

# Test Group Summary Report

## C01A Major Ions in Water

### October 2025 PT Round

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**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.
$\pm u$ :	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.PTCanada.org](http://www.PTCanada.org)).

### 3.1 HOMOGENEITY AND STABILITY ASSESSMENT

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

### 3.2 THE Z SCORE

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

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

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.

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

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

$RSZ \geq -2$  and  $\leq 2$  no flag assigned

RSZ > 2	H (High)
RSZ > 3	VH (Very High)
RSZ < -2	L (LOW)
RSZ < -3	VL (Very Low)

### 3.4 DEVIATIONS FROM EVALUATION PROCEDURE

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

## 4.0 PT Round Specific Data Summary

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

### 4.1 SUMMARY STATISTICS

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

### 4.2 z - SCORE PLOTS

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

### 4.3 KERNEL DENSITY PLOTS

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

### 4.4 STABILITY AND HOMOGENEITY PLOTS

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

### 4.5 BOX-AND-WHISKER PLOTS

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

## Alkalinity (pH 4.5)

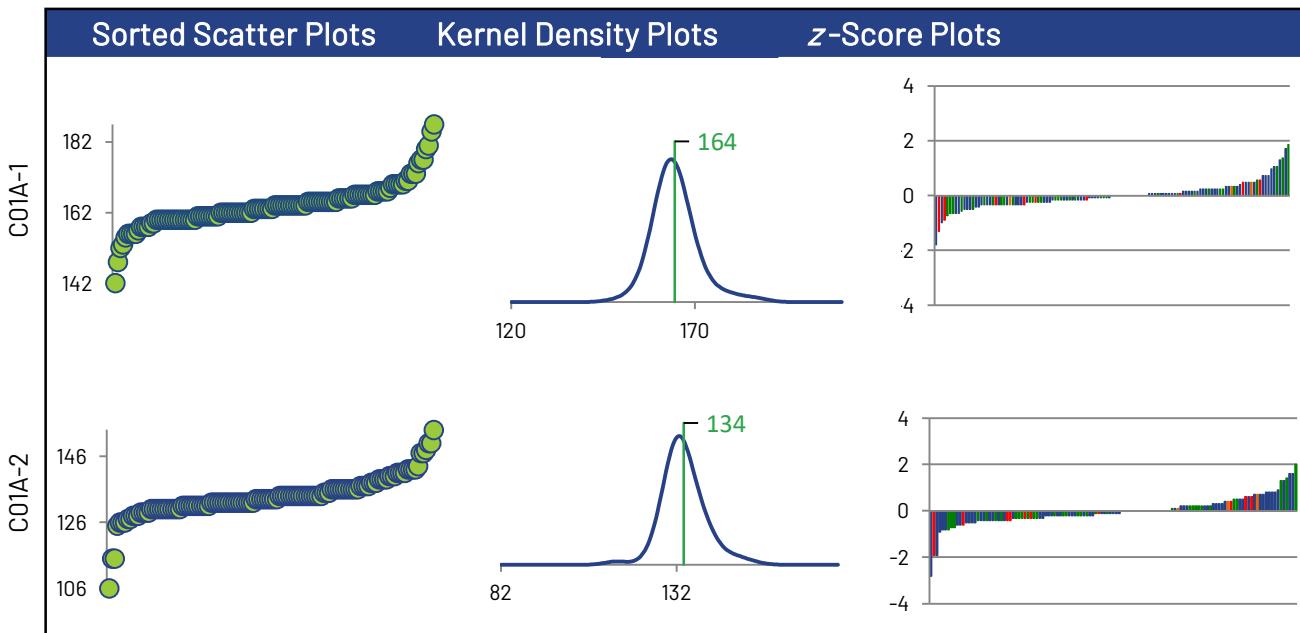
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	125	125	125	125
Median $\mu\text{S}/\text{cm}$	164	133	164	82.0
Robust Mean $\mu\text{S}/\text{cm}$	164	134	165	82.6
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.506	0.506	0.571	0.350
Robust Standard Deviation $\mu\text{S}/\text{cm}$	4.53	4.53	5.11	3.13
Regression Standard Deviation $\mu\text{S}/\text{cm}$	12.3	10.0	12.3	6.19
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	12.3	10.0	12.3	6.19
Flagged Outliers	0	0	0	0
$ z  > 3.0$	0	0	0	0
$2 <  z  < 3$	0	1	0	1
Failure Rate %*	0.0			

### Methods Used

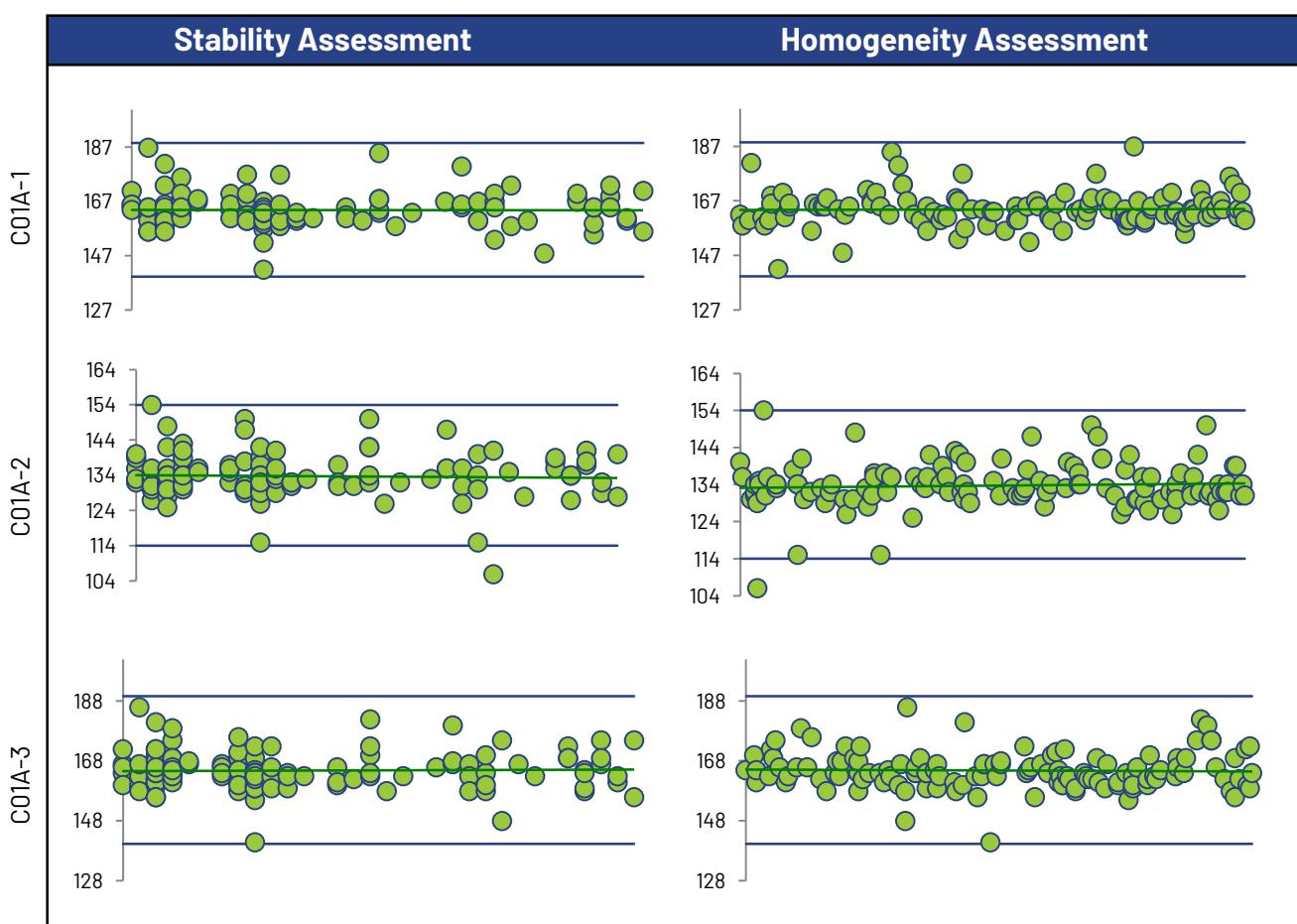
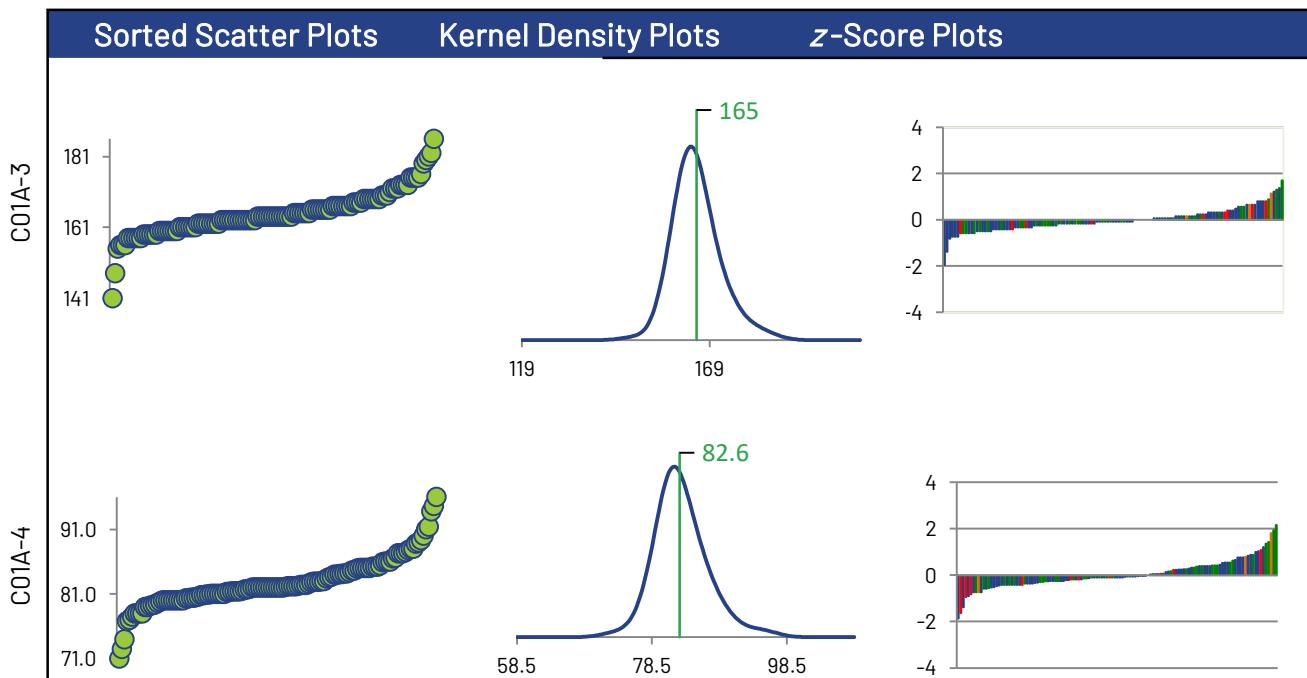
Method	C01A-1	C01A-2	C01A-3	C01A-4
TITRIMETRIC (Blue)	74	74	74	74
COLORIMETRIC (Red)	10	10	10	10
AUTO TITRIMETRIC (Green)	38	38	38	38
AUTO COLOR (Orange)	3	3	3	3

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

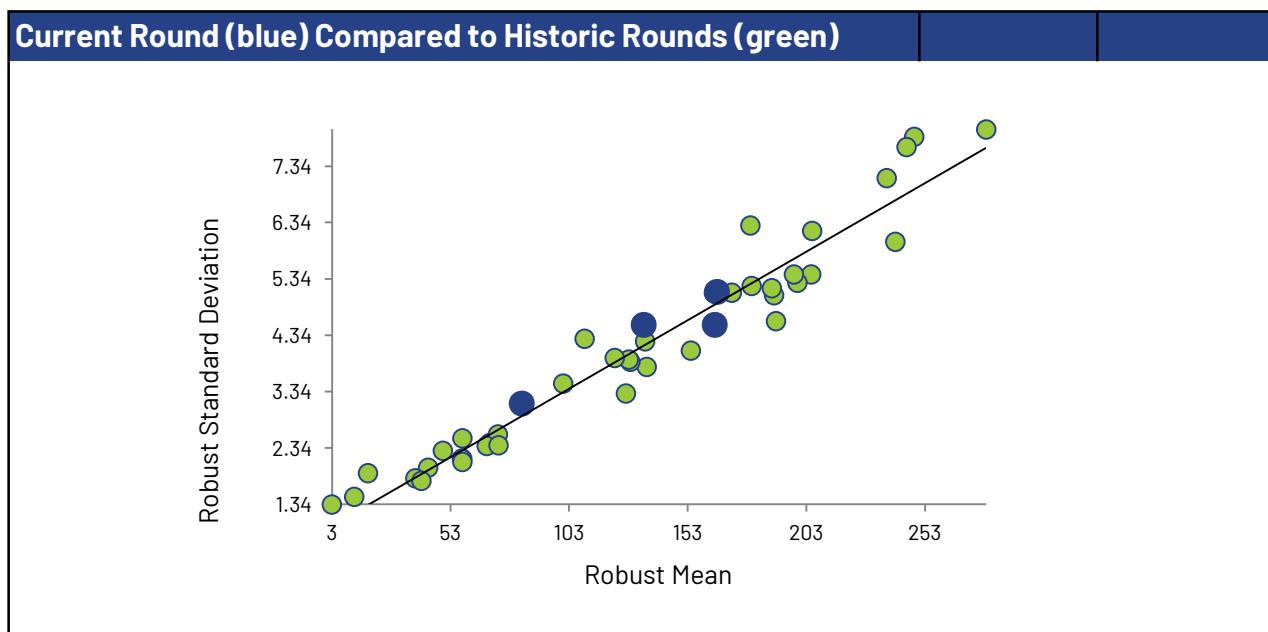
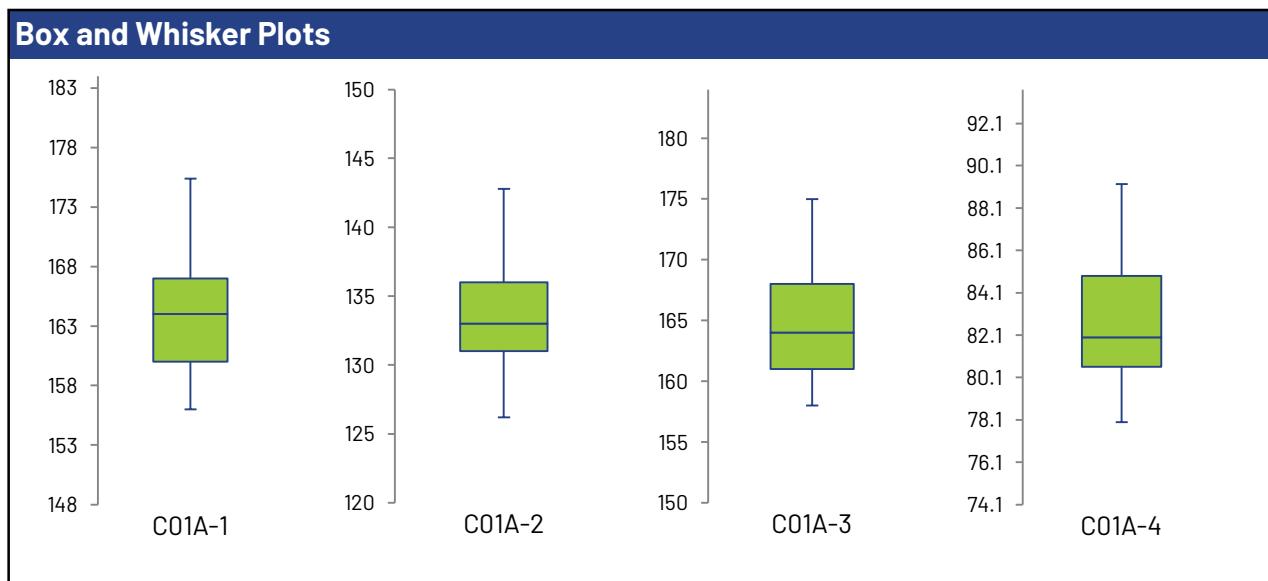
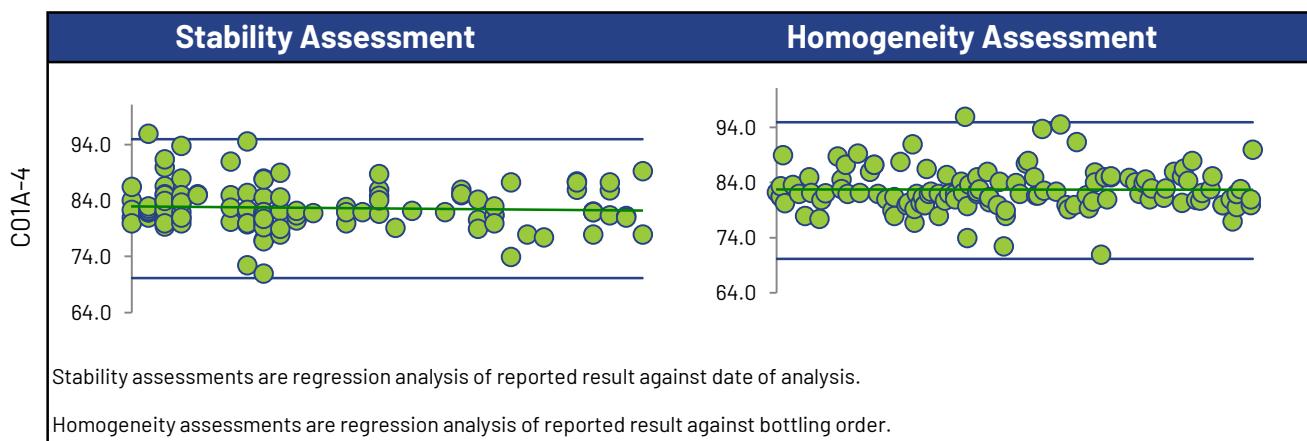


\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Alkalinity (pH 4.5)



## Alkalinity (pH 4.5)



## Calcium

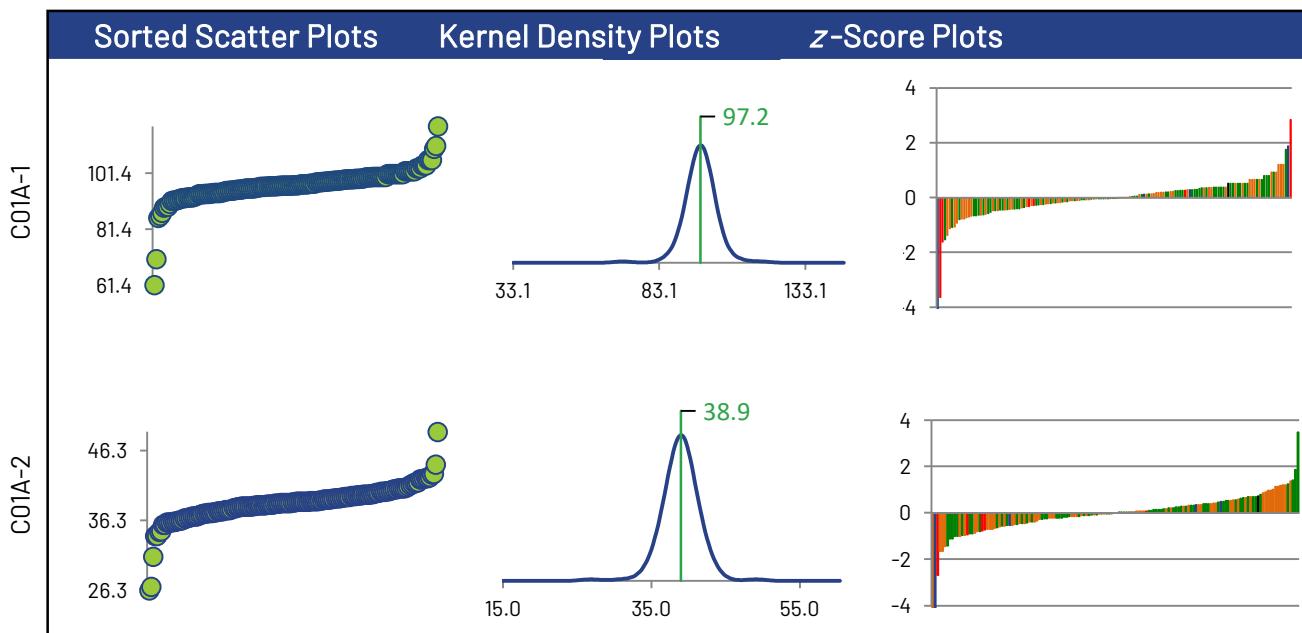
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	148	148	147	148
Median $\mu\text{S}/\text{cm}$	97.0	38.9	26.3	27.9
Robust Mean $\mu\text{S}/\text{cm}$	97.2	38.9	26.3	27.8
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.386	0.193	0.124	0.122
Robust Standard Deviation $\mu\text{S}/\text{cm}$	3.76	1.88	1.20	1.19
Regression Standard Deviation $\mu\text{S}/\text{cm}$	7.29	2.91	1.97	2.09
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	7.29	2.91	1.97	2.09
Flagged Outliers	0	0	1	0
$ z  > 3.0$	2	3	1	2
$2 <  z  < 3$	1	1	5	1
Failure Rate %*			3.4	

### Methods Used

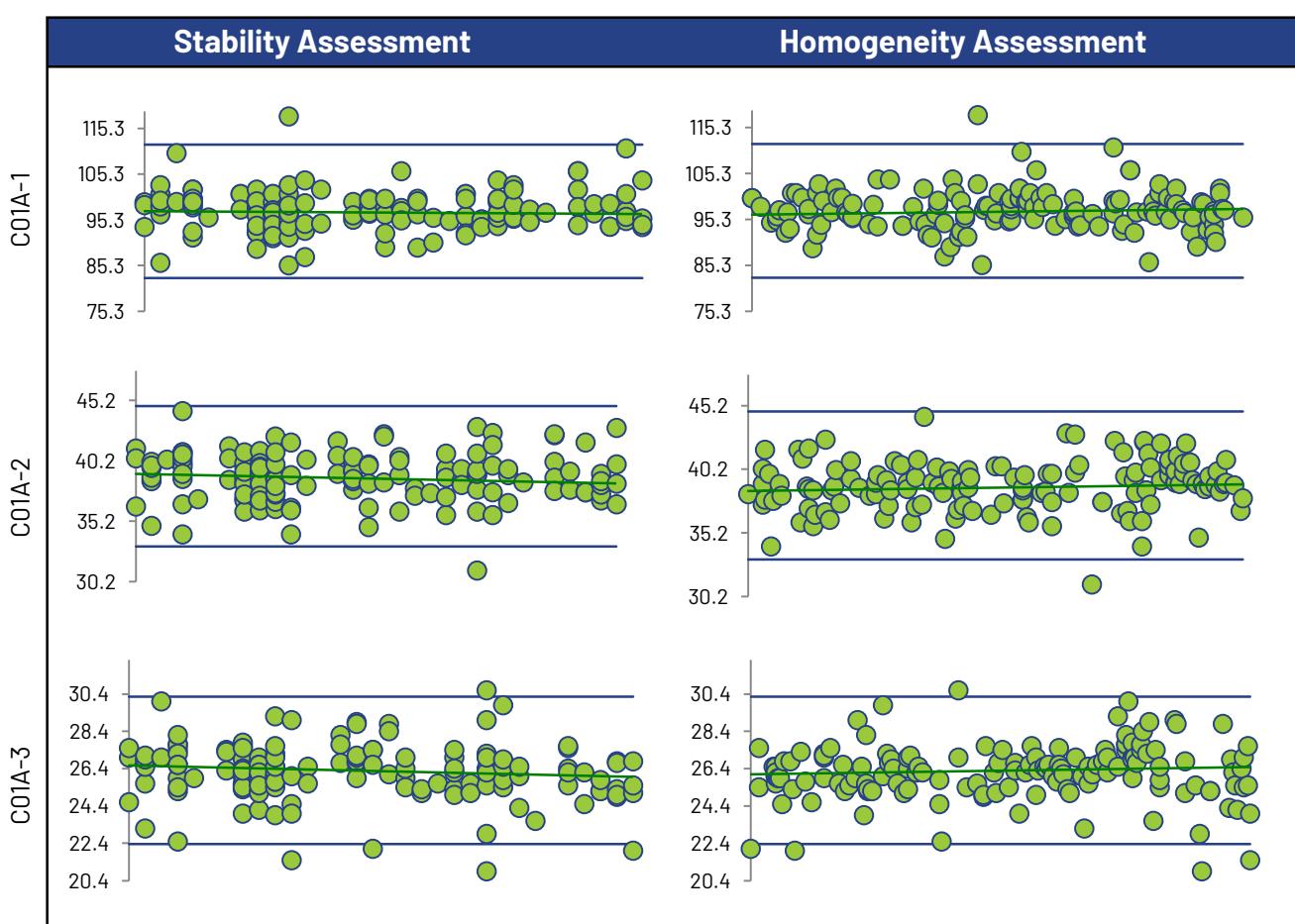
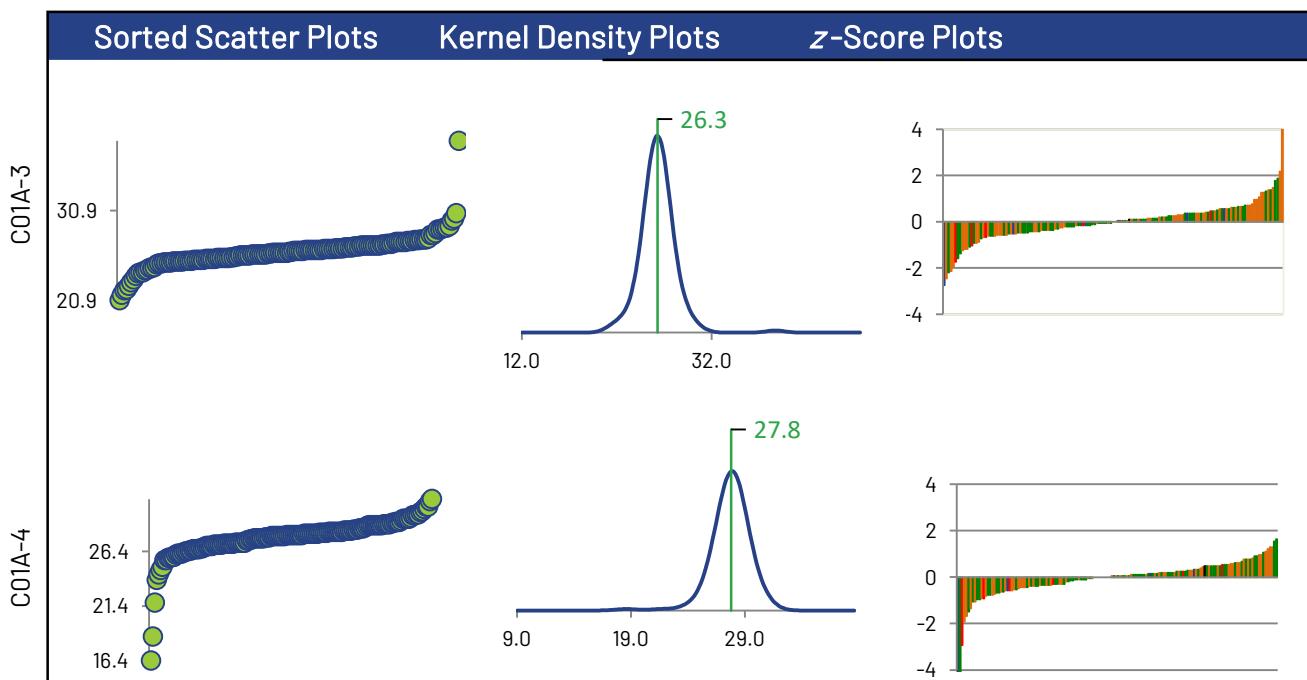
Method	C01A-1	C01A-2	C01A-3	C01A-4
ION CHROMATOGRAPHY (Blue)	5	5	5	5
AA FLAME (Red)	6	6	6	6
ICP/OES (Green)	72	72	71	72
ICP/MS (Orange)	64	64	64	64
SELECTIVE ION ELECTRODE (Black)	1	1	1	1

