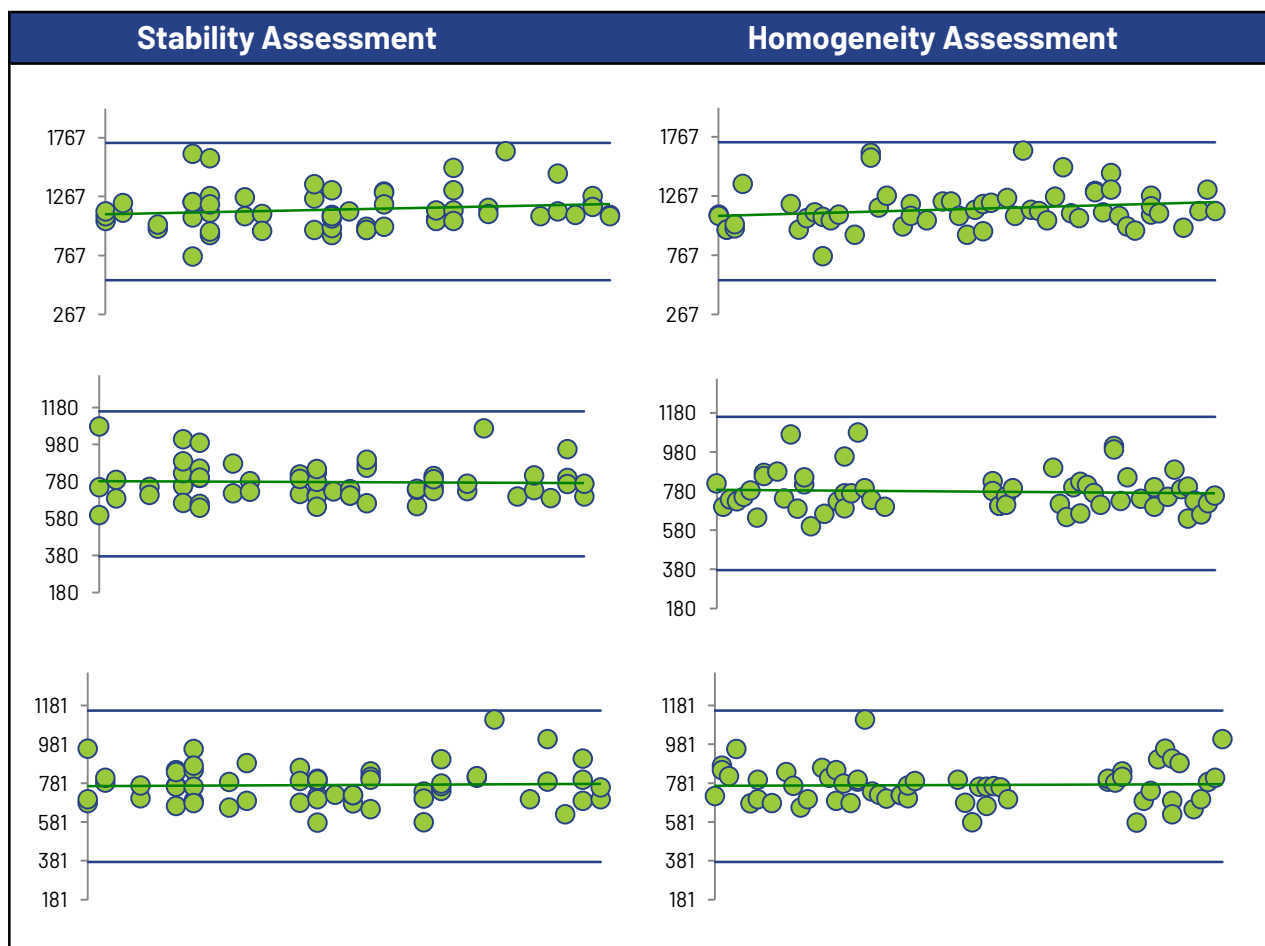
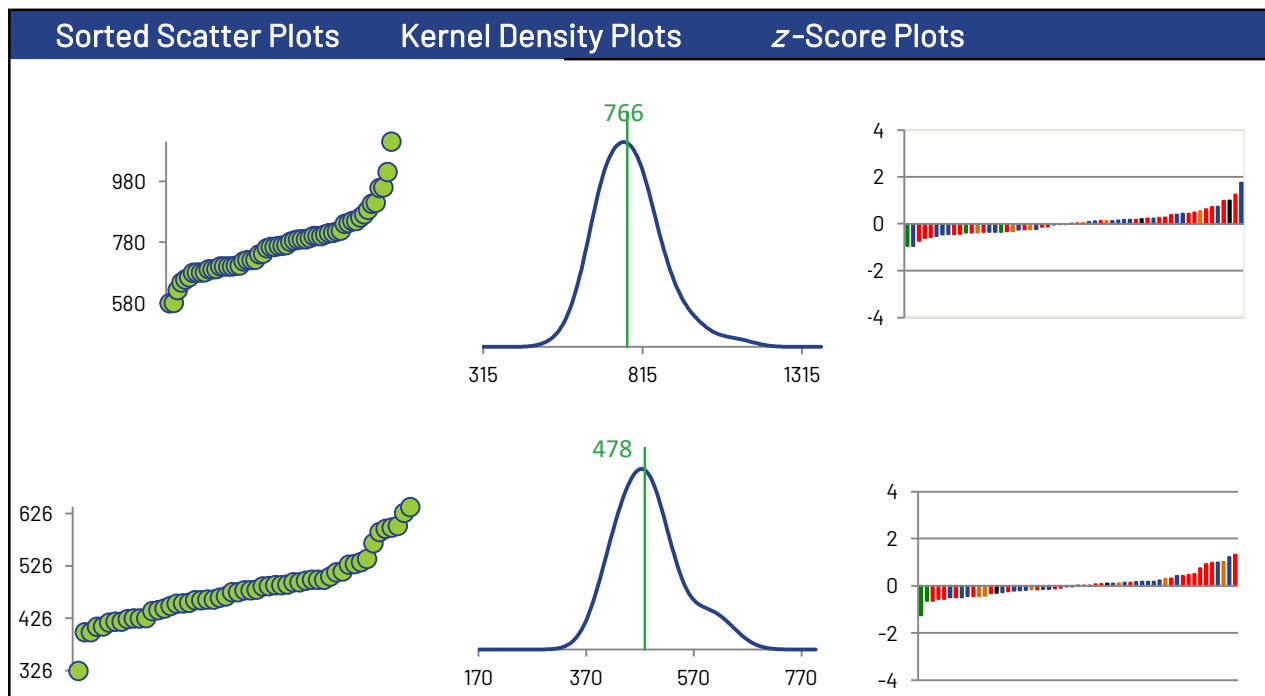
Method	C17-1	C17-2	C17-3	C17-4
COLD VAPOUR AA (Blue)	22	22	22	22
ICP/MS (Red)	25	25	25	23
ICP/OES (Green)	3	3	3	2
ATOMIC FLUORESCENCE (Orange)	6	6	6	6
PYROLYTIC AA (Black)	2	2	2	2

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

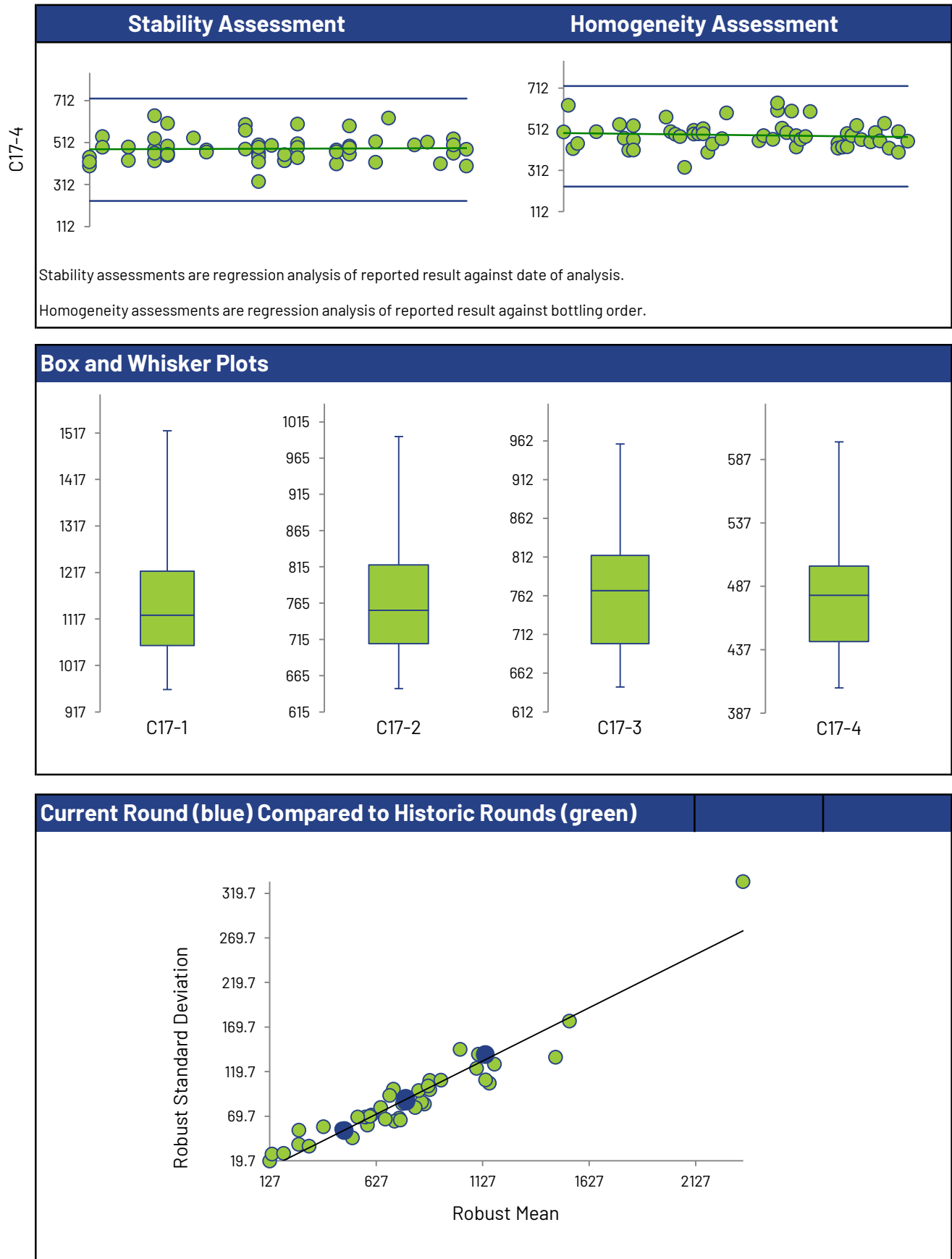


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Mercury



Mercury



Nickel

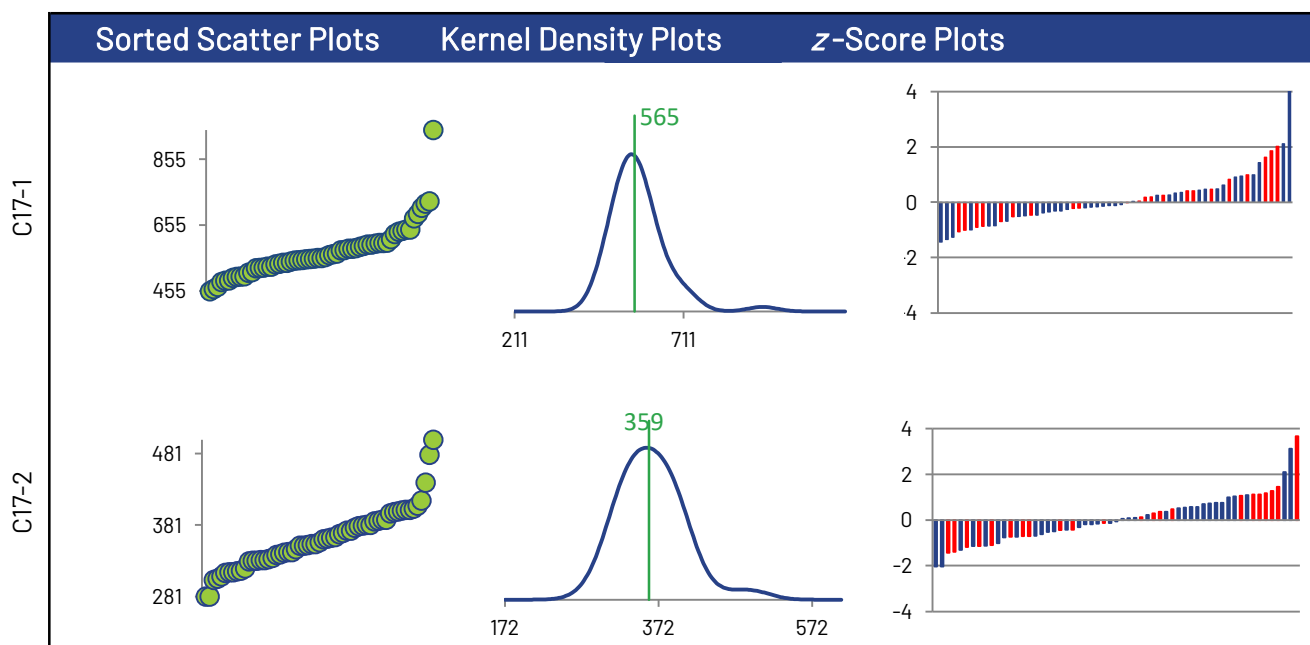
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	59	59	59	59
Median µg/g	556	357	296	231
Robust Mean µg/g	565	359	299	235
Uncertainty of the Assigned Value µg/g	9.93	6.27	4.59	2.95
Robust Standard Deviation µg/g	61.0	38.5	28.2	18.1
Regression Standard Deviation µg/g	58.2	37.0	30.8	24.2
Stability Flag	Stability			
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	76.9	38.5	30.8	24.2
Flagged Outliers	0	0	0	0
$ z > 3.0$	1	2	1	2
$2 < z < 3$	2	3	2	1
Failure Rate %*	5.1			

Methods Used

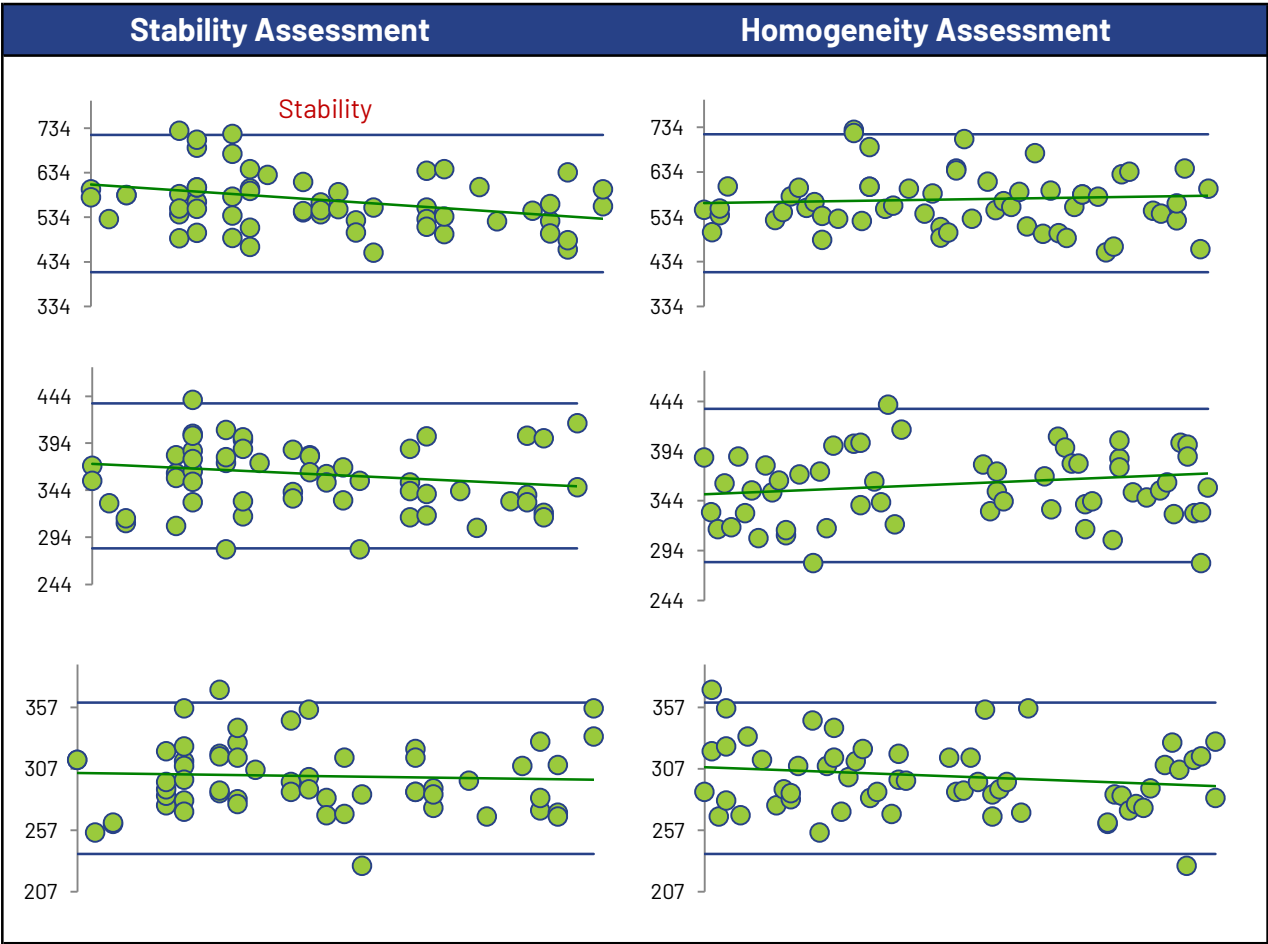
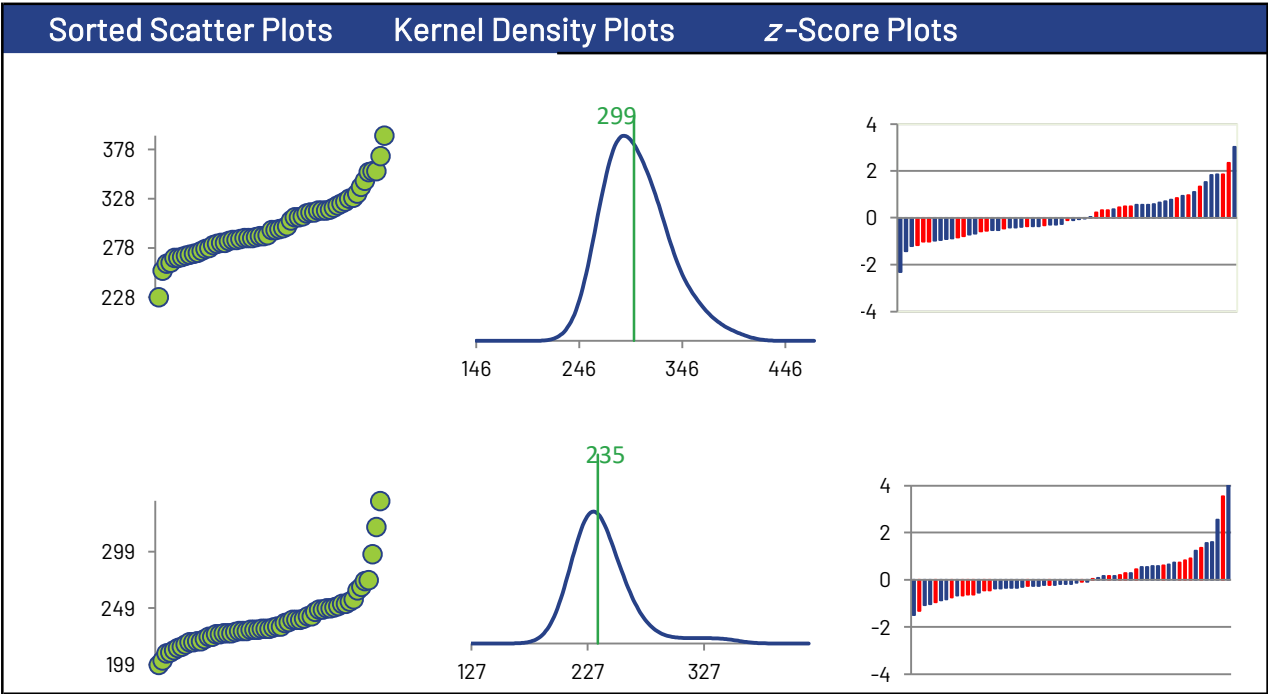
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	37	37	37	37
ICP/OES (Red)	22	22	22	22

