Test Group Summary Report C73 Residual Solvents in Oil March 2025 PT Round

Issued: May 9, 2025

PTC | Proficiency Testing Canada

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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.

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

3.0 Scoring System

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

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

3.1 HOMOGENEITY AND STABILITY ASSESSMENT

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

3.2 THE Z SCORE

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

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

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

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

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

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

3.2 COMPOSITE (PT) SCORE

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

Acceptable PT Scores equal or exceed 70.

3.3 IDENTIFYING BIAS

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

$$RSZ = \frac{z}{\sqrt{N}}$$

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

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

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

3.4 DEVIATIONS FROM EVALUATION PROCEDURE

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

4.0 PT Round Specific Data Summary

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

4.1 SUMMARY STATISTICS

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

4.2 *z* - SCORE PLOTS

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

4.3 KERNEL DENSITY PLOTS

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

4.4 STABILITY AND HOMOGENEITY PLOTS

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

4.5 BOX-AND-WHISKER PLOTS

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

4.6 HISTORIC COMPARISON PLOT

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

1-BUTANOL (N-BUTANOL)

Summary Statistics

Excluded

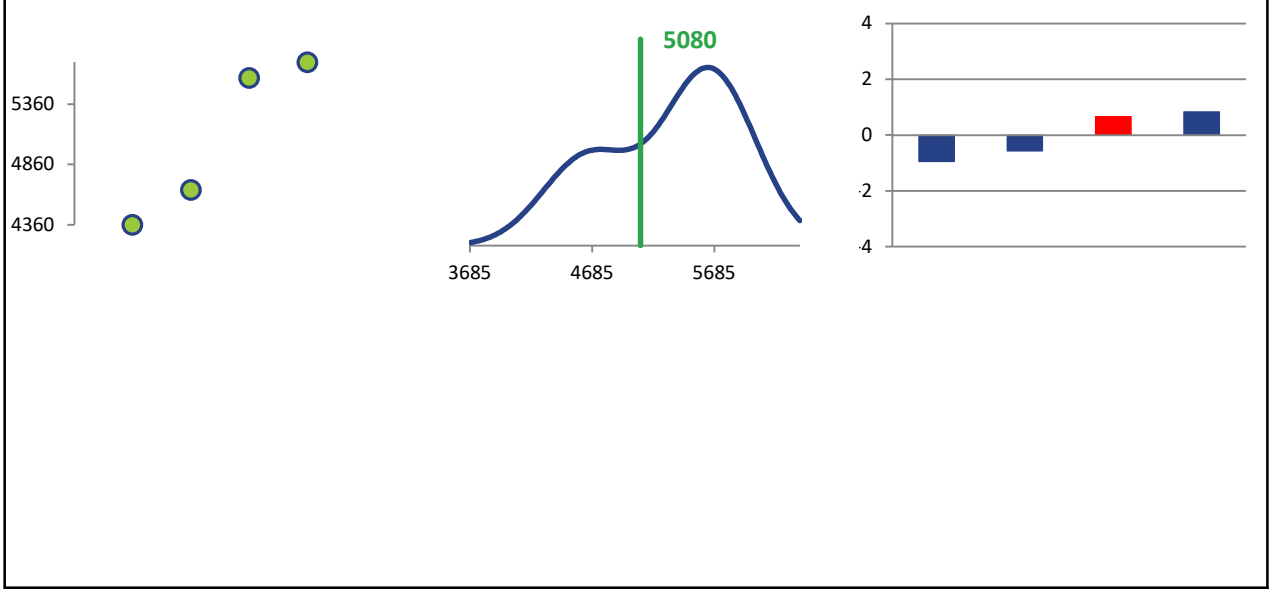
Statistic	C73-1	C73-2	C73-3	C73-4
N	4	0	0	0
Median µg/g	5120			
Robust Mean µg/g	5080			
U µg/g	476			
Robust Standard Deviation µg/g	761			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	761			
Outliers	0	2	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	3	0	0	0
GC/FID (Red)	1	0	0	0

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

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



Sample 2

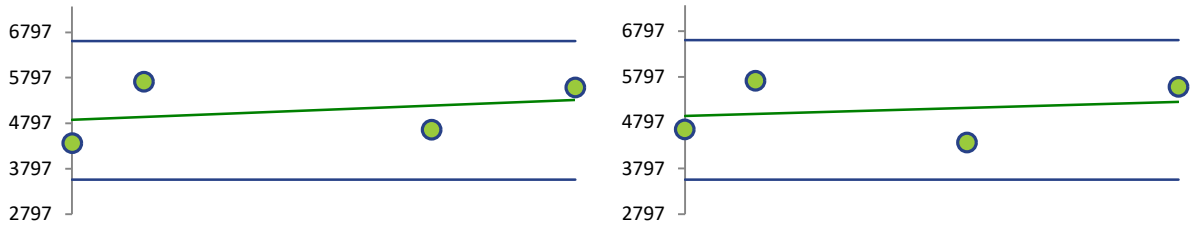
1-BUTANOL (N-BUTANOL)

Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

Sample 3

Sample 4

Stability Assessment | Homogeneity Assessment



Sample 1

Sample 2

Sample 3

1-BUTANOL (N-BUTANOL)

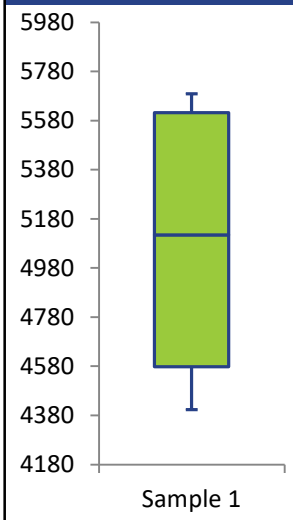
Sample 4

Stability Assessment	Homogeneity Assessment

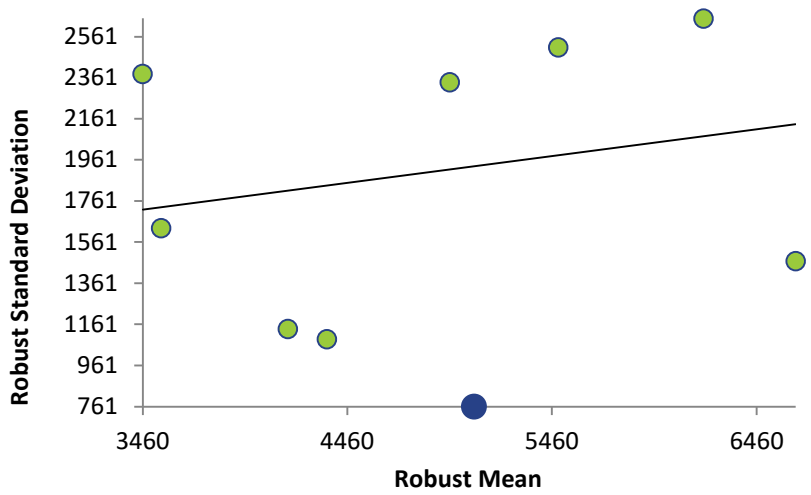
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



1-PENTANOL

Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
		Excluded	Excluded	
N	0	0	0	0
Median µg/g				
Robust Mean µg/g				
U µg/g				
Robust Standard Deviation µg/g				
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g				
Outliers	2	2	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4

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

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 2

1-PENTANOL

Sample 3
Sample 4

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 1
Sample 2
Sample 3

Stability Assessment	Homogeneity Assessment

1-PENTANOL

Sample 4

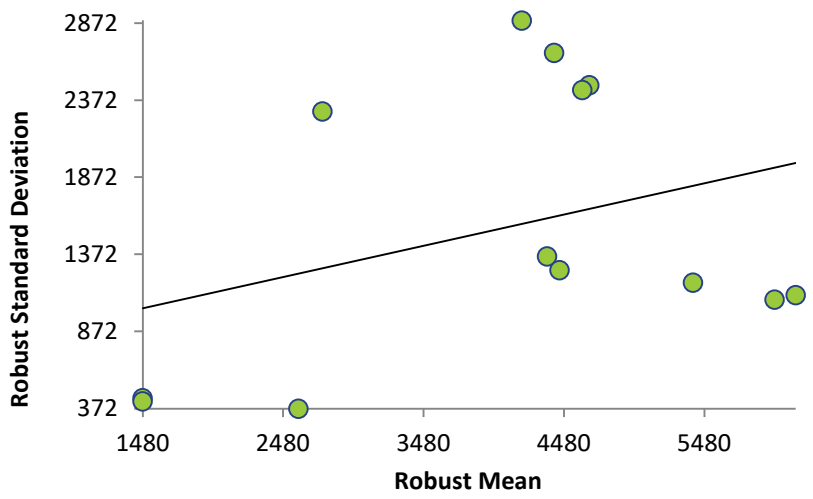
Stability Assessment	Homogeneity Assessment

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

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

Box and Whisker Plots

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



1-PROPANOL (PROPANOL)

Summary Statistics

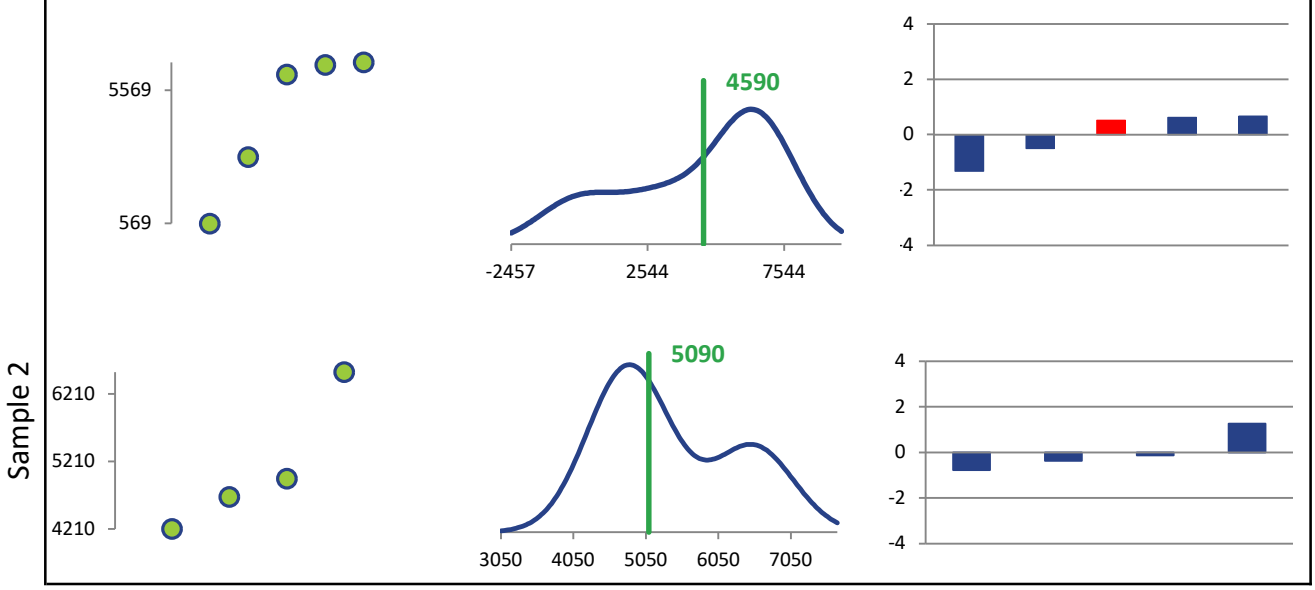
Statistic	C73-1	C73-2	C73-3	C73-4
N	5	4	0	0
Median µg/g	6160	4820		
Robust Mean µg/g	4590	5090		
U µg/g	1700	713		
Robust Standard Deviation µg/g	3040	1140		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	3040	1140		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	4	0	0
GC/FID (Red)	1	0	0	0

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

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



1-PROPANOL (PROPANOL)

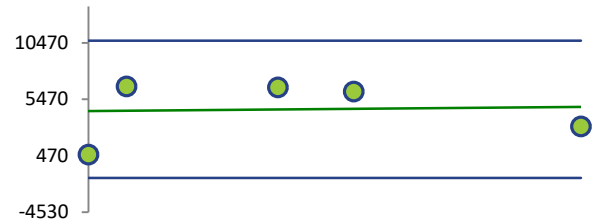
Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

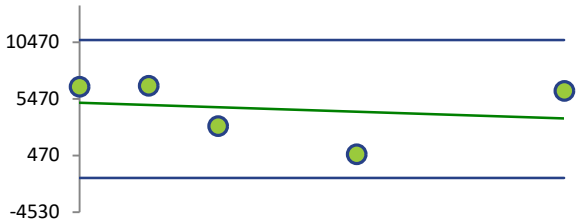
Sample 3

Sample 4

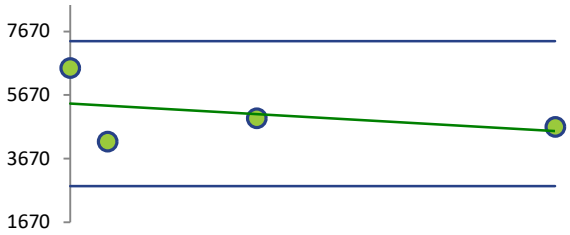
Stability Assessment | Homogeneity Assessment

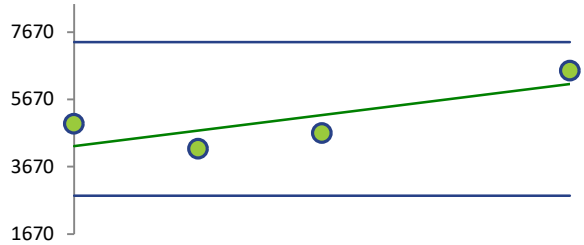
Sample 1





Sample 2





Sample 3

1-PROPANOL (PROPANOL)

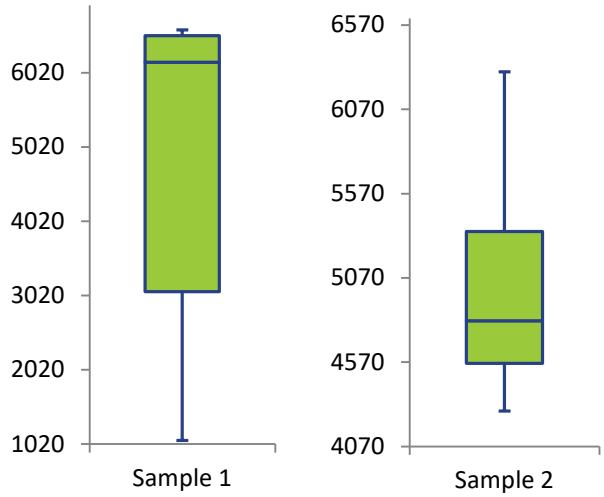
Sample 4

Stability Assessment	Homogeneity Assessment

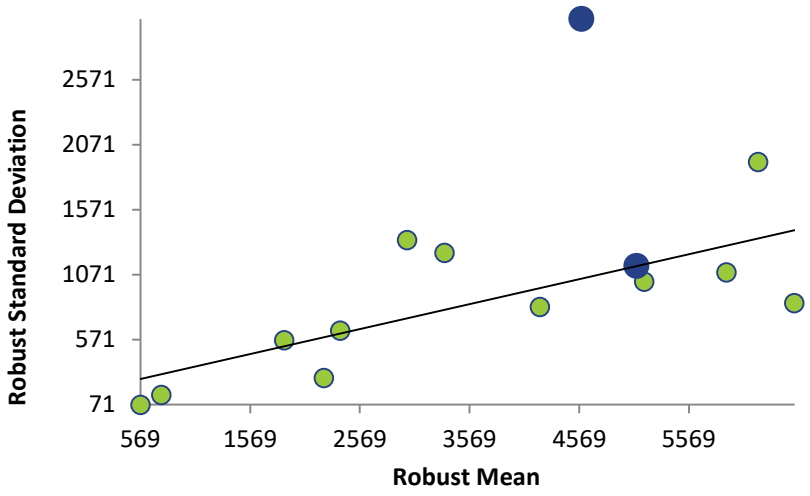
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