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



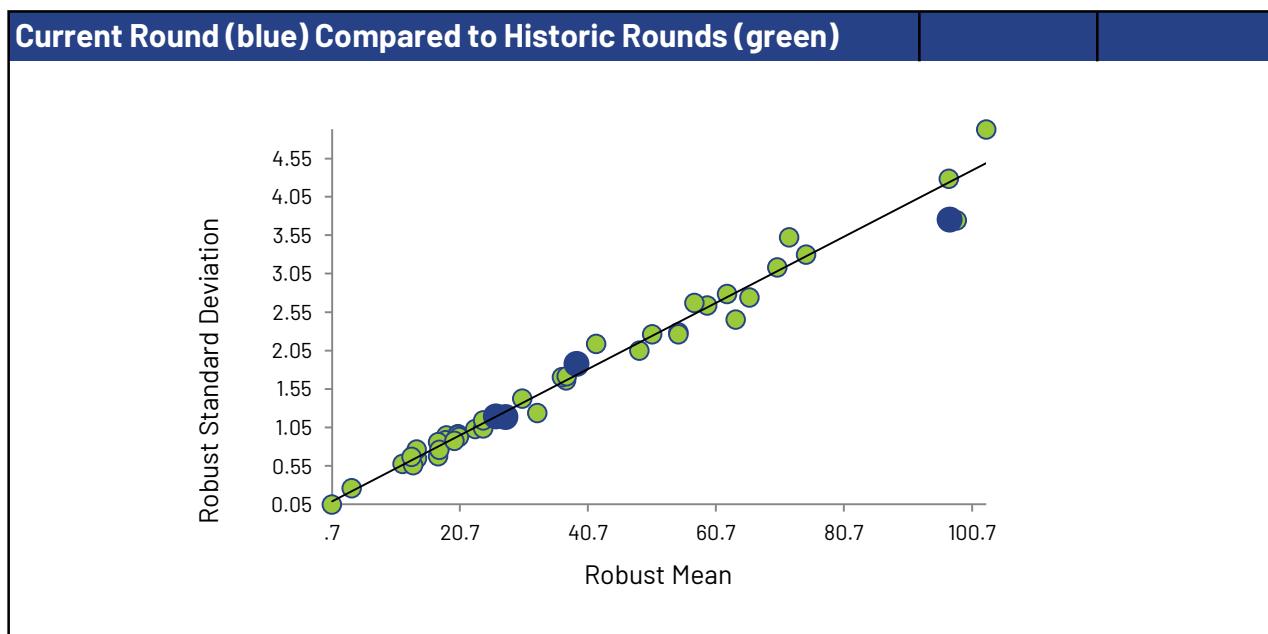
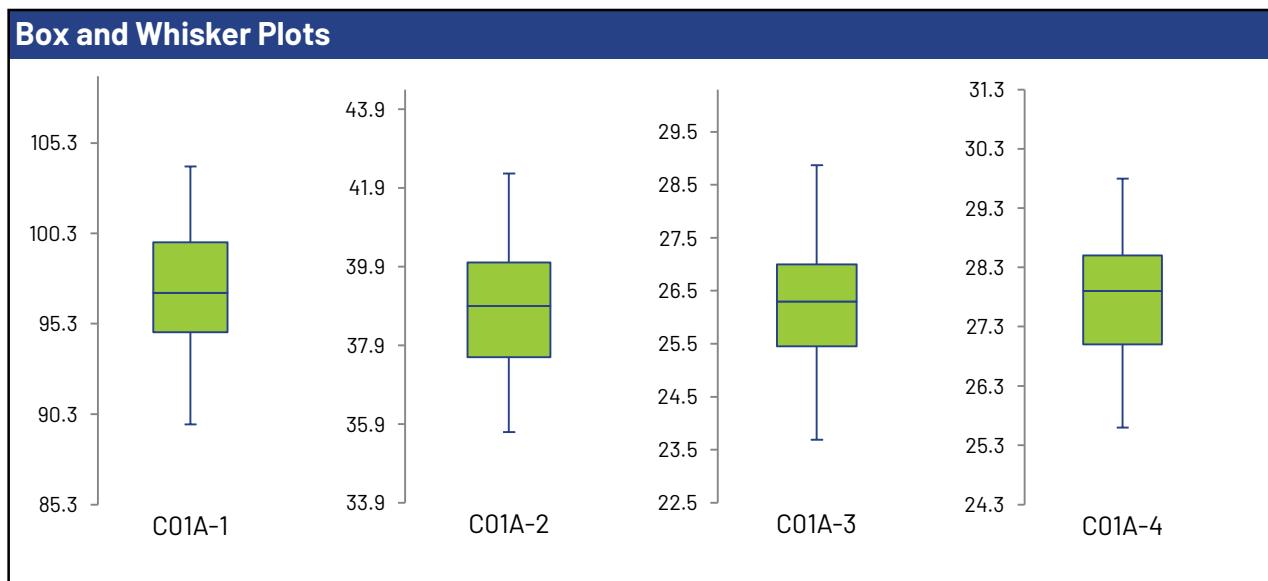
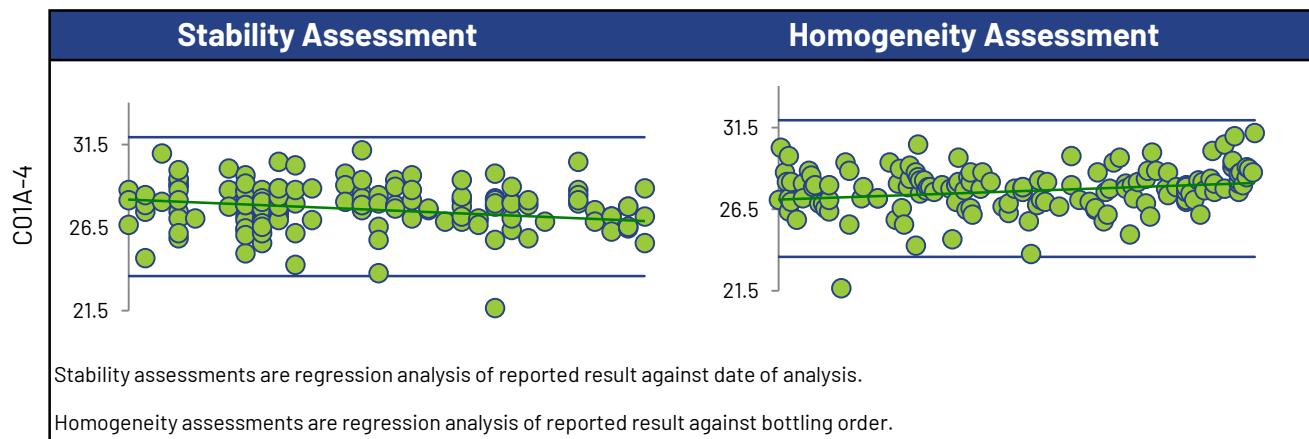
\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Calcium



## Annex A Summary by Analyte

### Calcium



## Chloride

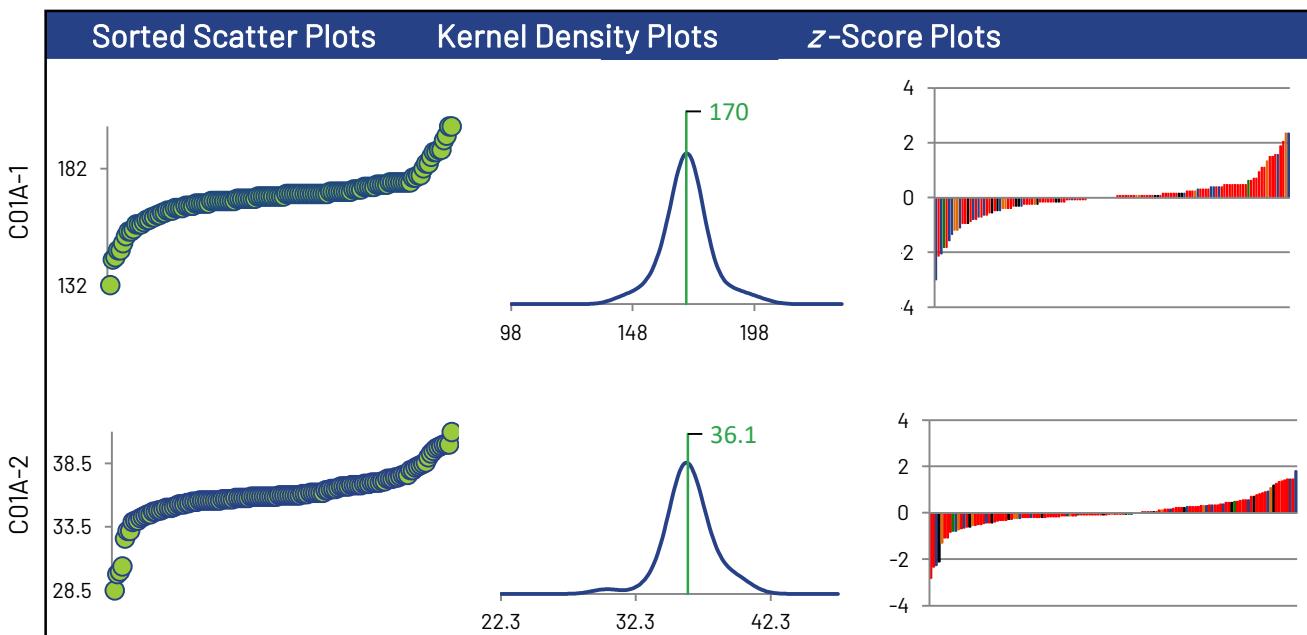
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	133	132	133	132
Median $\mu\text{S}/\text{cm}$	170	36.0	43.0	55.6
Robust Mean $\mu\text{S}/\text{cm}$	170	36.1	43.2	55.6
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.705	0.138	0.157	0.207
Robust Standard Deviation $\mu\text{S}/\text{cm}$	6.50	1.27	1.45	1.90
Regression Standard Deviation $\mu\text{S}/\text{cm}$	12.7	2.71	3.24	4.17
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	12.7	2.71	3.24	4.17
Flagged Outliers	0	1	0	1
$ z  > 3.0$	0	0	2	2
$2 <  z  < 3$	6	4	2	3
Failure Rate %*			3.0	

### Methods Used

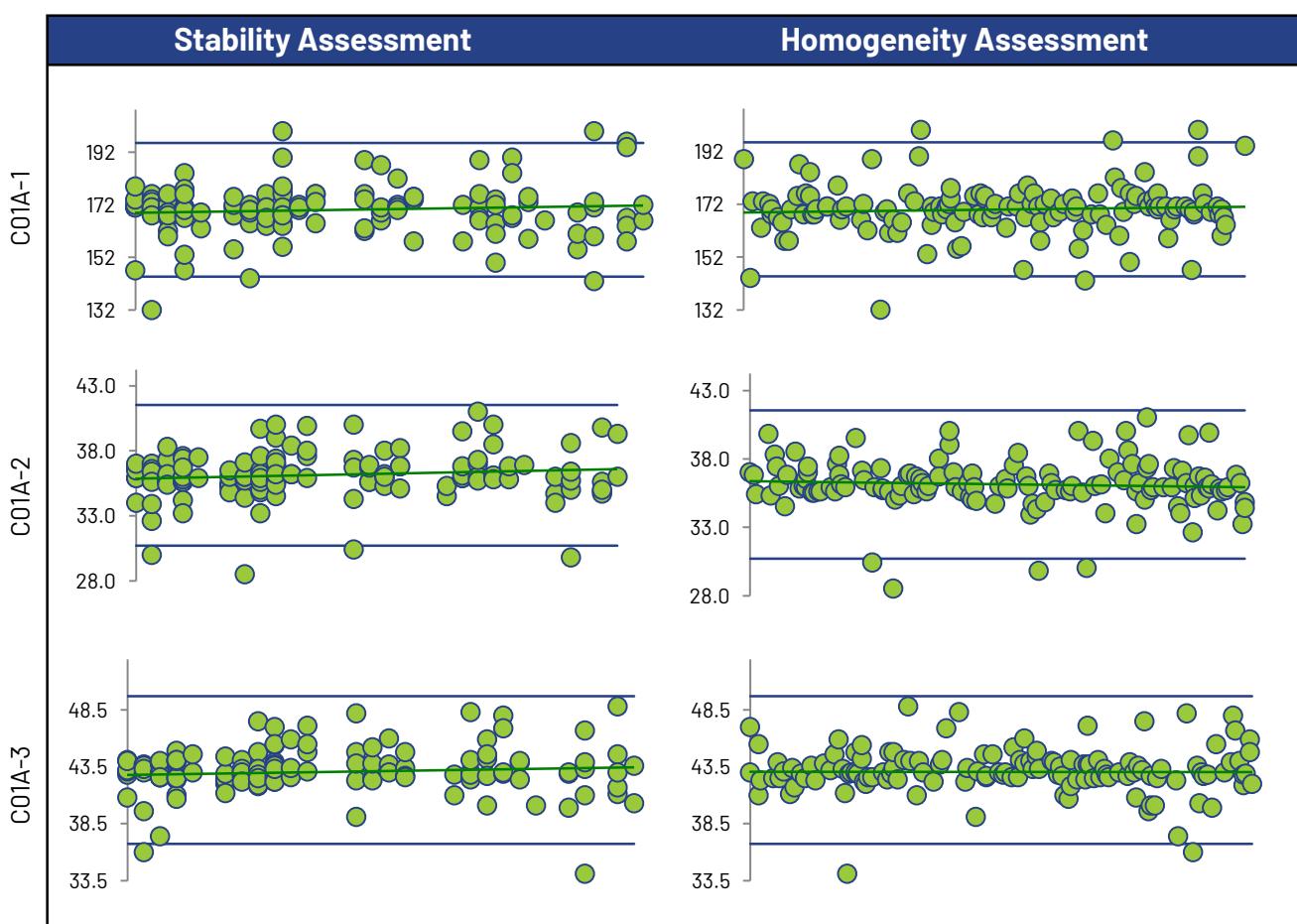
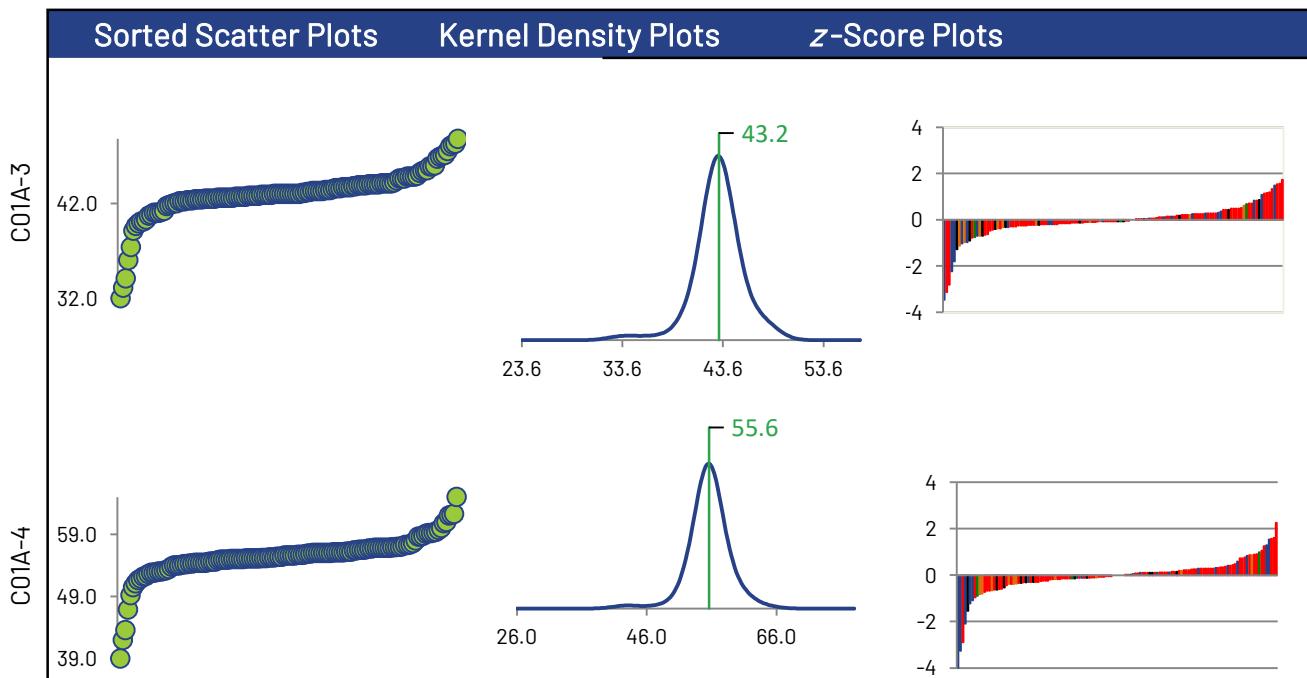
Method	C01A-1	C01A-2	C01A-3	C01A-4
COLORIMETRIC (Blue)	20	19	20	20
ION CHROMATOGRAPHY (Red)	87	87	87	87
SELECTIVE ION ELECTRODE (Green)	3	3	3	3
AUTO COLOR (Orange)	10	10	10	10
TITRIMETRIC (Black)	13	13	13	12

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



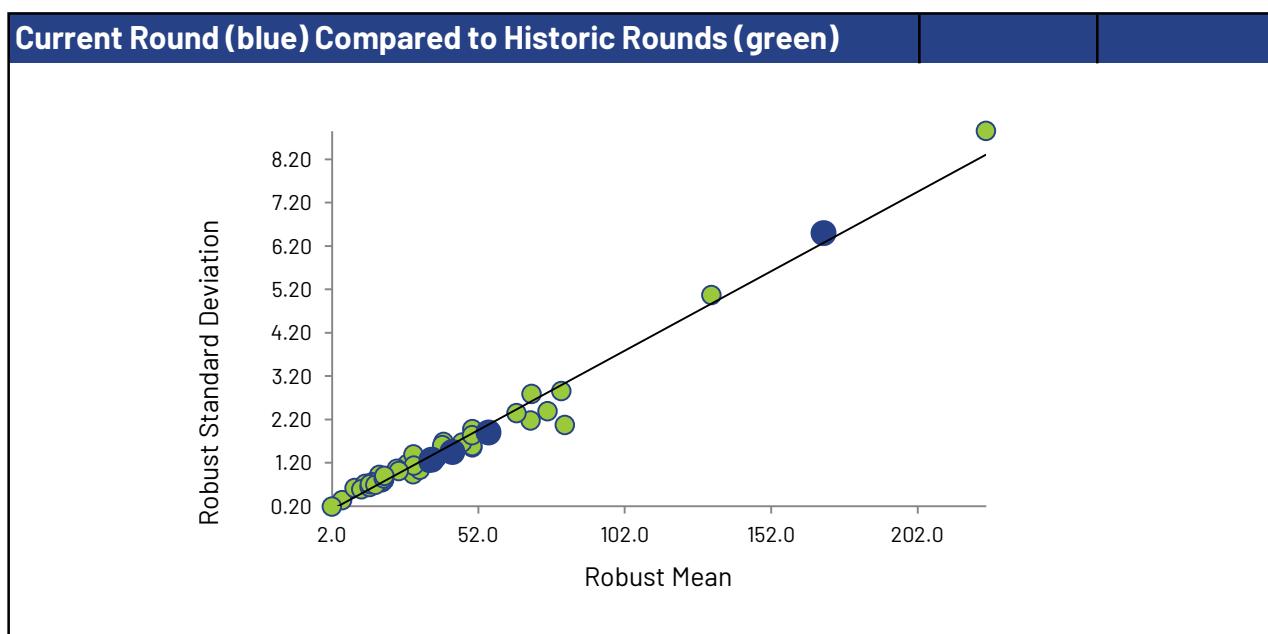
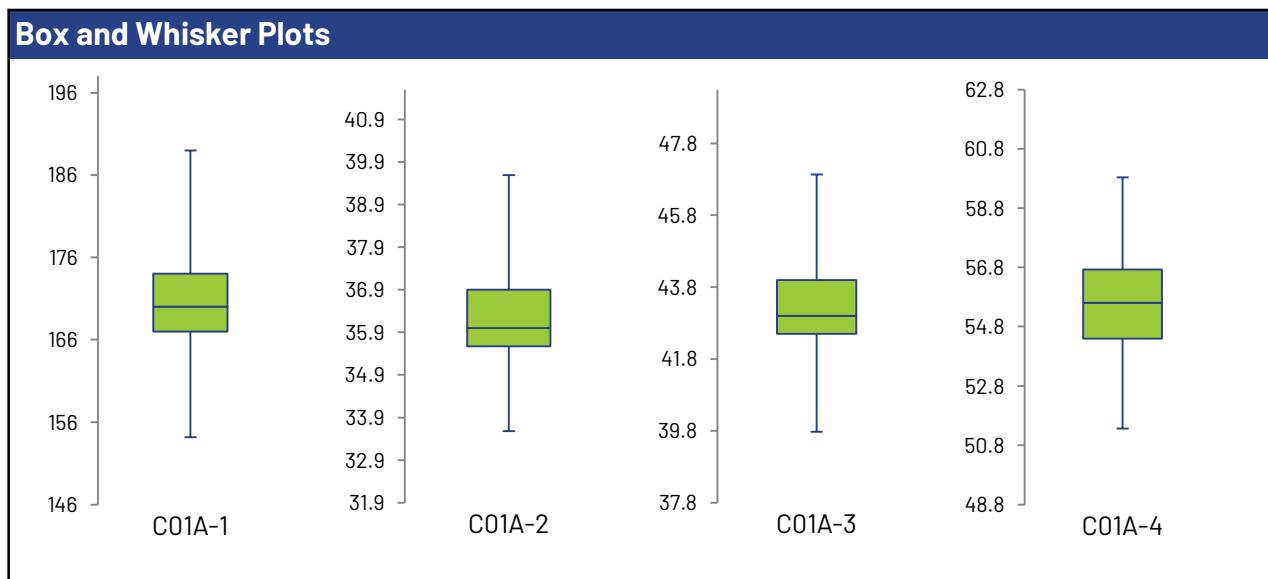
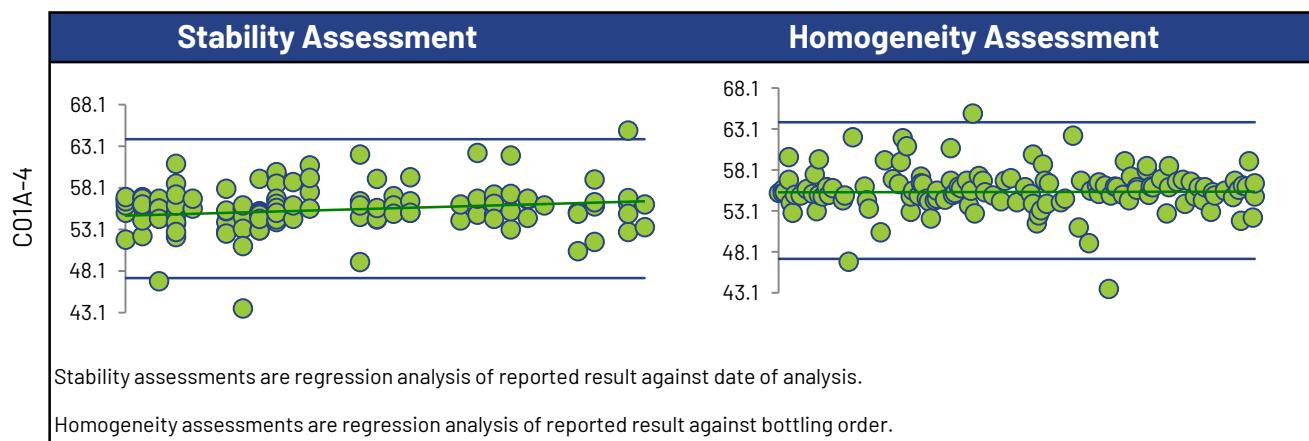
\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Chloride



## Annex A Summary by Analyte

### Chloride



## Conductivity (25°C)

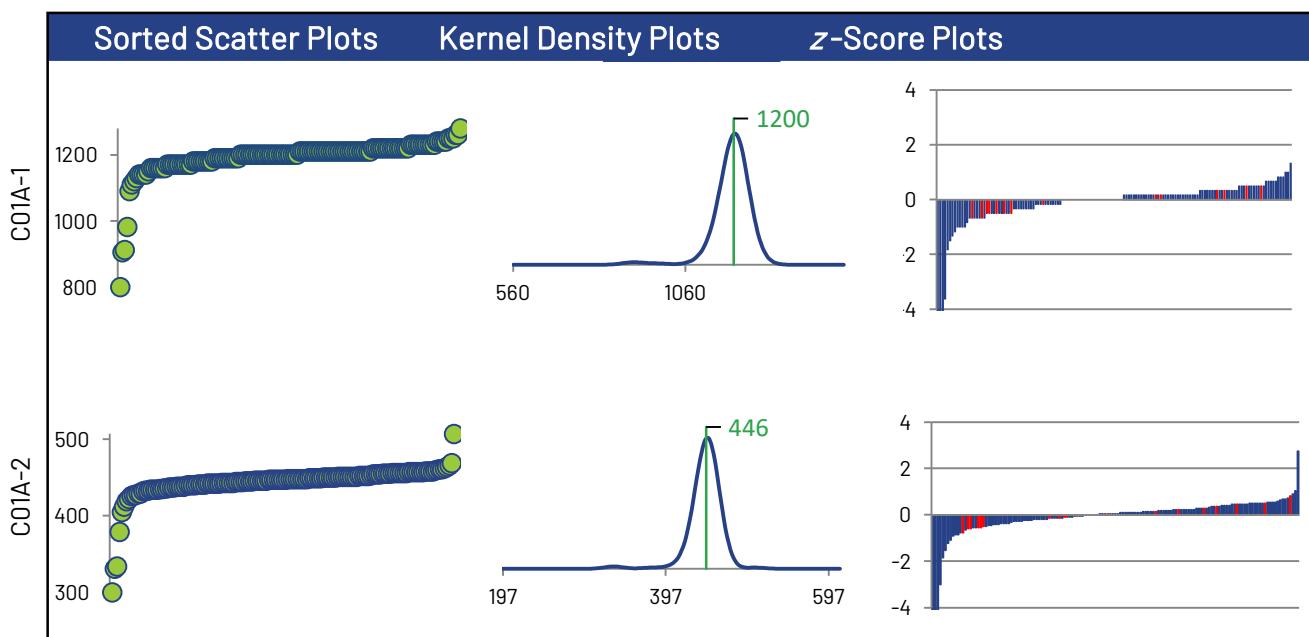
## Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	145	145	145	145
Median $\mu\text{S}/\text{cm}$	1200	447	824	676
Robust Mean $\mu\text{S}/\text{cm}$	1200	446	823	676
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	2.89	0.991	1.72	1.19
Robust Standard Deviation $\mu\text{S}/\text{cm}$	27.8	9.55	16.6	11.5
Regression Standard Deviation $\mu\text{S}/\text{cm}$	60.0	22.3	41.2	33.8
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	60.0	22.3	41.2	33.8
Flagged Outliers	2	2	2	2
$ z  > 3.0$	4	3	4	3
$2 <  z  < 3$	0	2	0	1
Failure Rate %*		4.1		