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

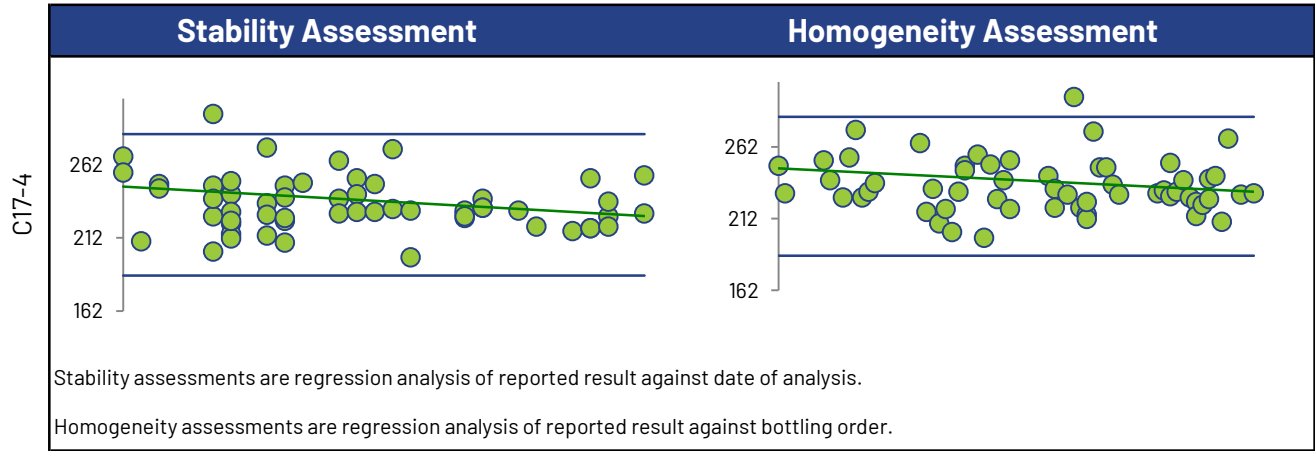


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

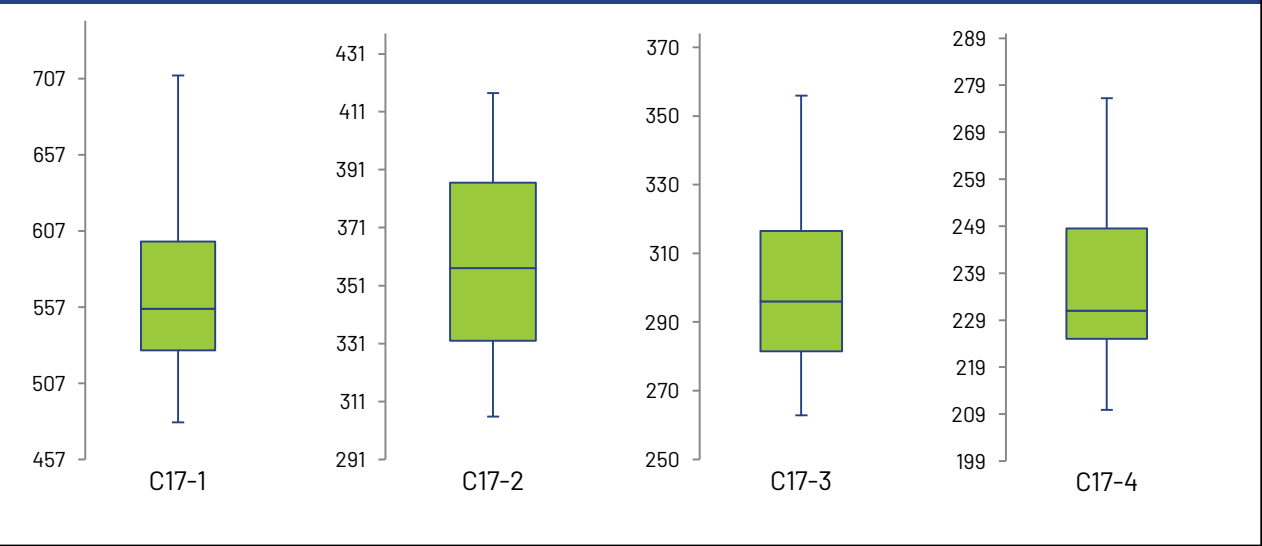
Nickel



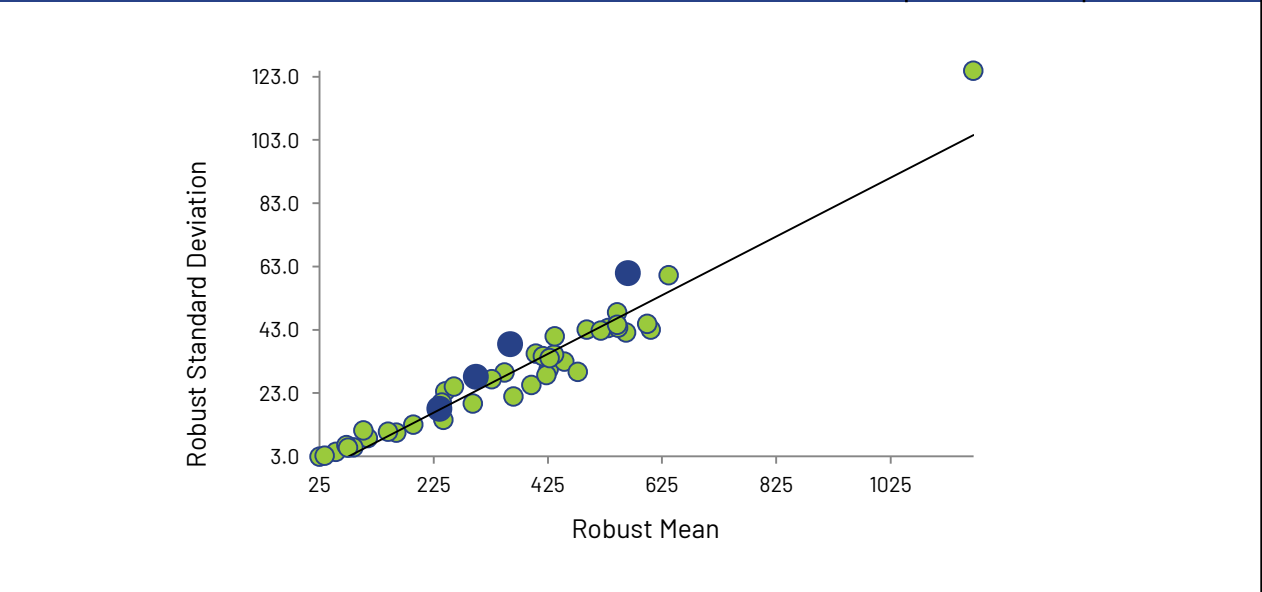
Nickel



Box and Whisker Plots



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



Strontium

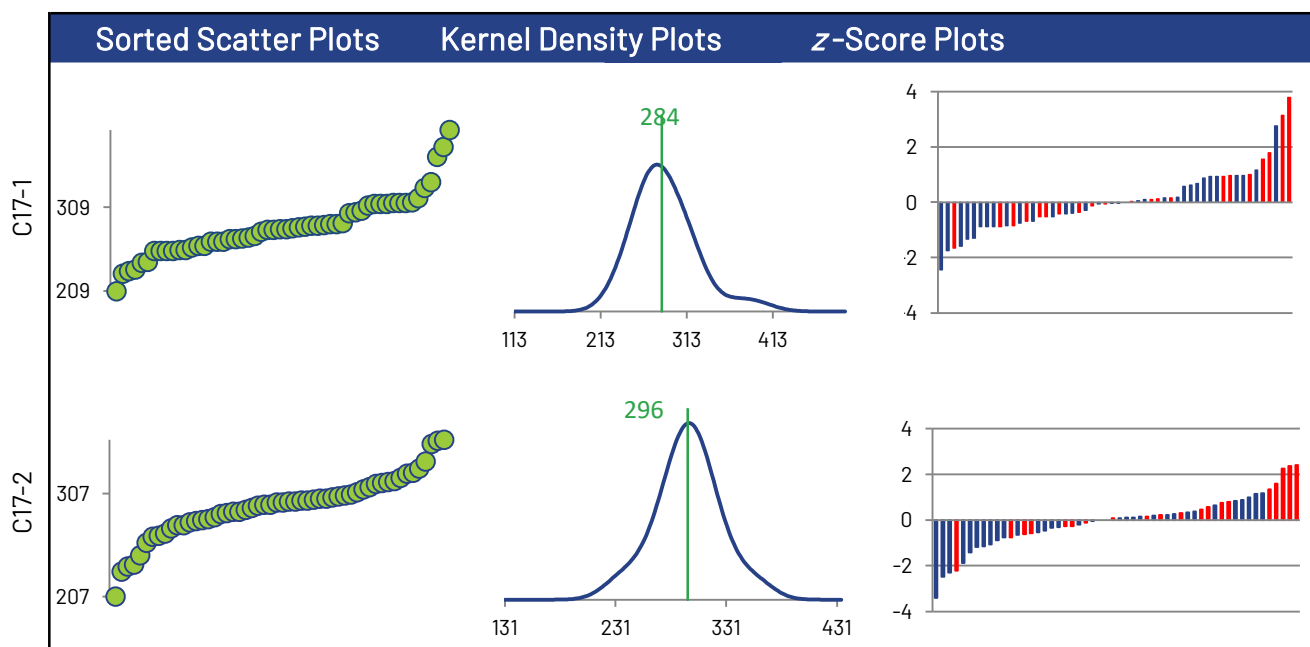
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	54	54	54	54
Median µg/g	283	298	209	188
Robust Mean µg/g	284	296	211	190
Uncertainty of the Assigned Value µg/g	5.24	4.32	3.11	2.31
Robust Standard Deviation µg/g	30.8	25.4	18.3	13.6
Regression Standard Deviation µg/g	25.2	26.2	18.9	17.0
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	30.8	26.2	18.9	17.0
Flagged Outliers	0	0	0	0
z >3.0	2	1	1	1
2< z <3	2	6	3	2
Failure Rate %*	3.7			

Methods Used

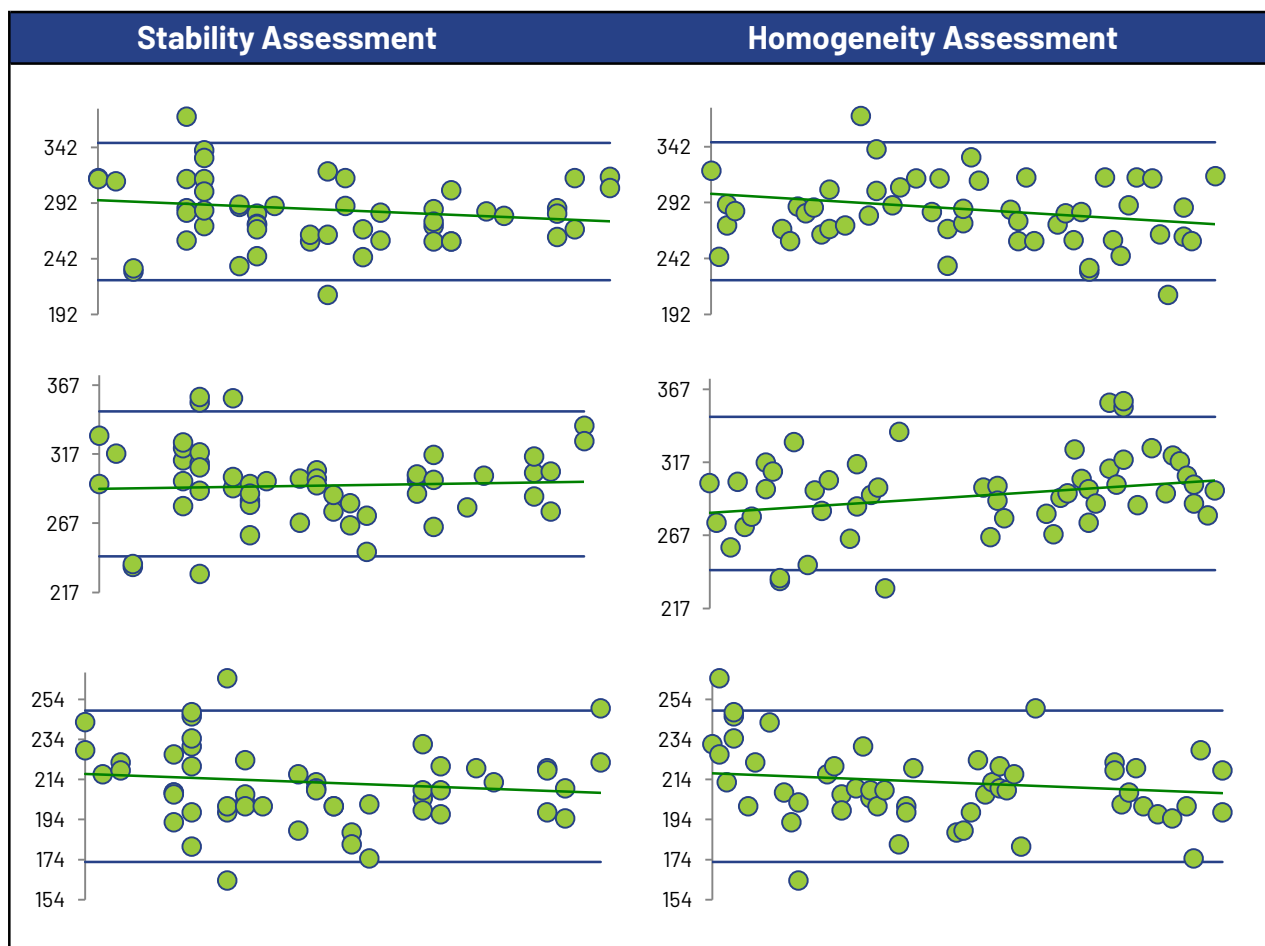
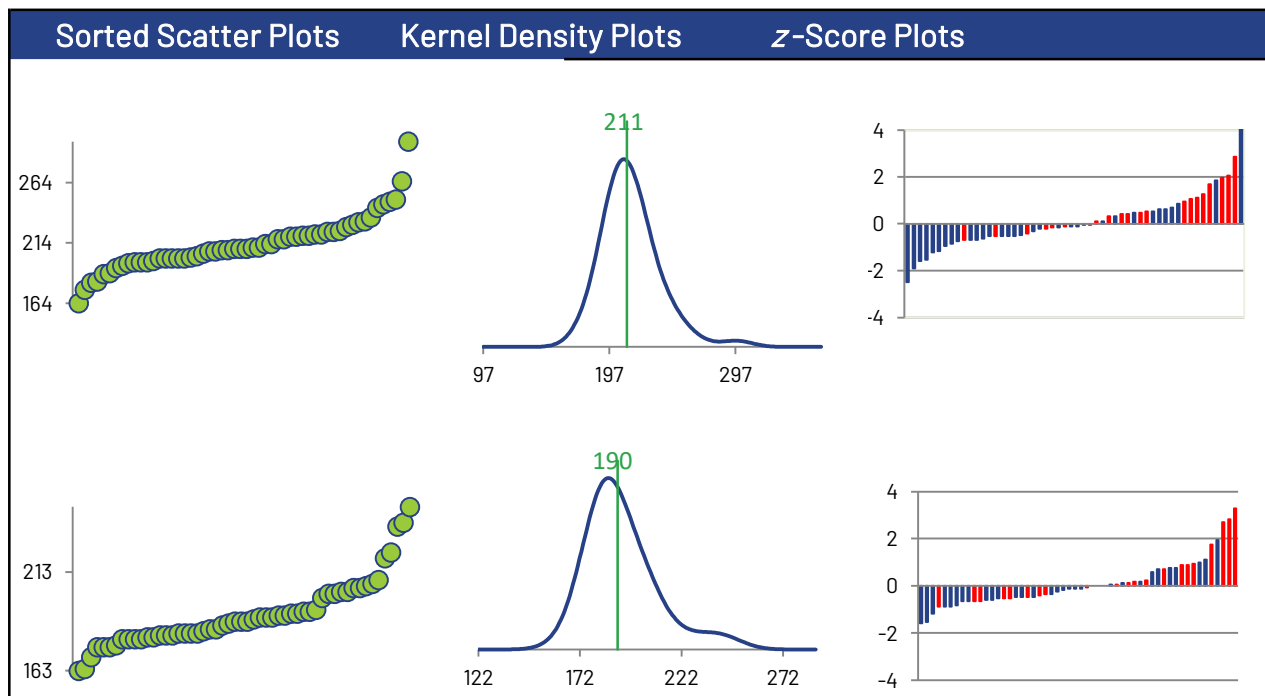
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	33	33	33	33
ICP/OES (Red)	21	21	21	21