2-BUTANOL

Summary Statistics

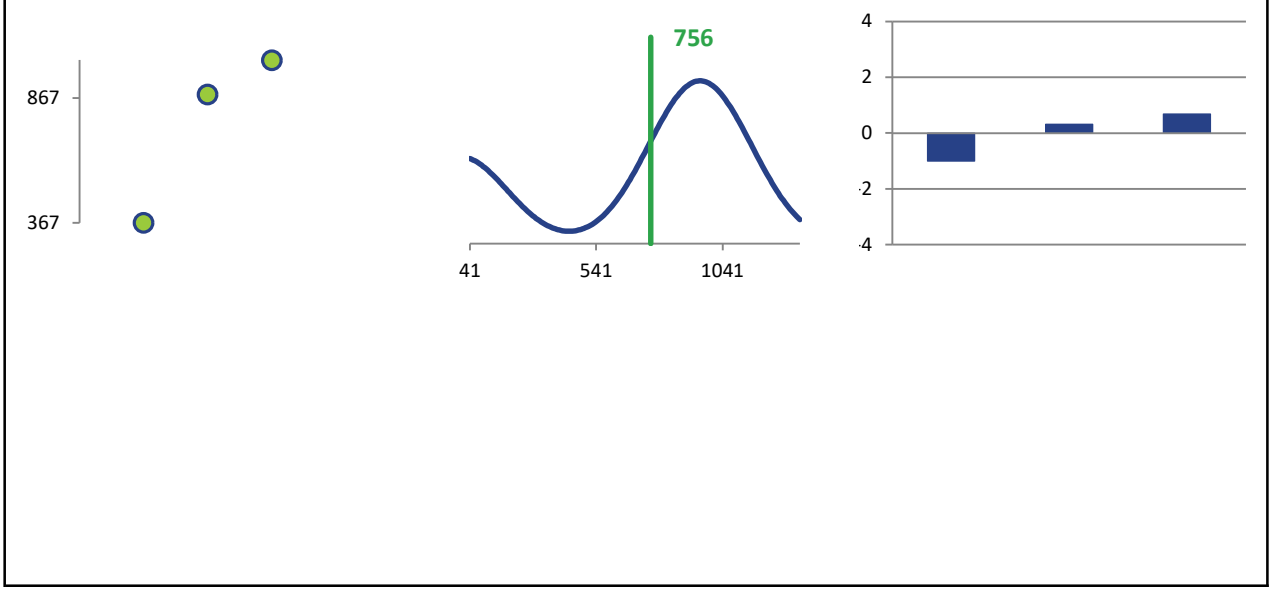
Statistic	C73-1	C73-2	C73-3	C73-4
		Excluded	Excluded	
N	3	0	0	0
Median µg/g	882			
Robust Mean µg/g	756			
U µg/g	281			
Robust Standard Deviation µg/g	390			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	390			
Outliers	0	1	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	3	0	0	0

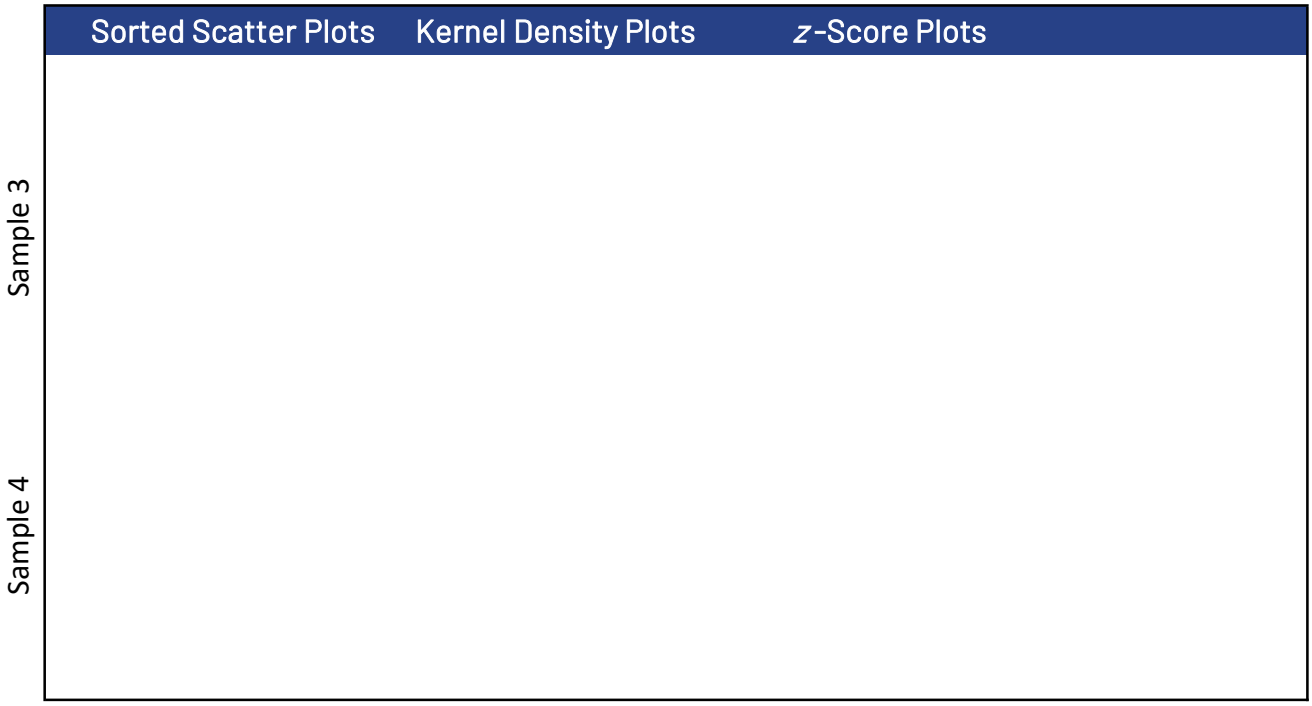
All summary stats and the plots below are based on the data excluding any flagged outliers

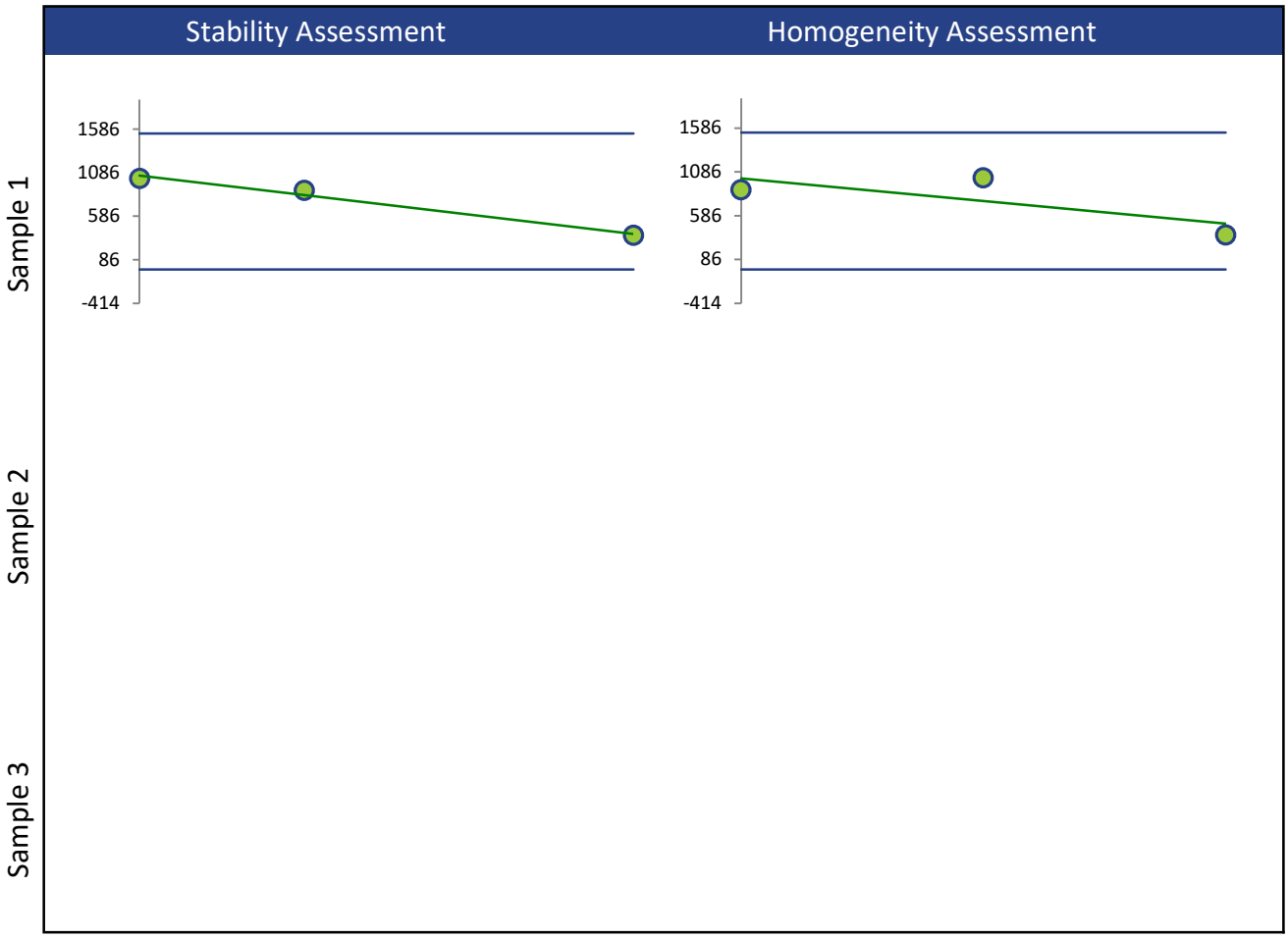
Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



Sample 2

2-BUTANOL


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
Sample 4


Stability Assessment
Homogeneity Assessment
1586
1086
586
86
-414
1586
1086
586
86
-414
Sample 1
Sample 2
Sample 3

2-BUTANOL

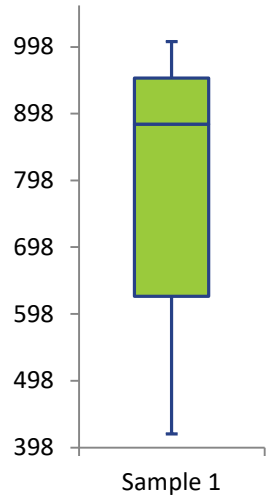
Sample 4

Stability Assessment	Homogeneity Assessment

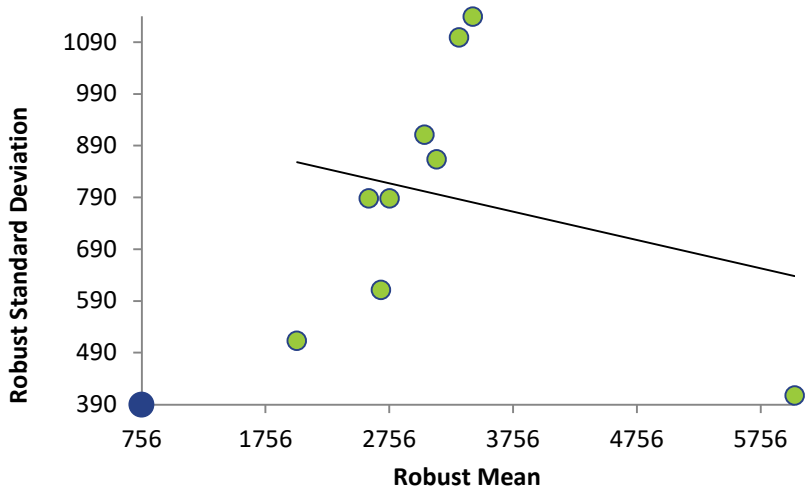
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



2-BUTANONE (METHYL ETHYL KETONE, MEK)

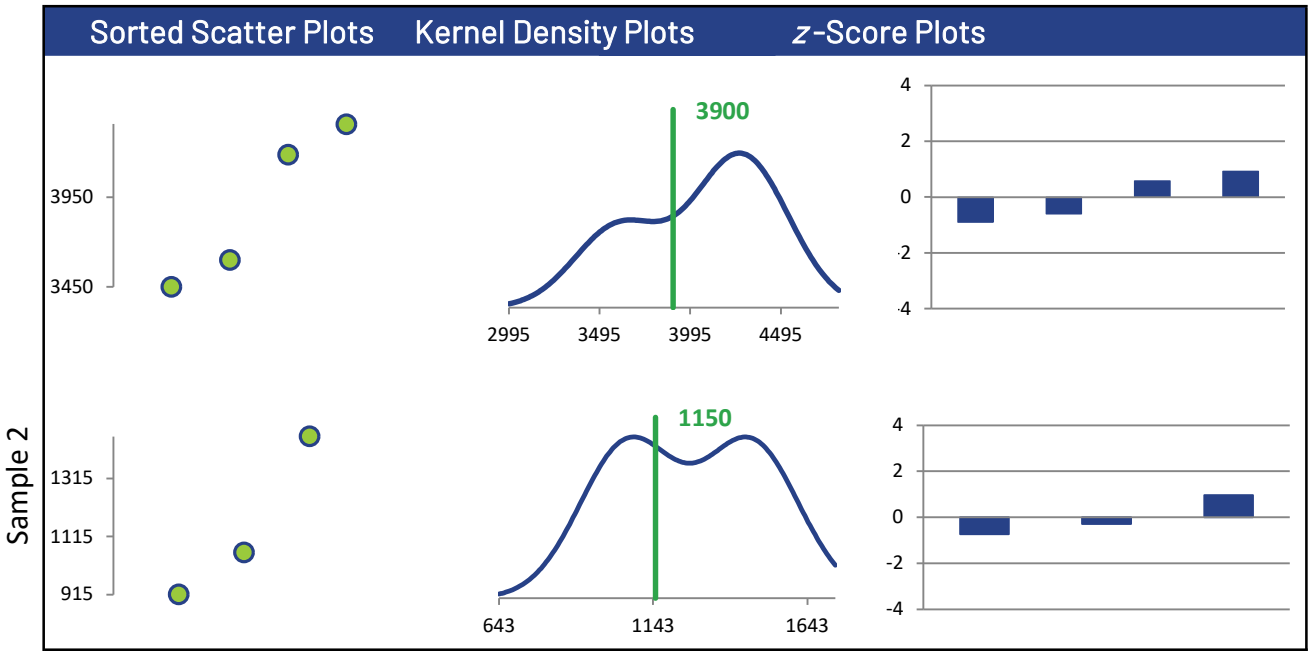
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	3	0	0
Median µg/g	3900	1060		
Robust Mean µg/g	3900	1150		
U µg/g	314	231		
Robust Standard Deviation µg/g	502	320		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	502	320		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