## Methods Used

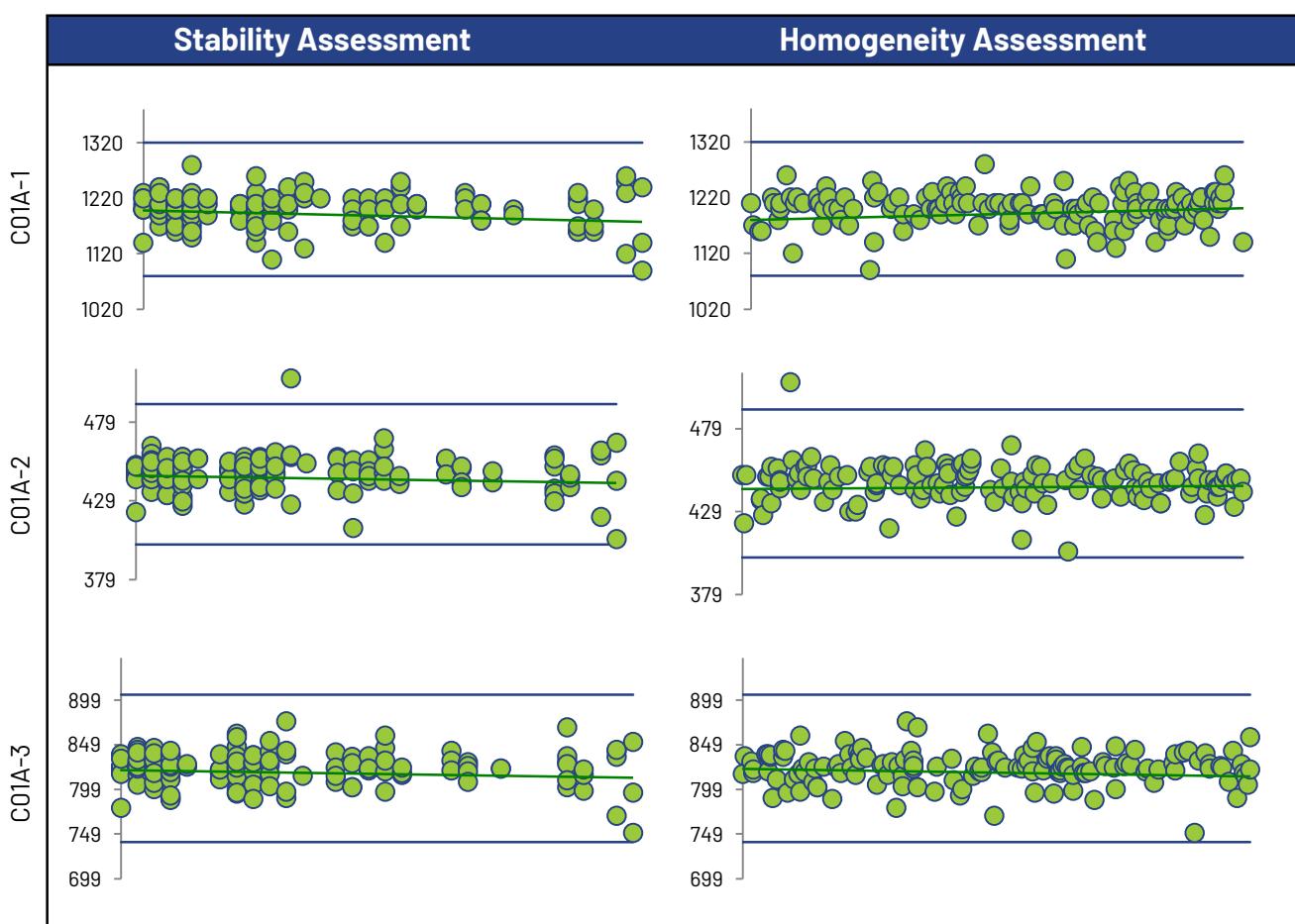
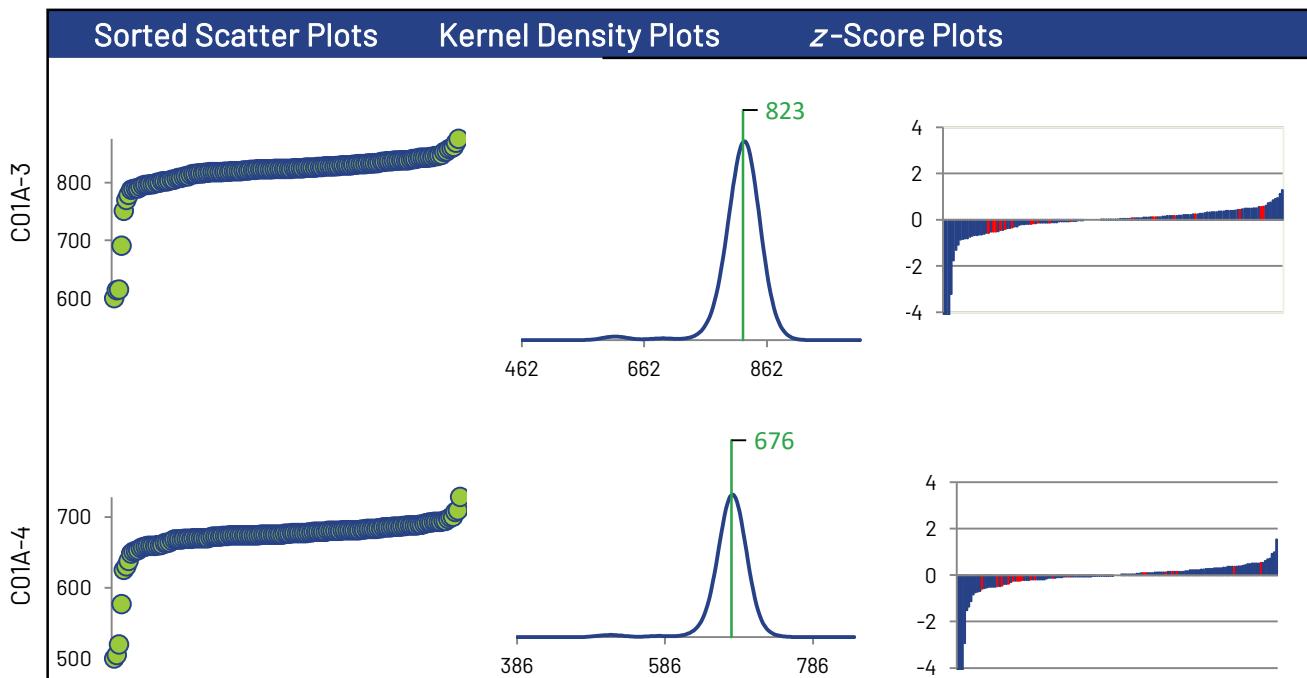
Method	C01A-1	C01A-2	C01A-3	C01A-4
CONDUCTIVITY METER (Blue)	126	126	126	126
AUTO CONDUCTIVITY METER (Red)	19	19	19	19

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

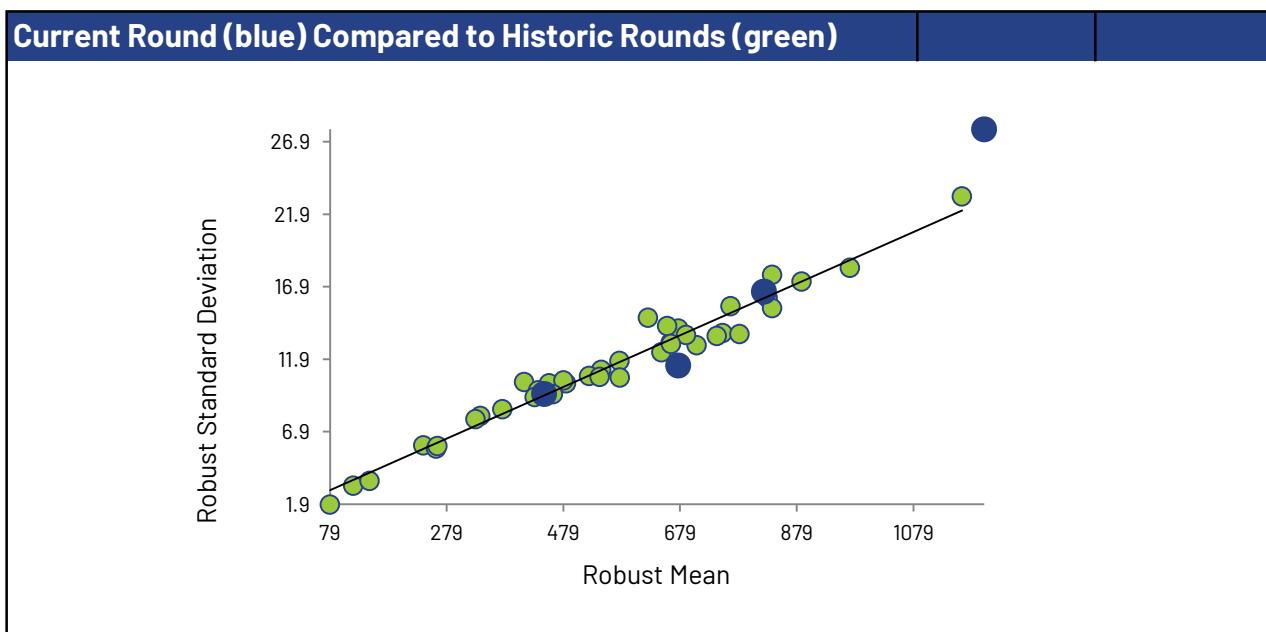
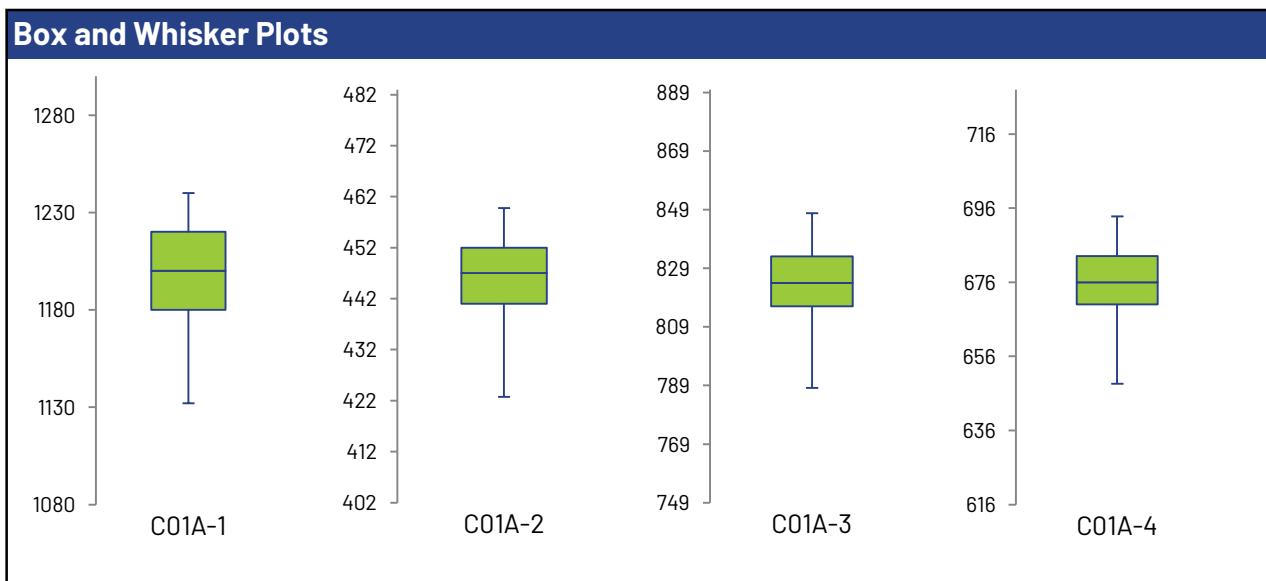
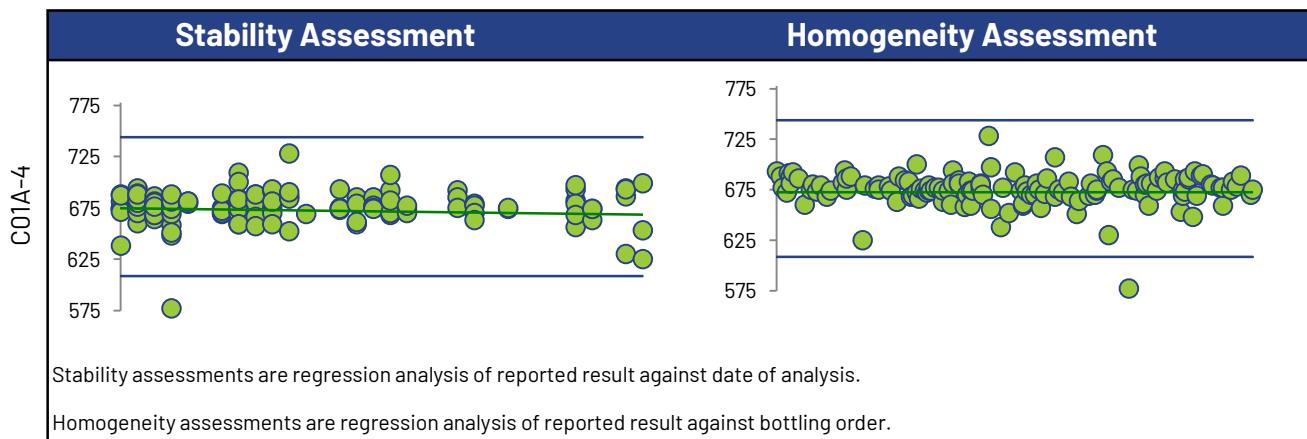


\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Conductivity (25°C)



## Conductivity (25°C)



## Fluoride

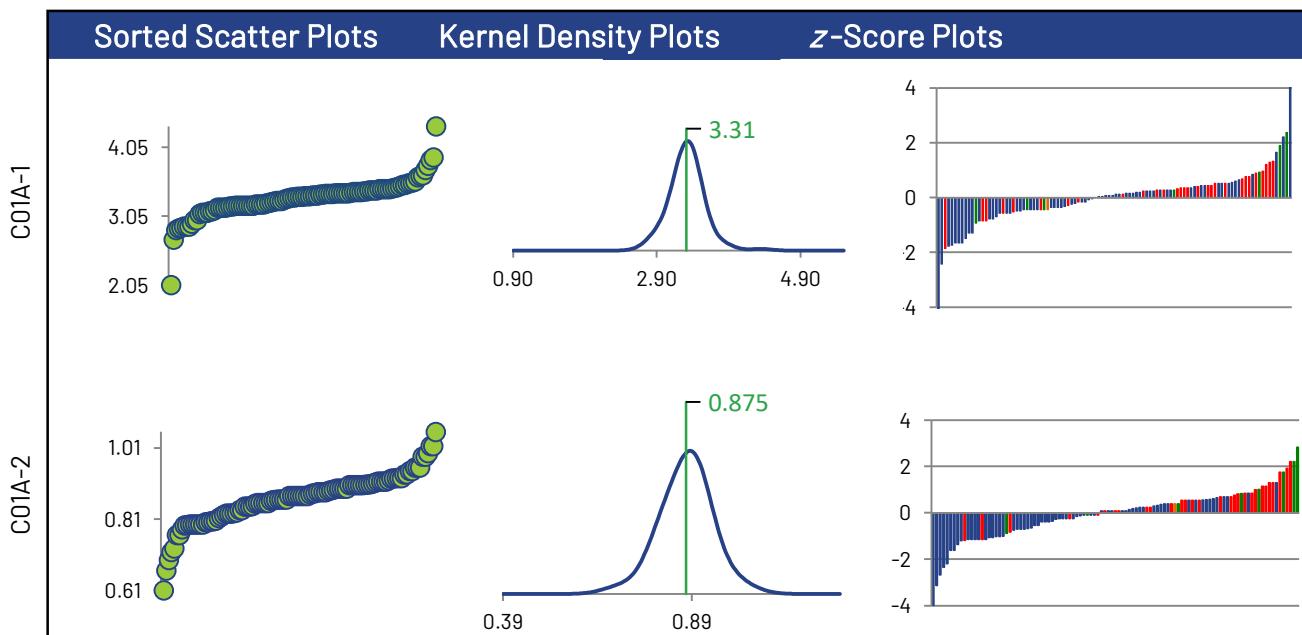
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	104	105	104	105
Median $\mu\text{S}/\text{cm}$	3.34	0.880	3.43	1.38
Robust Mean $\mu\text{S}/\text{cm}$	3.31	0.875	3.41	1.37
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.0218	0.00737	0.0208	0.00962
Robust Standard Deviation $\mu\text{S}/\text{cm}$	0.178	0.0604	0.170	0.0789
Regression Standard Deviation $\mu\text{S}/\text{cm}$	0.248	0.0656	0.256	0.103
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	0.248	0.0656	0.256	0.103
Flagged Outliers	1	0	1	0
$ z  > 3.0$	2	2	2	3
$2 <  z  < 3$	3	6	2	2
Failure Rate %*		0.0		

### Methods Used

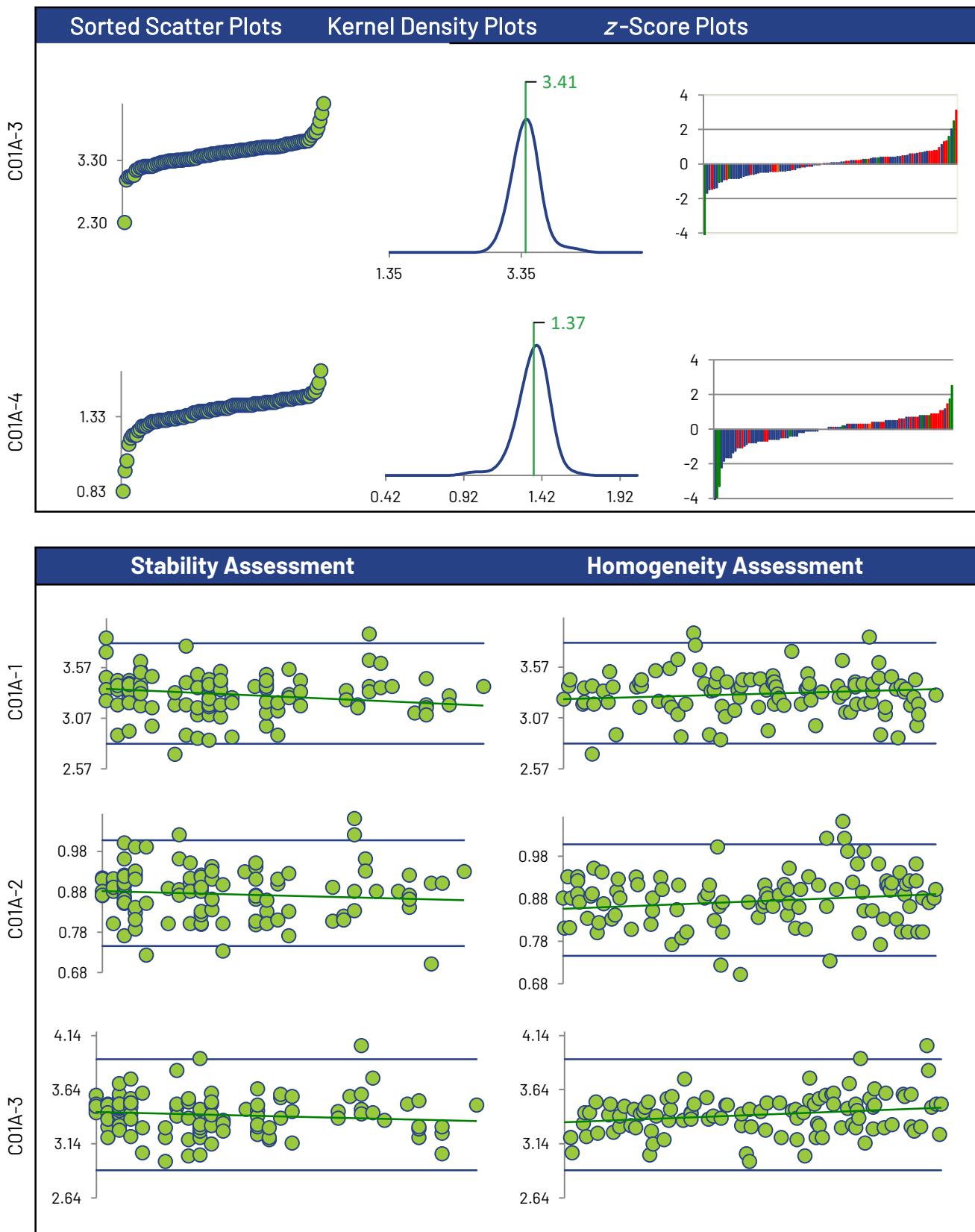
Method	C01A-1	C01A-2	C01A-3	C01A-4
ION CHROMATOGRAPHY (Blue)	67	67	67	67
SELECTIVE ION ELECTRODE (Red)	29	29	29	29
COLORIMETRIC (Green)	7	8	7	8
TITRIMETRIC (Orange)	1	1	1	1

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

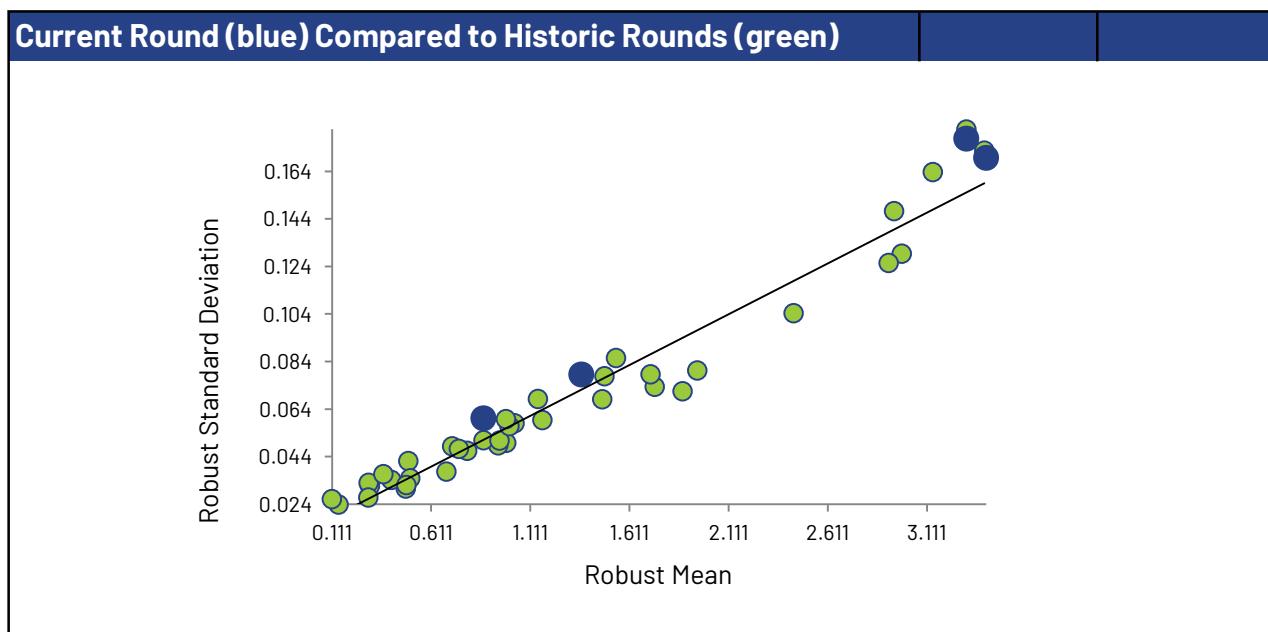
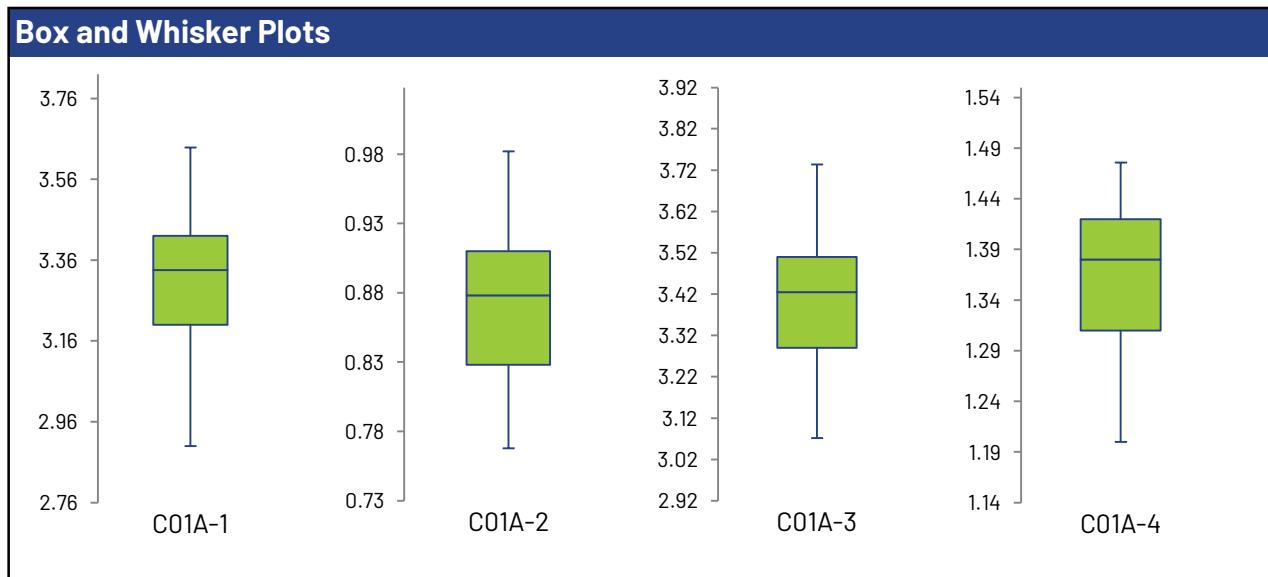
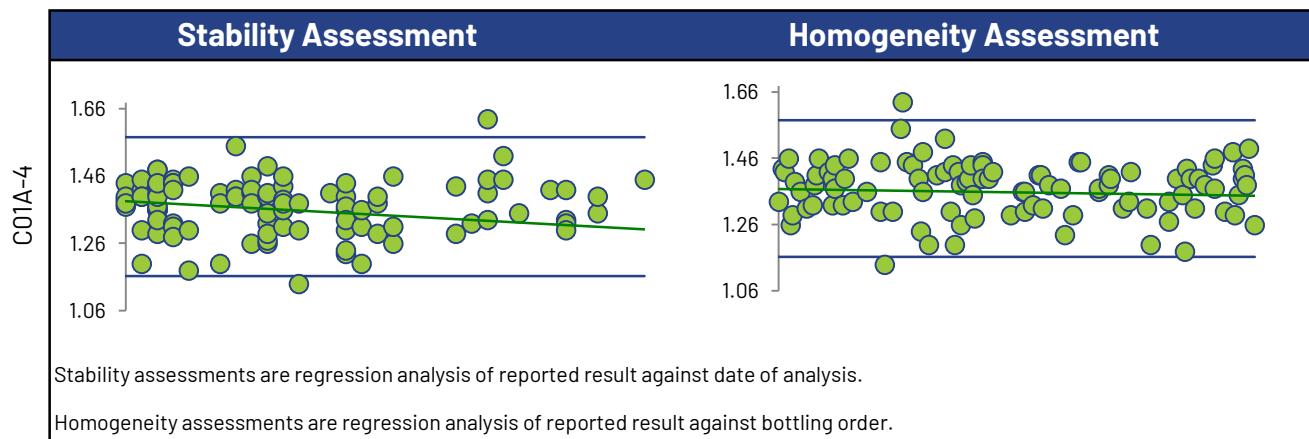