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

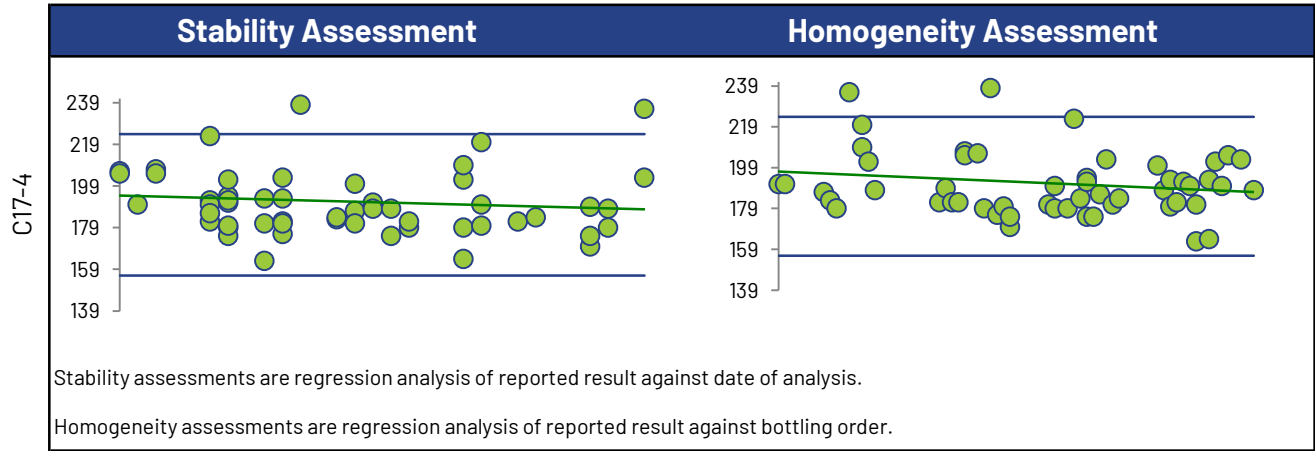


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

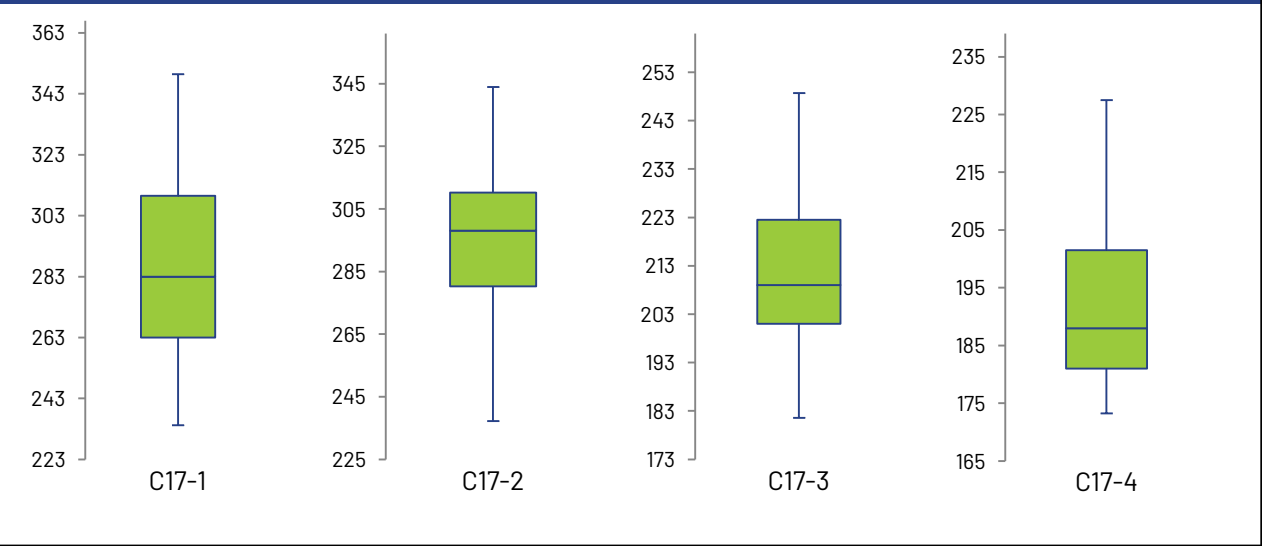
Strontium



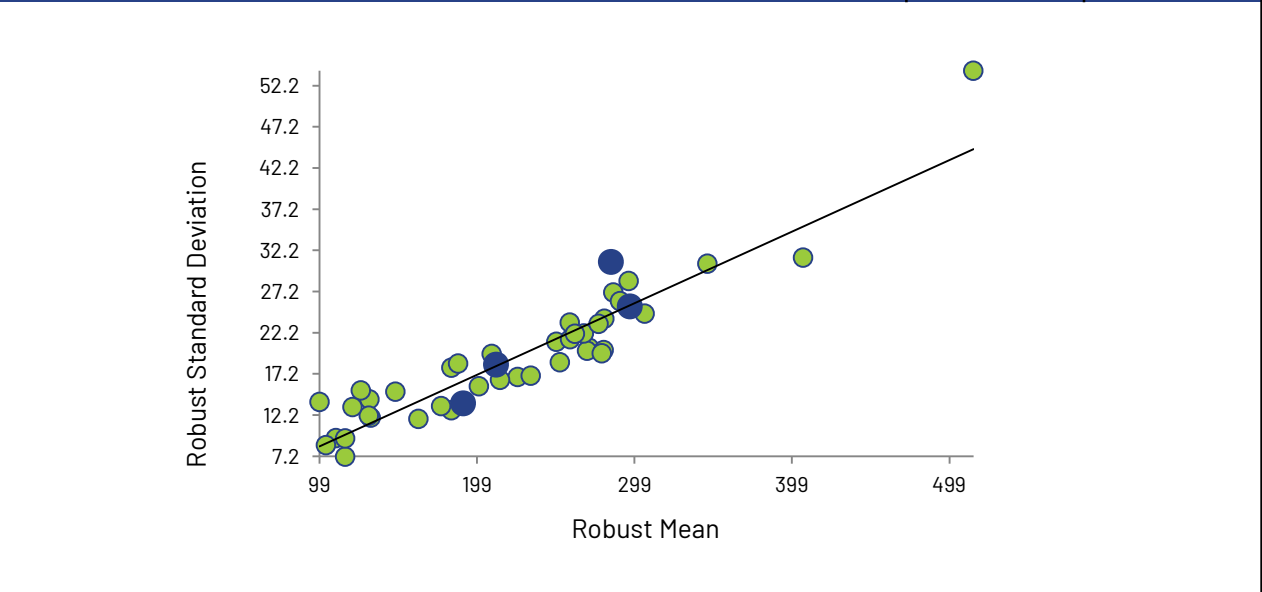
Strontium



Box and Whisker Plots



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



Thallium

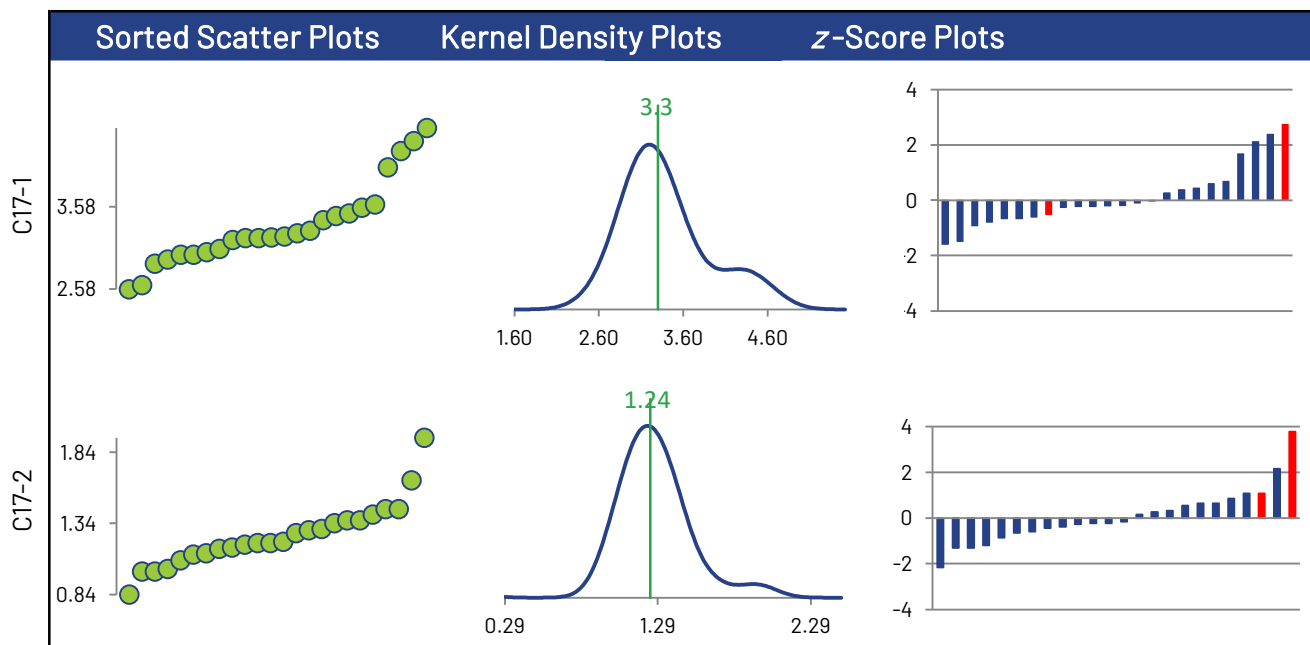
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	24	24	21	23
Median µg/g	3.22	1.21	0.860	1.03
Robust Mean µg/g	3.30	1.24	0.875	1.07
Uncertainty of the Assigned Value µg/g	0.116	0.0472	0.0401	0.0354
Robust Standard Deviation µg/g	0.453	0.185	0.147	0.136
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	0.453	0.185	0.147	0.136
Flagged Outliers	0	0	0	0
$ z > 3.0$	0	1	1	0
$2 < z < 3$	3	2	0	1
Failure Rate %*	4.2			

Methods Used

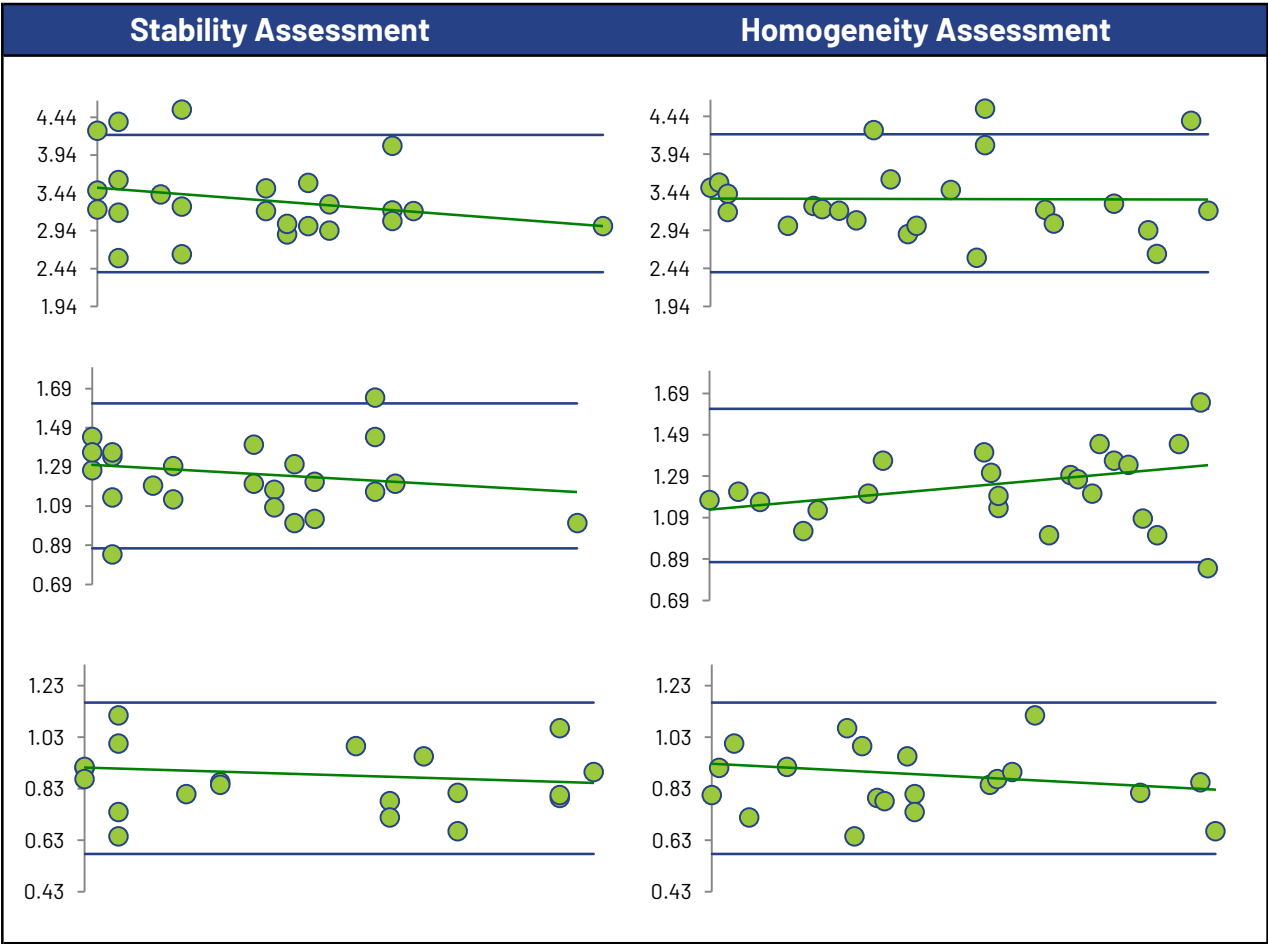
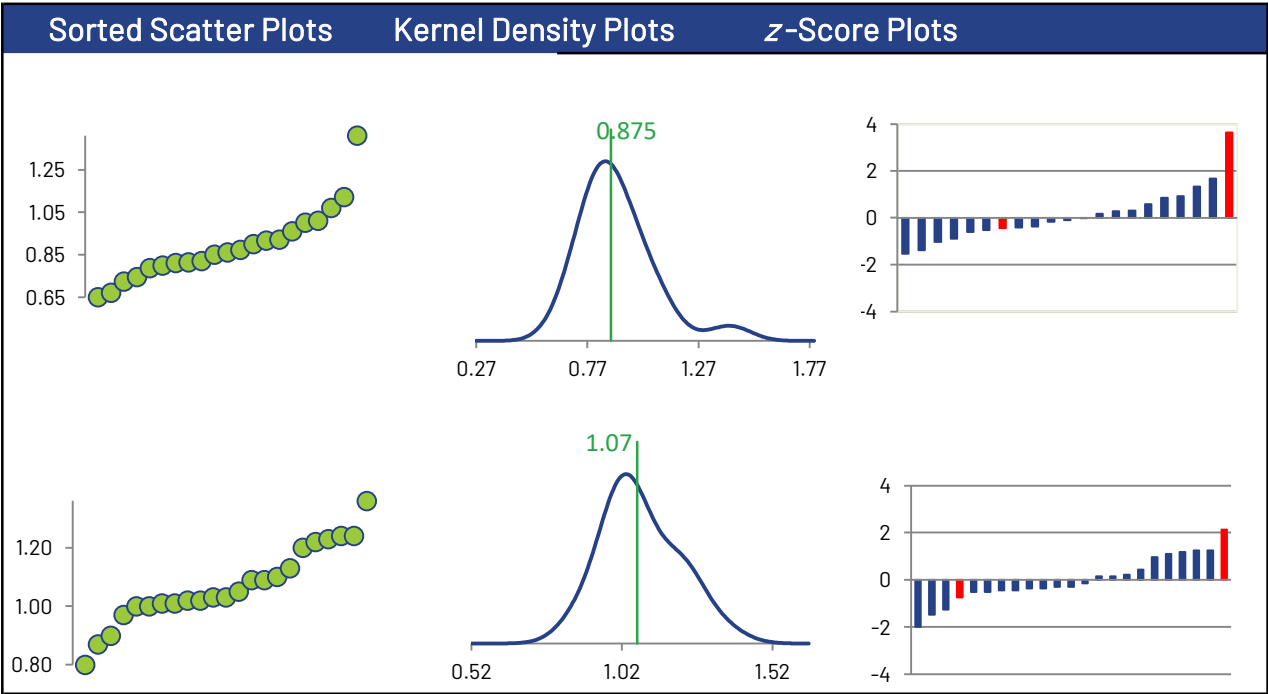
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	22	22	19	21
ICP/OES (Red)	2	2	2	2