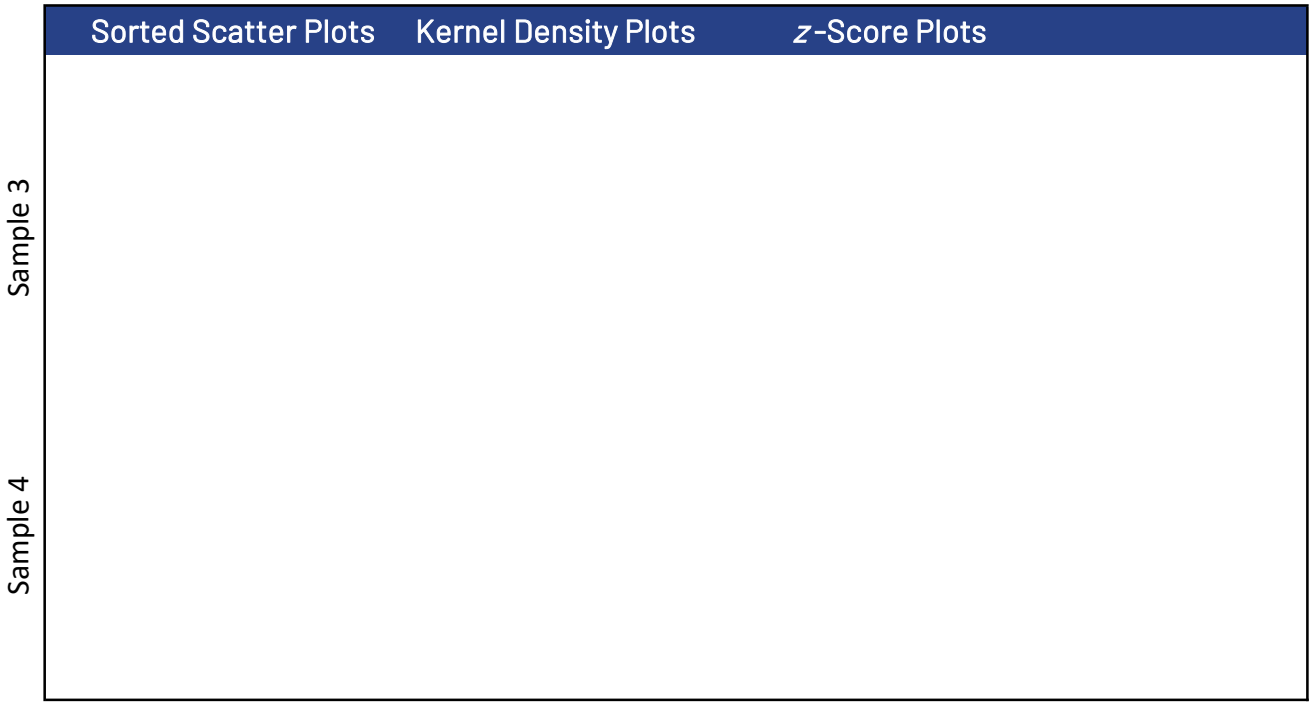
Methods Used

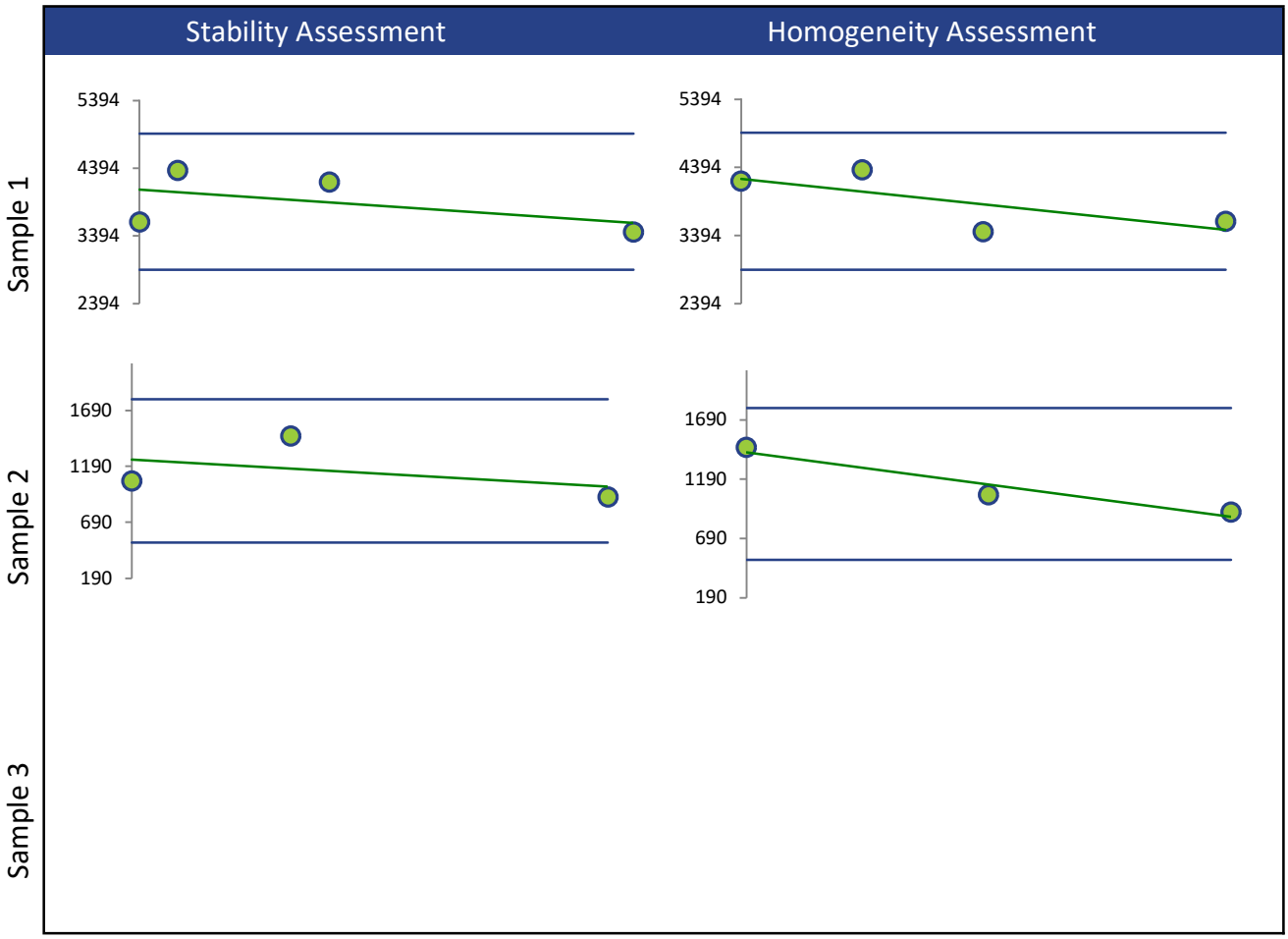
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	3	0	0

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



2-BUTANONE (METHYL ETHYL KETONE, MEK)





2-BUTANONE (METHYL ETHYL KETONE, MEK)

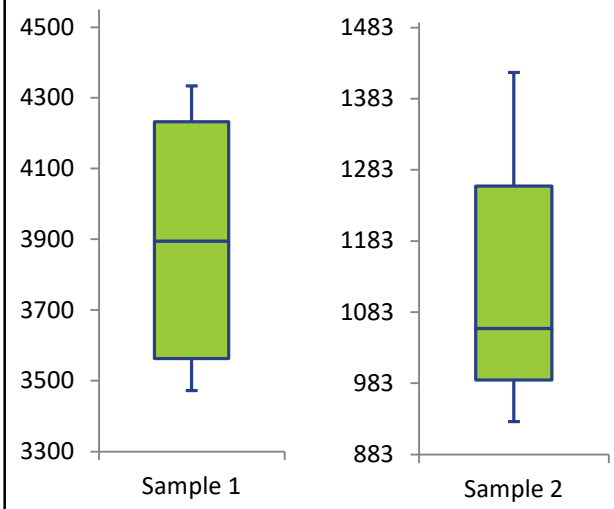
Sample 4

Stability Assessment	Homogeneity Assessment

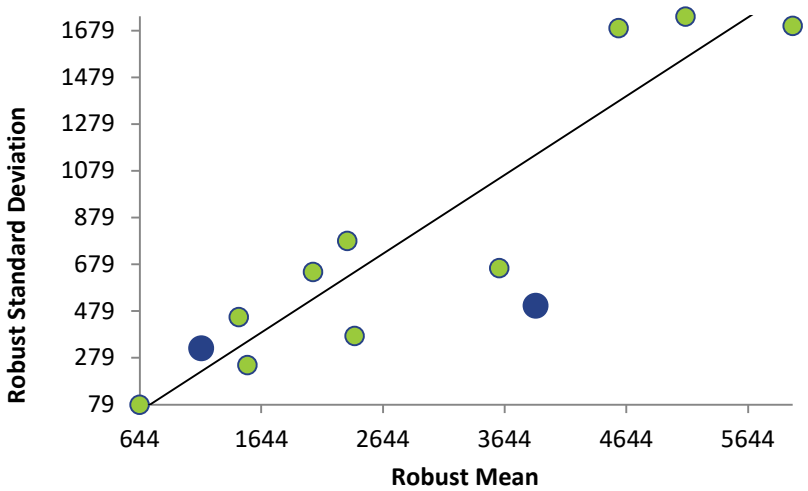
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



2-PROPANOL (ISOPROPYL ALCOHOL)

Summary Statistics

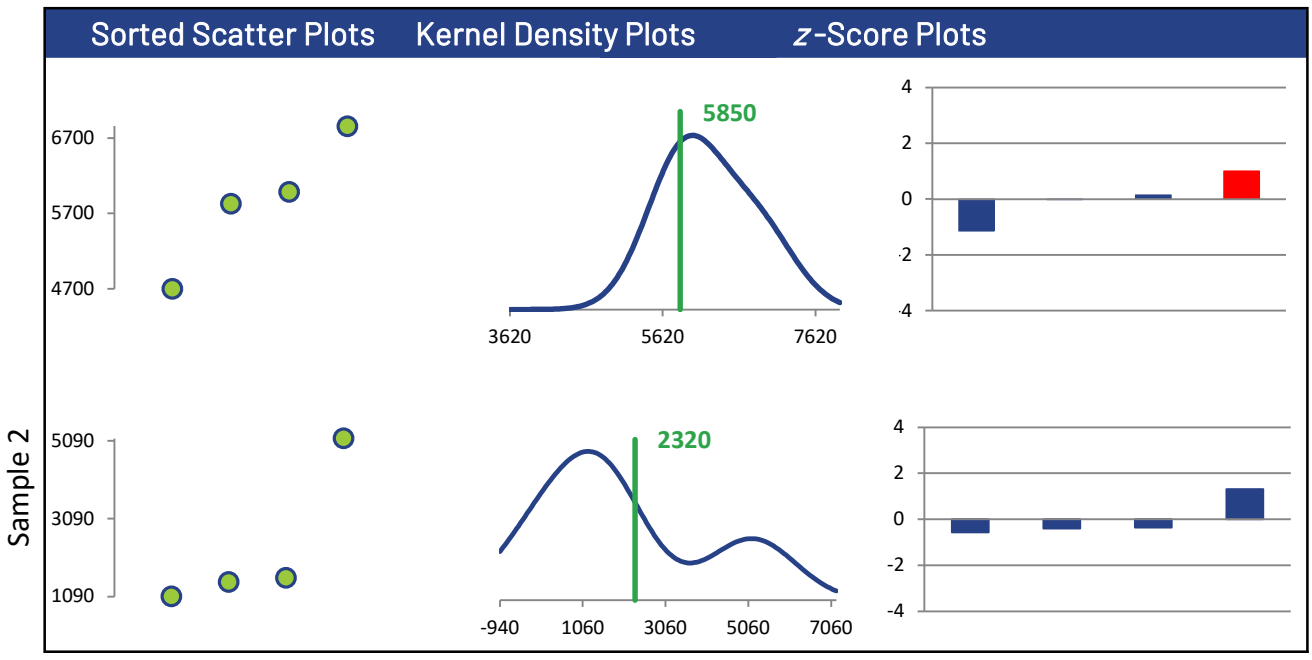
Excluded

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	4	0	0
Median µg/g	5910	1520		
Robust Mean µg/g	5850	2320		
U µg/g	631	1340		
Robust Standard Deviation µg/g	1010	2150		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1010	2150		
Outliers	1	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	3	4	0	0
GC/FID (Red)	1	0	0	0

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



2-PROPANOL (ISOPROPYL ALCOHOL)

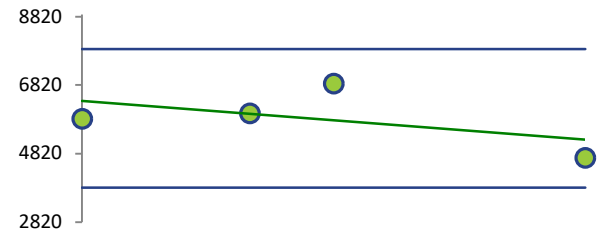
Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

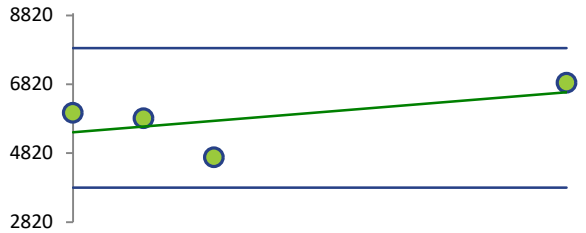
Sample 3

Sample 4

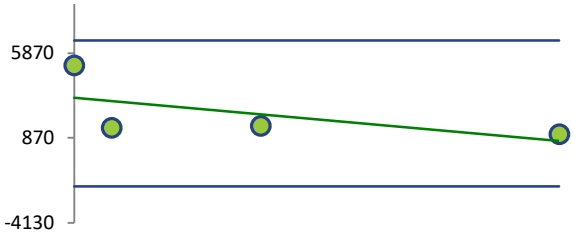
Stability Assessment | Homogeneity Assessment

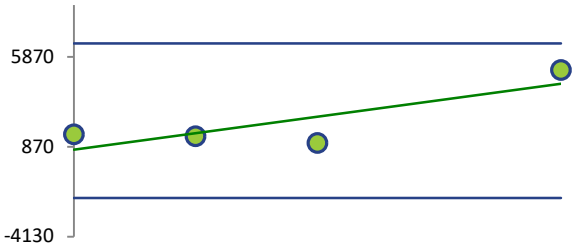
Sample 1





Sample 2





Sample 3

2-PROPANOL (ISOPROPYL ALCOHOL)

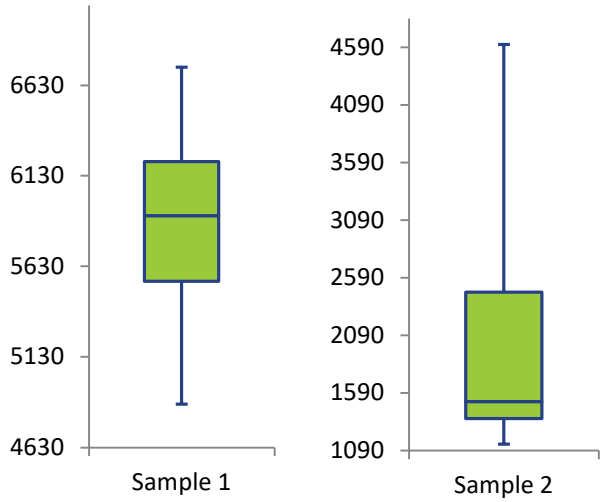
Sample 4

Stability Assessment	Homogeneity Assessment

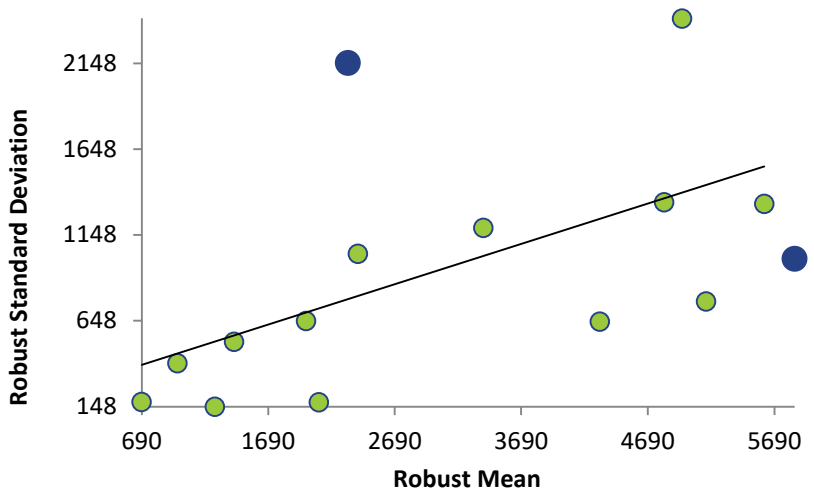
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



3-METHYL-1-BUTANOL

Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
		Excluded	Excluded	
N	0	0	0	0
Median µg/g				
Robust Mean µg/g				
U µg/g				
Robust Standard Deviation µg/g				
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g				
Outliers	1	3	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