\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Fluoride



## Fluoride



Hardness (as CaCO<sub>3</sub>)

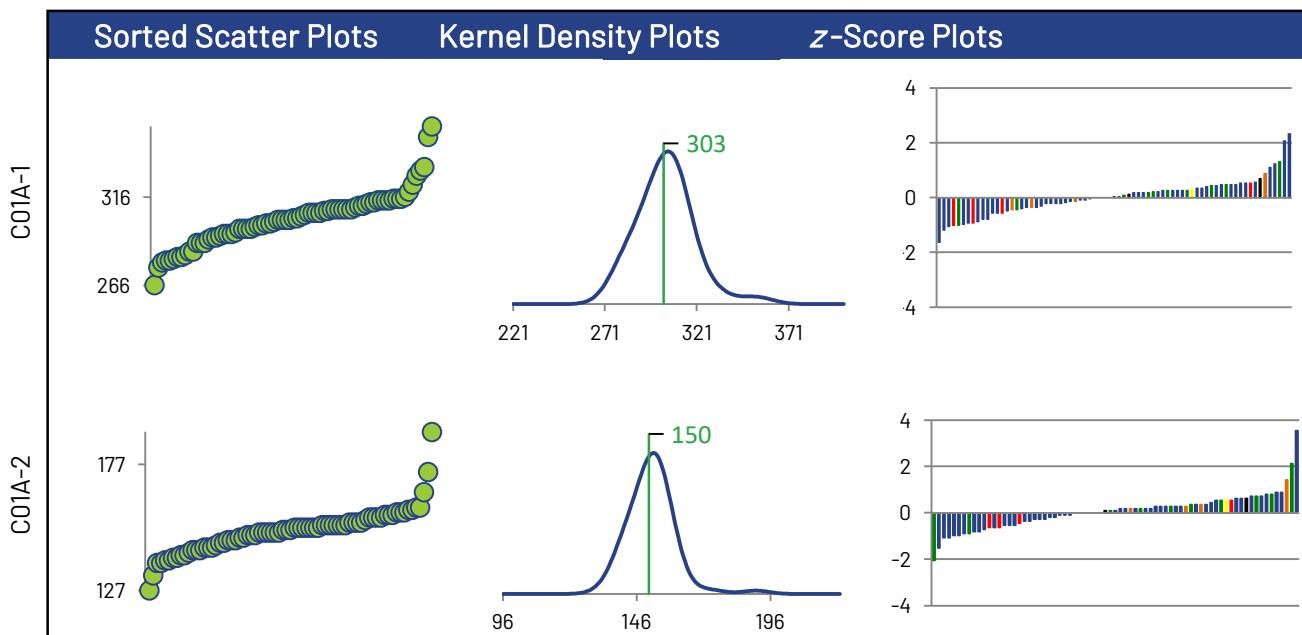
## Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	73	73	72	73
Median $\mu\text{S}/\text{cm}$	304	151	126	99.0
Robust Mean $\mu\text{S}/\text{cm}$	303	150	125	98.7
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	1.98	1.03	0.776	0.632
Robust Standard Deviation $\mu\text{S}/\text{cm}$	13.5	7.05	5.27	4.32
Regression Standard Deviation $\mu\text{S}/\text{cm}$	22.7	11.3	9.41	7.40
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	22.7	11.3	9.41	7.40
Flagged Outliers	1	1	2	1
$ z  > 3.0$	0	1	0	3
$2 <  z  < 3$	2	2	3	2
Failure Rate %*			6.8	

## Methods Used

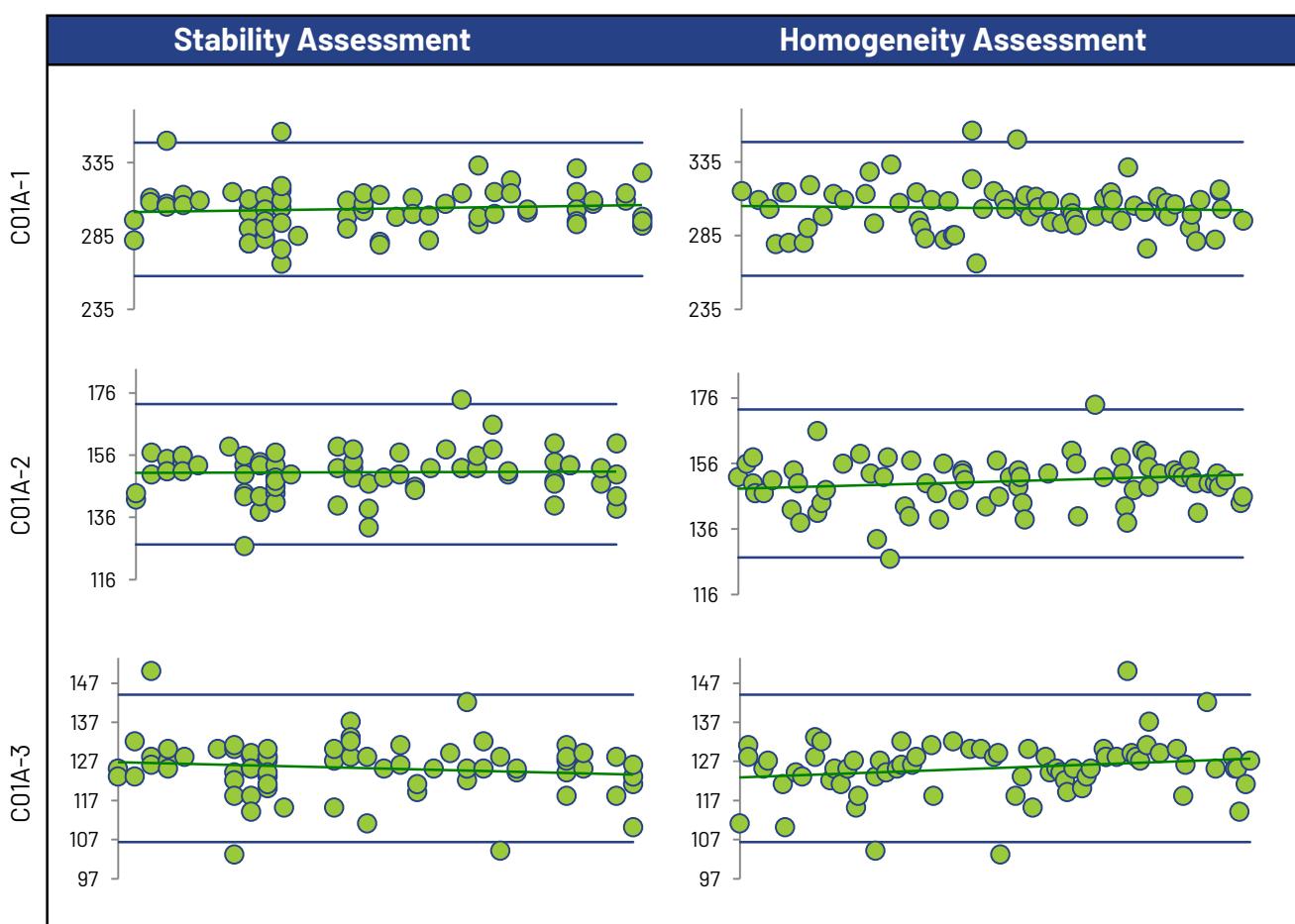
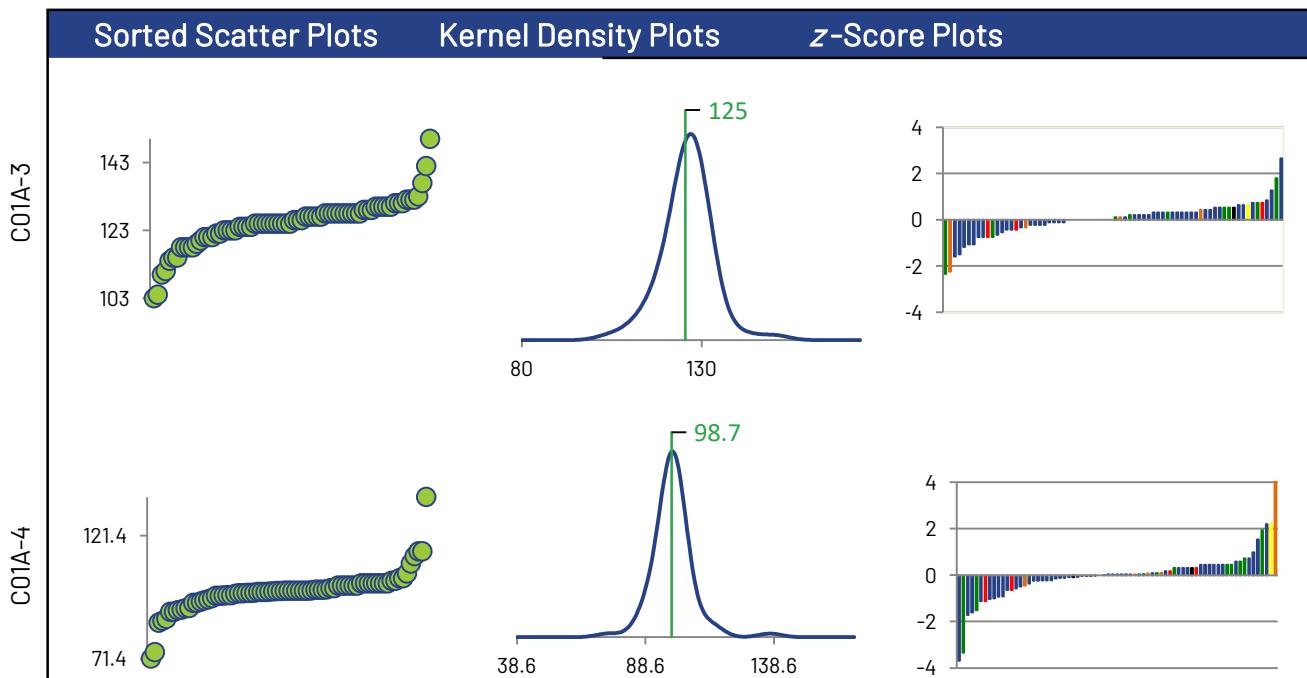
Method	C01A-1	C01A-2	C01A-3	C01A-4
CALCULATED (Blue)	51	51	50	51
CALCULATED (ICP/MS) (Red)	4	4	4	4
TITRIMETRIC (Green)	10	10	10	10
CALCULATED (ICP) (Orange)	5	5	5	5
AUTO TITRIMETRIC (Black)	2	2	2	2
COLORIMETRIC (Yellow)	1	1	1	1

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

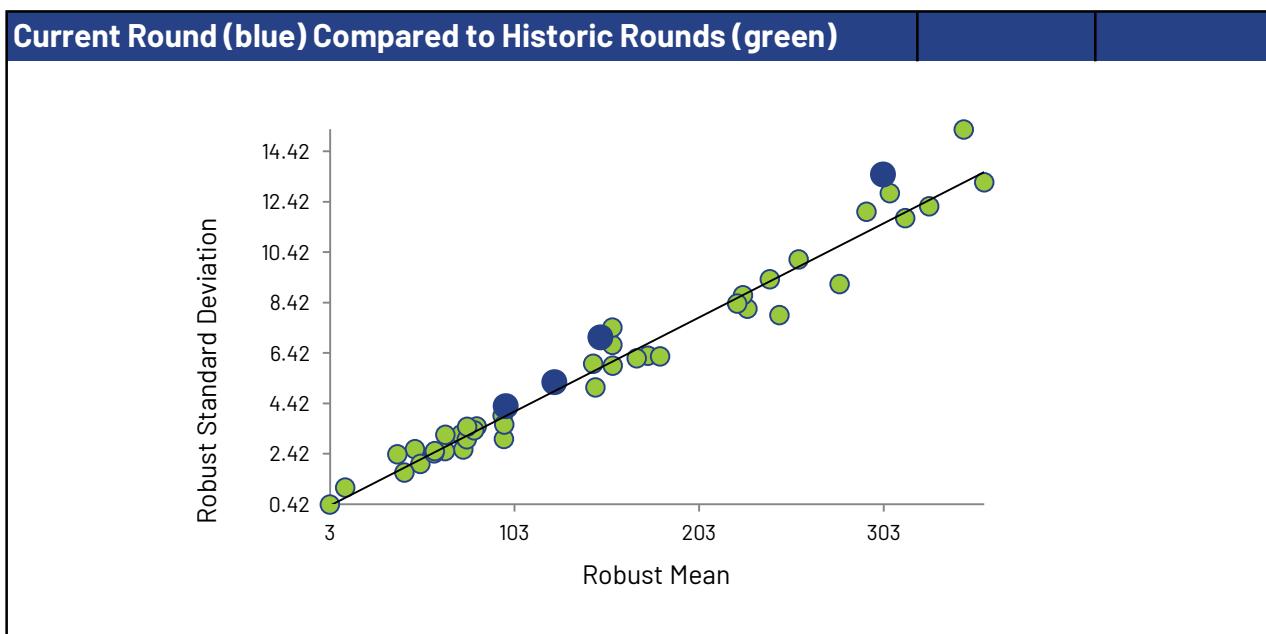
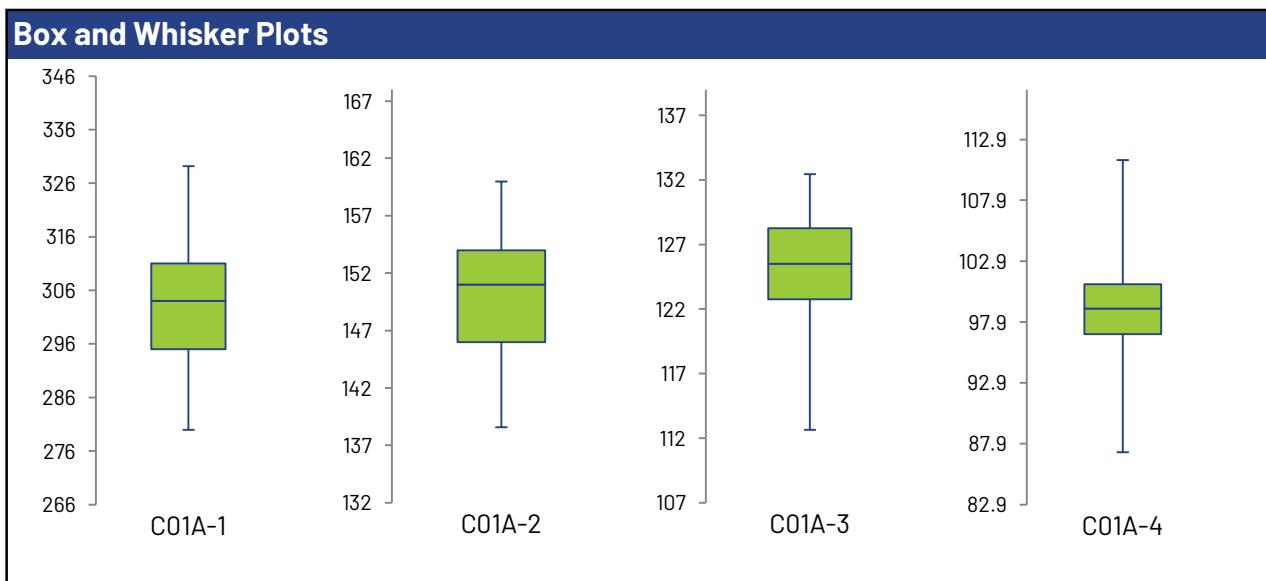
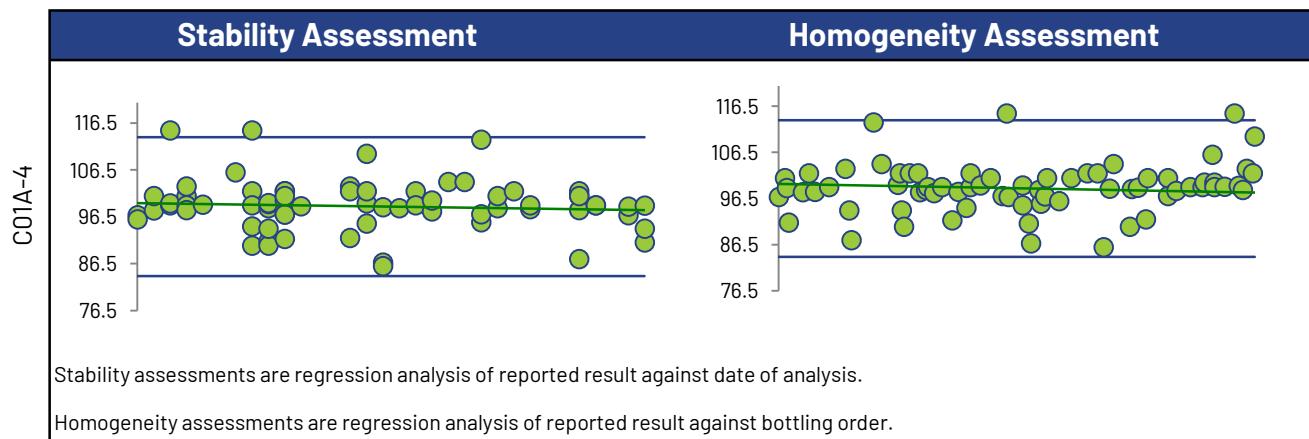


\* Displayed failure rate does not account for the RDL modified *z*-Scores or inaccurately reported non-detects.

## Hardness (as CaCO<sub>3</sub>)



## Hardness (as CaCO<sub>3</sub>)



## Inorganic Carbon

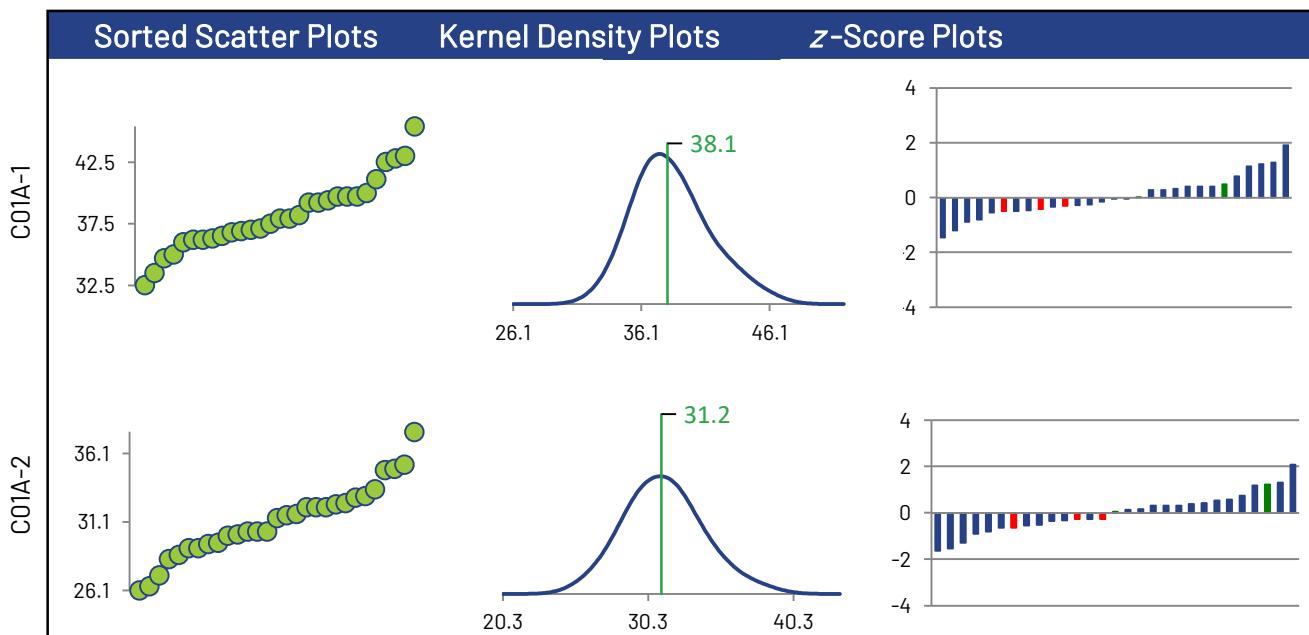
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	29	29	29	29
Median $\mu\text{S}/\text{cm}$	37.9	31.4	37.7	19.6
Robust Mean $\mu\text{S}/\text{cm}$	38.1	31.2	38.3	19.4
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.671	0.629	0.645	0.304
Robust Standard Deviation $\mu\text{S}/\text{cm}$	2.89	2.71	2.78	1.31
Regression Standard Deviation $\mu\text{S}/\text{cm}$	3.81	3.12	3.83	1.94
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	3.81	3.12	3.83	1.94
Flagged Outliers	0	0	0	0
$ z  > 3.0$	0	0	0	0
$2 <  z  < 3$	0	1	0	1
Failure Rate %*	0.0			

### Methods Used

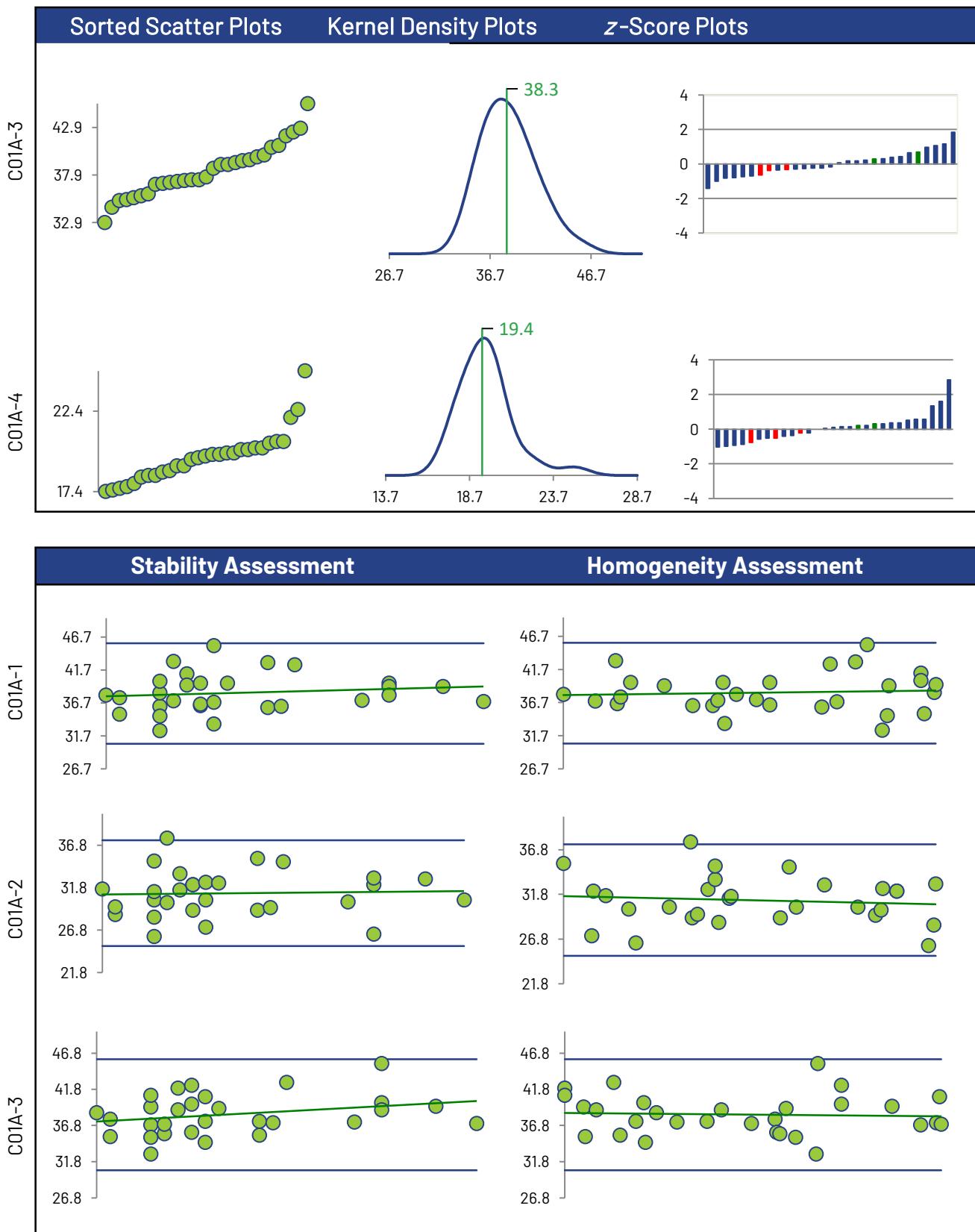
Method	C01A-1	C01A-2	C01A-3	C01A-4
INFRARED (Blue)	24	24	24	24
CALCULATED (Red)	3	3	3	3
AUTO COLOR (Green)	2	2	2	2