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

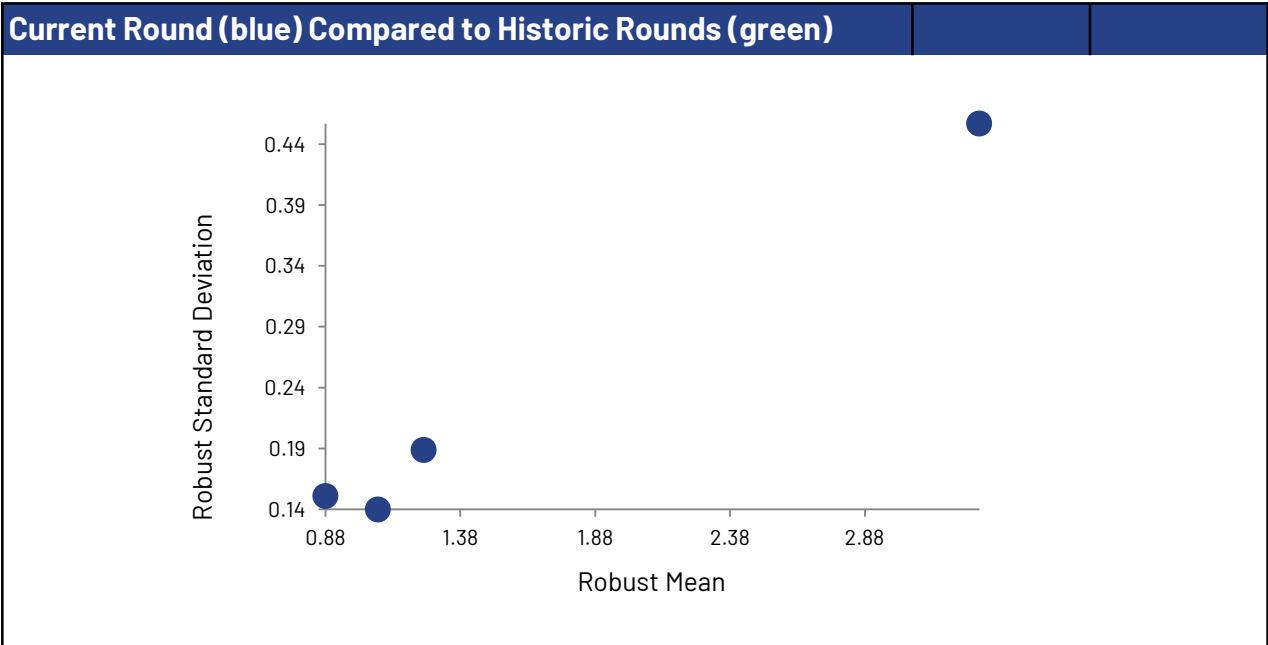
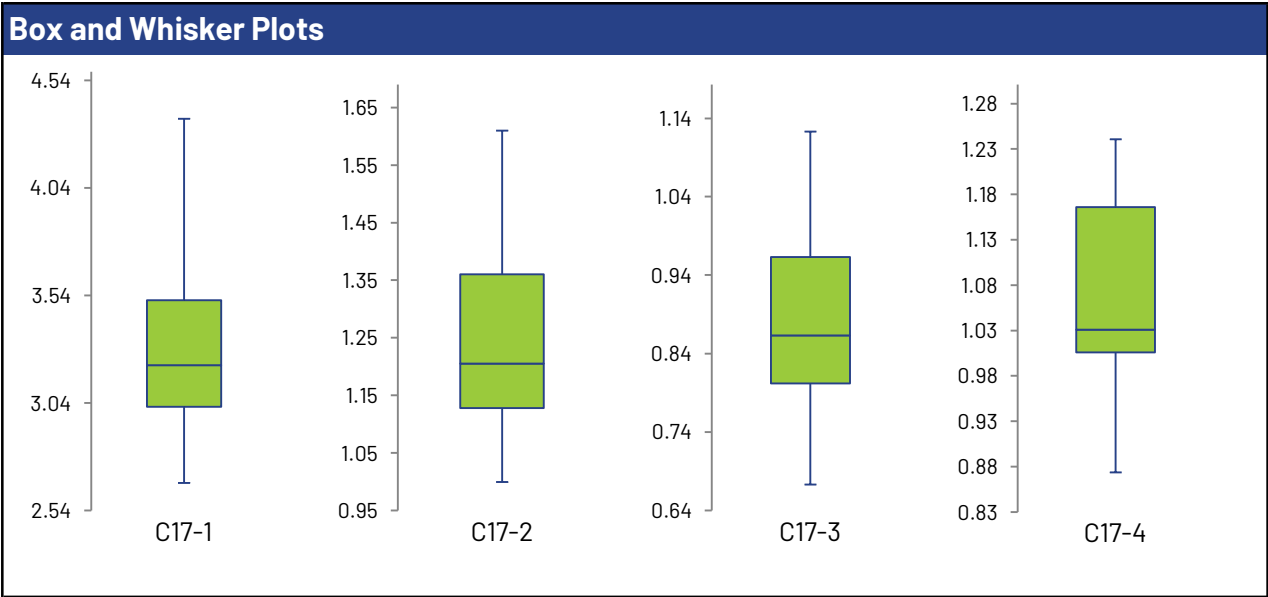
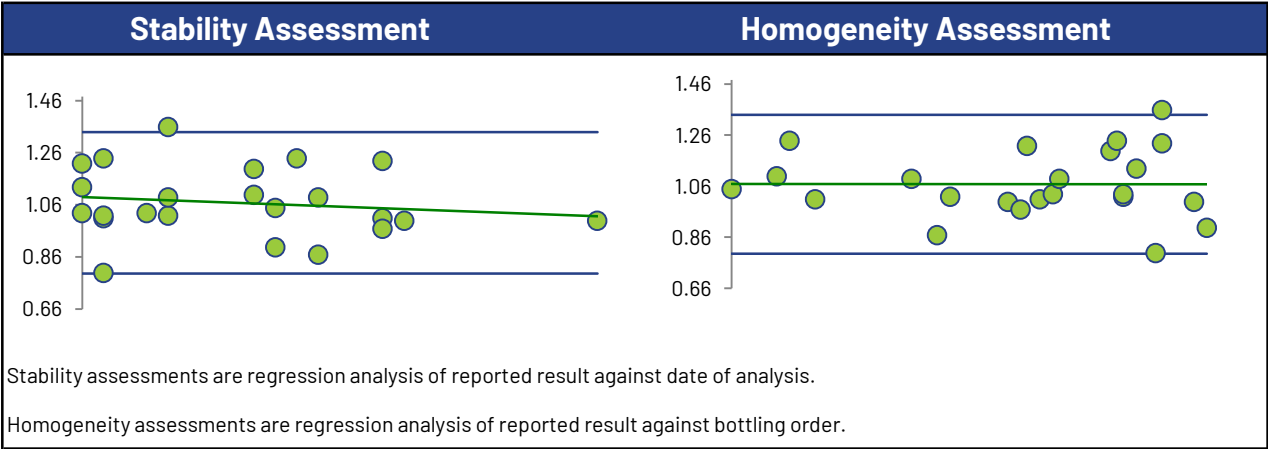


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Thallium



Thallium



Tin

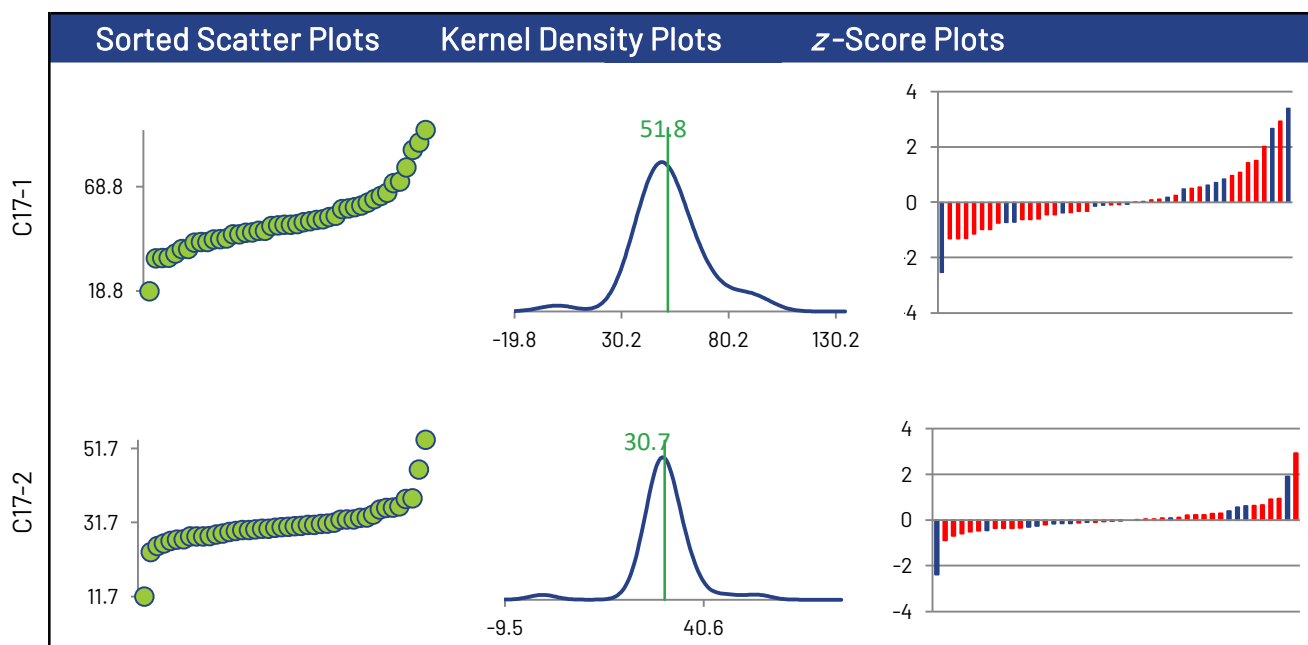
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	44	44	44	44
Median µg/g	50.7	30.5	32.9	23.1
Robust Mean µg/g	51.8	30.7	33.0	23.4
Uncertainty of the Assigned Value µg/g	2.37	0.695	0.726	0.454
Robust Standard Deviation µg/g	12.6	3.69	3.85	2.41
Regression Standard Deviation µg/g	13.0	7.99	8.52	6.23
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	13.0	7.99	8.52	6.23
Flagged Outliers	1	1	1	1
z >3.0	1	0	0	0
2< z <3	4	2	0	1
Failure Rate %*	4.4			

Methods Used

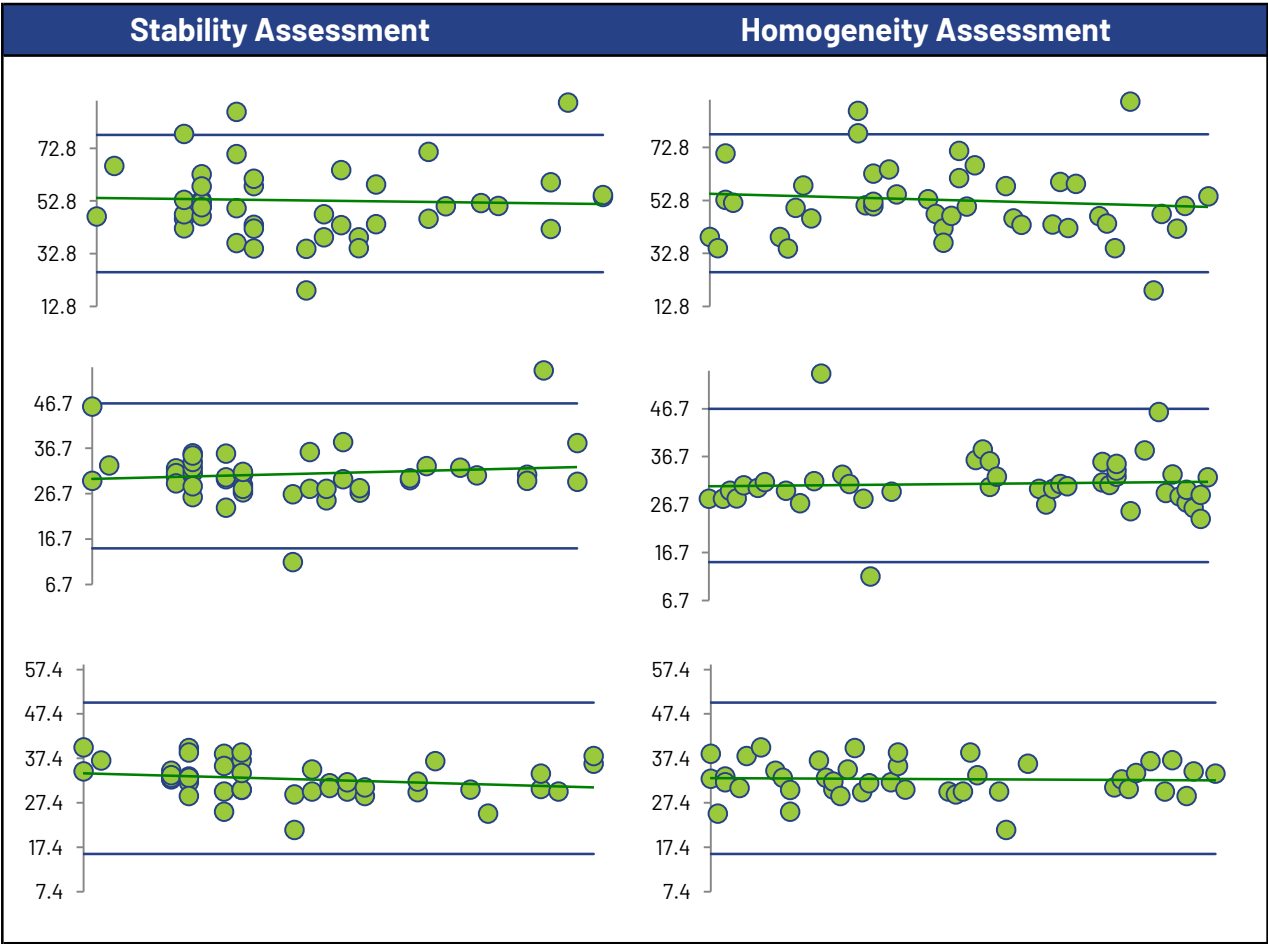
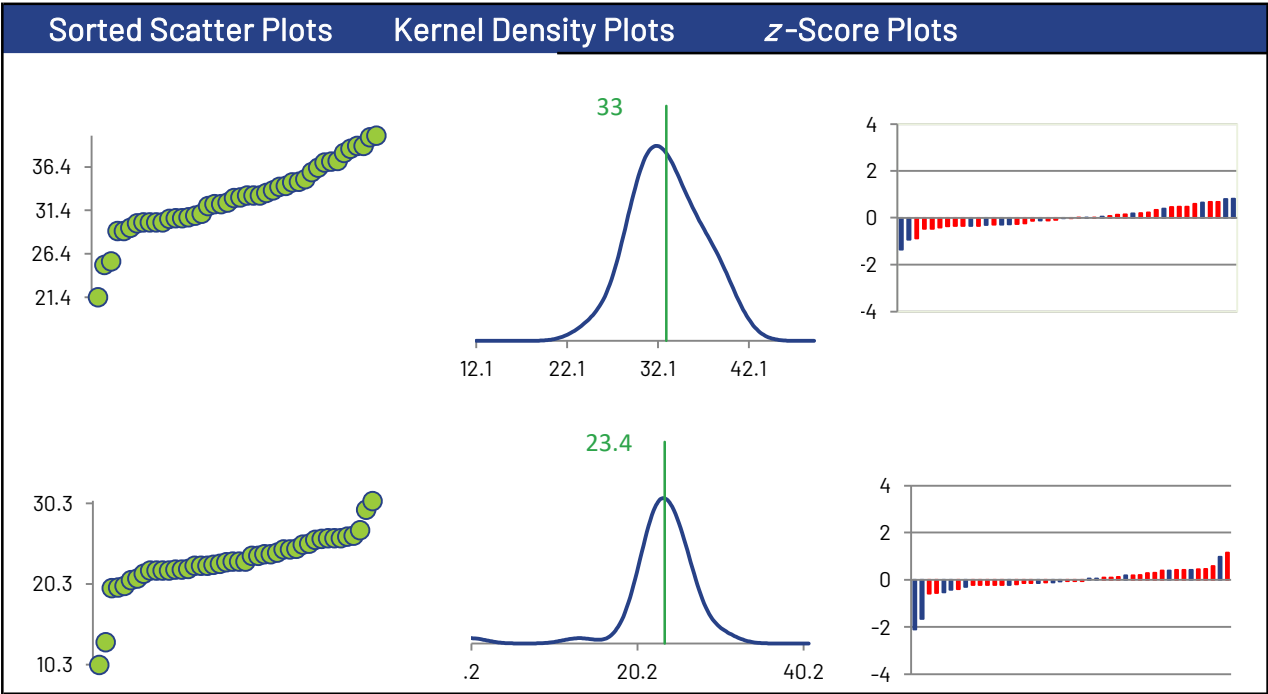
Method	C17-1	C17-2	C17-3	C17-4
ICP/OES (Blue)	15	15	15	15
ICP/MS (Red)	29	29	29	29