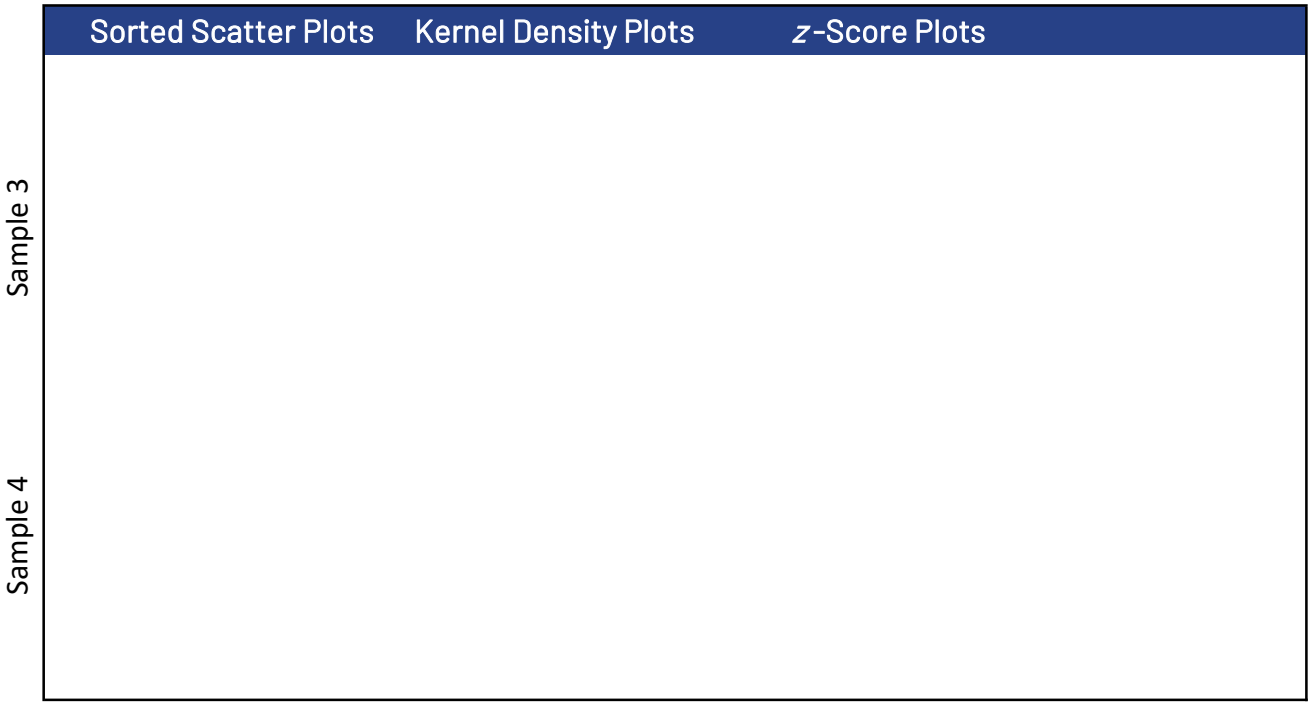
Method	C73-1	C73-2	C73-3	C73-4

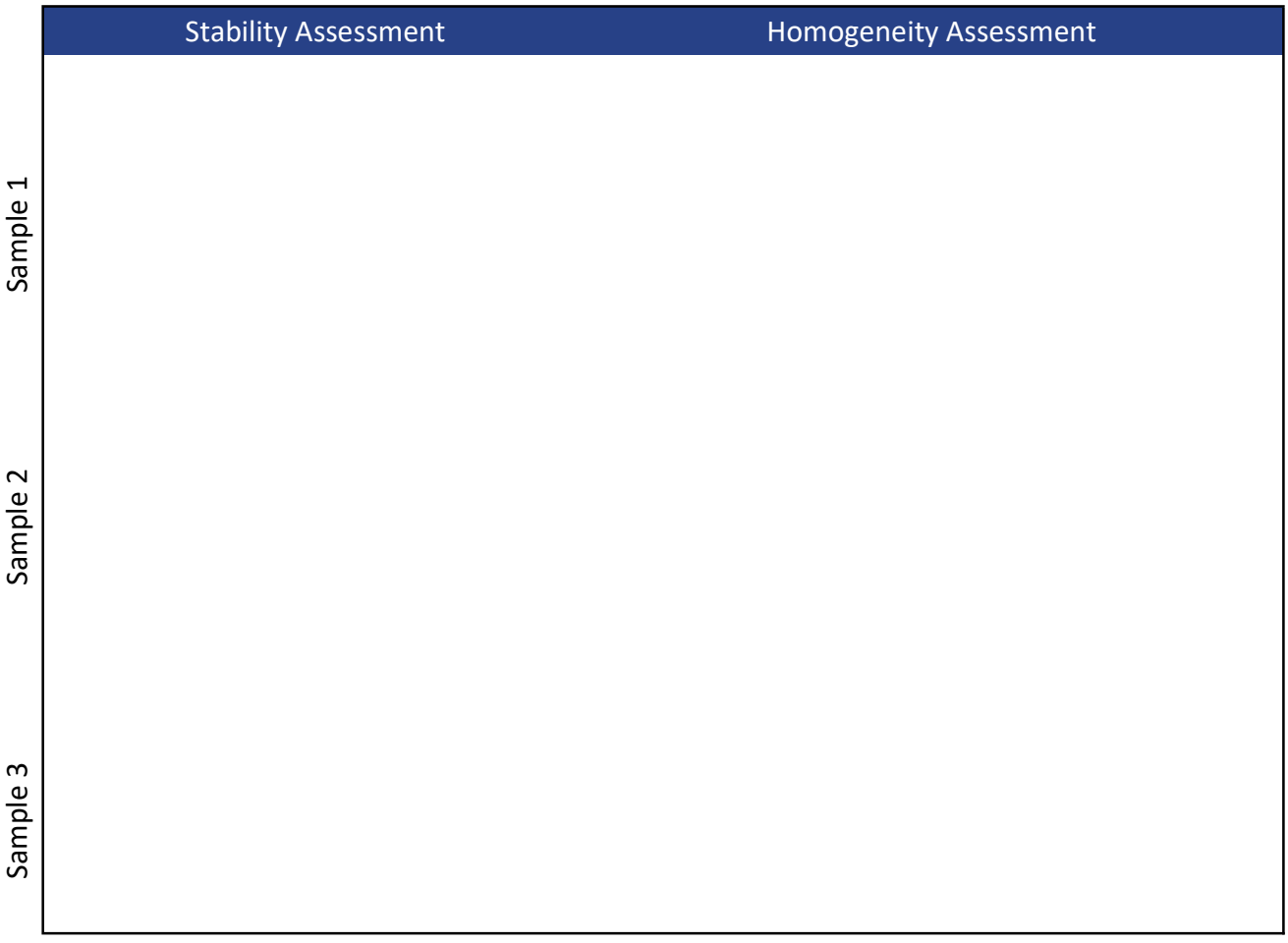
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 2

3-METHYL-1-BUTANOL





3-METHYL-1-BUTANOL

Sample 4

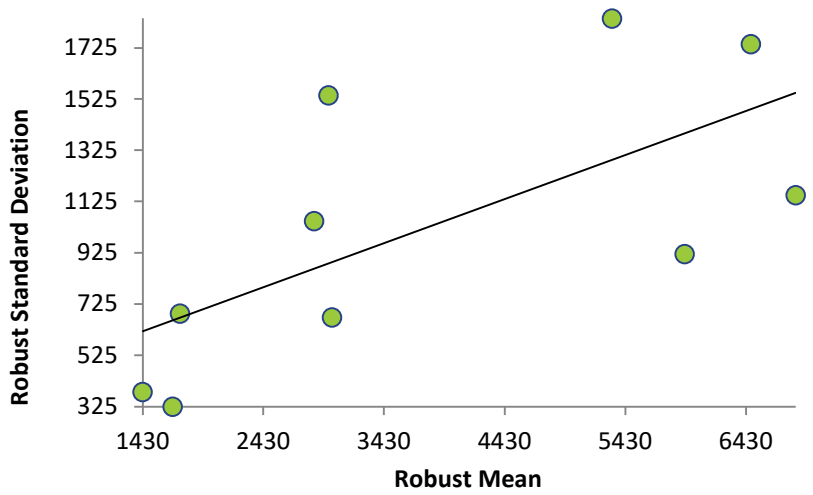
Stability Assessment	Homogeneity Assessment

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

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

Box and Whisker Plots

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



ACETONE (2-PROPANONE)

Summary Statistics

Excluded

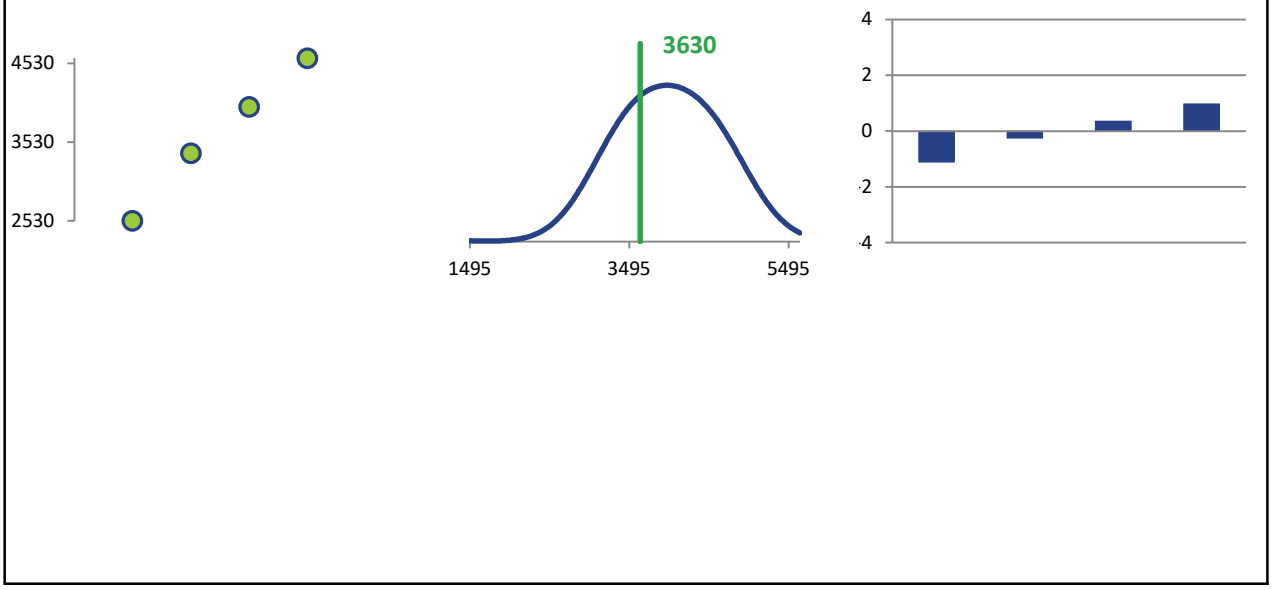
Statistic	C73-1	C73-2	C73-3	C73-4
N	4	0	0	0
Median µg/g	3690			
Robust Mean µg/g	3630			
U µg/g	625			
Robust Standard Deviation µg/g	1000			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1000			
Outliers	0	3	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	0	0	0

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

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



ACETONE (2-PROPANONE)

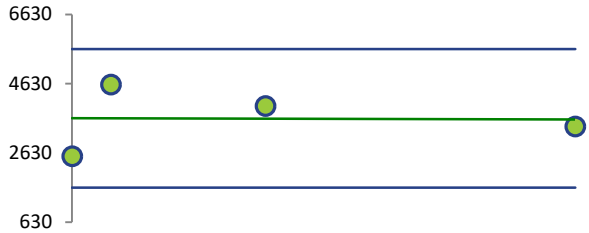
Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

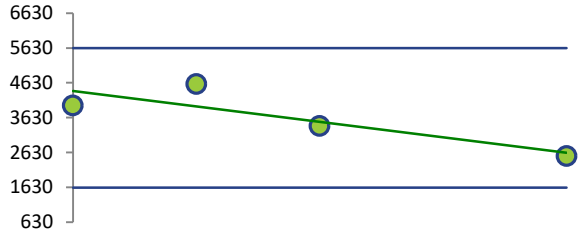
Sample 3

Sample 4

Stability Assessment | Homogeneity Assessment

Sample 1





Sample 2

Sample 3

ACETONE (2-PROPANONE)

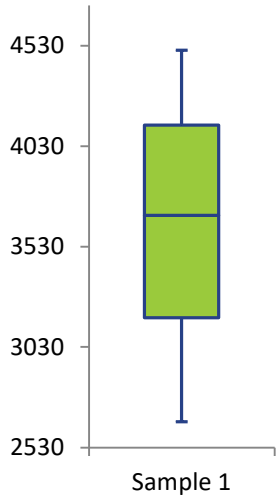
Sample 4

Stability Assessment	Homogeneity Assessment

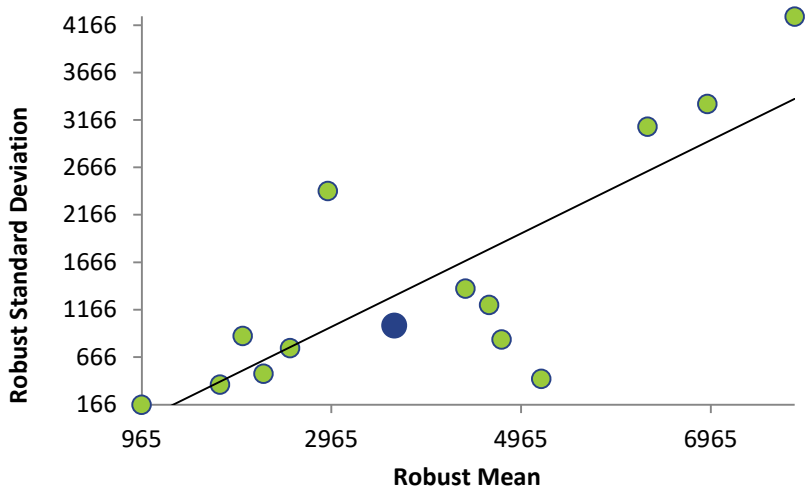
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ANISOLE

Summary Statistics

Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	0	0	0
Median µg/g	5420			
Robust Mean µg/g	4930			
U µg/g	995			
Robust Standard Deviation µg/g	1780			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1780			
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

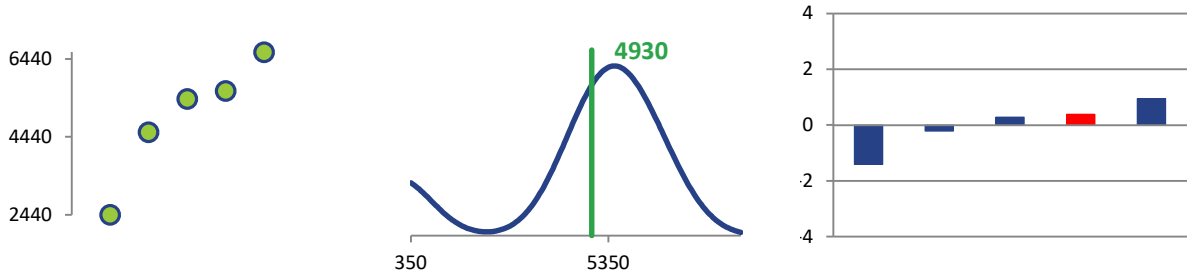
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	0	0	0
GC/FID (Red)	1	0	0	0

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

Sample 2

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



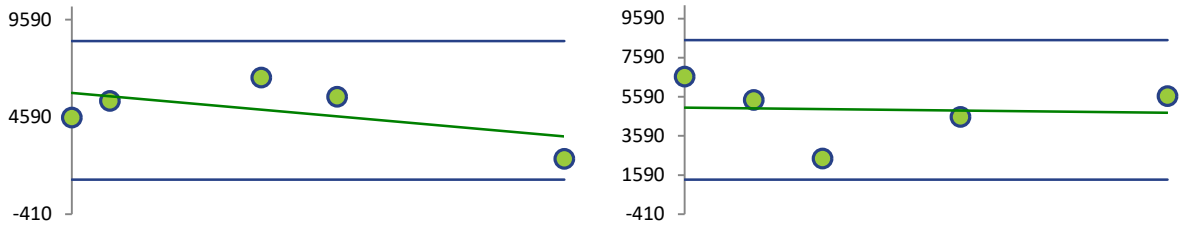
ANISOLE

Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

Sample 3

Sample 4

Stability Assessment | Homogeneity Assessment



Sample 1

Sample 2

Sample 3

ANISOLE

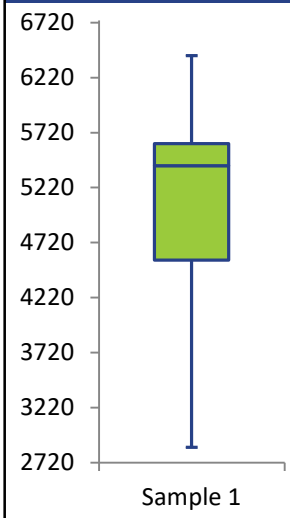
Sample 4

Stability Assessment	Homogeneity Assessment

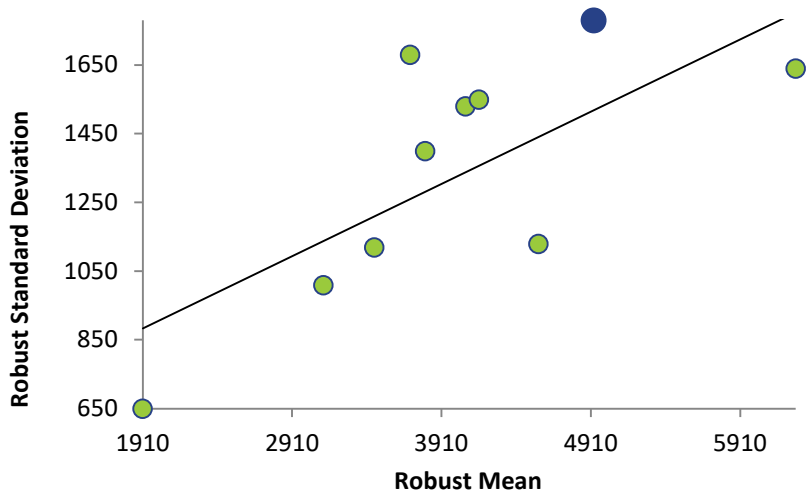
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