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

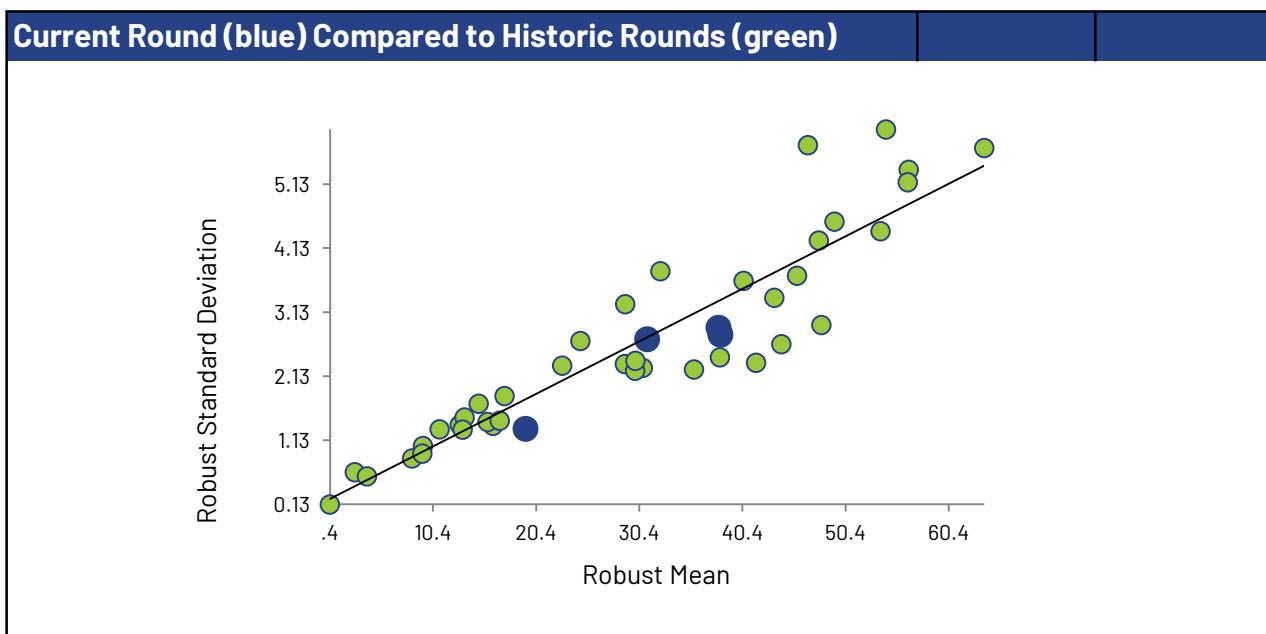
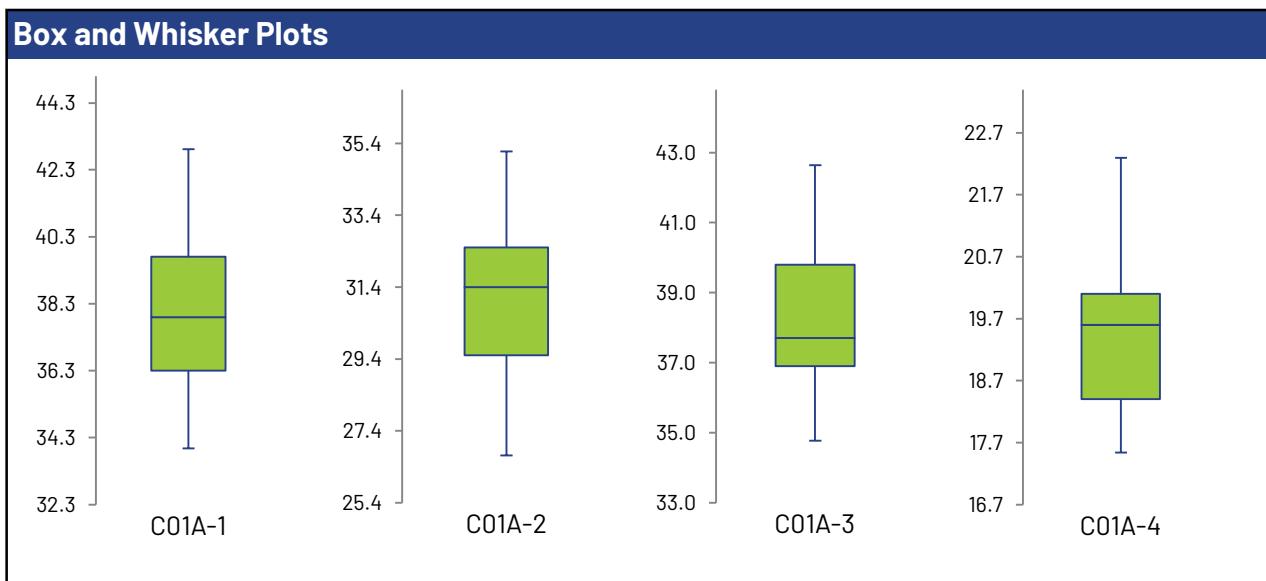
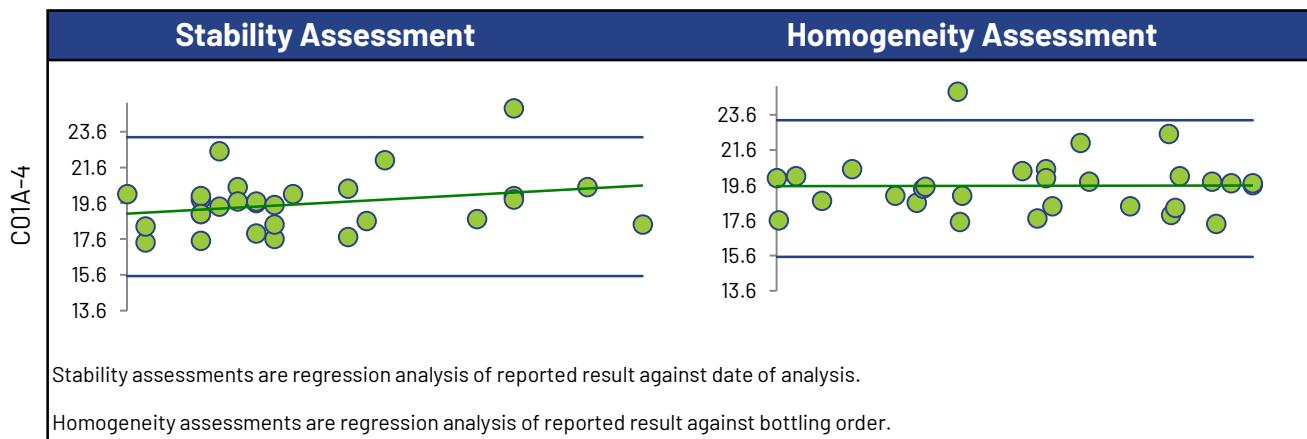


\* Displayed failure rate does not account for the RDL modified  $z$ -Scores or inaccurately reported non-detects.

## Inorganic Carbon



## Inorganic Carbon



## Magnesium

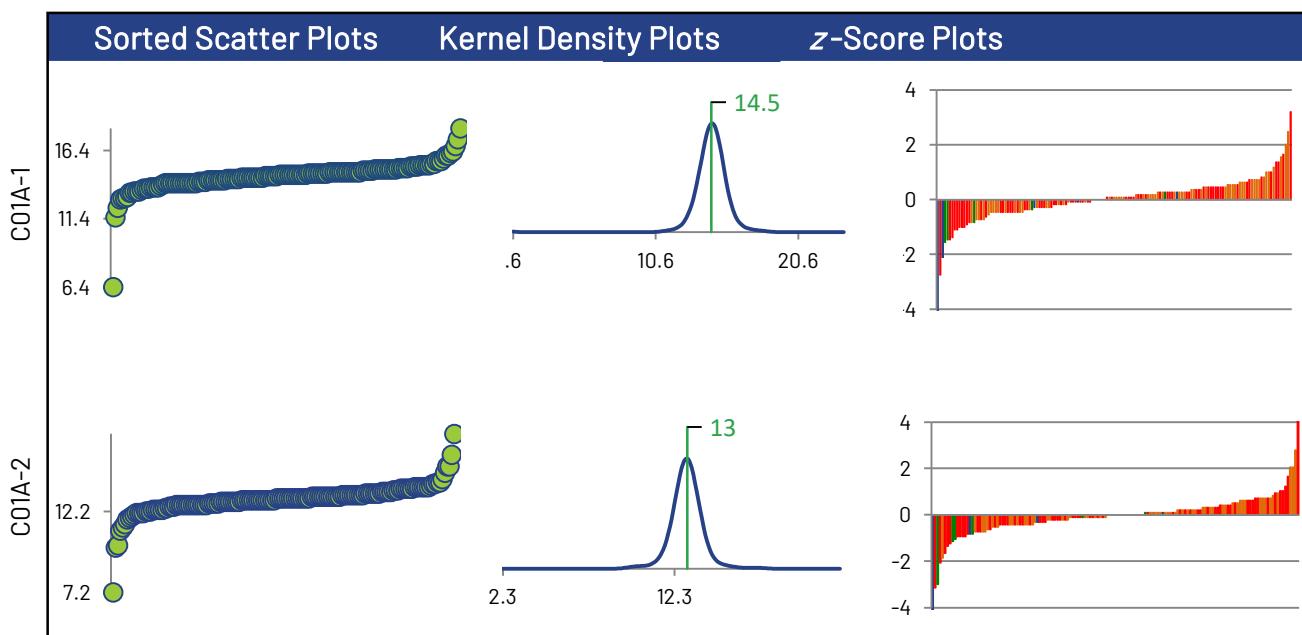
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	147	147	147	147
Median $\mu\text{S}/\text{cm}$	14.6	13.0	14.6	7.11
Robust Mean $\mu\text{S}/\text{cm}$	14.5	13.0	14.6	7.10
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.0661	0.0568	0.0697	0.0334
Robust Standard Deviation $\mu\text{S}/\text{cm}$	0.641	0.551	0.676	0.324
Regression Standard Deviation $\mu\text{S}/\text{cm}$	1.09	0.972	1.09	0.533
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	1.09	0.972	1.09	0.533
Flagged Outliers	0	0	0	0
$ z  > 3.0$	2	3	4	3
$2 <  z  < 3$	4	5	2	2
Failure Rate %*			3.4	

### Methods Used

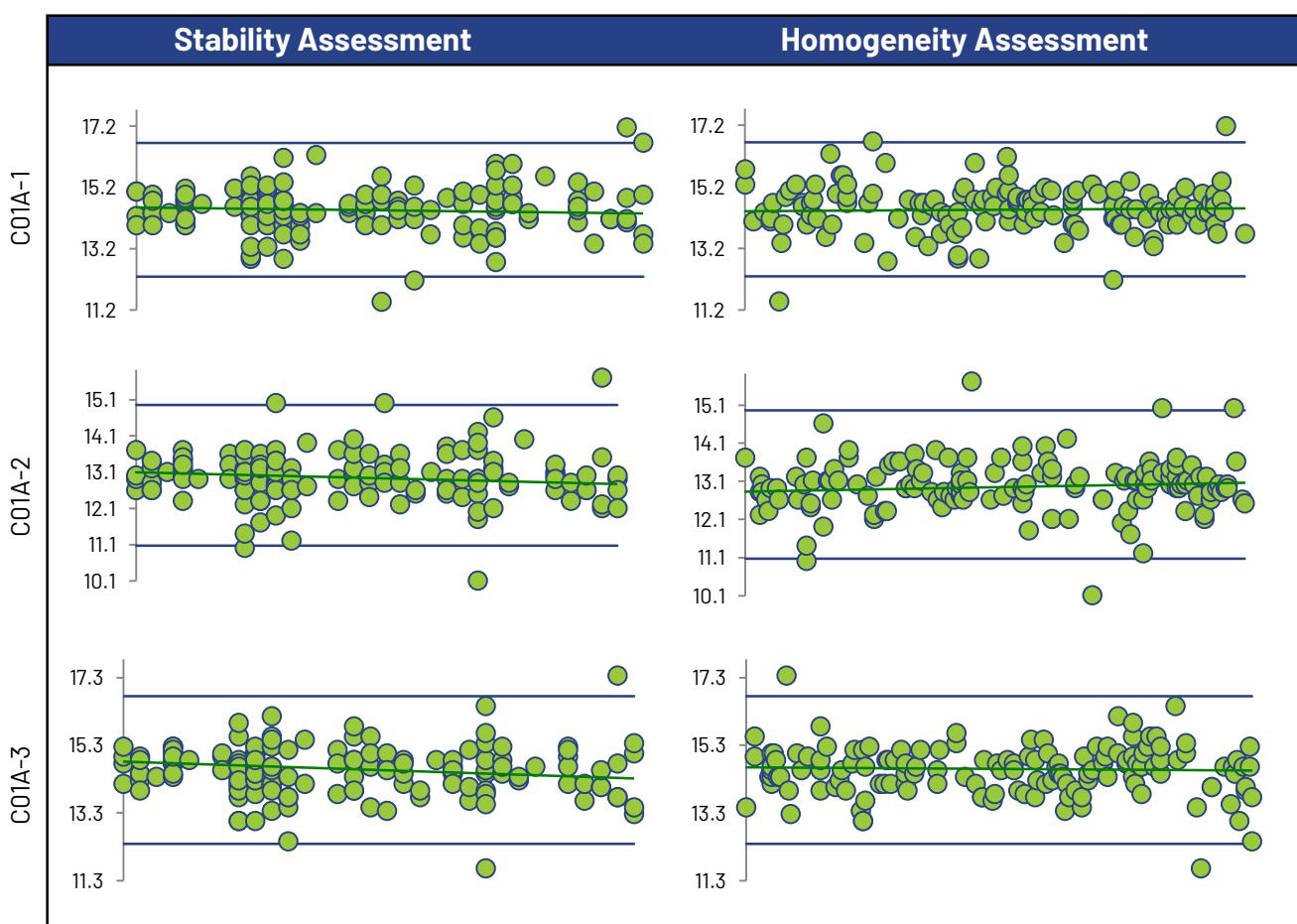
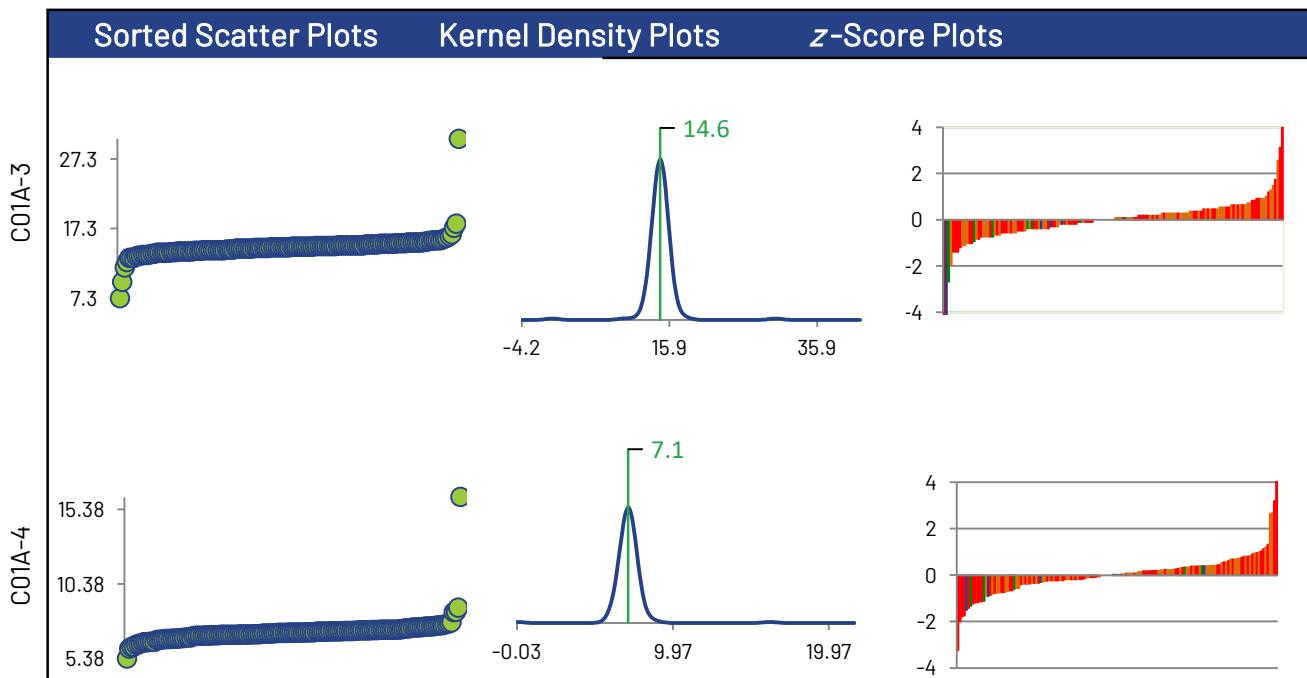
Method	C01A-1	C01A-2	C01A-3	C01A-4
ION CHROMATOGRAPHY (Blue)	5	5	5	5
ICP/OES (Red)	71	71	71	71
AA FLAME (Green)	6	6	6	6
ICP/MS (Orange)	65	65	65	65

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



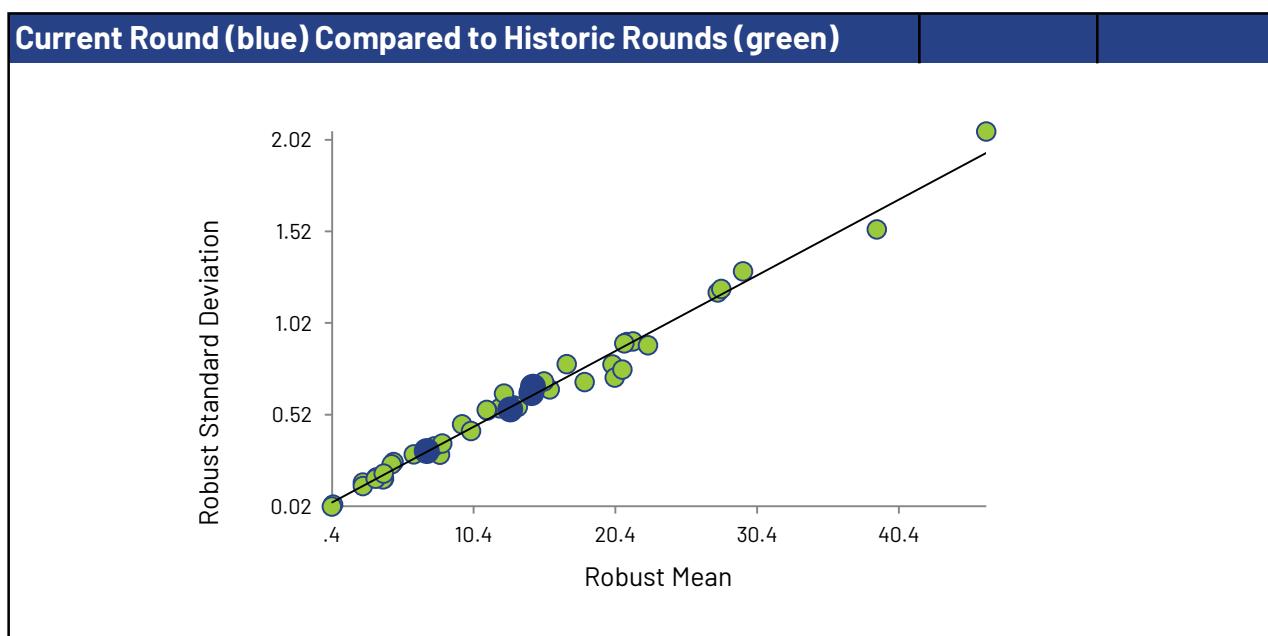
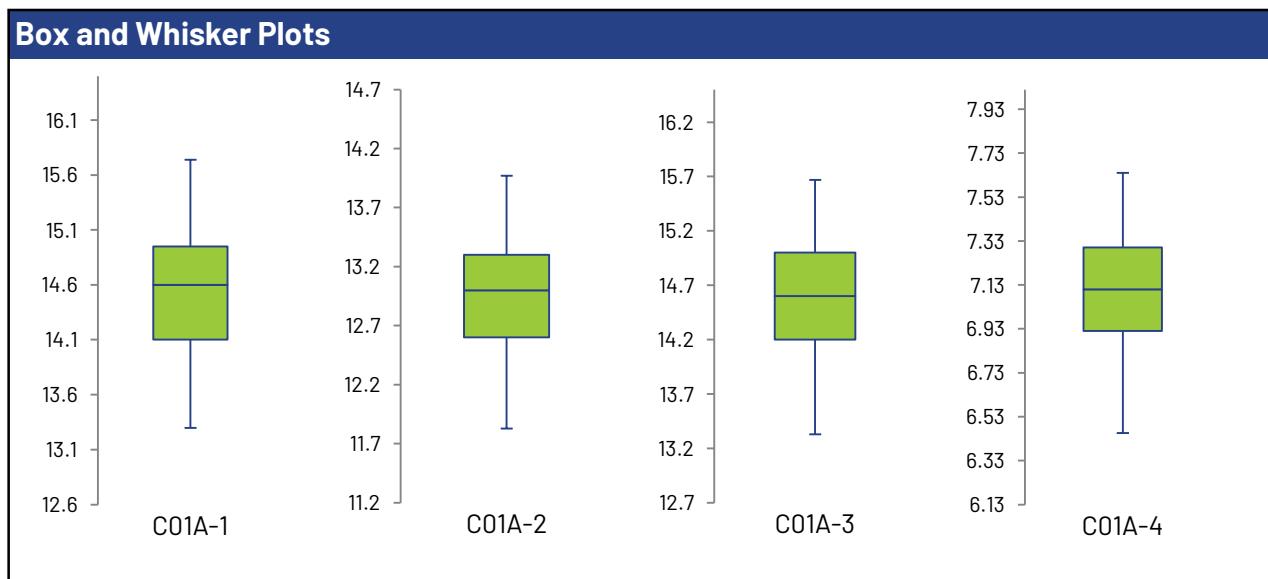
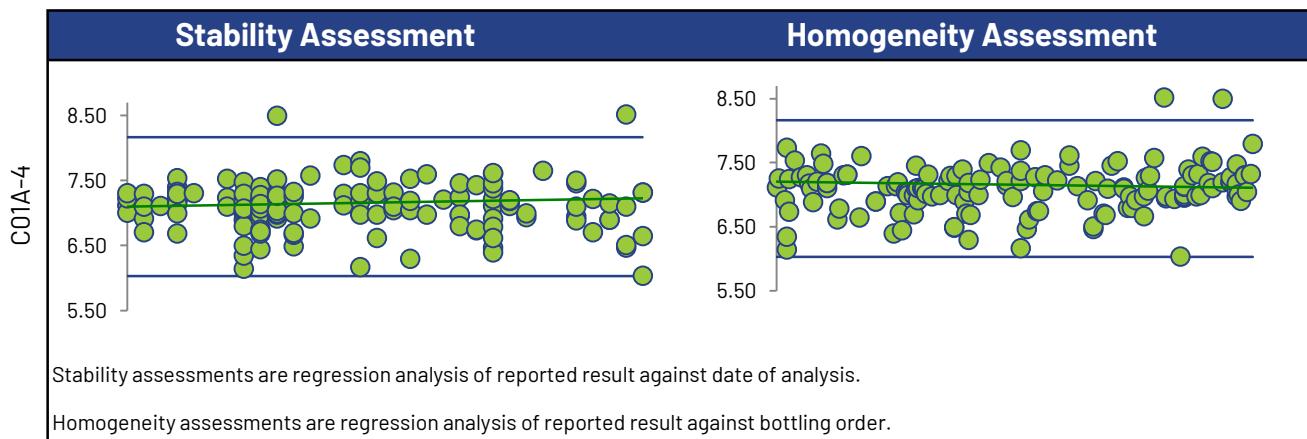
\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Magnesium



## Annex A Summary by Analyte

### Magnesium



## Nitrate

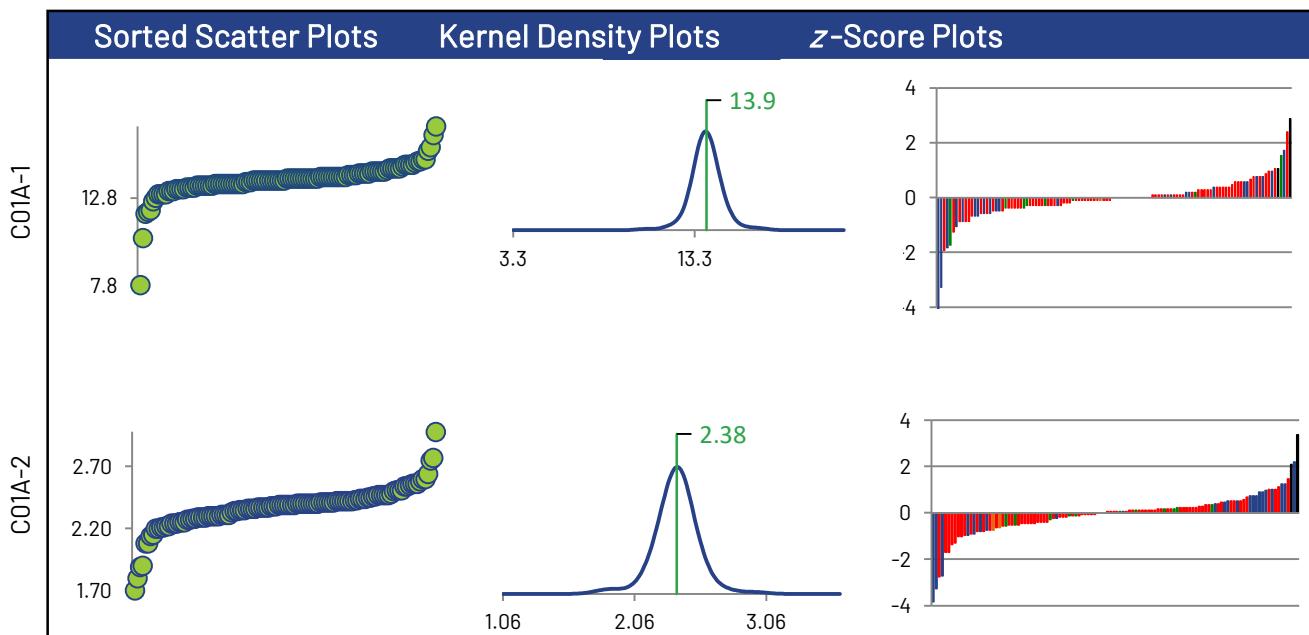
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	116	116	116	115
Median $\mu\text{S}/\text{cm}$	13.9	2.39	13.9	0.902
Robust Mean $\mu\text{S}/\text{cm}$	13.9	2.38	13.9	0.904
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.0628	0.0136	0.0638	0.00769
Robust Standard Deviation $\mu\text{S}/\text{cm}$	0.541	0.117	0.550	0.0660
Regression Standard Deviation $\mu\text{S}/\text{cm}$	1.04	0.178	1.04	0.0678
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	1.04	0.178	1.04	0.0678
Flagged Outliers	0	0	0	0
$ z  > 3.0$	2	3	1	5
$2 <  z  < 3$	2	4	3	4
Failure Rate %*		4.3		