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

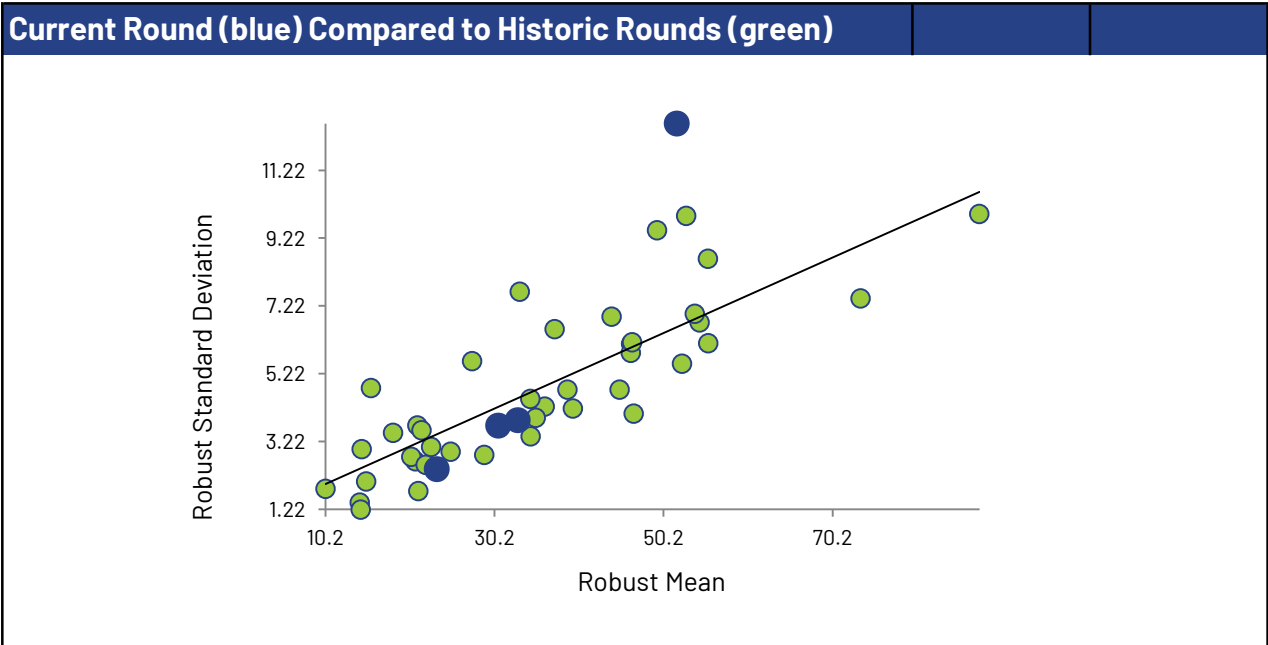
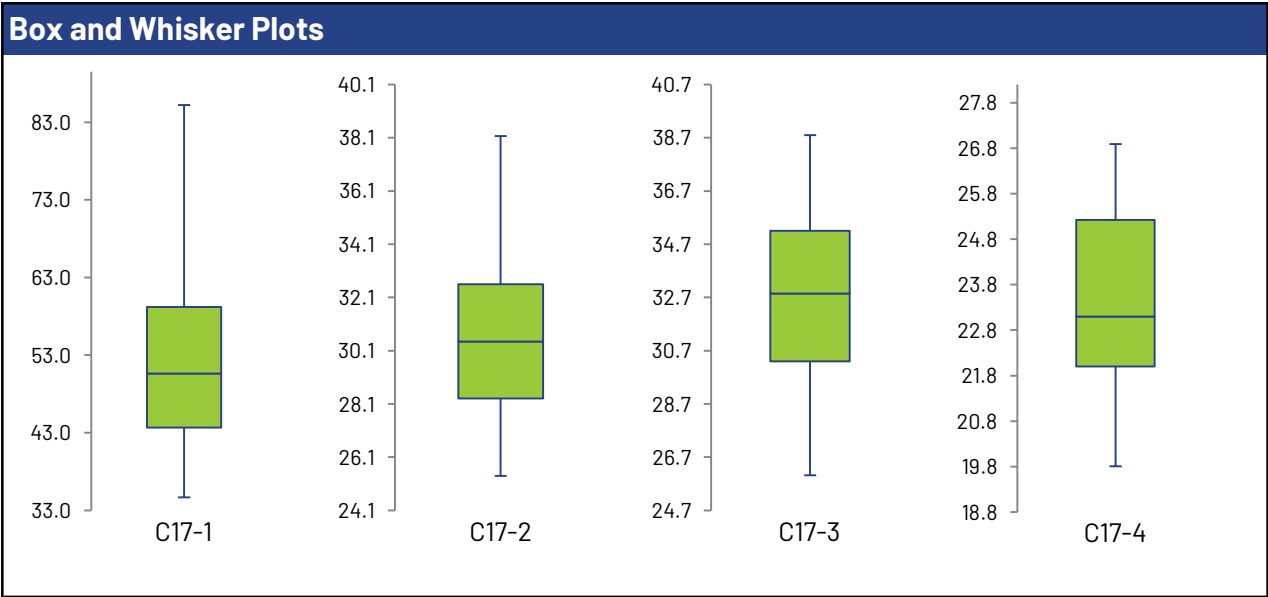
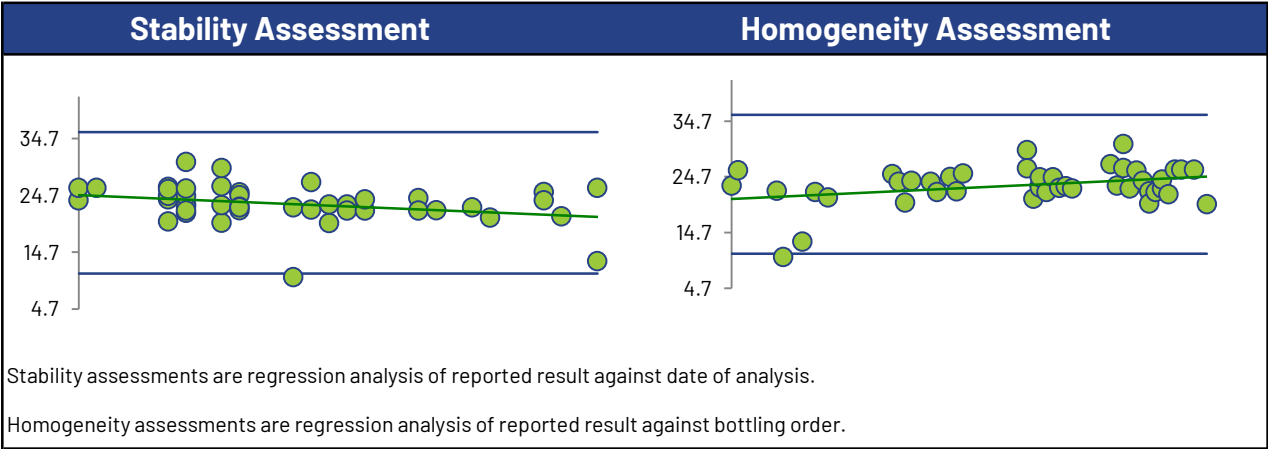


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Tin



Tin



Titanium

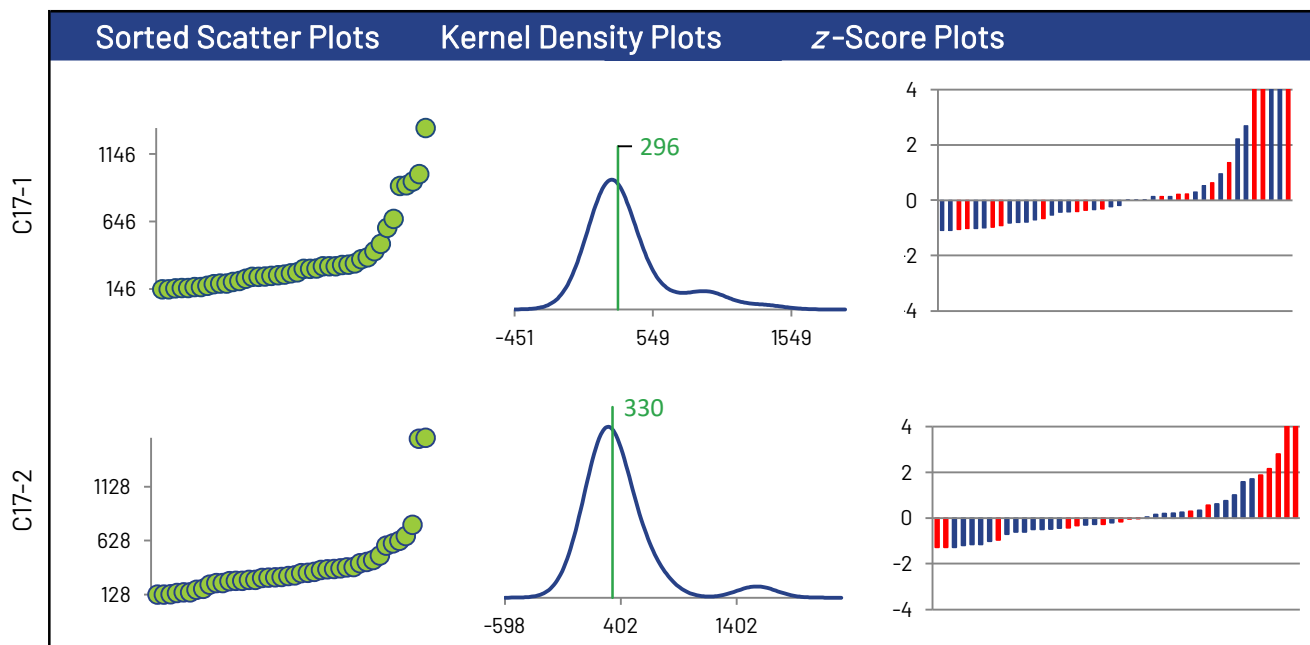
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	42	42	42	42
Median µg/g	268	303	263	252
Robust Mean µg/g	296	330	323	291
Uncertainty of the Assigned Value µg/g	26.4	30.5	41.7	33.4
Robust Standard Deviation µg/g	137	158	216	173
Regression Standard Deviation µg/g	89.1	97.6	96.0	87.8
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	137	158	216	173
Flagged Outliers	1	1	1	1
$ z > 3.0$	5	2	7	4
$2 < z < 3$	2	2	1	2
Failure Rate %*	18.6			

Methods Used

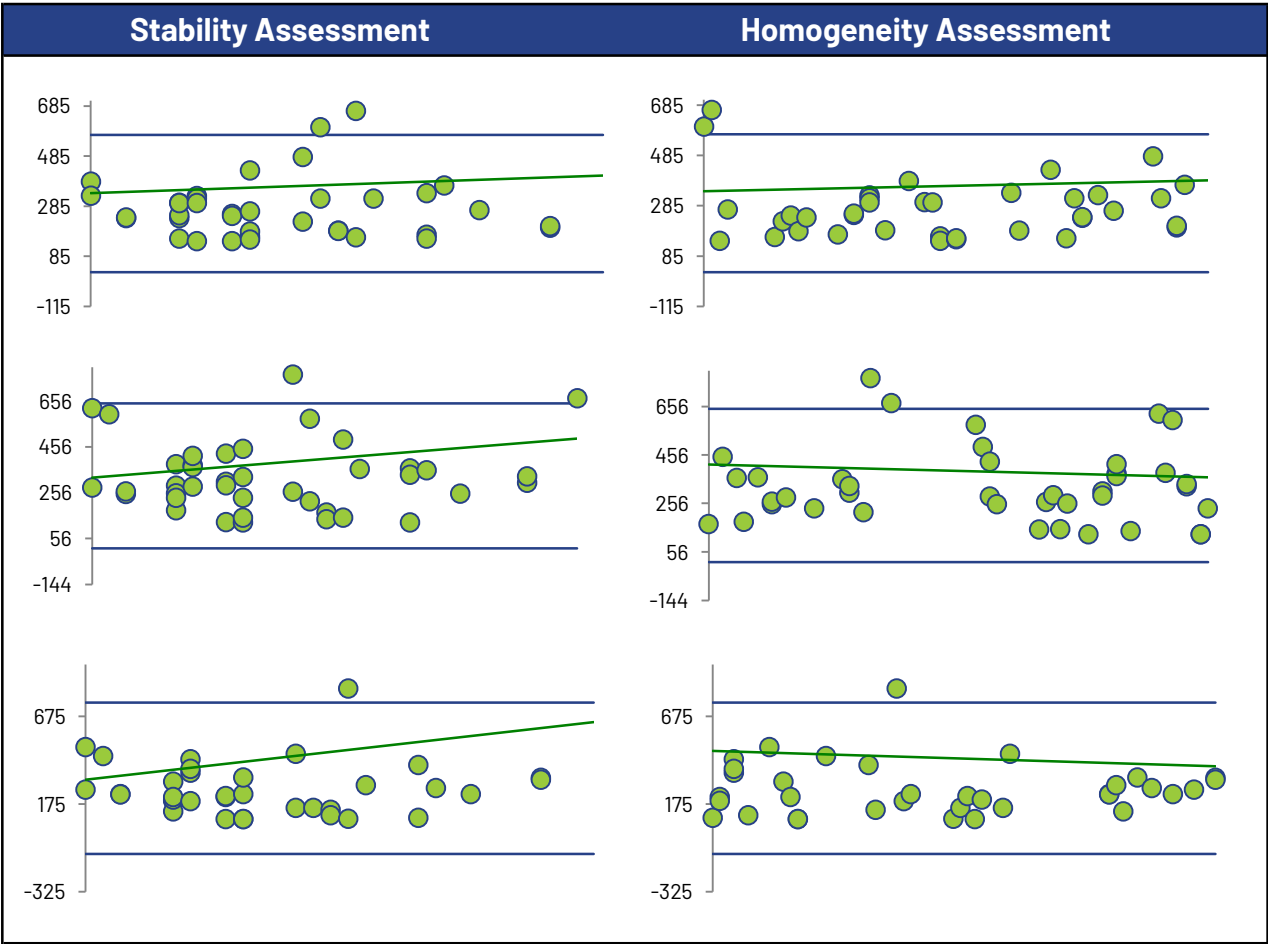
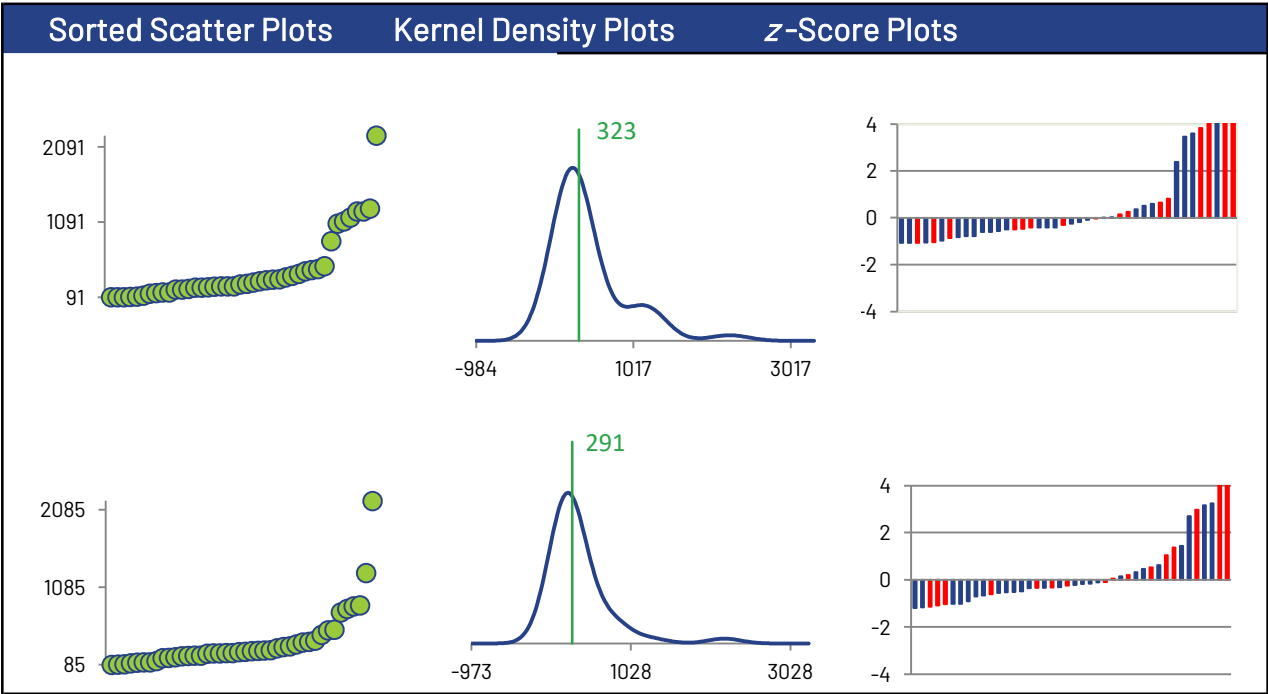
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	26	26	26	26
ICP/OES (Red)	16	16	16	16