BUTANE

Summary Statistics

Excluded **Not Spiked**

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	0	0	0
Median µg/g				
Robust Mean µg/g				
U µg/g				
Robust Standard Deviation µg/g				
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g				
Outliers	1	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

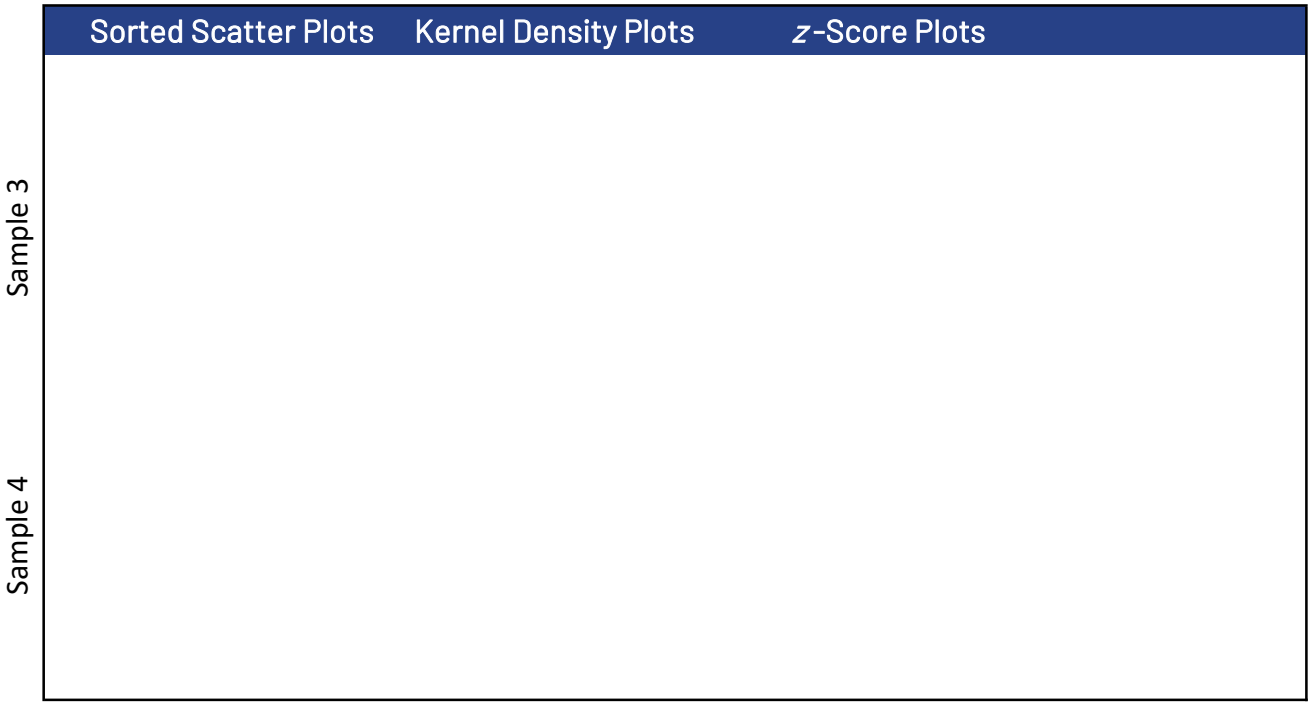
Method	C73-1	C73-2	C73-3	C73-4

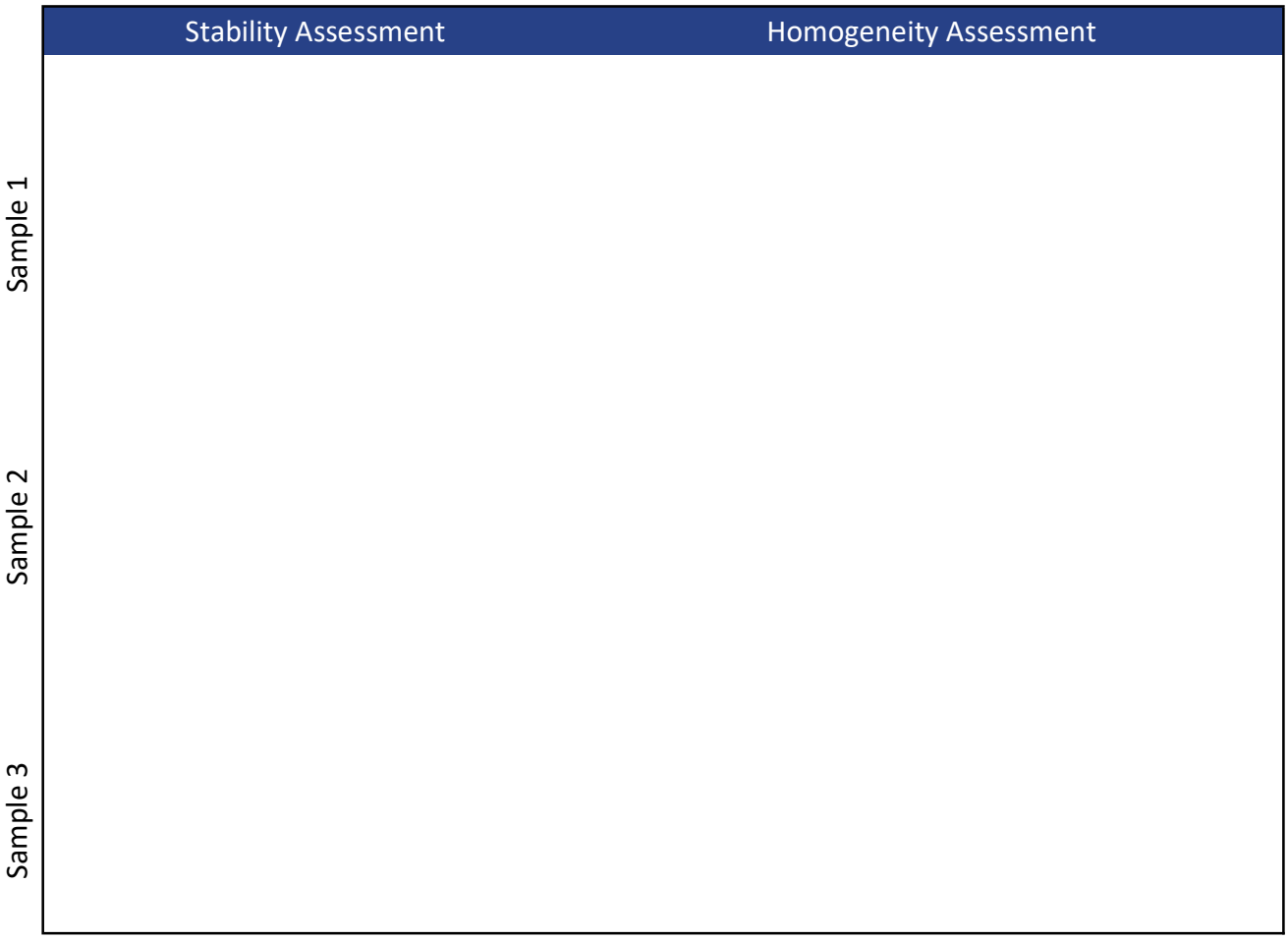
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 2

BUTANE


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
Sample 4


Stability Assessment
Homogeneity Assessment
Sample 1
Sample 2
Sample 3

BUTANE

Sample 4

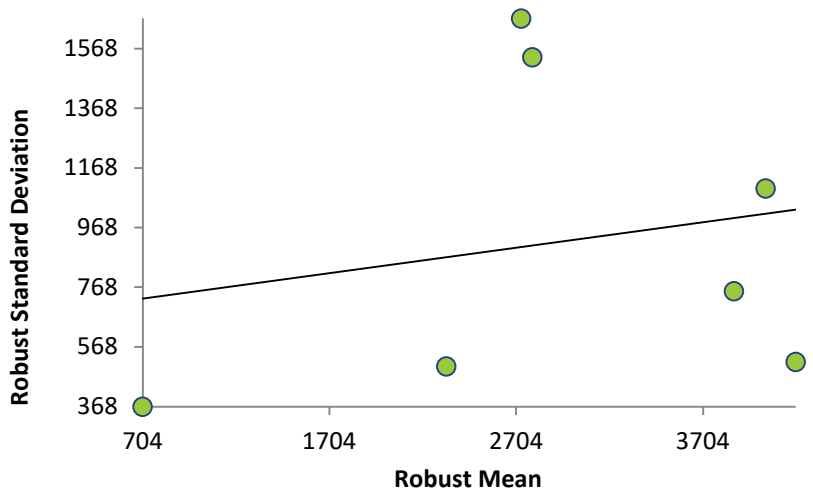
Stability Assessment	Homogeneity Assessment

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

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

Box and Whisker Plots

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



BUTYL ACETATE

Summary Statistics

Not Spiked

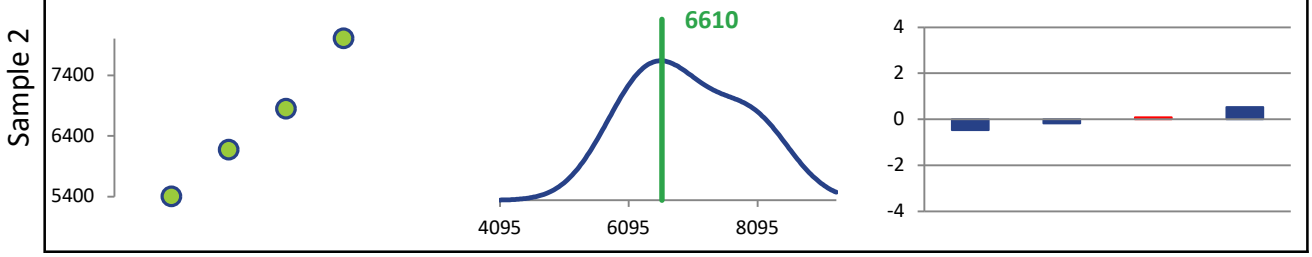
Statistic	C73-1	C73-2	C73-3	C73-4
N	0	4	0	0
Median µg/g		6510		
Robust Mean µg/g		6610		
U µg/g		788		
Robust Standard Deviation µg/g		1260		
Regression Standard Deviation µg/g				
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		2650		
Outliers	1	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

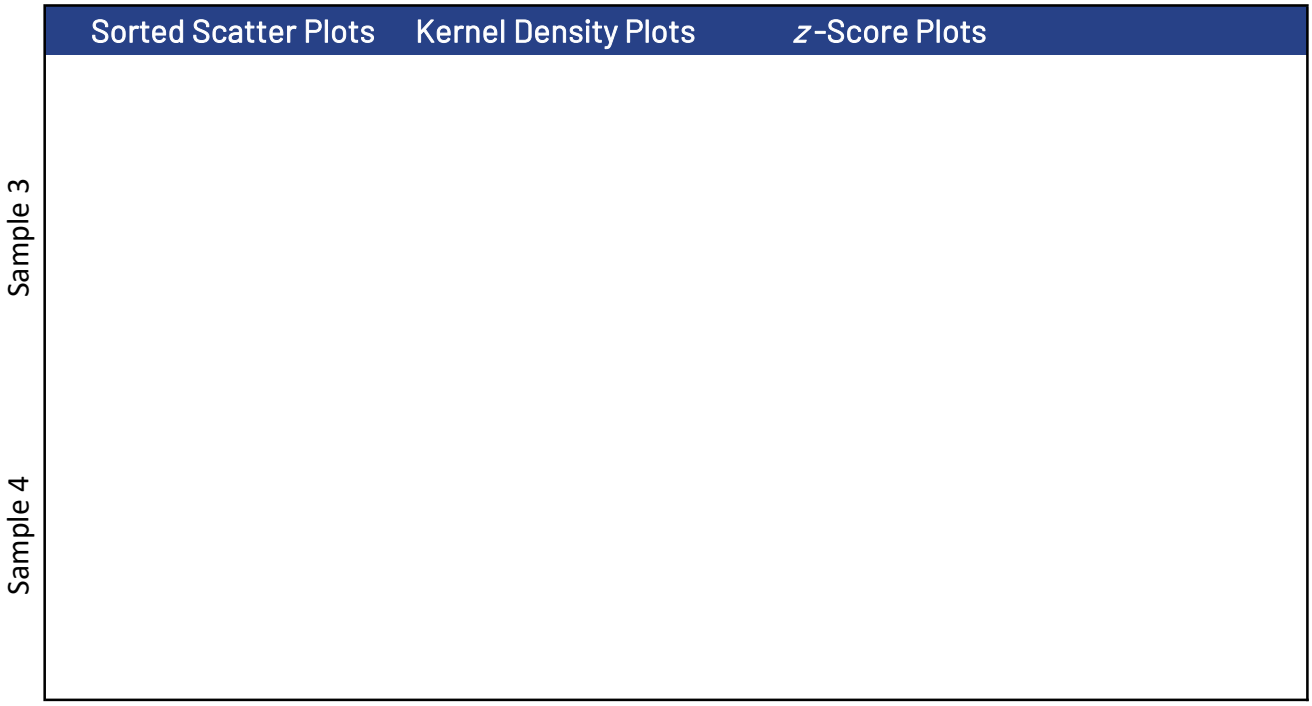
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	3	0	0
GC/FID (Red)	0	1	0	0

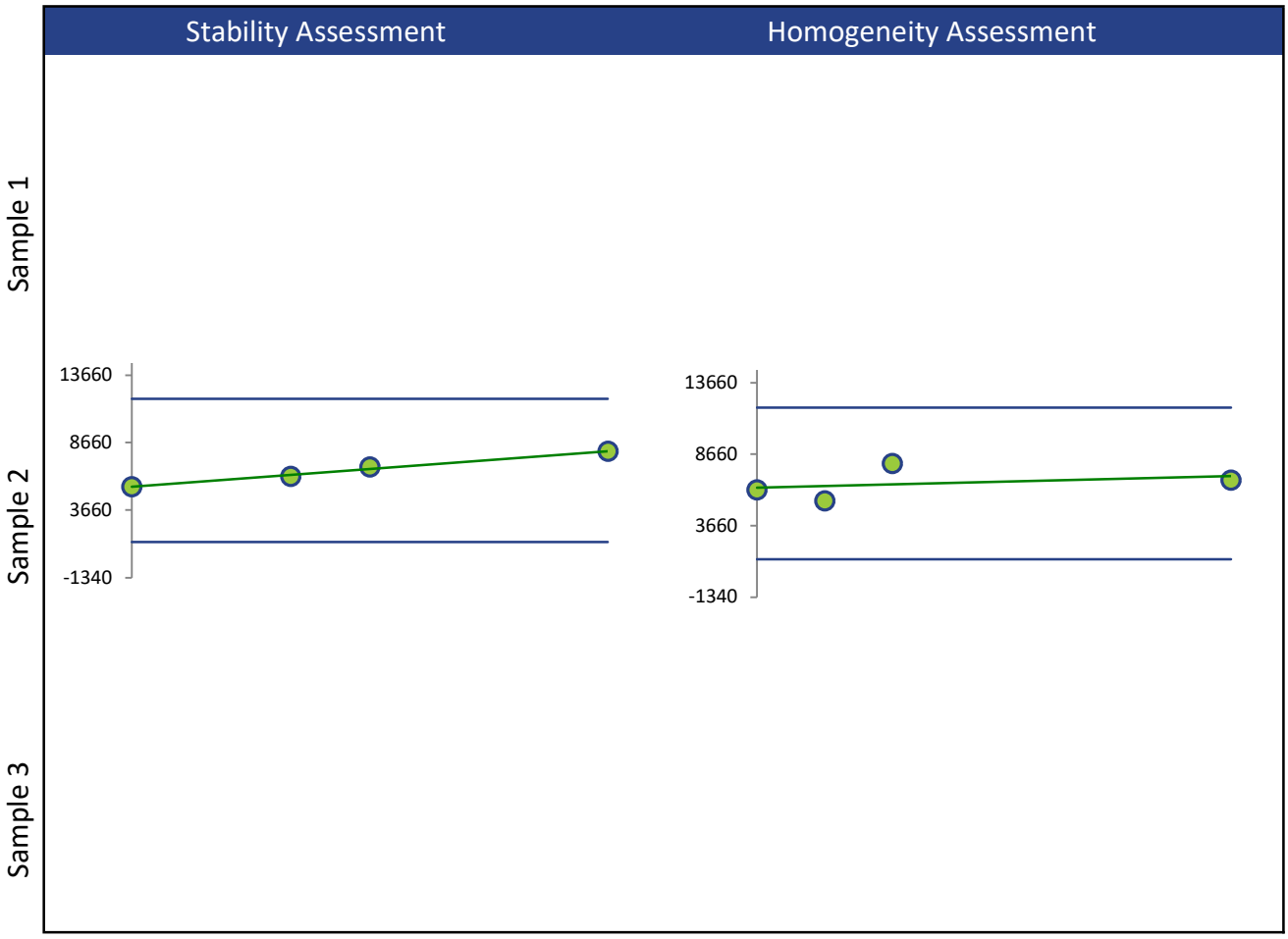
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