### Methods Used

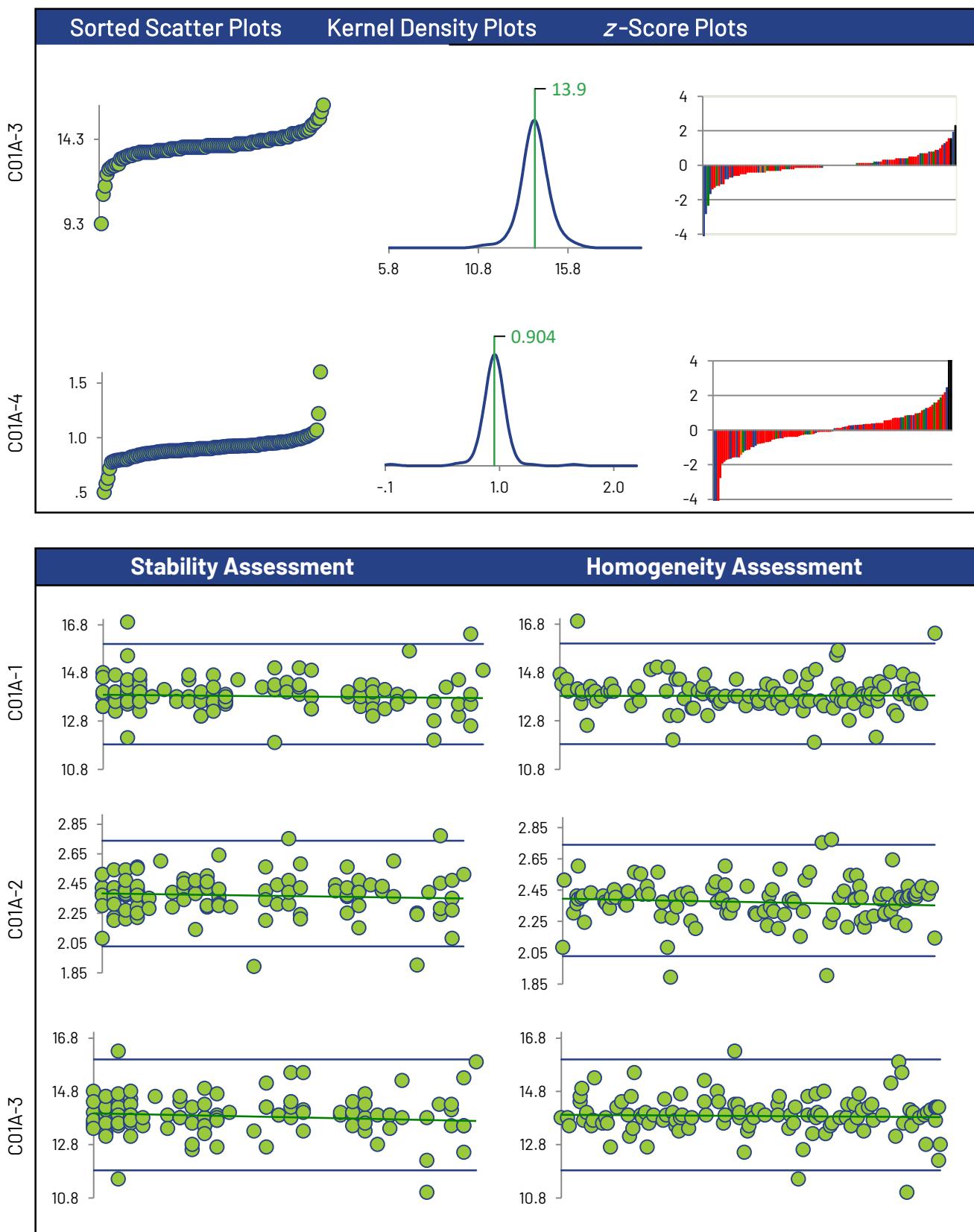
Method	C01A-1	C01A-2	C01A-3	C01A-4
COLORIMETRIC (Blue)	23	23	23	22
ION CHROMATOGRAPHY (Red)	78	78	78	78
AUTO COLOR (Green)	11	11	11	11
CALCULATED (Orange)	2	2	2	2
SELECTIVE ION ELECTRODE (Black)	2	2	2	2

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



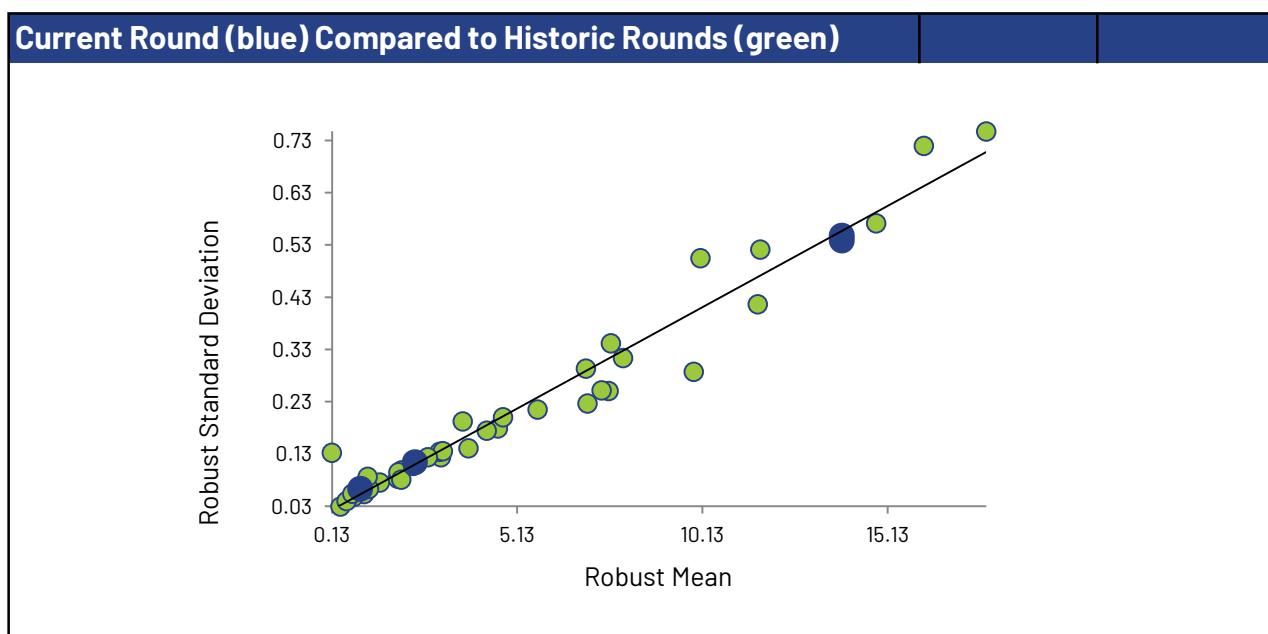
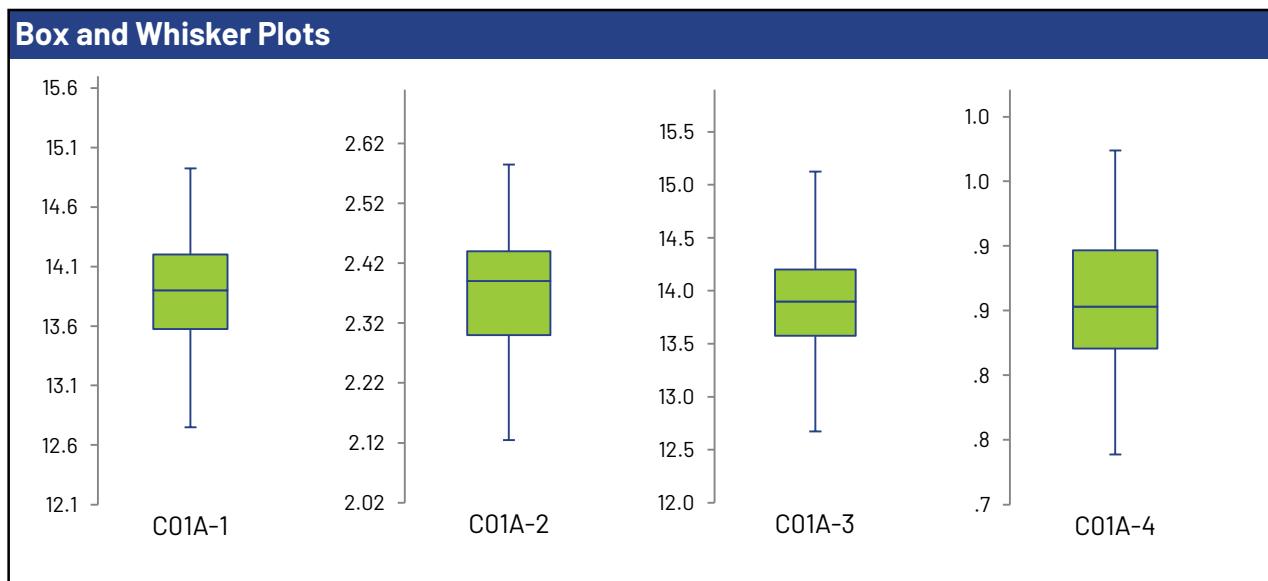
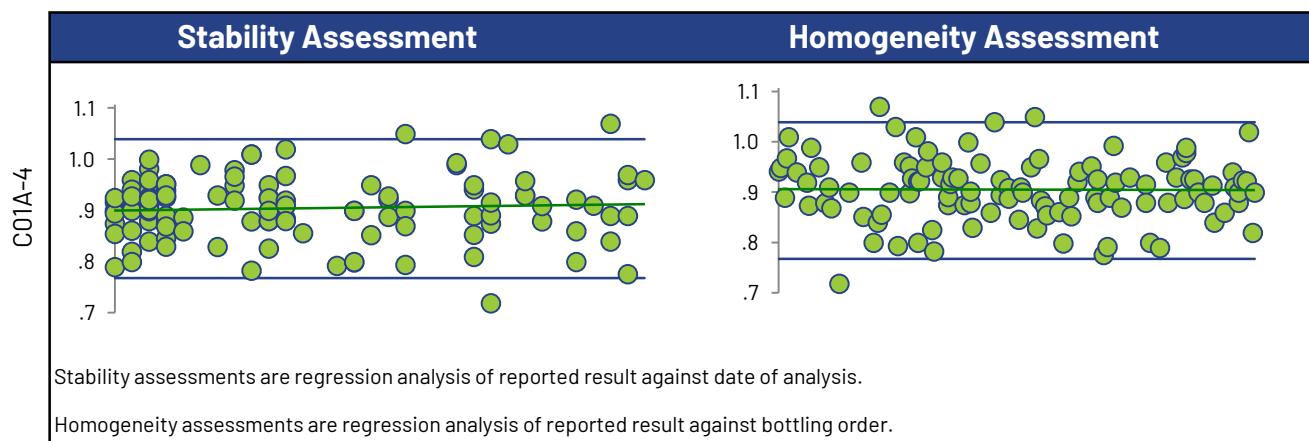
\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Nitrate



## Annex A Summary by Analyte

### Nitrate



## Nitrate plus Nitrite

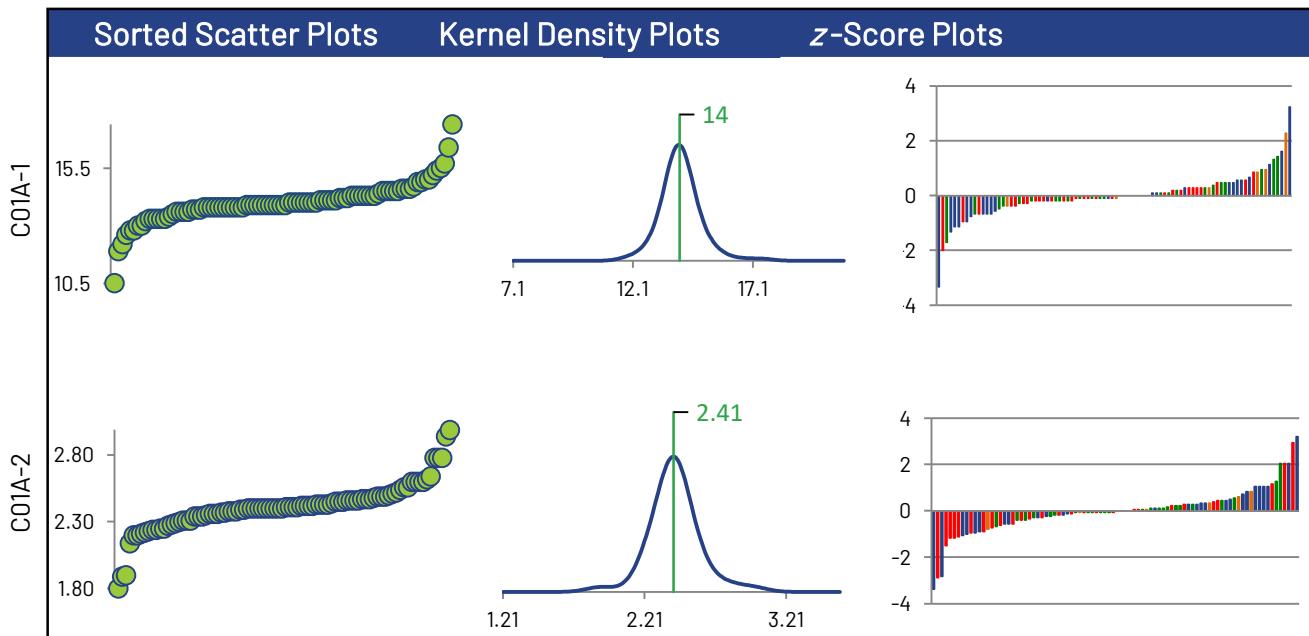
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	88	88	88	86
Median $\mu\text{S}/\text{cm}$	13.9	2.41	14.0	0.930
Robust Mean $\mu\text{S}/\text{cm}$	14.0	2.41	14.0	0.929
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.0762	0.0171	0.0761	0.00888
Robust Standard Deviation $\mu\text{S}/\text{cm}$	0.572	0.128	0.571	0.0659
Regression Standard Deviation $\mu\text{S}/\text{cm}$	1.05	0.181	1.05	0.0697
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	1.05	0.181	1.05	0.0697
Flagged Outliers	0	0	0	0
$ z  > 3.0$	2	2	1	3
$2 <  z  < 3$	1	6	1	2
Failure Rate %*			3.4	

### Methods Used

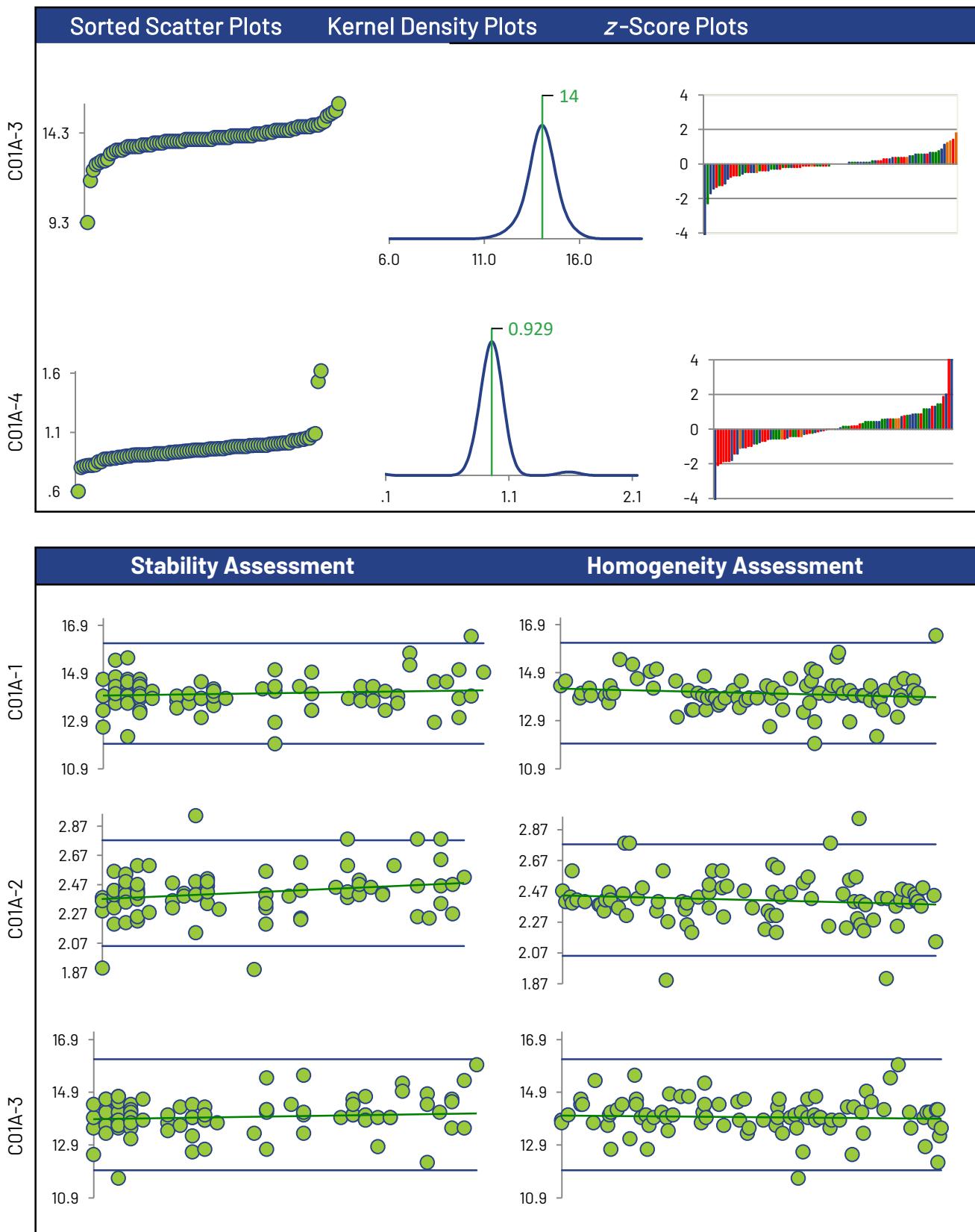
Method	C01A-1	C01A-2	C01A-3	C01A-4
COLORIMETRIC (Blue)	27	27	27	25
ION CHROMATOGRAPHY (Red)	30	30	30	30
AUTO COLOR (Green)	25	25	25	25
CALCULATED (Orange)	6	6	6	6

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

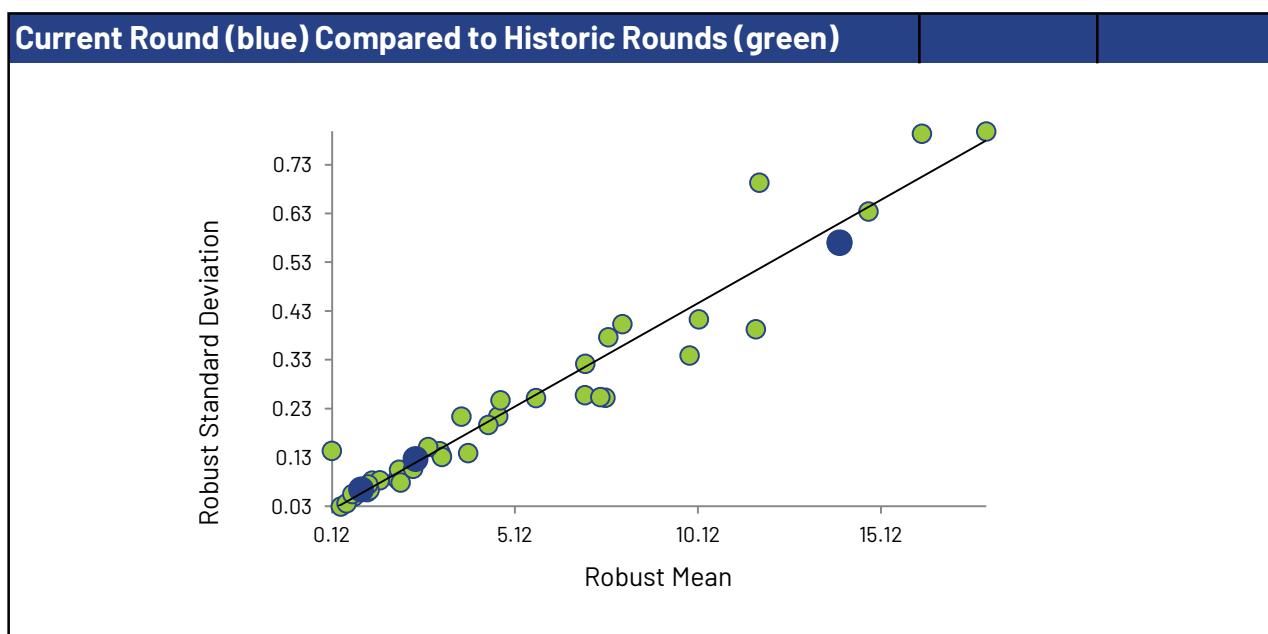
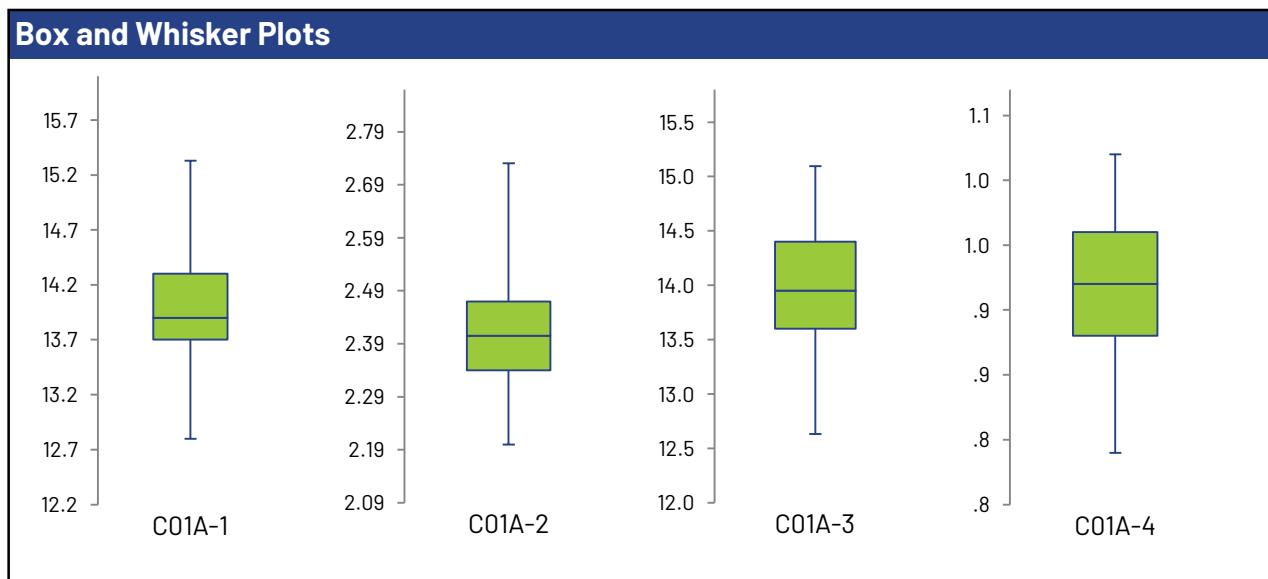
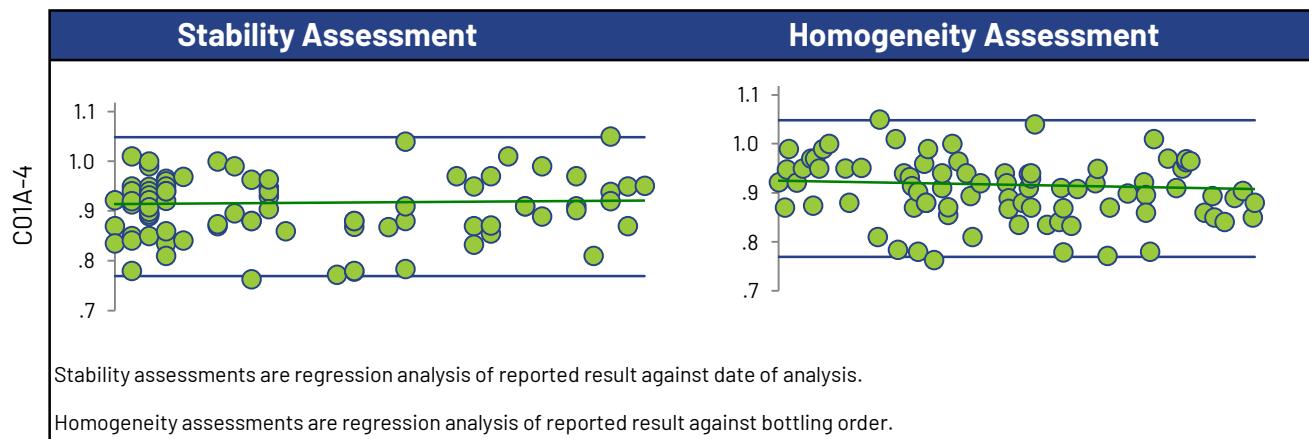


\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Nitrate plus Nitrite



## Nitrate plus Nitrite



## Potassium

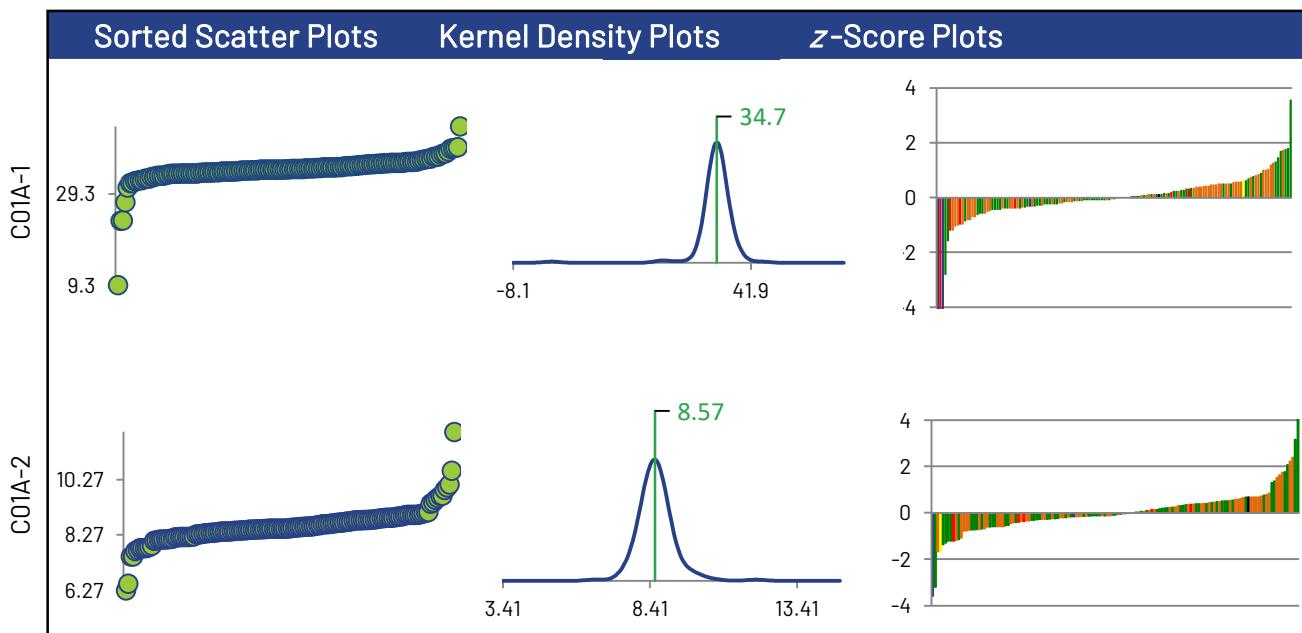
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	143	141	142	142
Median $\mu\text{S}/\text{cm}$	34.6	8.52	34.7	26.5
Robust Mean $\mu\text{S}/\text{cm}$	34.7	8.57	34.7	26.5
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.151	0.0409	0.167	0.124
Robust Standard Deviation $\mu\text{S}/\text{cm}$	1.44	0.389	1.59	1.18
Regression Standard Deviation $\mu\text{S}/\text{cm}$	2.61	0.643	2.60	1.99
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	2.61	0.643	2.60	1.99
Flagged Outliers	1	3	1	1
$ z  > 3.0$	4	4	4	4
$2 <  z  < 3$	1	3	3	2
Failure Rate %*		4.9		