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

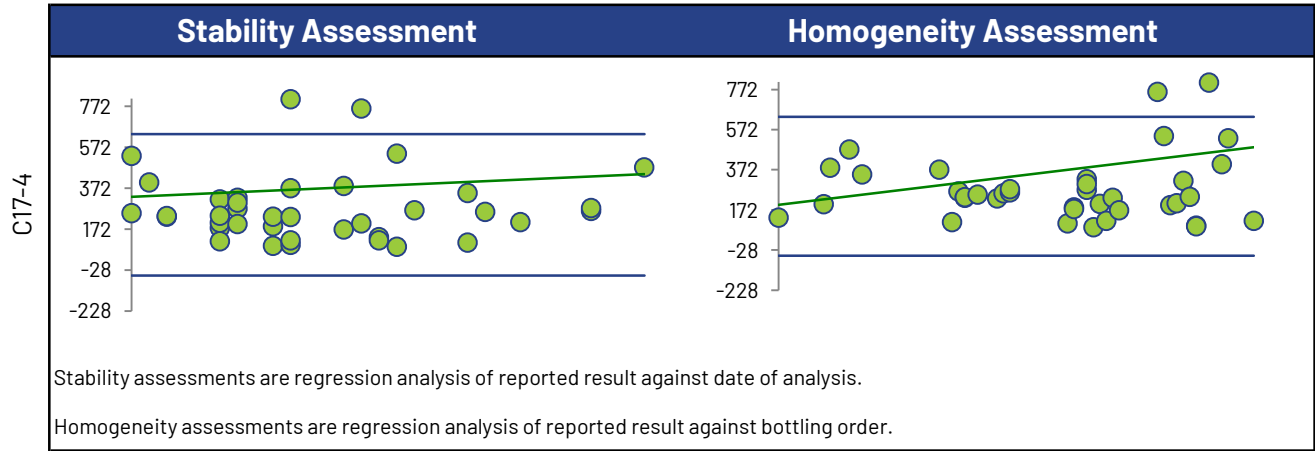


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

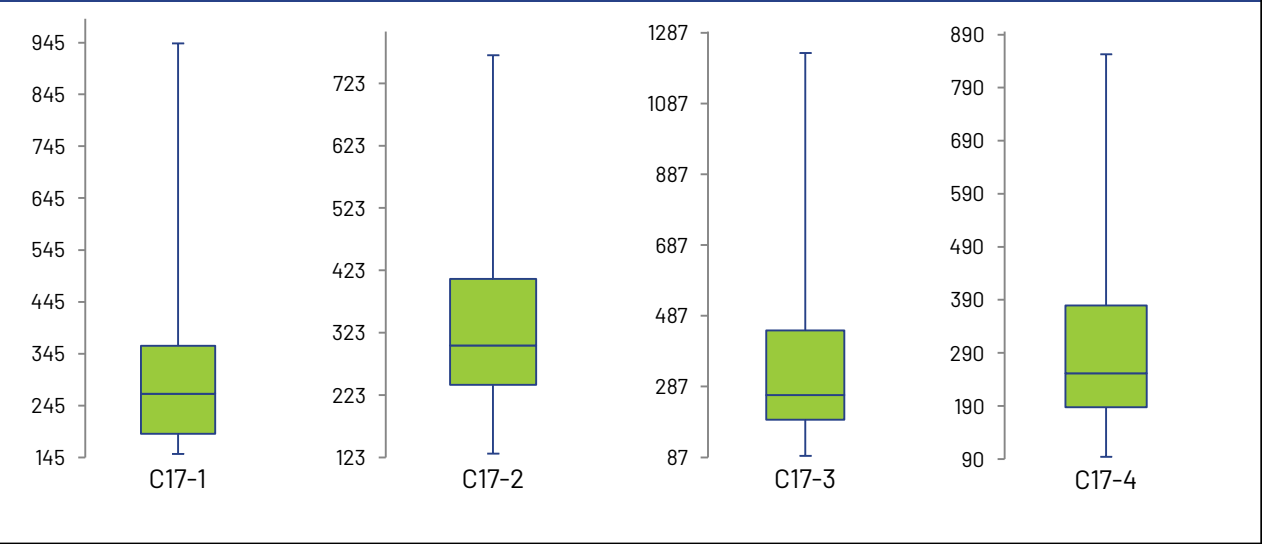
Titanium



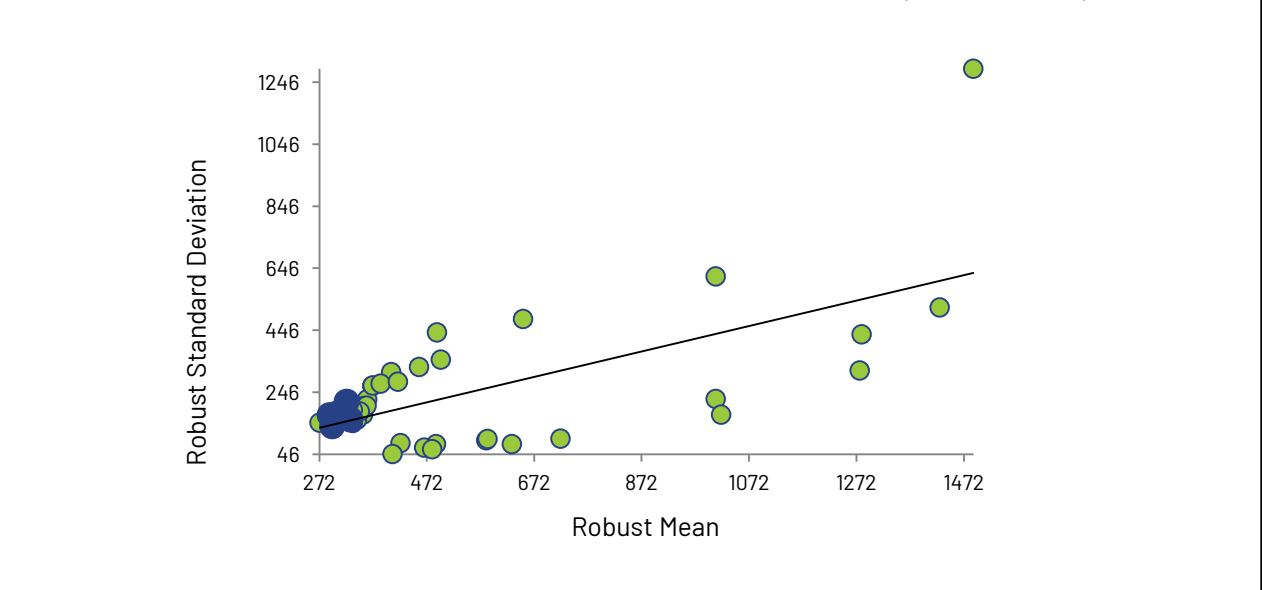
Titanium



Box and Whisker Plots



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



Uranium

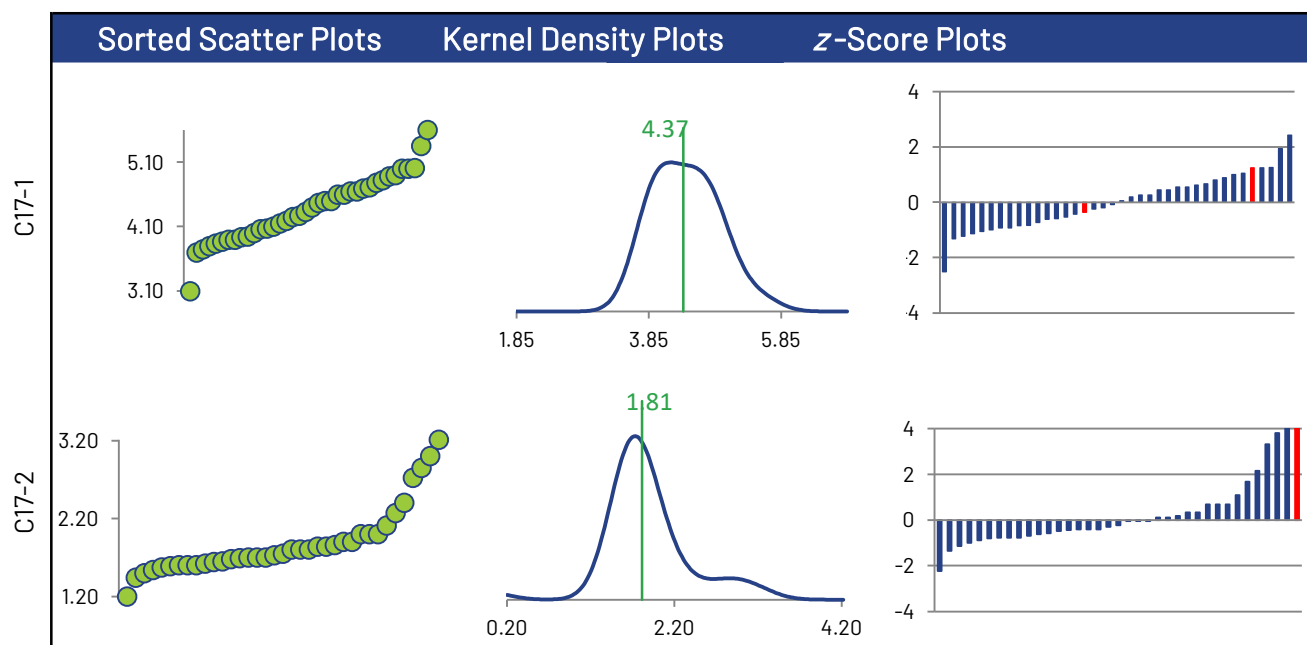
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	38	37	38	37
Median µg/g	4.37	1.75	2.90	1.90
Robust Mean µg/g	4.37	1.81	2.91	1.91
Uncertainty of the Assigned Value µg/g	0.103	0.0563	0.0657	0.0580
Robust Standard Deviation µg/g	0.506	0.274	0.324	0.282
Regression Standard Deviation µg/g	0.446	0.222	0.318	0.231
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	0.506	0.274	0.324	0.282
Flagged Outliers	1	1	1	1
$ z > 3.0$	0	4	0	0
$2 < z < 3$	2	2	2	1
Failure Rate %*	4.8			

Methods Used

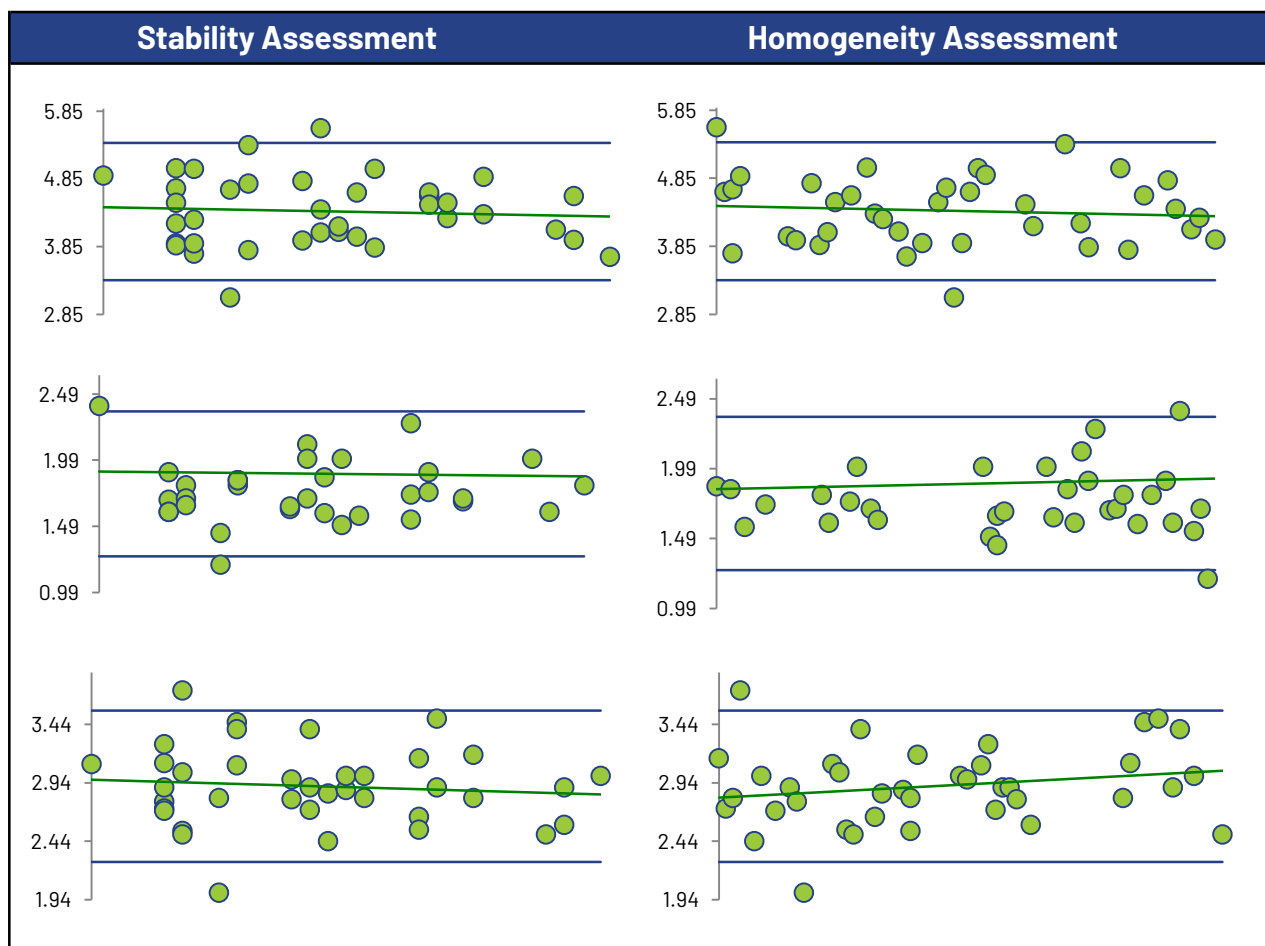
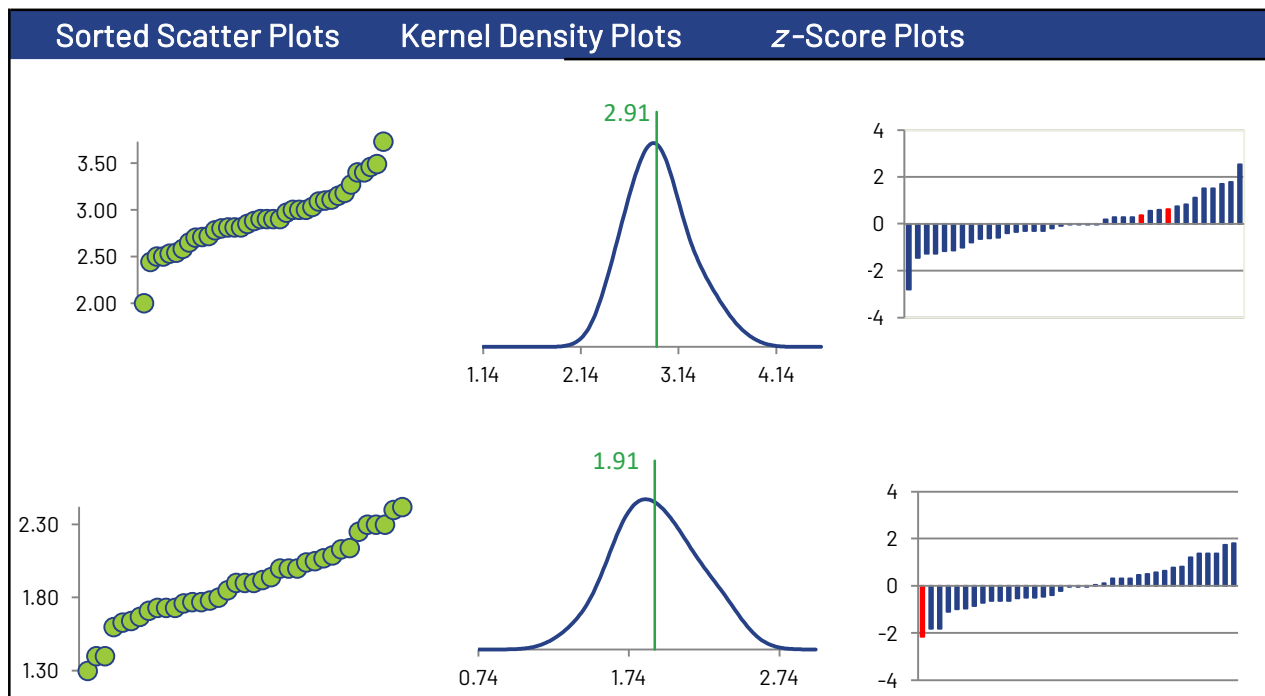
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	36	36	36	36
ICP/OES (Red)	2	1	2	1