BUTYL ACETATE





BUTYL ACETATE

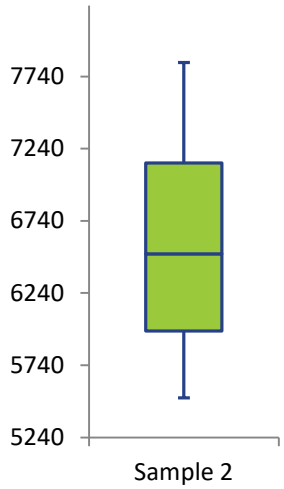
Sample 4

Stability Assessment	Homogeneity Assessment

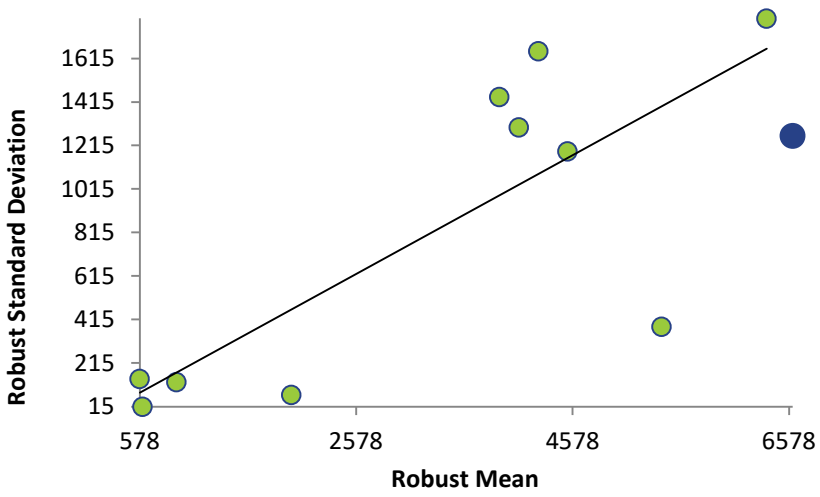
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



DIMETHYL SULFOXIDE

Summary Statistics

Not Spiked **Excluded**

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	0	0	0
Median µg/g				
Robust Mean µg/g				
U µg/g				
Robust Standard Deviation µg/g				
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g				
Outliers	0	1	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

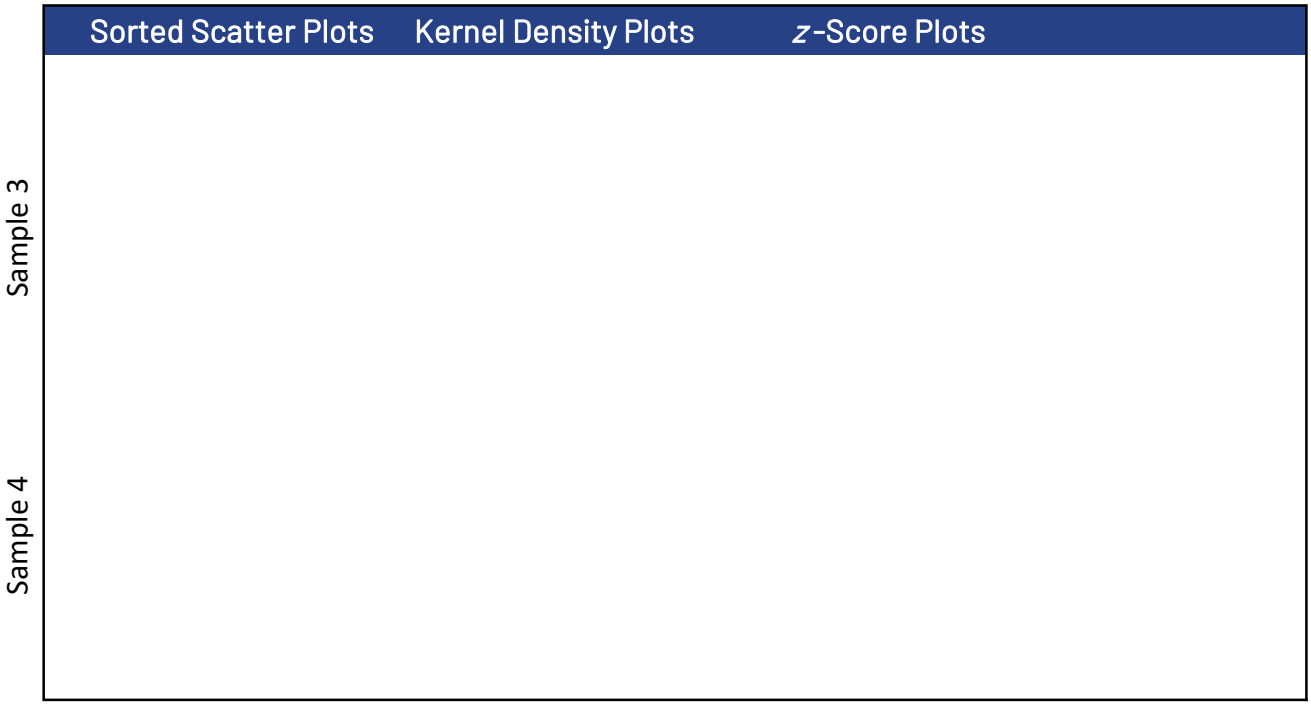
Method	C73-1	C73-2	C73-3	C73-4

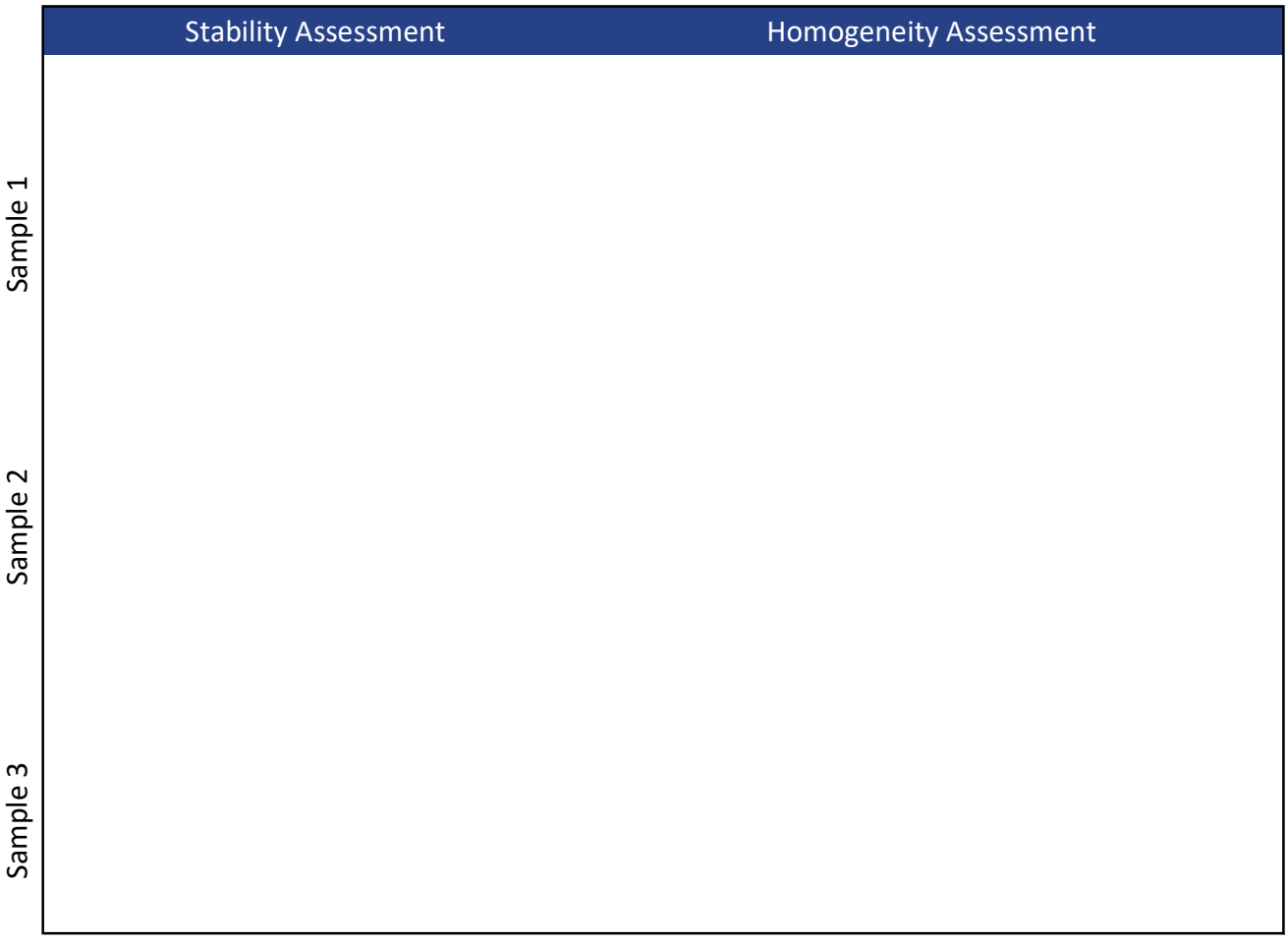
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 2

DIMETHYL SULFOXIDE





DIMETHYL SULFOXIDE

Sample 4

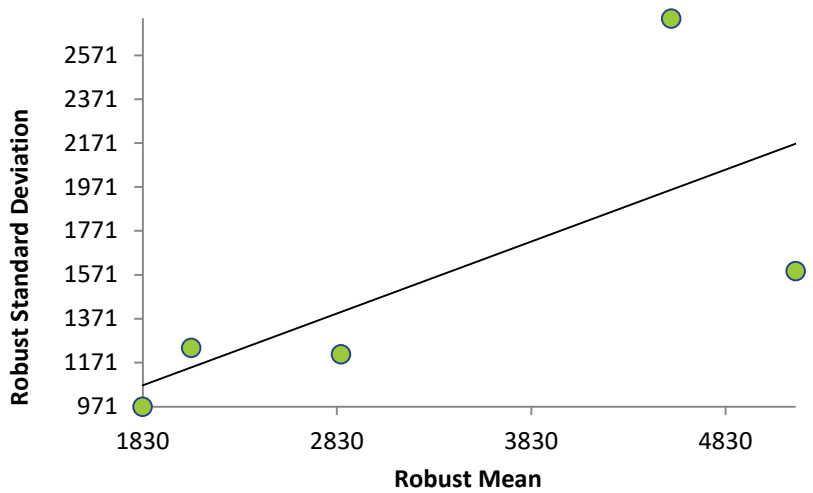
Stability Assessment	Homogeneity Assessment

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

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

Box and Whisker Plots

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



ETHANOL

Summary Statistics

Excluded **Not Spiked**

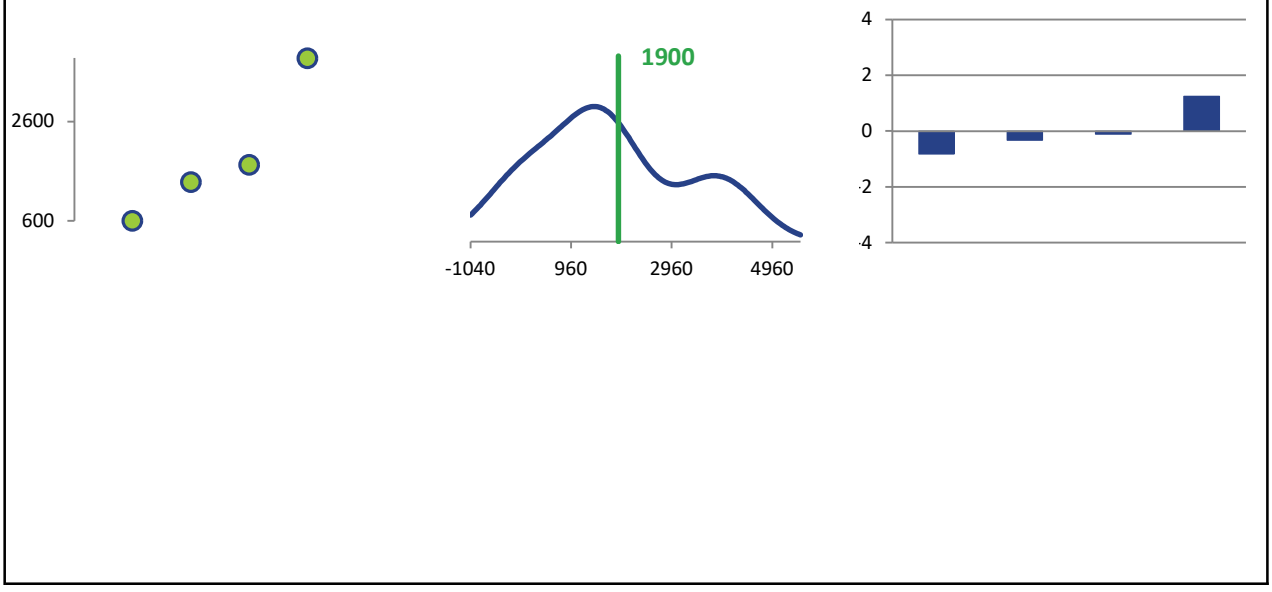
Statistic	C73-1	C73-2	C73-3	C73-4
N	4	0	0	0
Median µg/g	1560			
Robust Mean µg/g	1900			
U µg/g	994			
Robust Standard Deviation µg/g	1590			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1590			
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	0	0	0

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

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



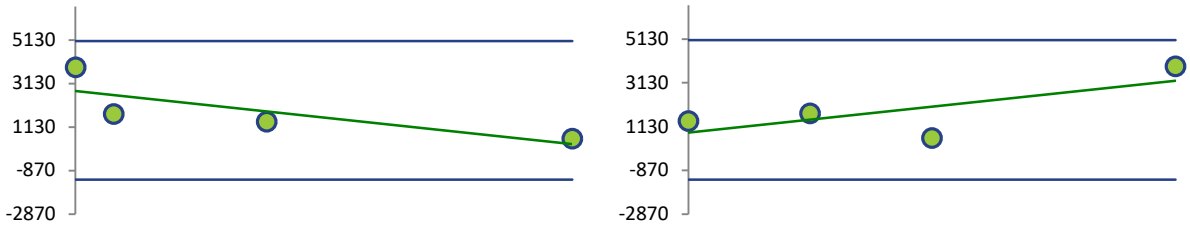
ETHANOL

Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

Sample 3

Sample 4

Stability Assessment | Homogeneity Assessment



Sample 1

Sample 2

Sample 3

ETHANOL

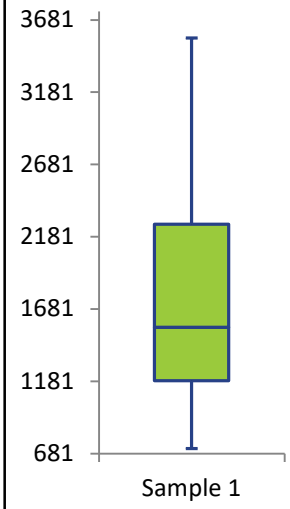
Sample 4

Stability Assessment	Homogeneity Assessment

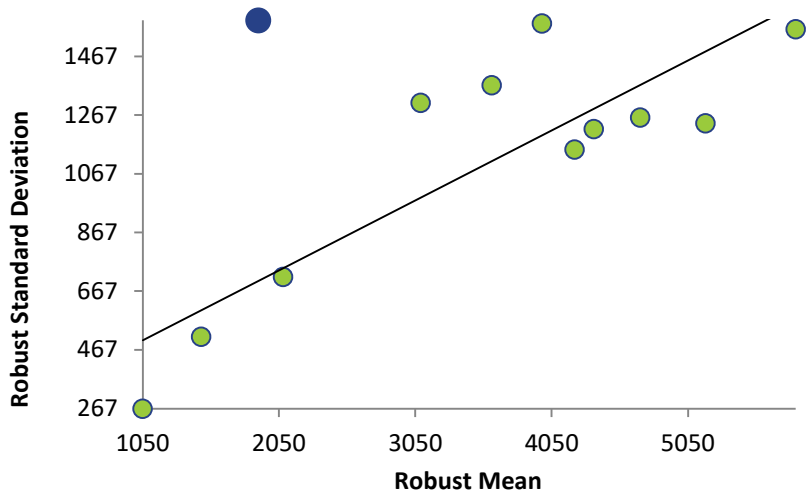
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ETHYL ACETATE