### Methods Used

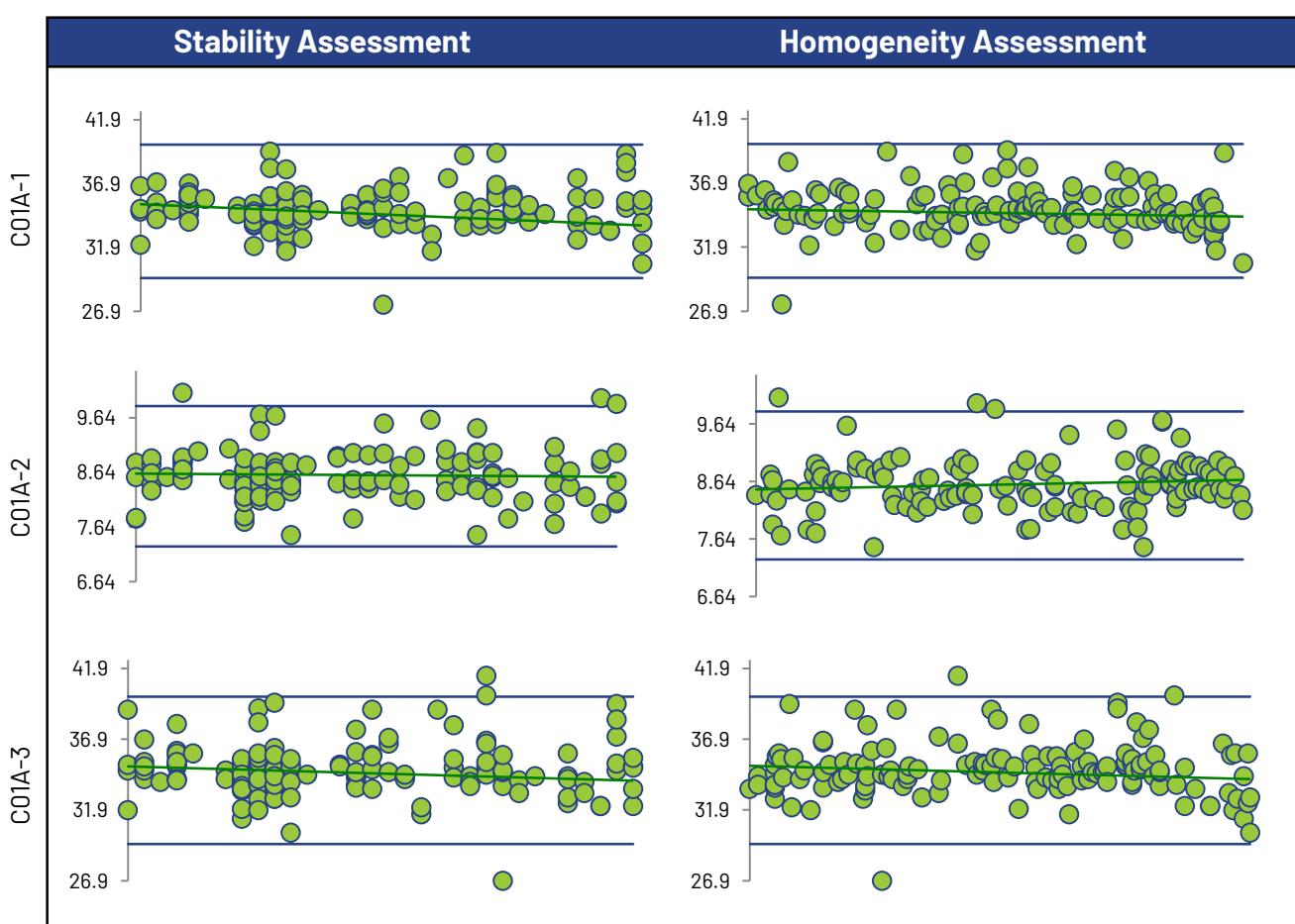
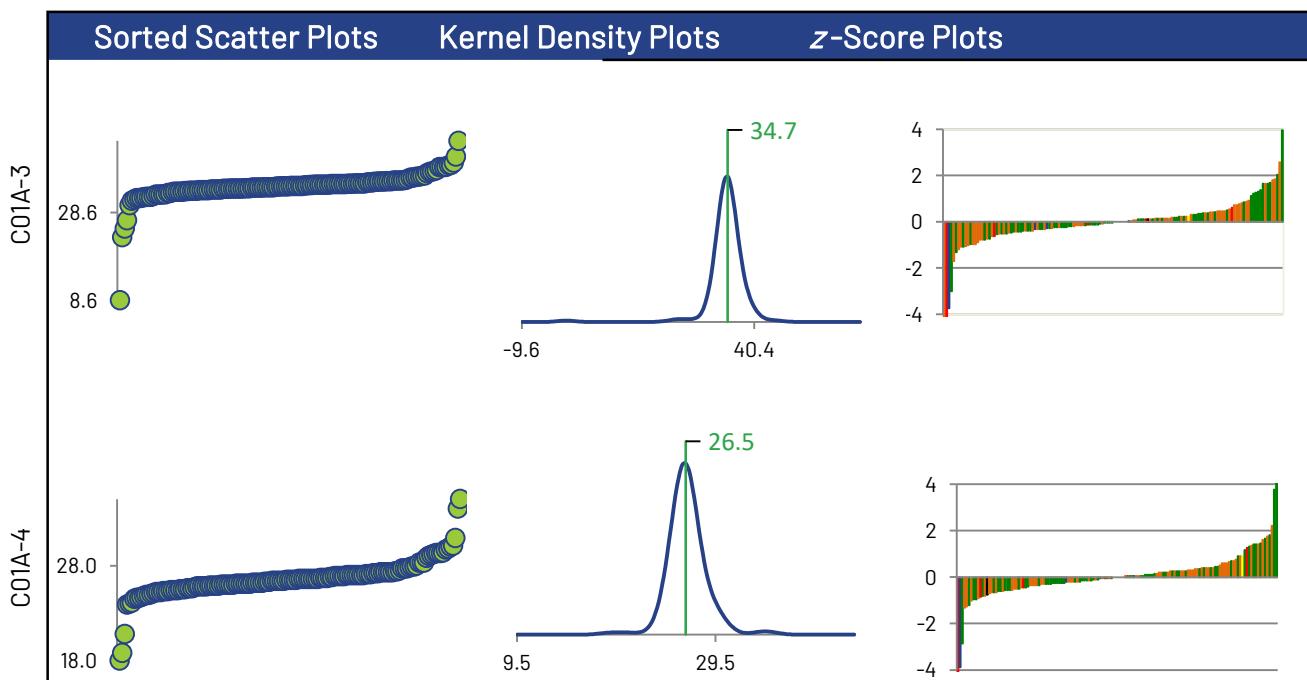
Method	C01A-1	C01A-2	C01A-3	C01A-4
ION CHROMATOGRAPHY (Blue)	5	4	4	4
AA FLAME (Red)	6	6	6	6
ICP/OES (Green)	67	67	67	67
ICP/MS (Orange)	63	62	63	63
FLAME PHOTOMETRIC (Black)	1	1	1	1
COLORIMETRIC (Yellow)	1	1	1	1

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



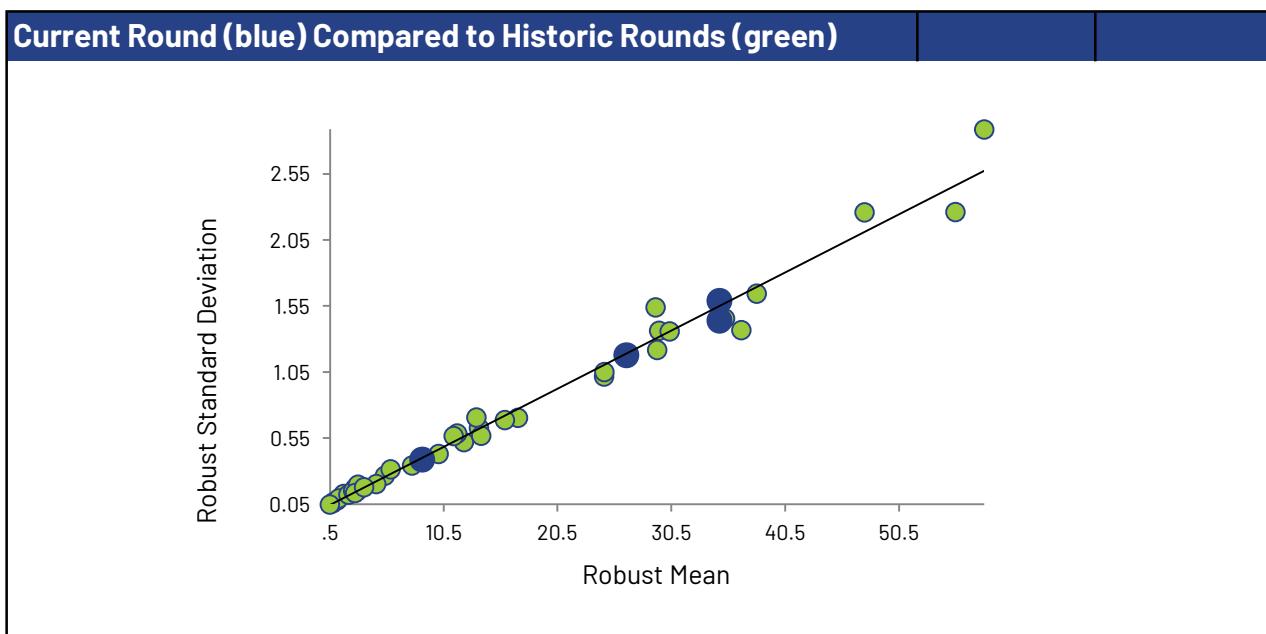
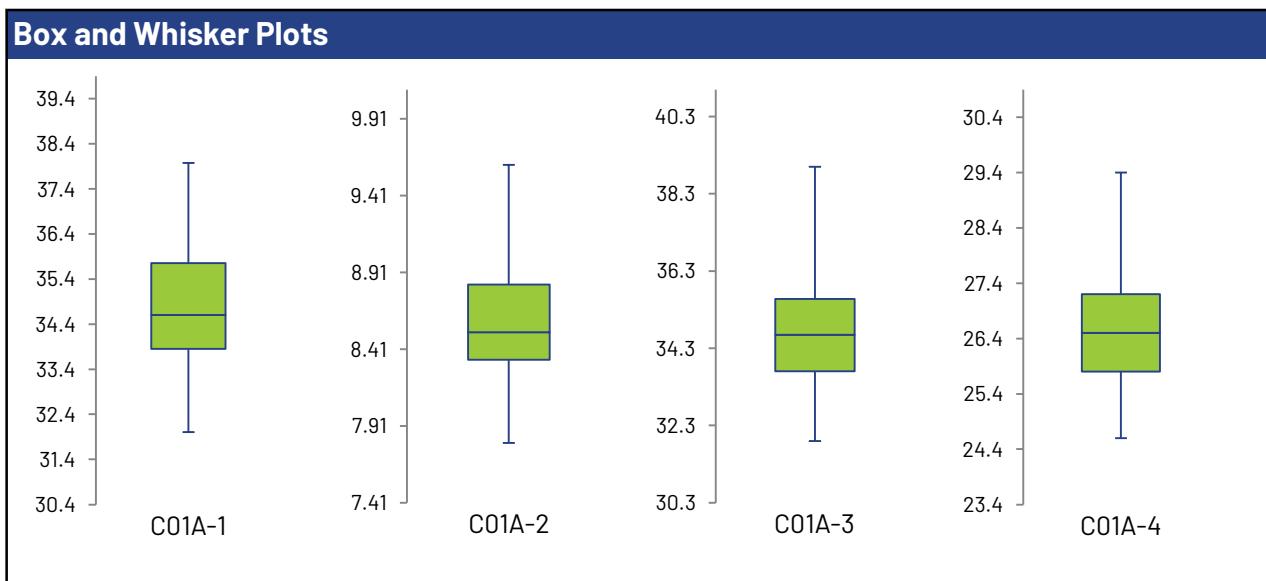
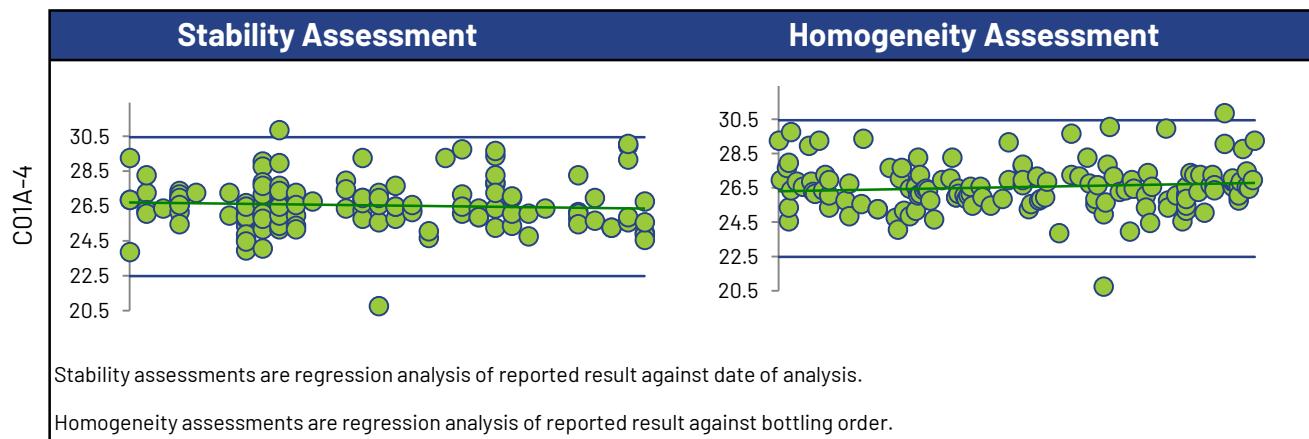
\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Potassium



## Annex A Summary by Analyte

### Potassium



## Reactive Silica

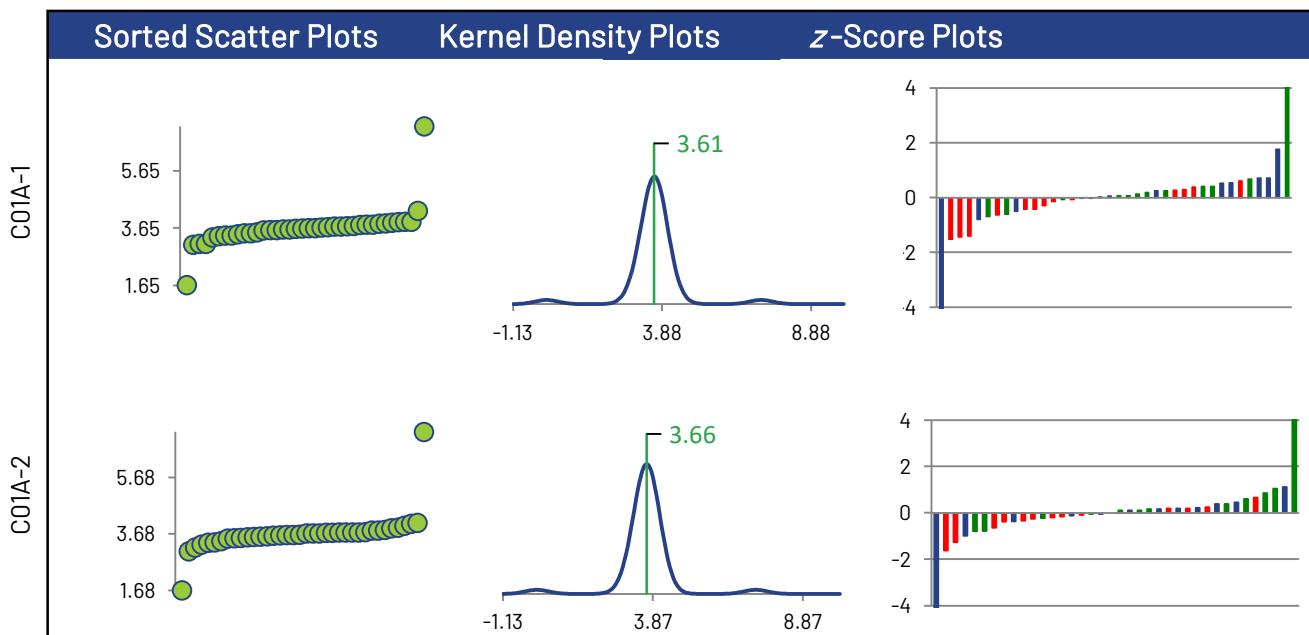
## Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	38	38	38	38
Median $\mu\text{S}/\text{cm}$	3.64	3.68	3.61	3.99
Robust Mean $\mu\text{S}/\text{cm}$	3.61	3.66	3.60	3.94
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.0456	0.0438	0.0365	0.0493
Robust Standard Deviation $\mu\text{S}/\text{cm}$	0.225	0.216	0.180	0.243
Regression Standard Deviation $\mu\text{S}/\text{cm}$	0.361	0.366	0.360	0.394
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	0.361	0.366	0.360	0.394
Flagged Outliers	0	0	0	0
$ z  > 3.0$	2	2	2	2
$2 <  z  < 3$	0	0	0	1
Failure Rate %*			5.3	

## Methods Used

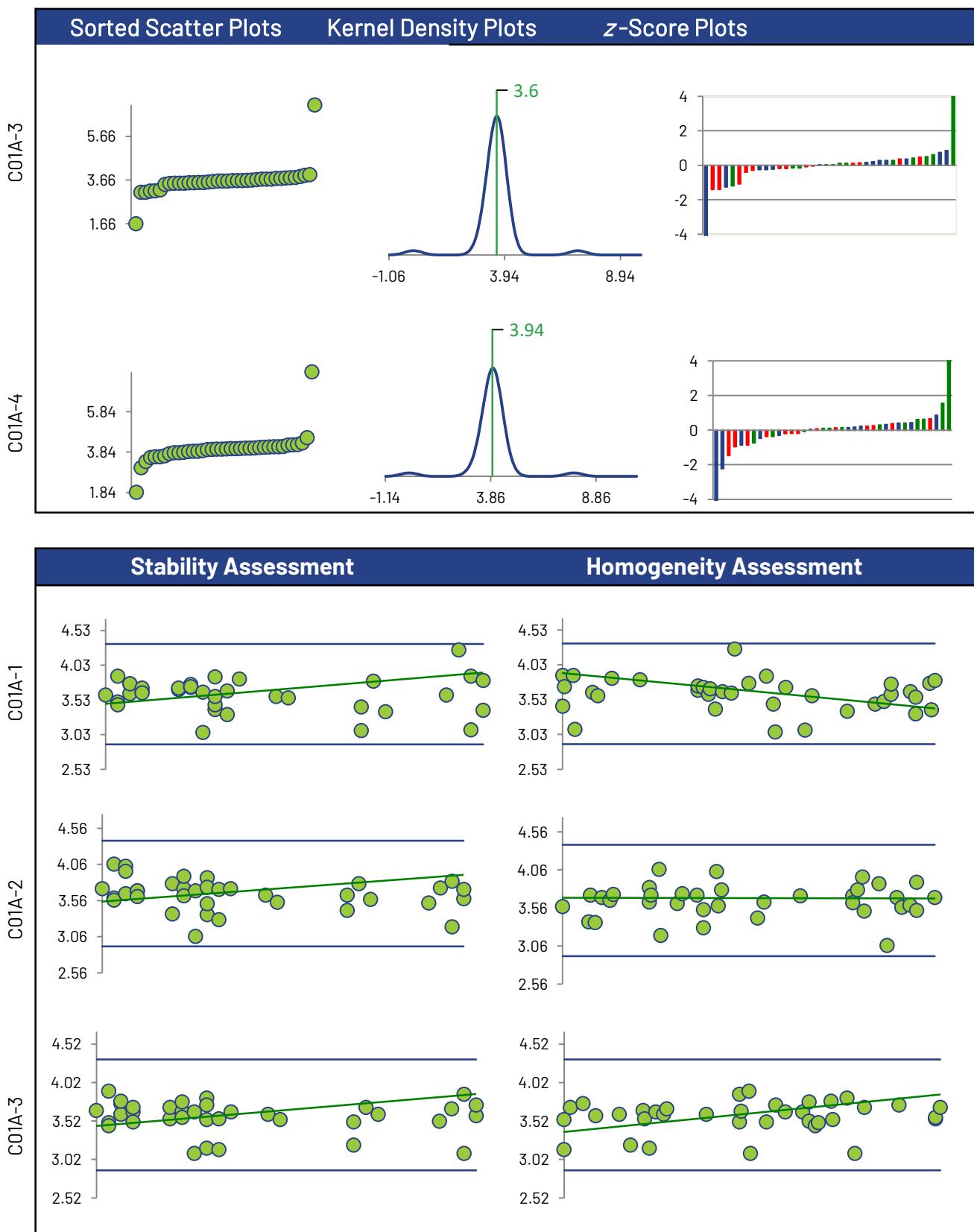
Method	C01A-1	C01A-2	C01A-3	C01A-4
COLORIMETRIC (Blue)	13	13	13	13
CALCULATED (Red)	13	13	13	13
AUTO COLOR (Green)	12	12	12	12

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

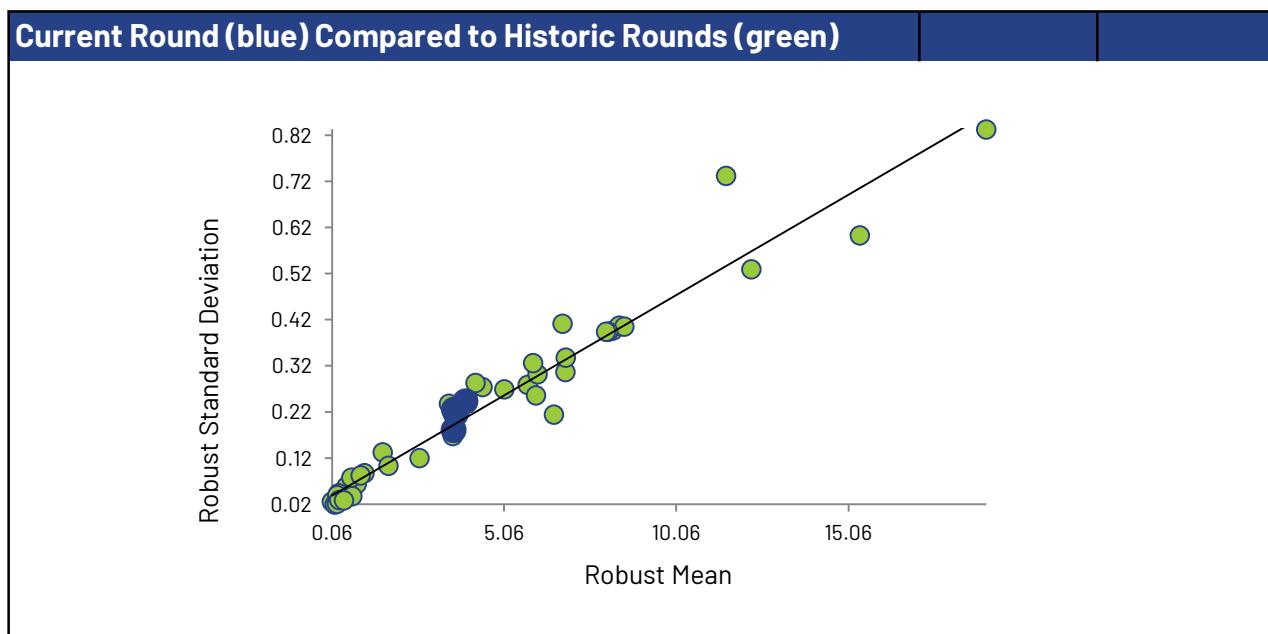
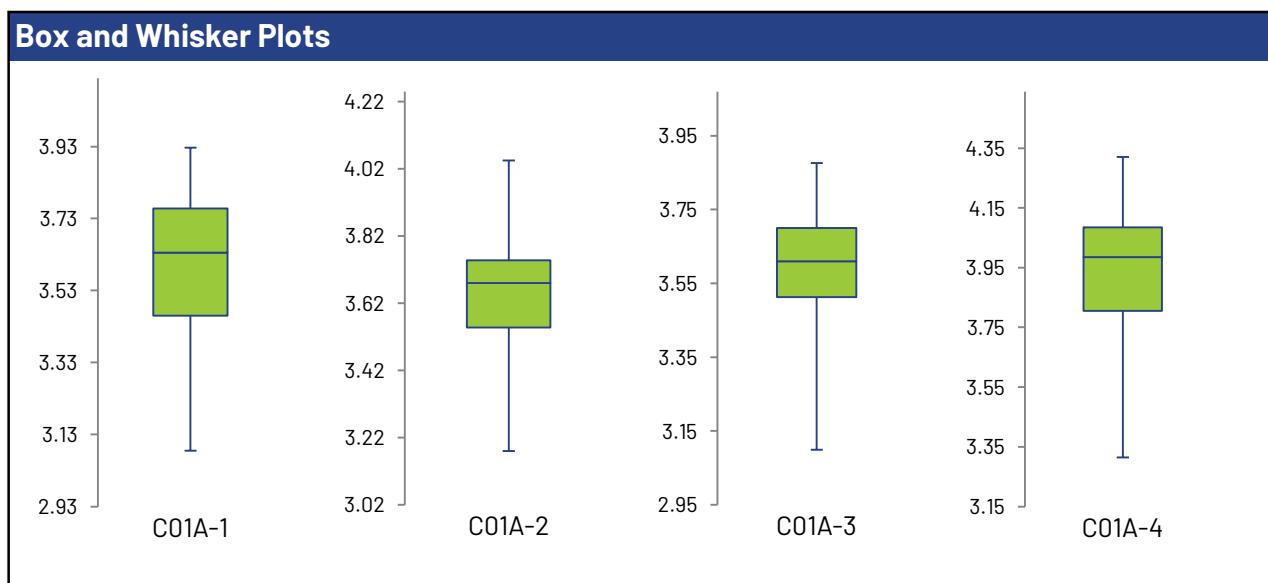
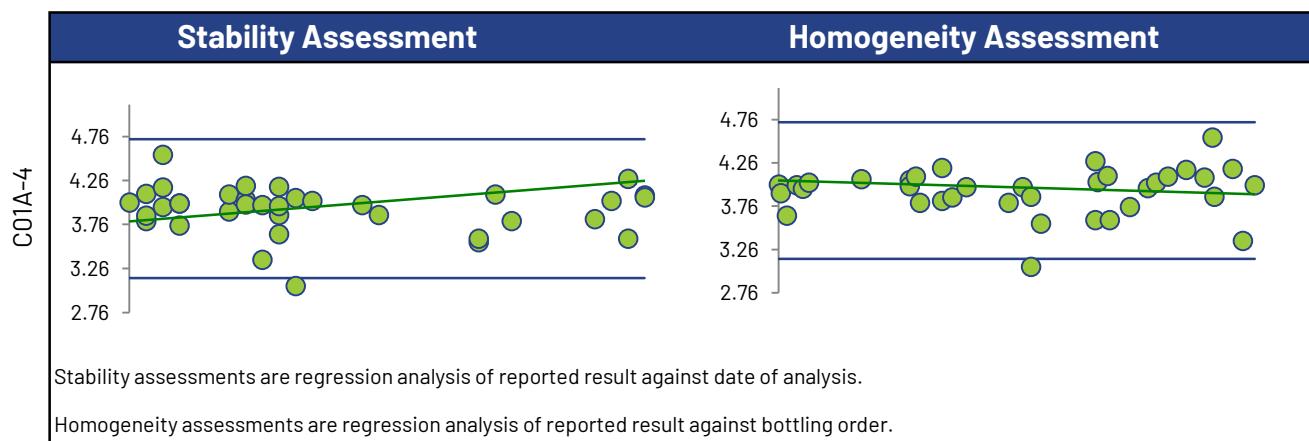


\* Displayed failure rate does not account for the RDL modified  $z$ -Scores or inaccurately reported non-detects.