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

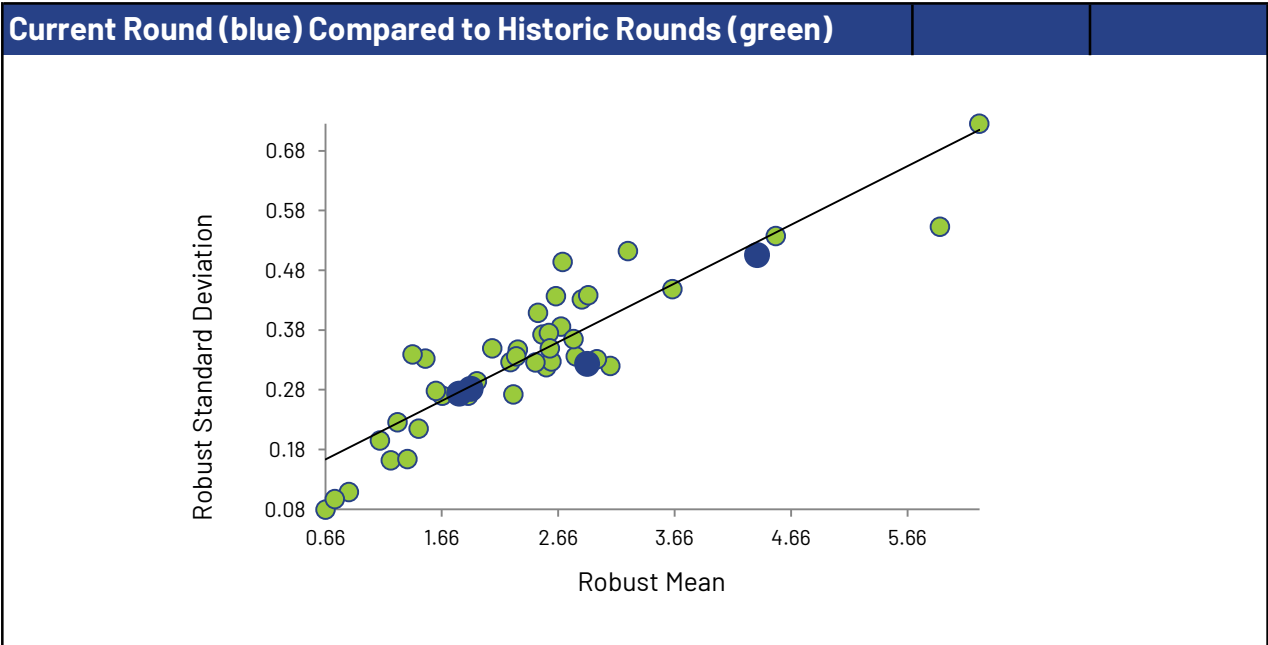
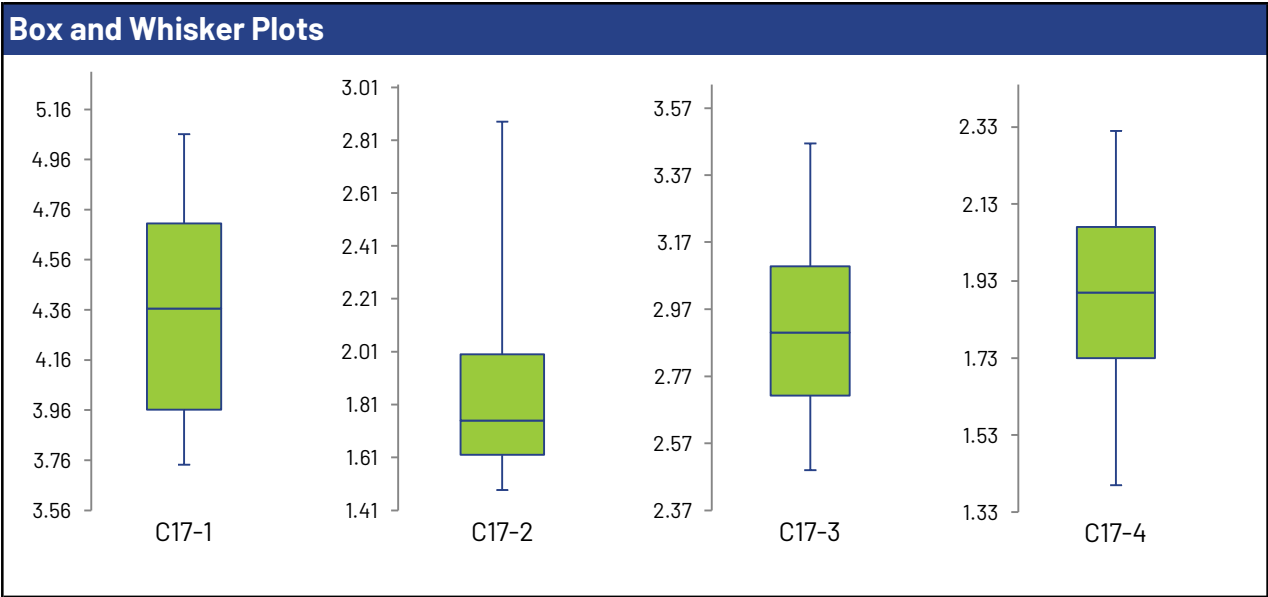
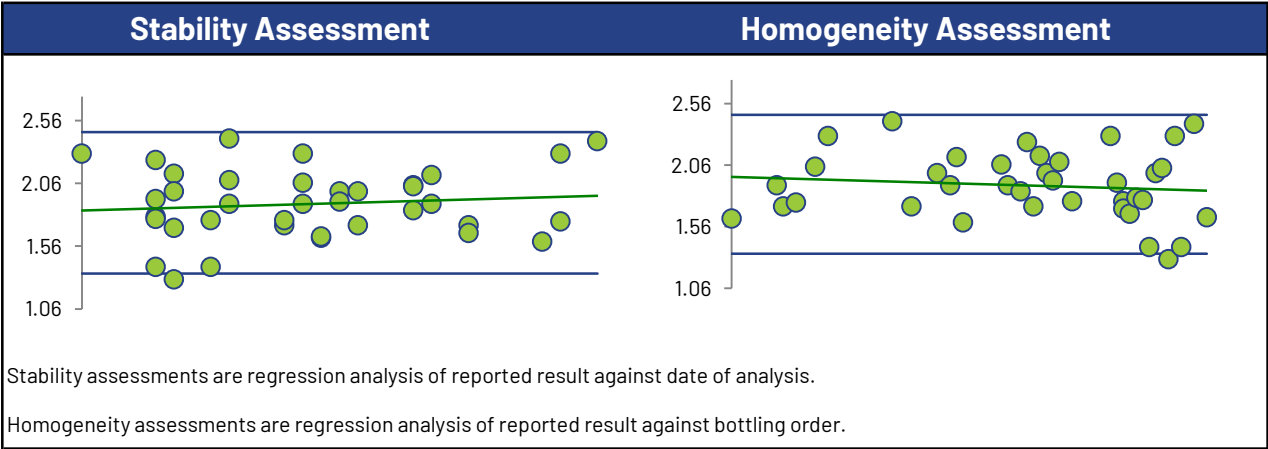


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Uranium



Uranium



Vanadium

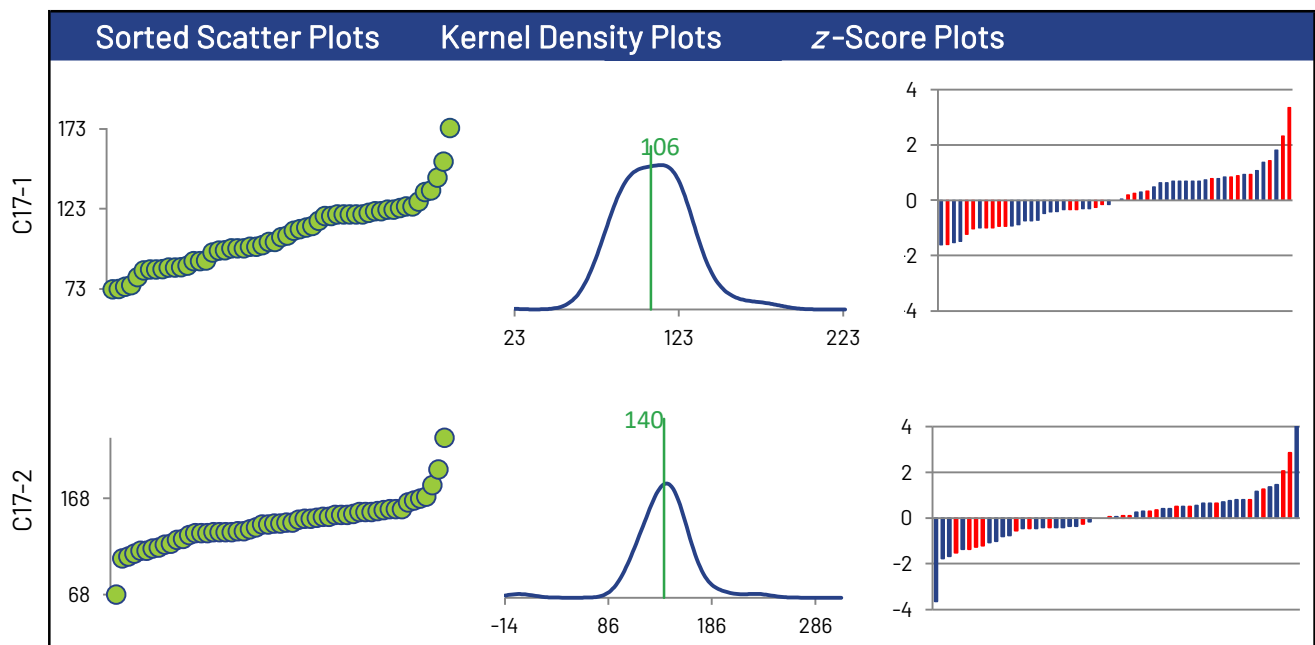
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	55	55	55	55
Median µg/g	106	141	68.8	61.9
Robust Mean µg/g	106	140	69.2	62.5
Uncertainty of the Assigned Value µg/g	3.42	3.27	1.84	1.65
Robust Standard Deviation µg/g	20.3	19.4	10.9	9.80
Regression Standard Deviation µg/g	15.2	19.9	9.92	8.96
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	20.3	19.9	10.9	9.80
Flagged Outliers	0	0	0	0
z >3.0	1	2	1	0
2< z <3	1	2	1	4
Failure Rate %*	3.6			

Methods Used

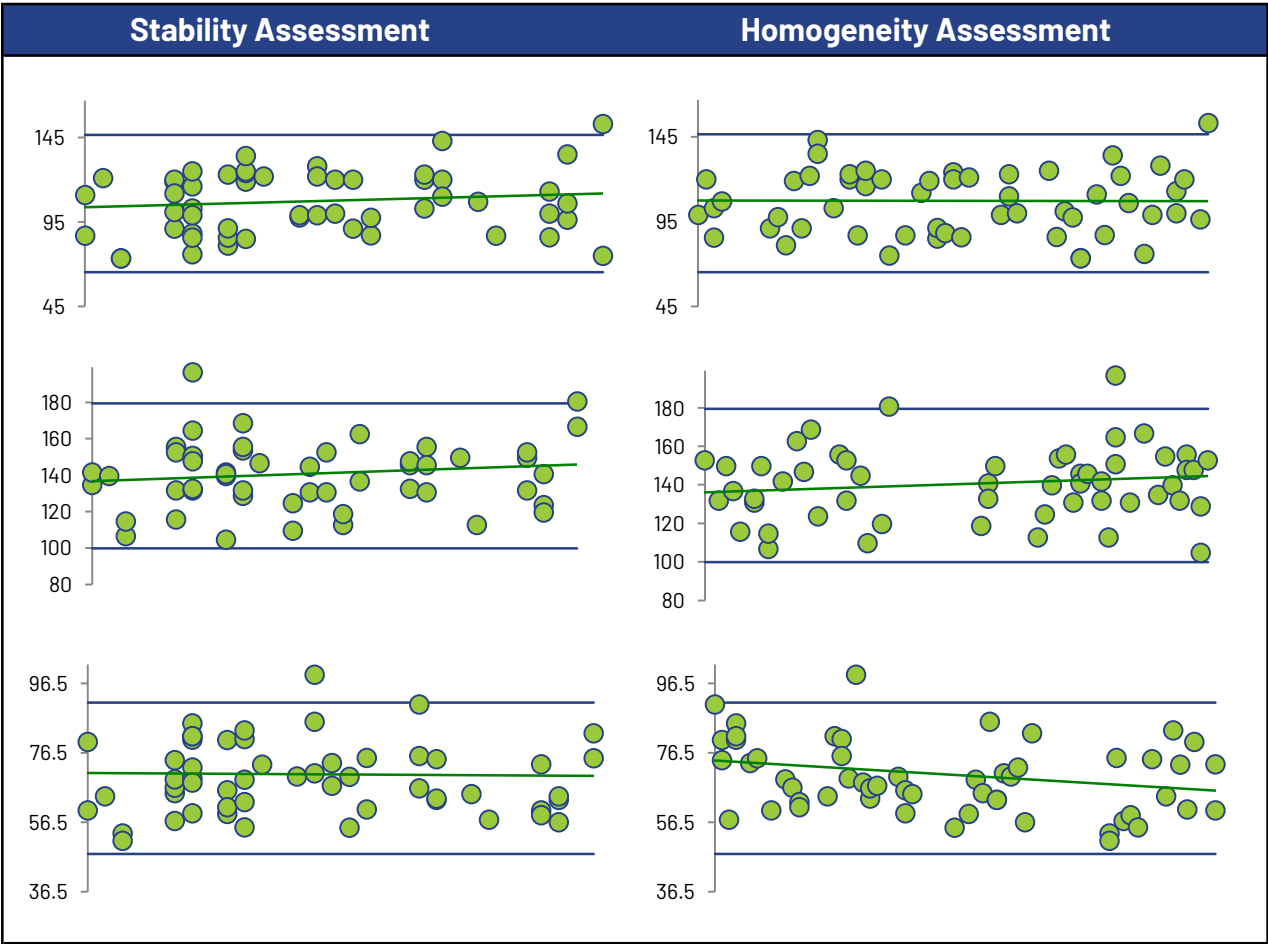
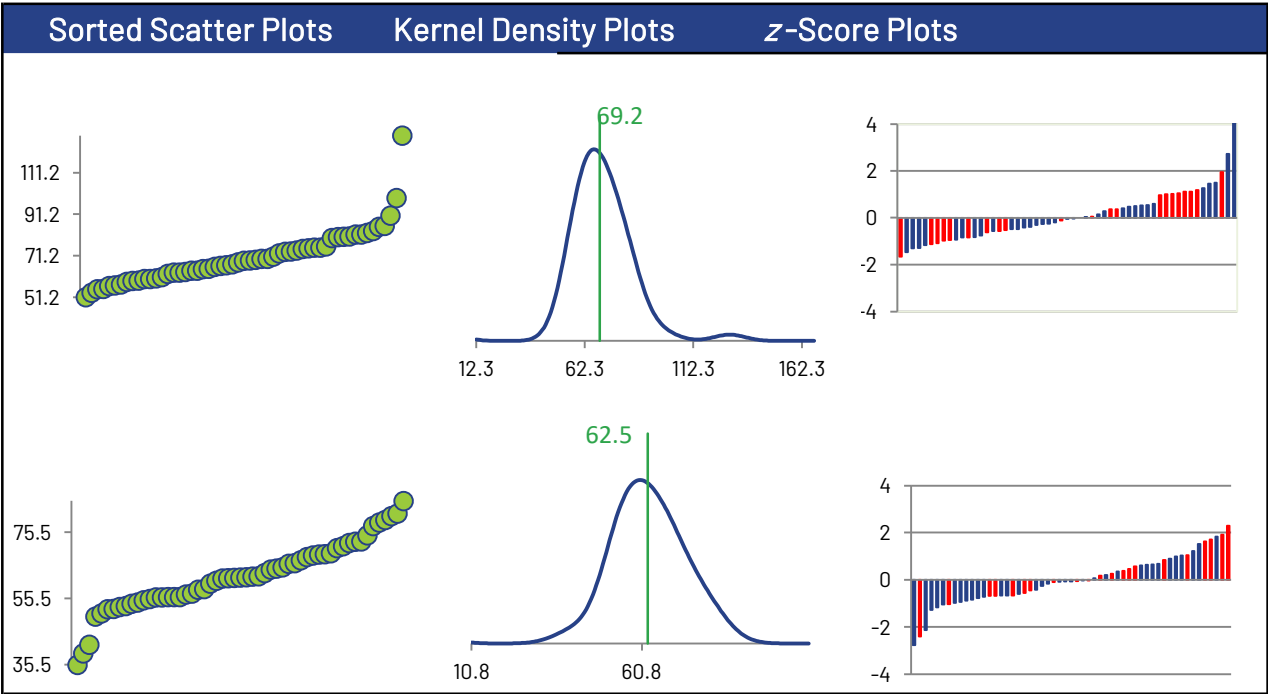
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	34	34	34	34
ICP/OES (Red)	21	21	21	21