Summary Statistics

Not Spiked

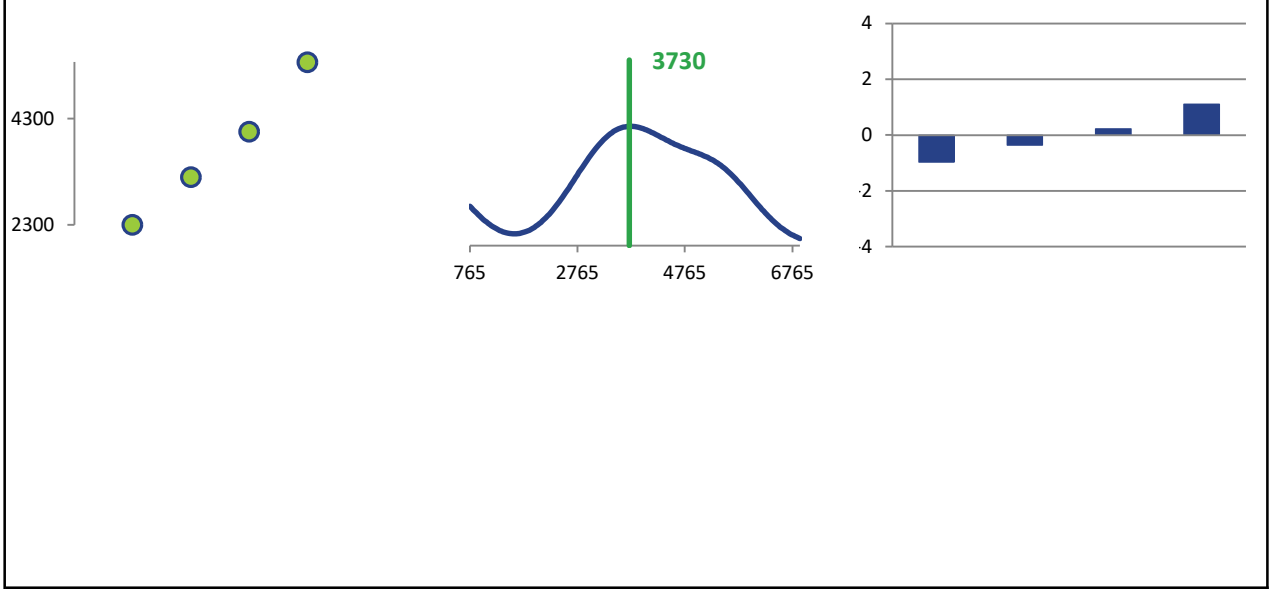
Statistic	C73-1	C73-2	C73-3	C73-4
N	4	0	0	0
Median µg/g	3630			
Robust Mean µg/g	3730			
U µg/g	925			
Robust Standard Deviation µg/g	1480			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1480			
Outliers	0	1	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	0	0	0

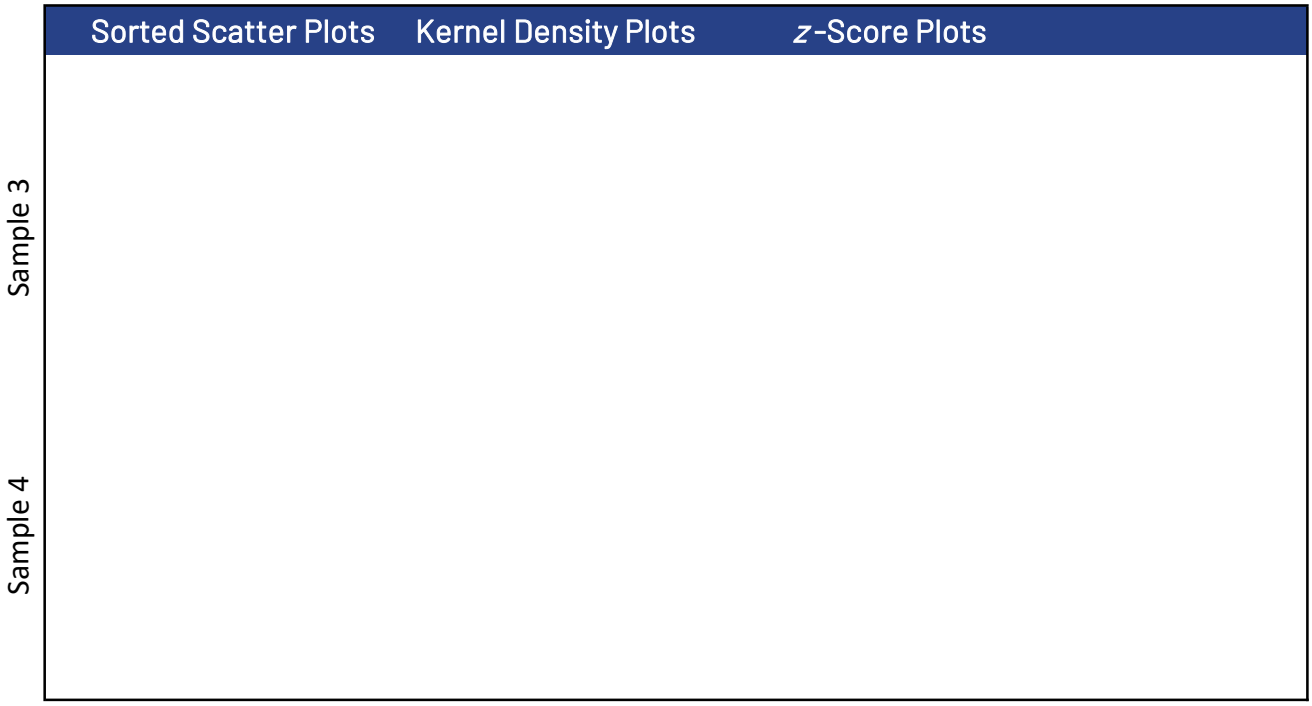
All summary stats and the plots below are based on the data excluding any flagged outliers

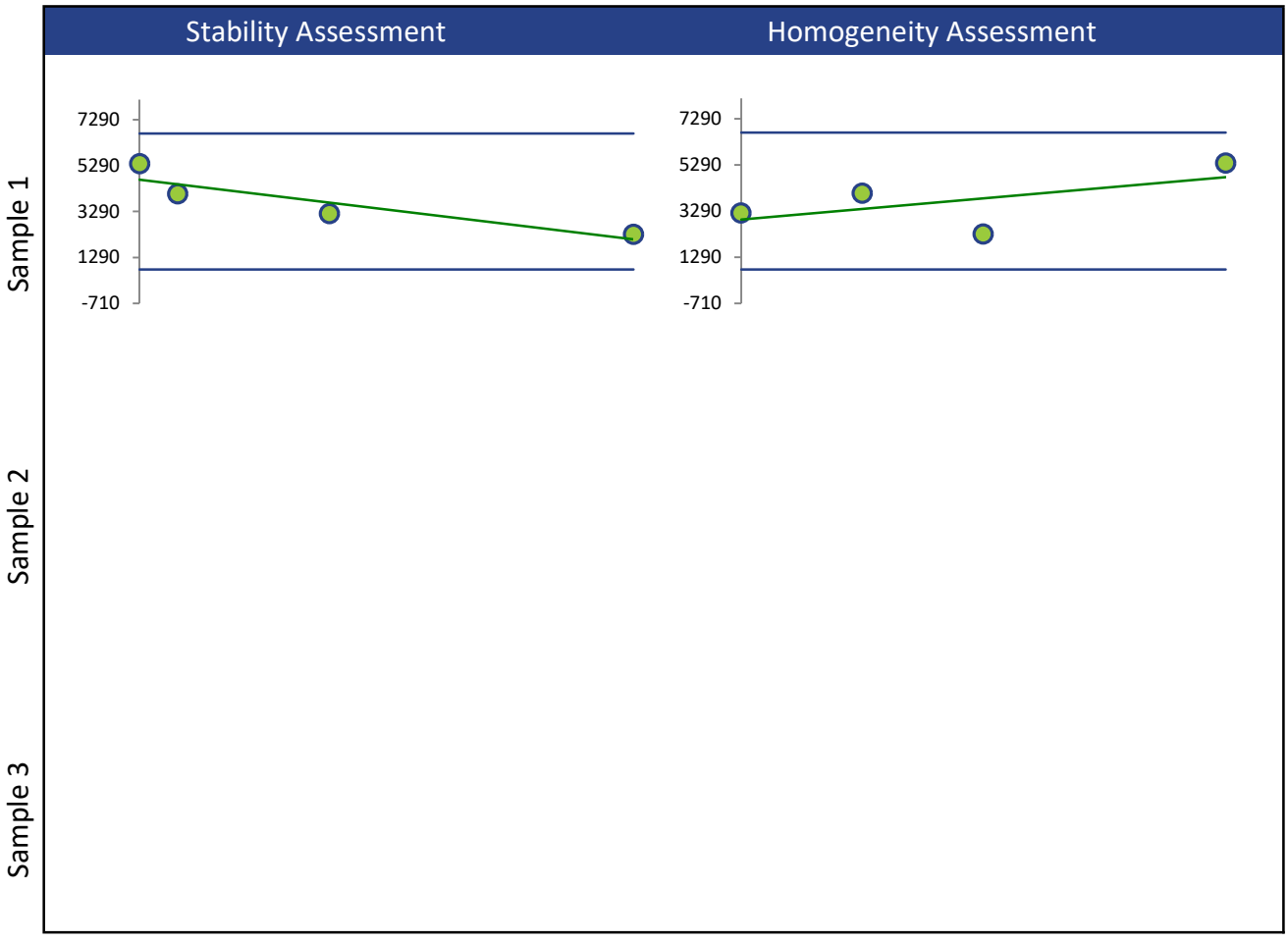
Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



Sample 2

ETHYL ACETATE





ETHYL ACETATE

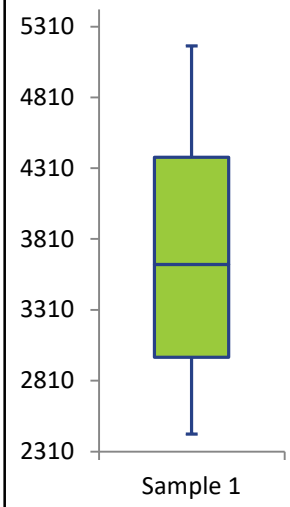
Sample 4

Stability Assessment	Homogeneity Assessment

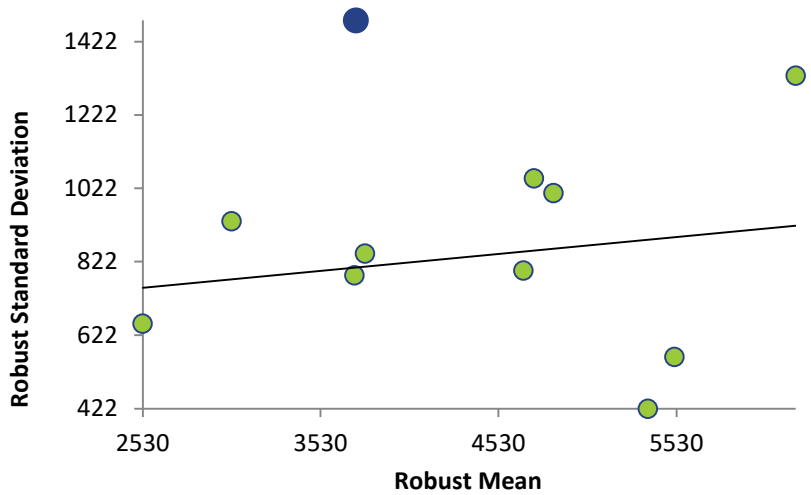
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ETHYL ETHER

Summary Statistics

Not Spiked

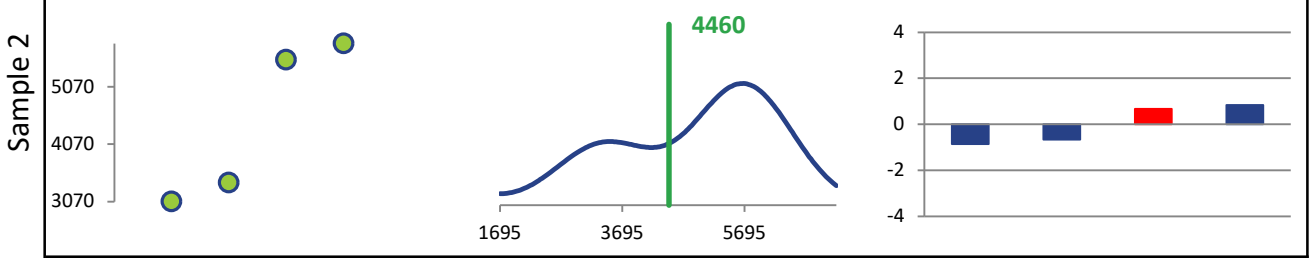
Statistic	C73-1	C73-2	C73-3	C73-4
N	0	4	0	0
Median µg/g		4470		
Robust Mean µg/g		4460		
U µg/g		1010		
Robust Standard Deviation µg/g		1610		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		1610		
Outliers	1	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

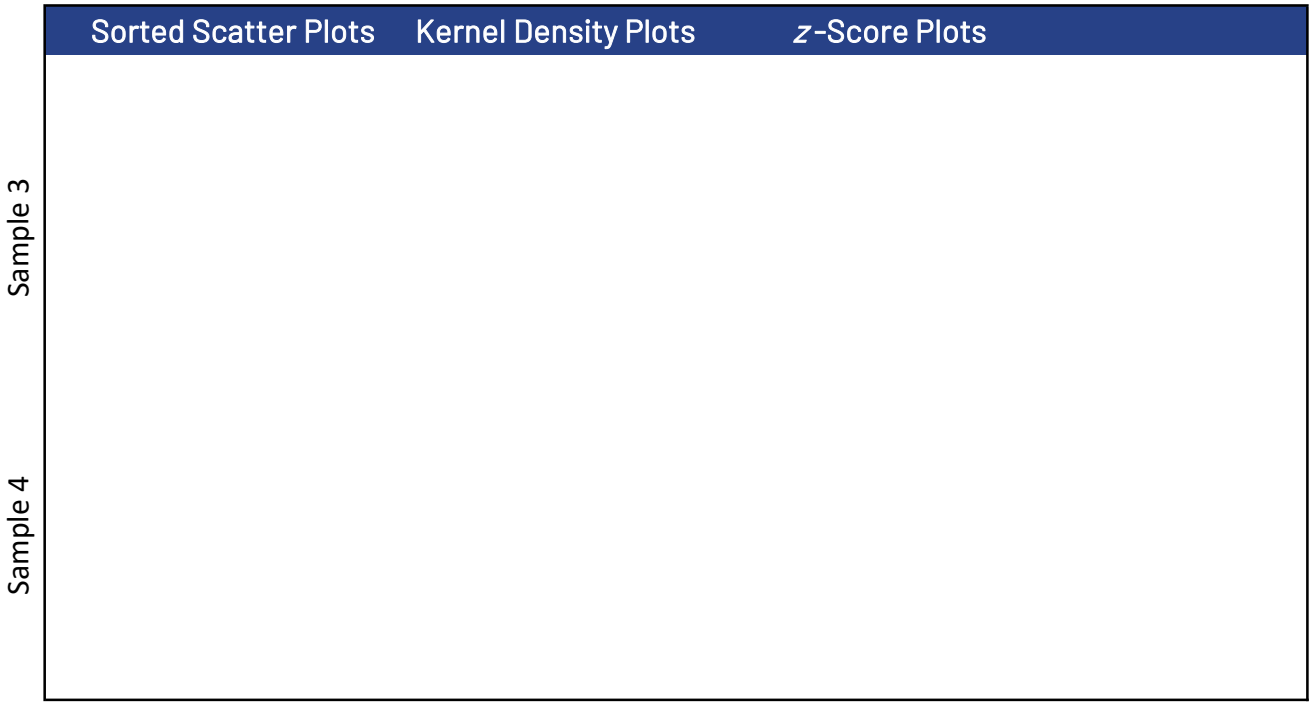
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	3	0	0
GC/FID (Red)	0	1	0	0