## Reactive Silica



## Reactive Silica



## Sodium

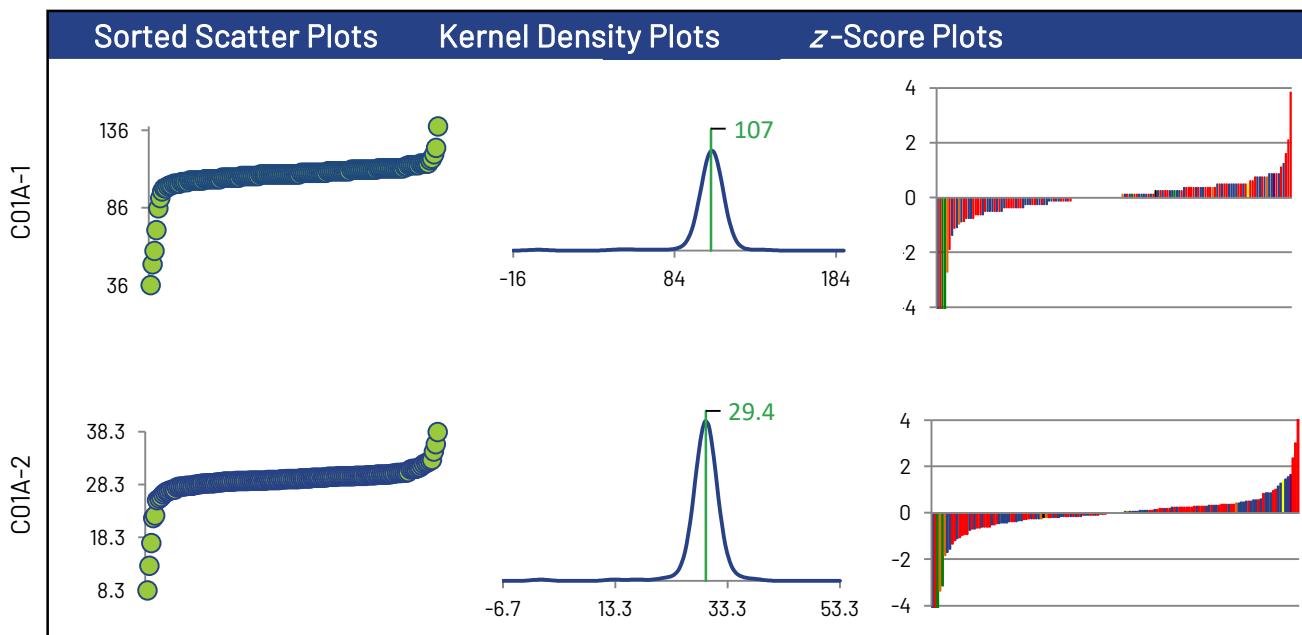
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	150	149	150	150
Median $\mu\text{S}/\text{cm}$	107	29.4	108	83.7
Robust Mean $\mu\text{S}/\text{cm}$	107	29.4	107	83.8
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.428	0.112	0.471	0.312
Robust Standard Deviation $\mu\text{S}/\text{cm}$	4.19	1.09	4.61	3.06
Regression Standard Deviation $\mu\text{S}/\text{cm}$	8.05	2.20	8.04	6.28
Stability Flag				Stability
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	8.05	2.20	8.04	6.67
Flagged Outliers	0	1	0	0
$ z  > 3.0$	5	6	7	6
$2 <  z  < 3$	2	2	2	2
Failure Rate %*				6.0

### Methods Used

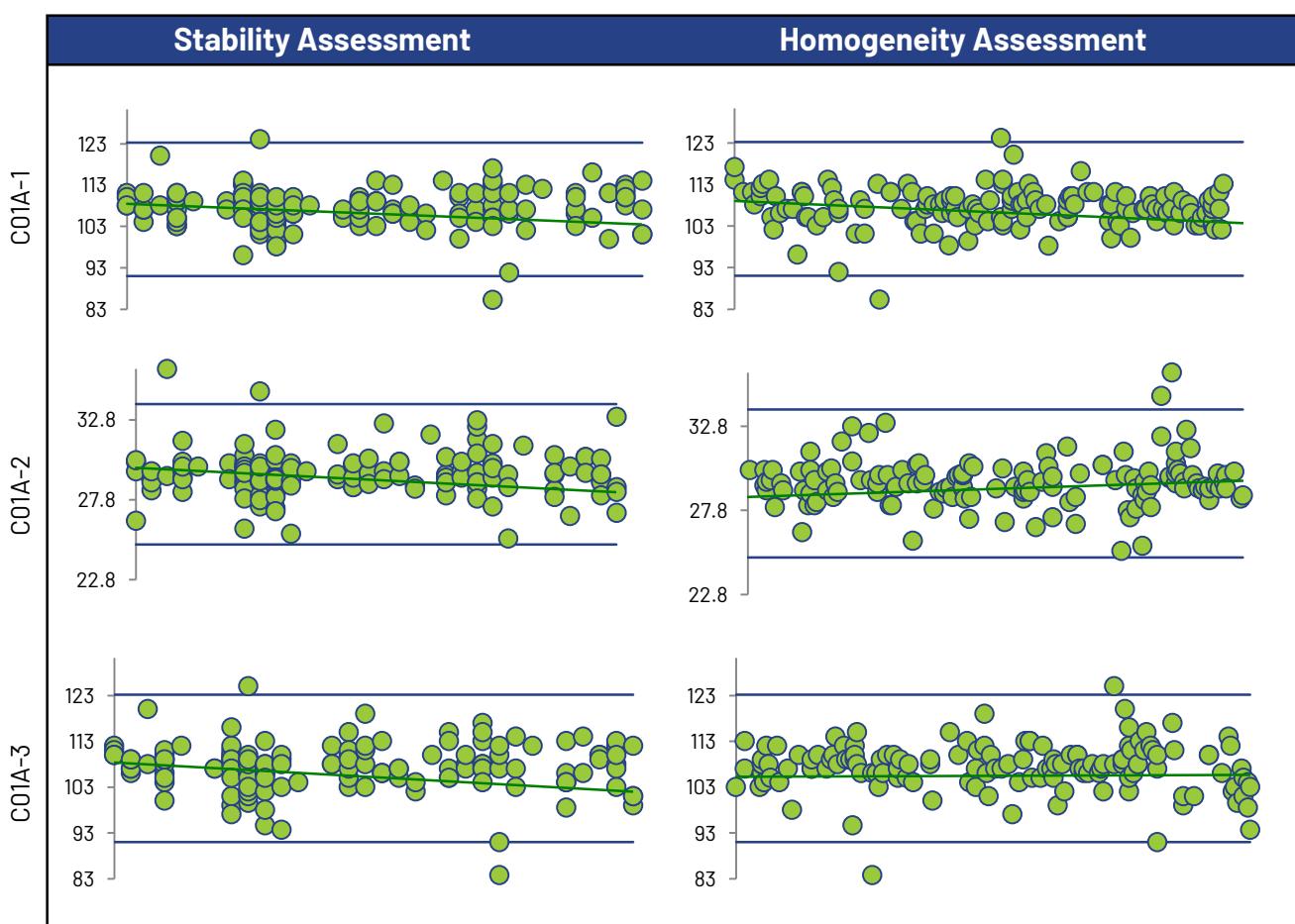
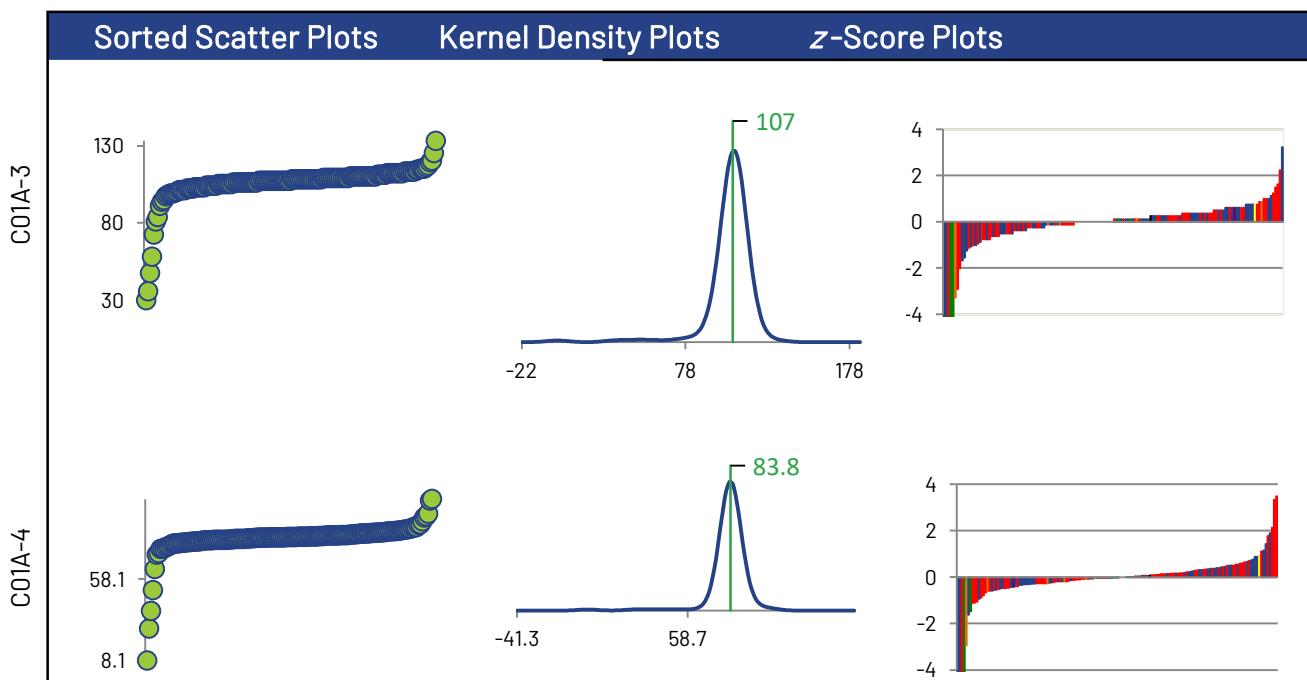
Method	C01A-1	C01A-2	C01A-3	C01A-4
ICP/MS (Blue)	65	64	65	65
ICP/OES (Red)	71	71	71	71
ION CHROMATOGRAPHY (Green)	5	5	5	5
AA FLAME (Orange)	6	6	6	6
ION SELECTIVE ELECTRODE (Black)	1	1	1	1
COLORIMETRIC (Yellow)	1	1	1	1
FLAME PHOTOMETRIC (Purple)	1	1	1	1

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



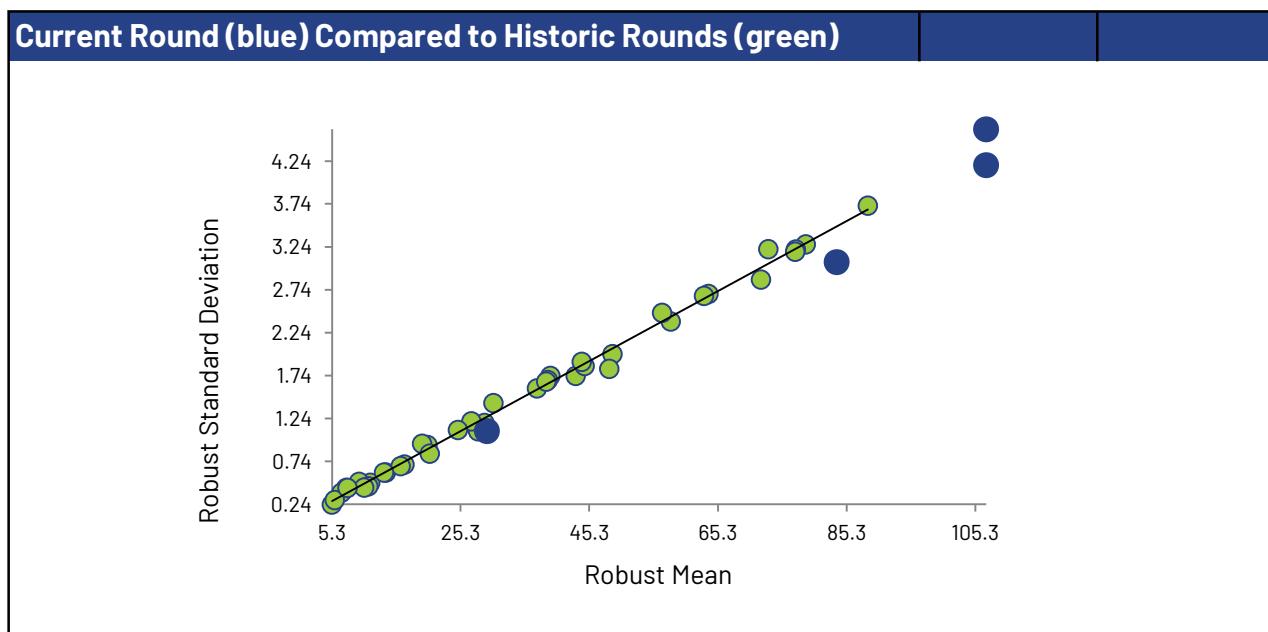
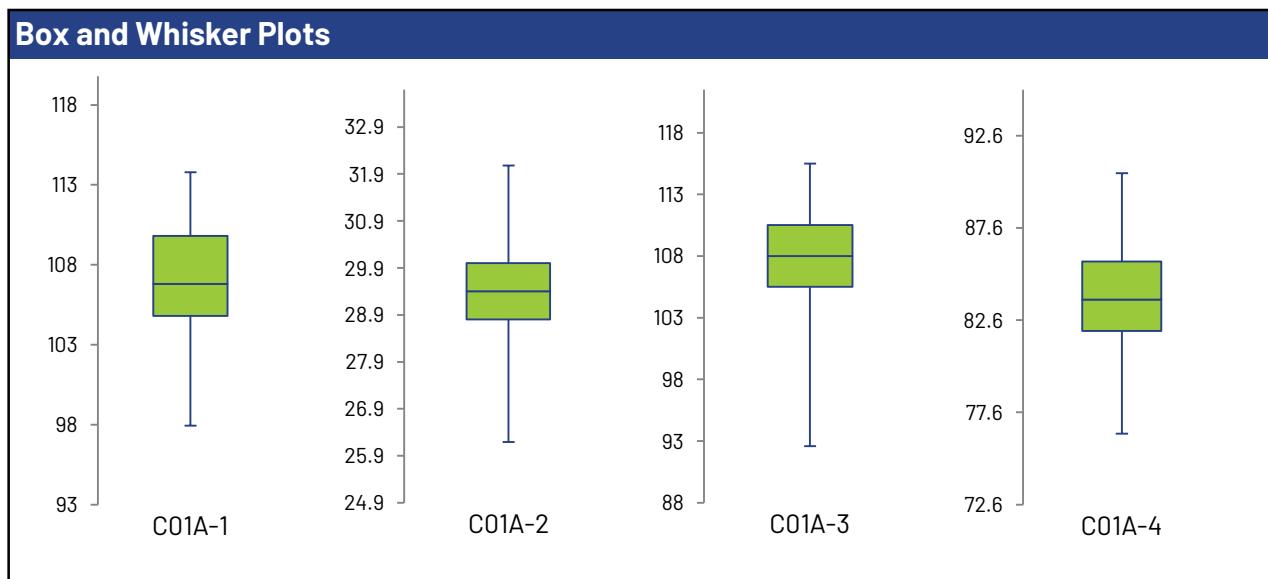
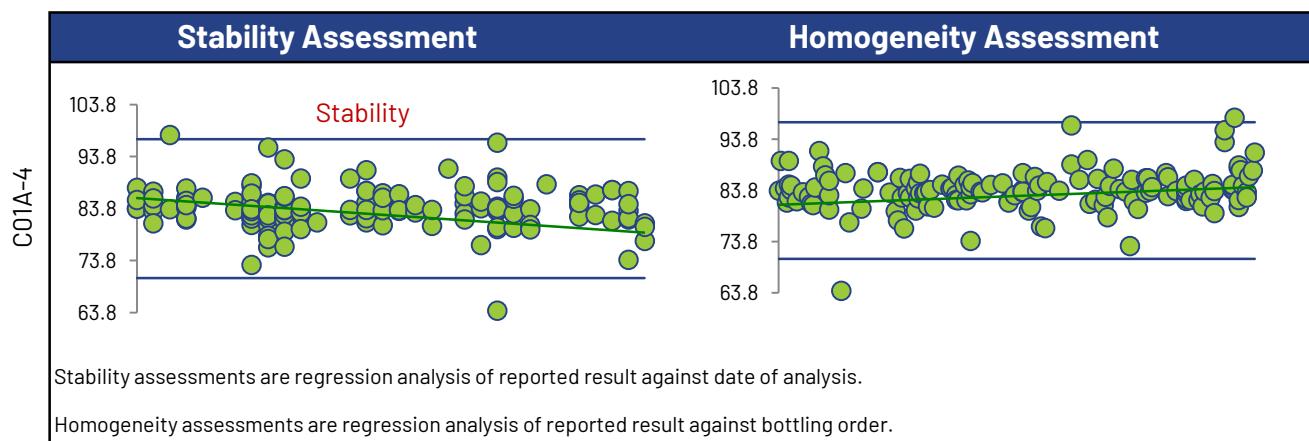
\* Displayed failure rate does not account for the RDL modified z-Scores or inaccurately reported non-detects.

## Sodium



## Annex A Summary by Analyte

### Sodium



## Sulfate

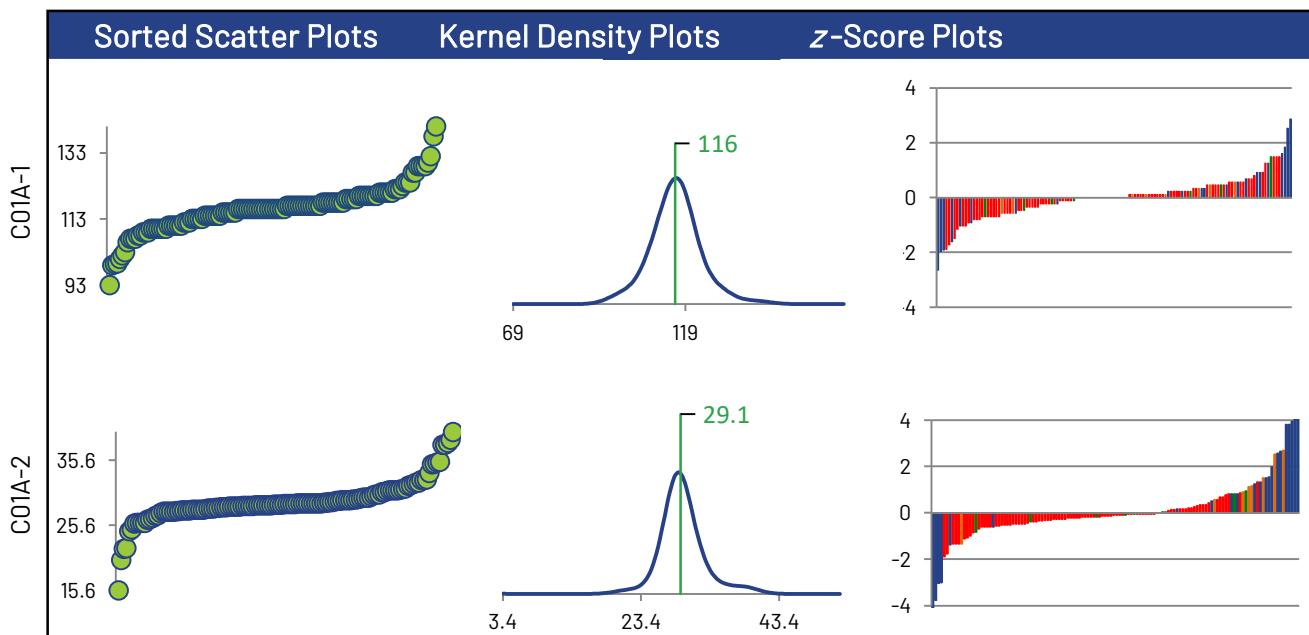
### Summary Statistics

Statistic	C01A-1	C01A-2	C01A-3	C01A-4
No. of results used for summary statistics	128	128	128	129
Median $\mu\text{S}/\text{cm}$	116	28.9	116	143
Robust Mean $\mu\text{S}/\text{cm}$	116	29.1	116	143
Uncertainty of the Assigned Value $\mu\text{S}/\text{cm}$	0.601	0.200	0.523	0.675
Robust Standard Deviation $\mu\text{S}/\text{cm}$	5.44	1.81	4.73	6.13
Regression Standard Deviation $\mu\text{S}/\text{cm}$	8.70	2.18	8.70	10.7
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA) $\mu\text{S}/\text{cm}$	8.70	2.34	8.70	10.7
Flagged Outliers	1	1	1	0
$ z  > 3.0$	0	8	0	3
$2 <  z  < 3$	3	5	6	3
Failure Rate %*		6.2		

### Methods Used

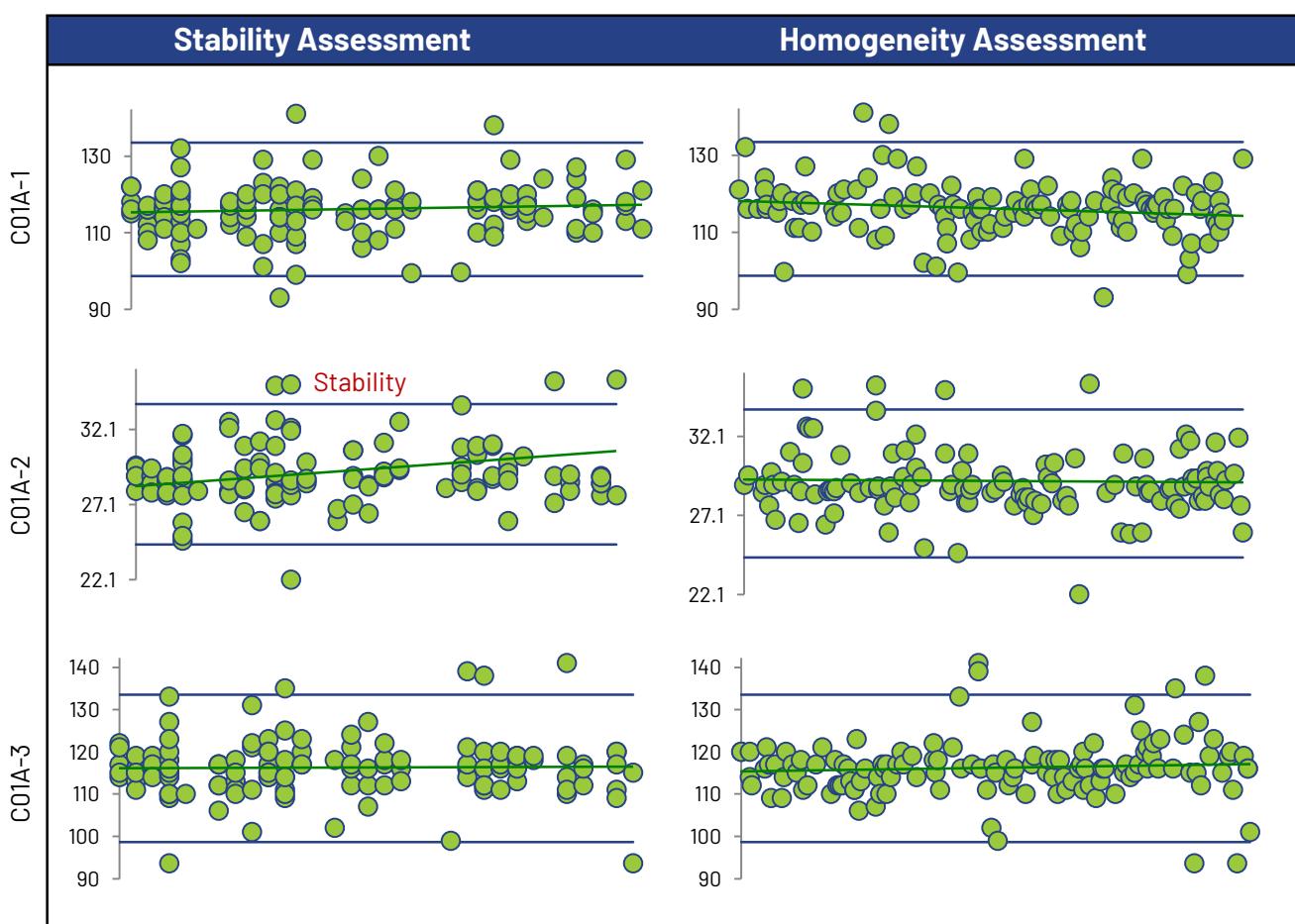
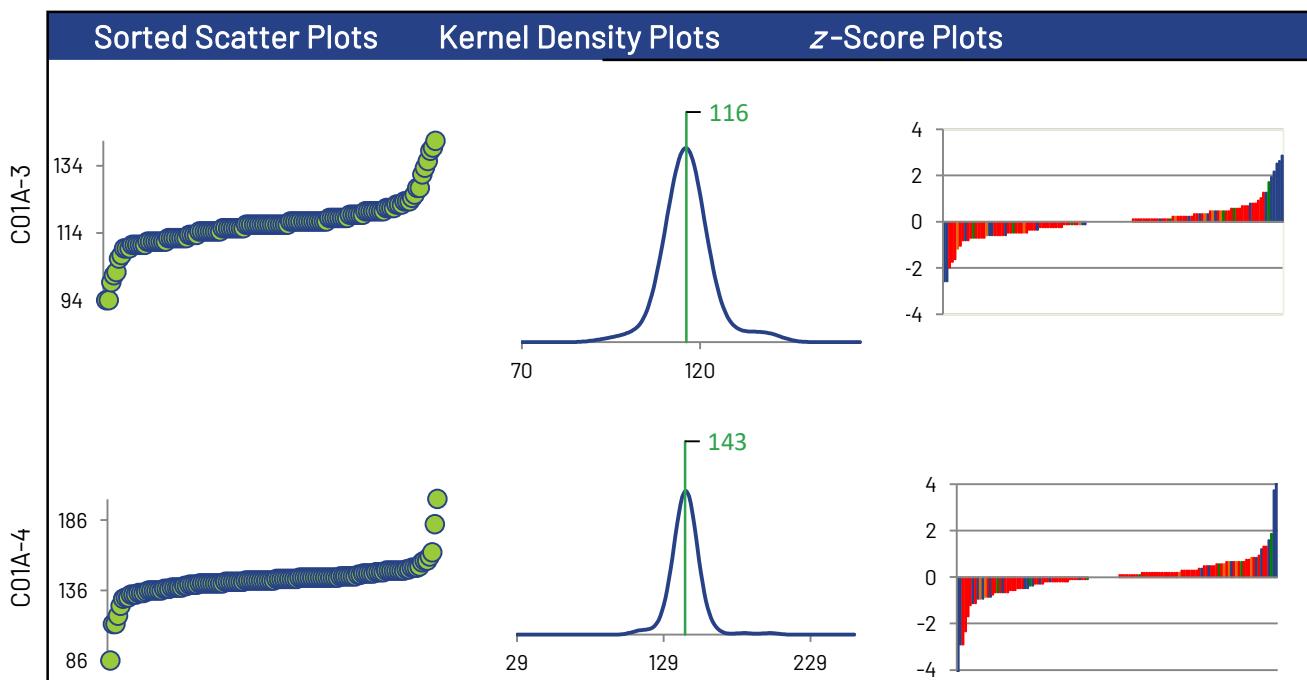
Method	C01A-1	C01A-2	C01A-3	C01A-4
TURBIDIMETRIC (Blue)	23	22	22	23
ION CHROMATOGRAPHY (Red)	89	90	90	90
CALCULATED (Green)	8	8	8	8
AUTO COLOR (Orange)	8	8	8	8

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.

## Sulfate



## Annex A Summary by Analyte

### Sulfate