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

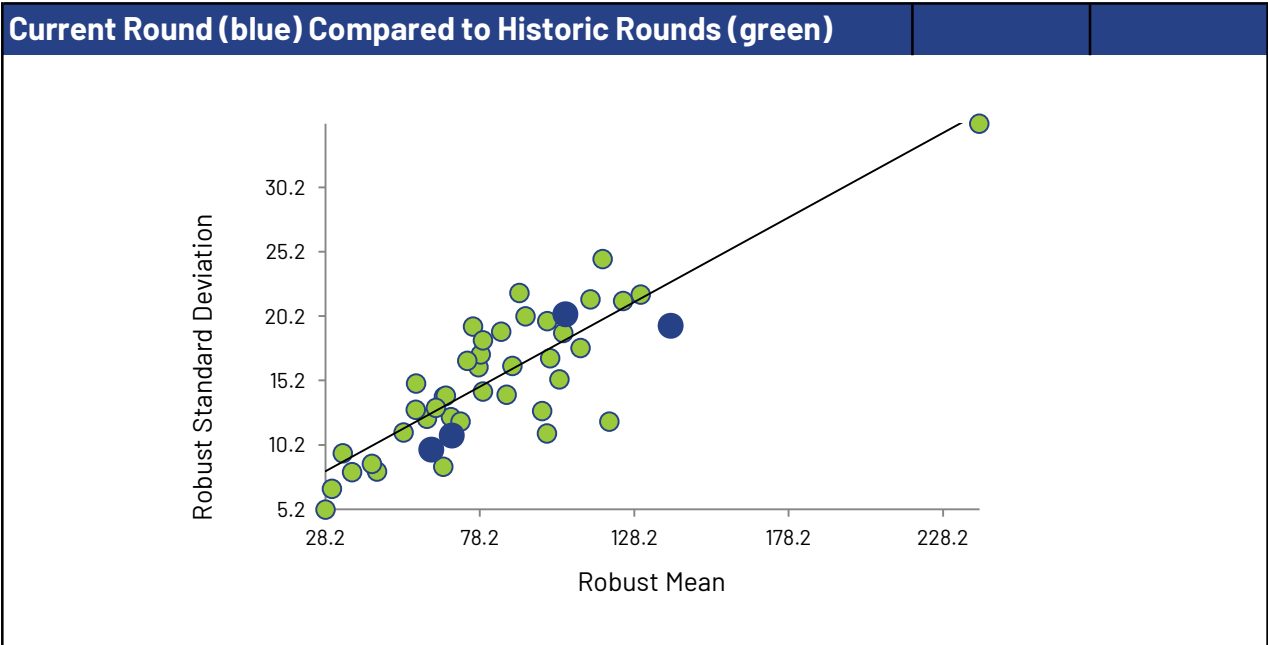
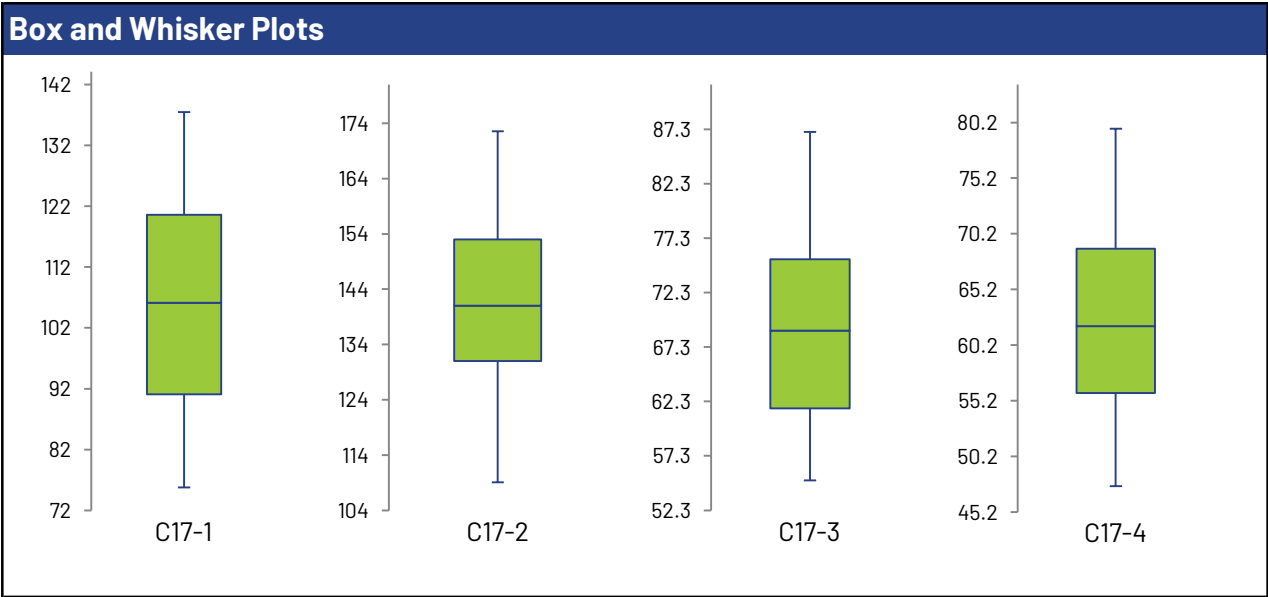
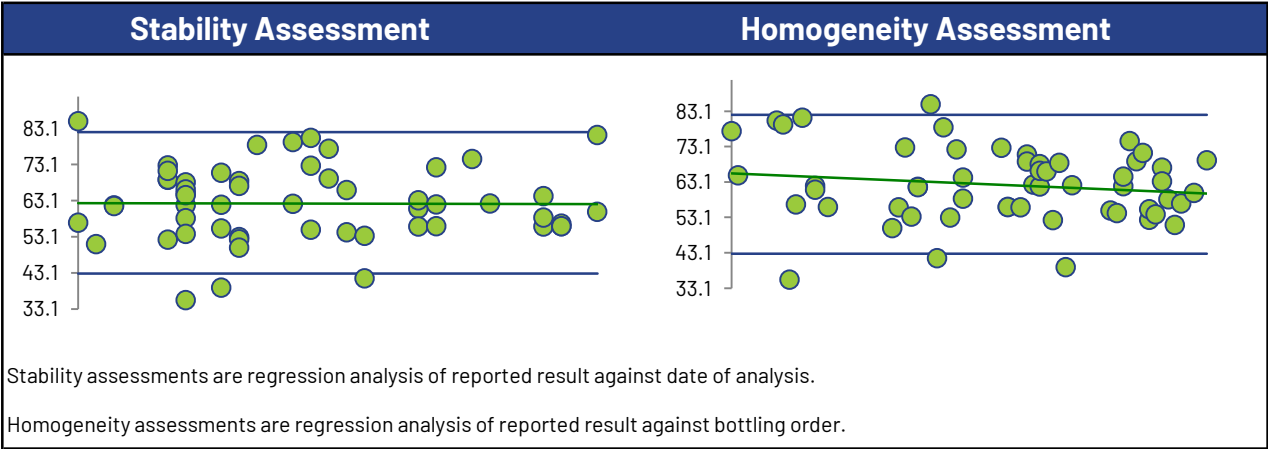


* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

Vanadium



Vanadium



Zinc

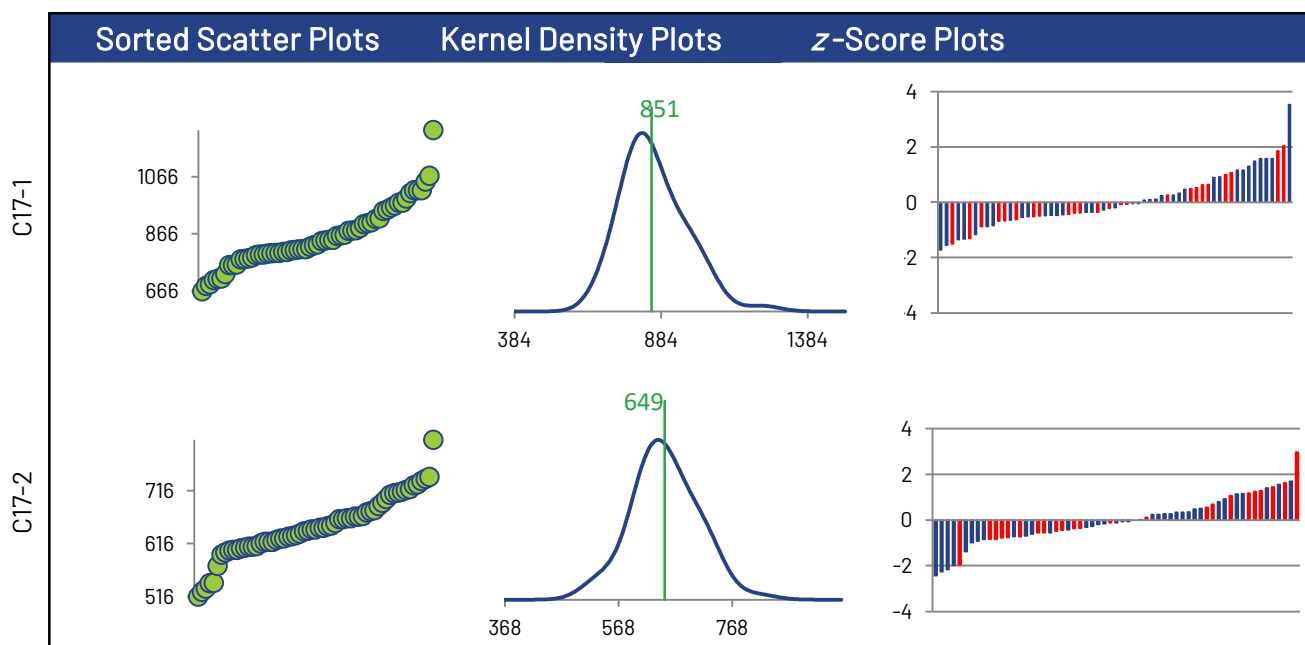
Summary Statistics

Statistic	C17-1	C17-2	C17-3	C17-4
No. of results used for summary statistics	61	61	61	61
Median µg/g	830	643	487	725
Robust Mean µg/g	851	649	493	733
Uncertainty of the Assigned Value µg/g	17.1	8.79	7.31	10.1
Robust Standard Deviation µg/g	107	54.9	45.7	63.4
Regression Standard Deviation µg/g	68.4	52.2	39.7	59.0
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	107	54.9	45.7	63.4
Flagged Outliers	0	0	0	0
$ z > 3.0$	1	0	2	0
$2 < z < 3$	1	4	4	5
Failure Rate %*	1.6			

Methods Used

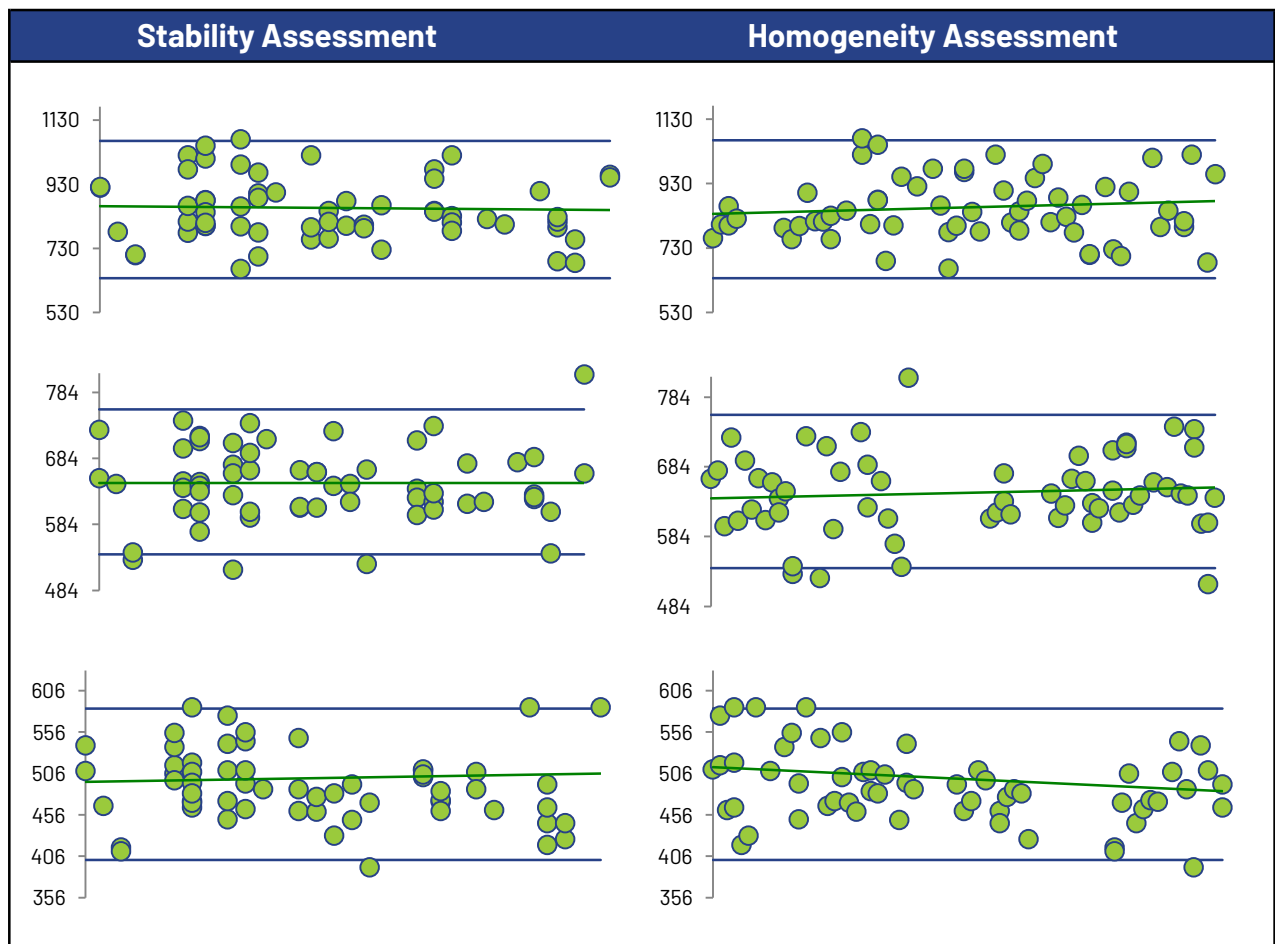
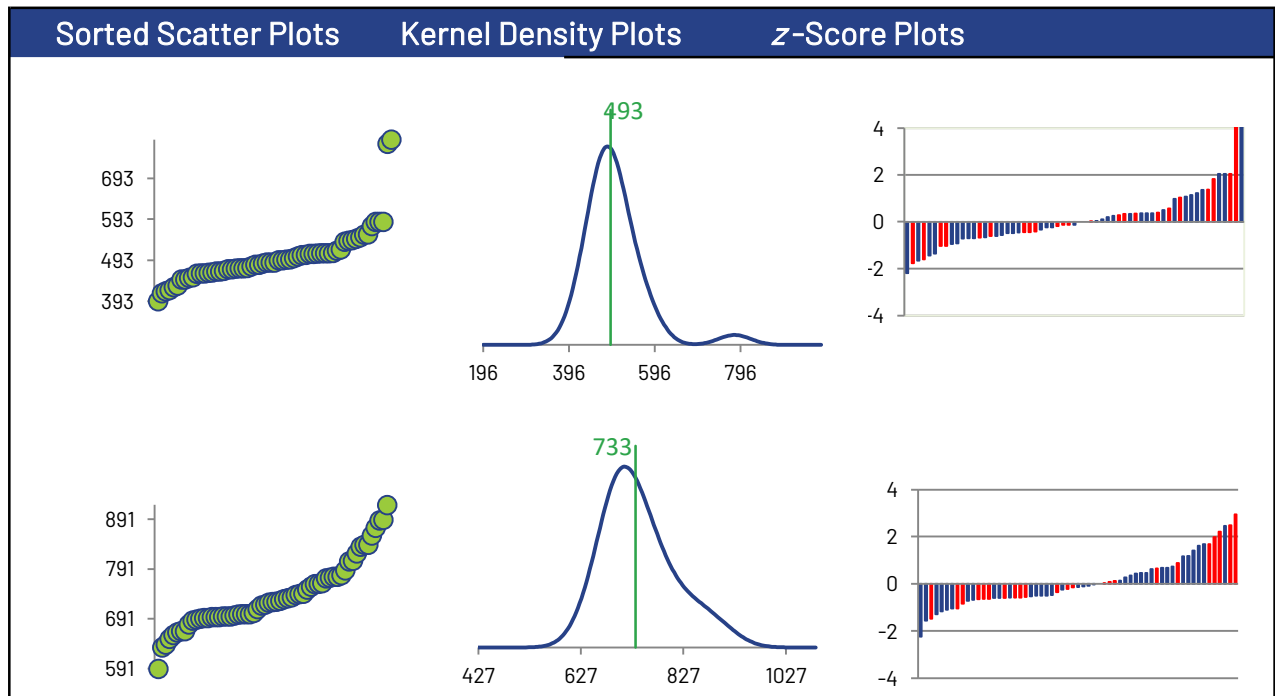
Method	C17-1	C17-2	C17-3	C17-4
ICP/MS (Blue)	37	37	37	37
ICP/OES (Red)	24	24	24	24

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