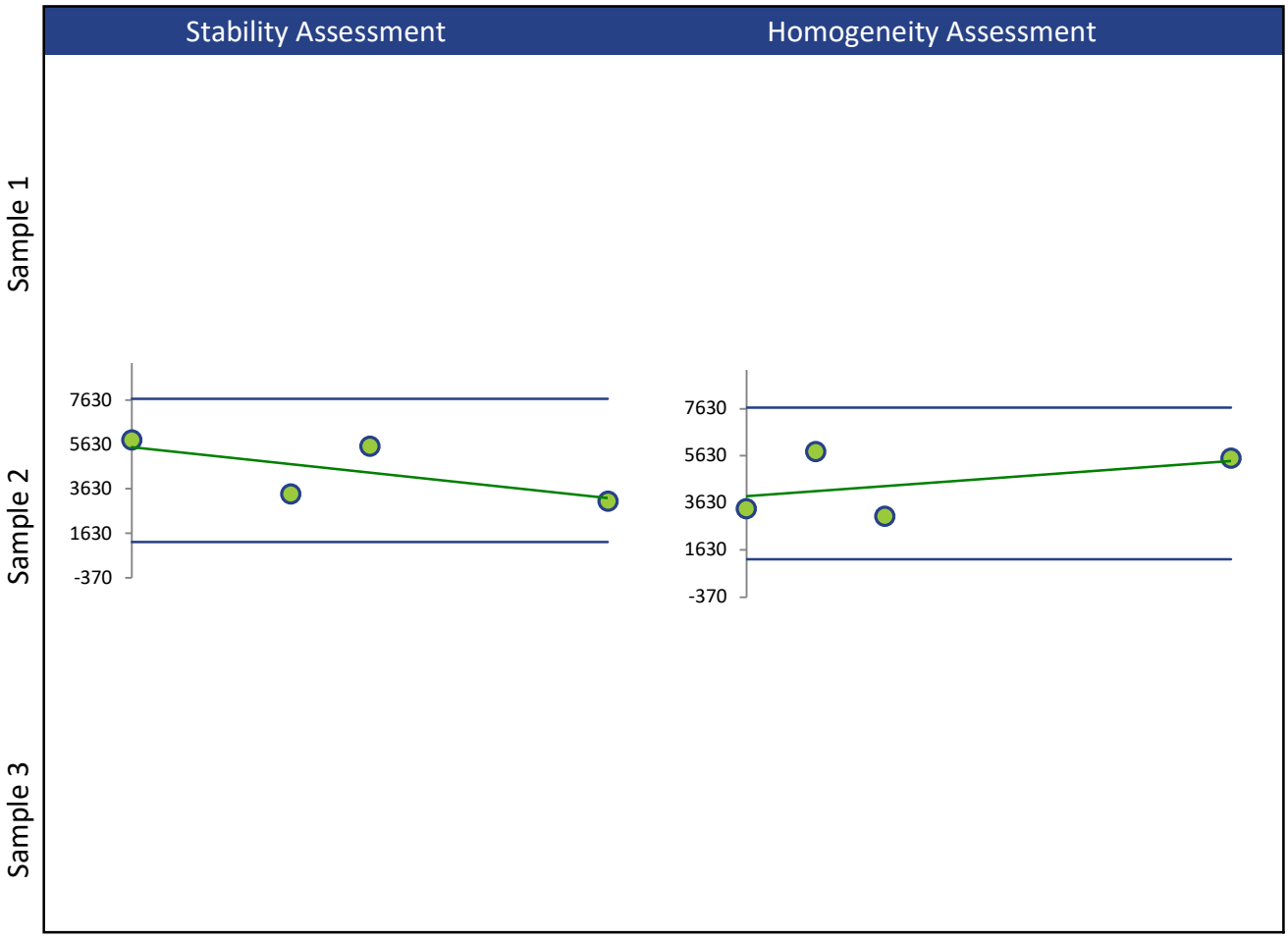
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



ETHYL ETHER


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
Sample 4


Stability Assessment
Homogeneity Assessment
Sample 1
Sample 2
Sample 3
7630
5630
3630
1630
-370
7630
5630
3630
1630
-370

ETHYL ETHER

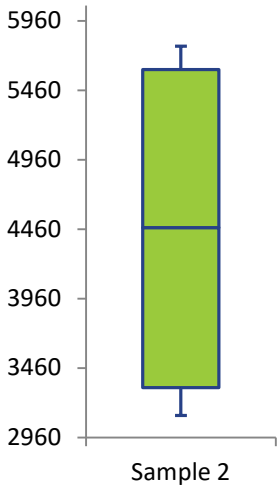
Sample 4

Stability Assessment	Homogeneity Assessment

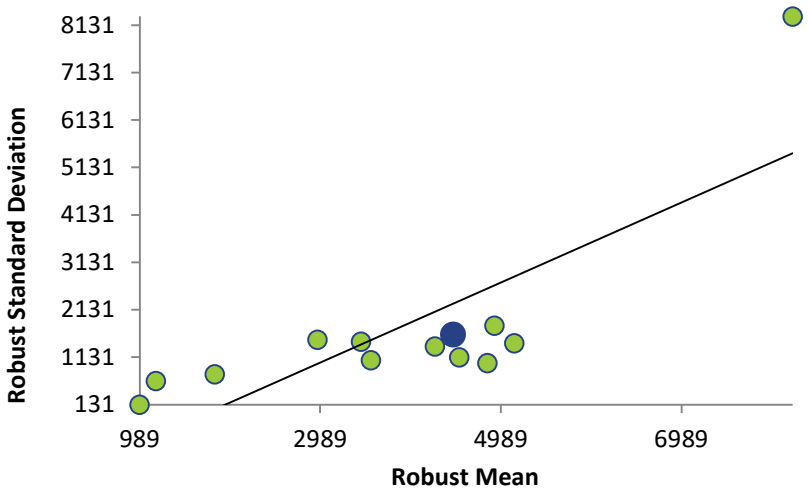
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



HEPTANE

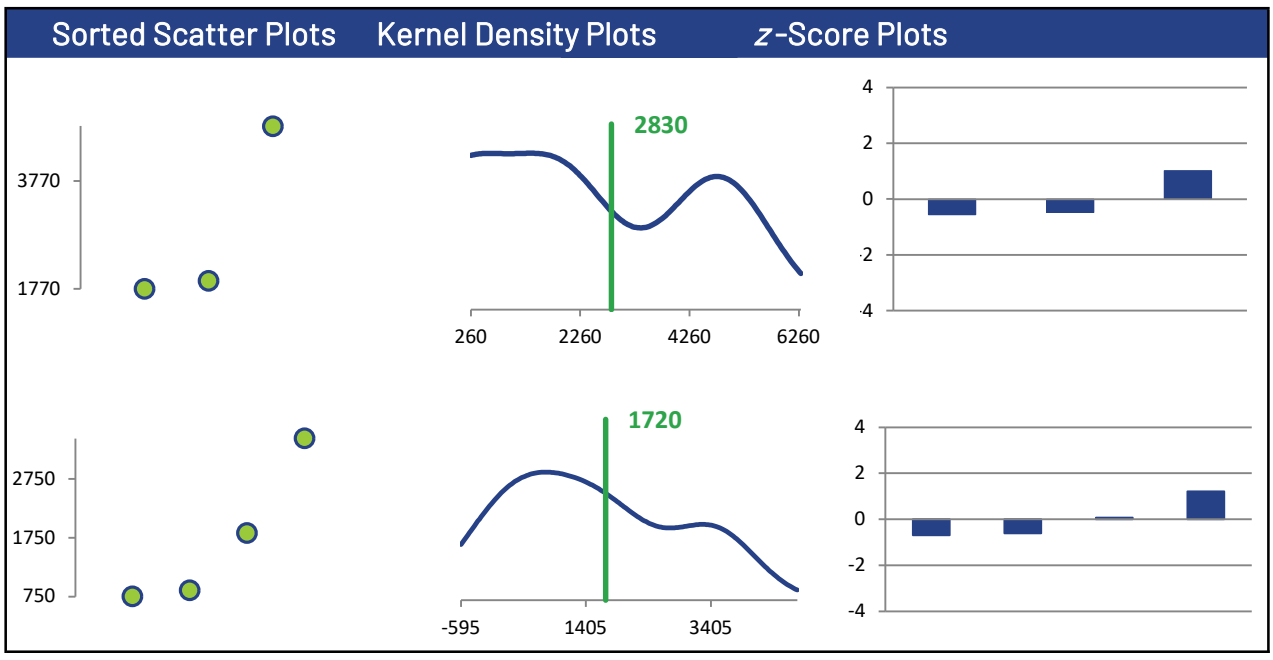
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
		Excluded	Excluded	
N	3	4	0	0
Median µg/g	1920	1340		
Robust Mean µg/g	2830	1720		
U µg/g	1390	881		
Robust Standard Deviation µg/g	1930	1410		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1930	1410		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

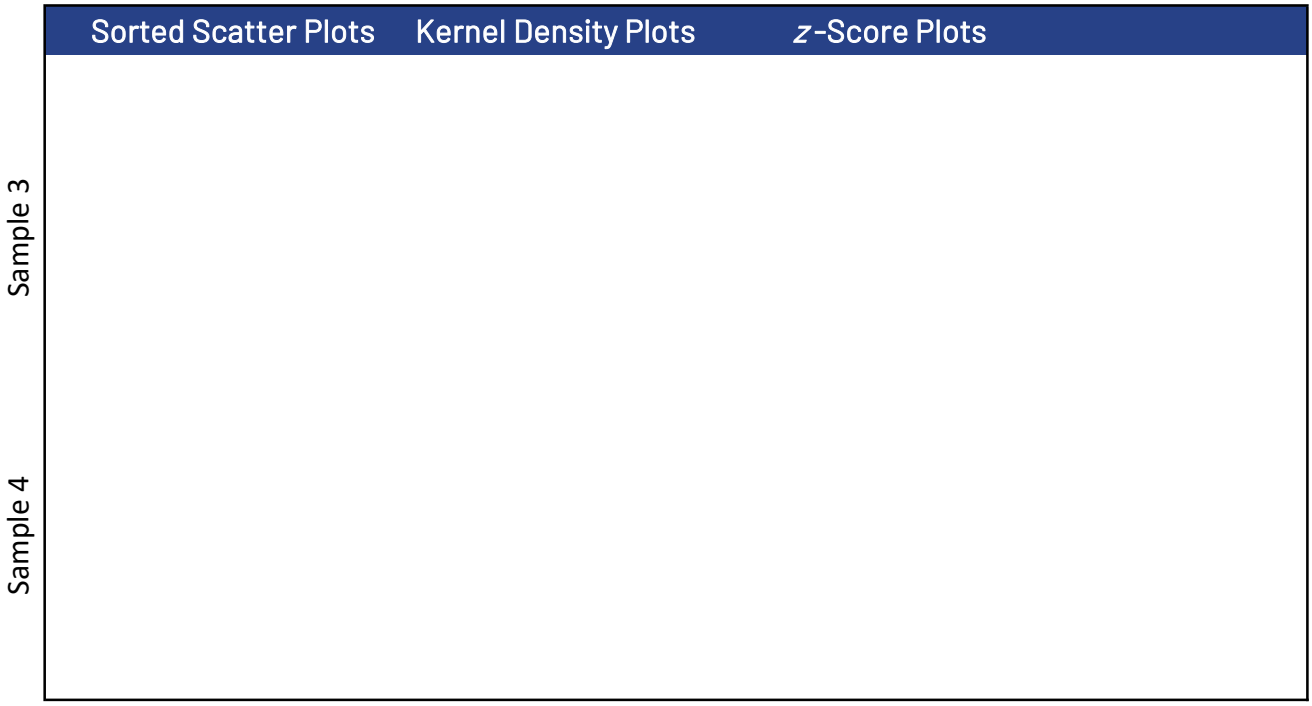
Methods Used

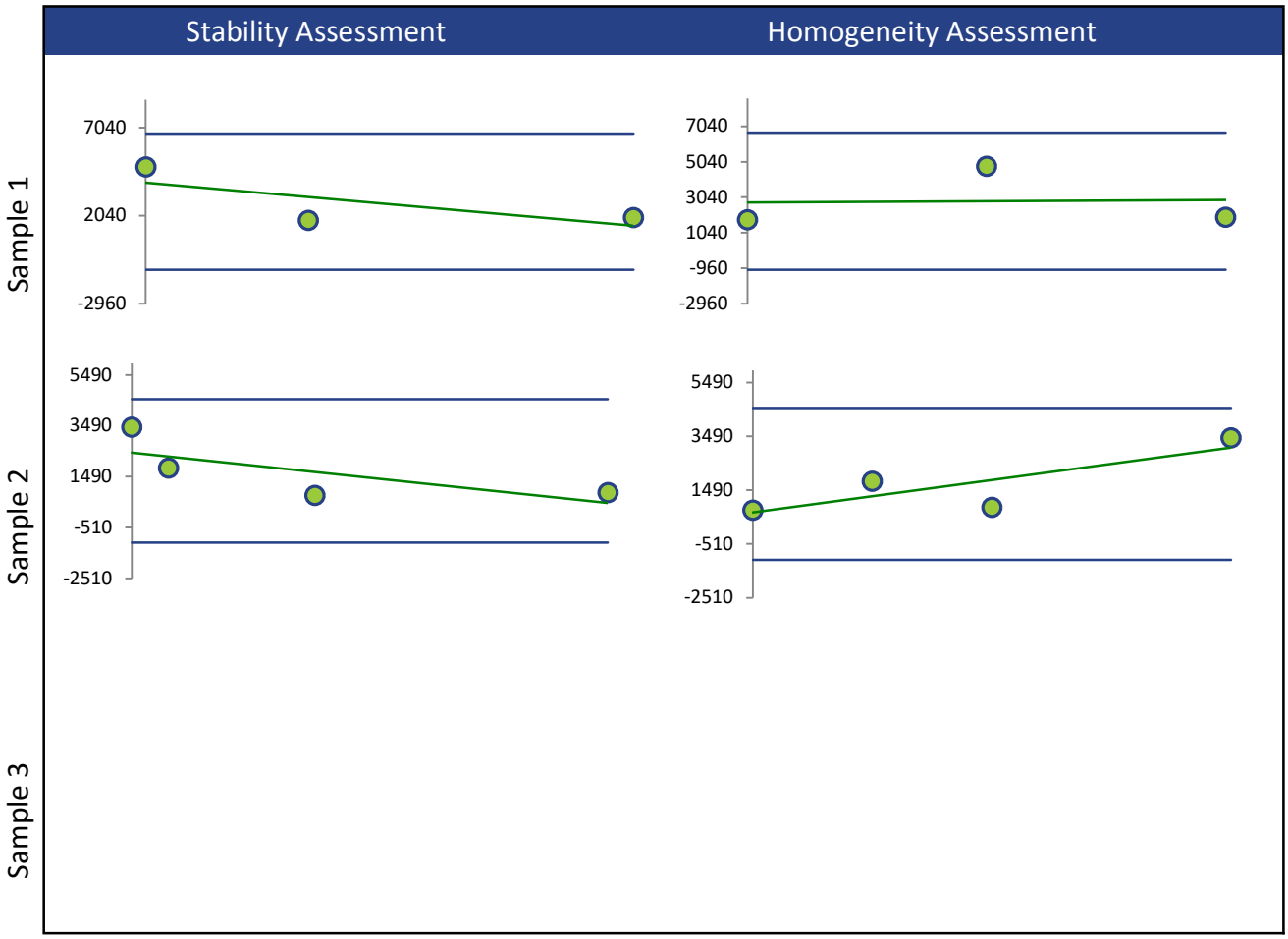
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	3	4	0	0

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



HEPTANE


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
Sample 4


Stability Assessment
Homogeneity Assessment
Sample 1
Sample 2
Sample 3
7040
2040
-2960
7040
5040
3040
1040
-960
-2960
5490
3490
1490
-510
-2510
5490
3490
1490
-510
-2510

HEPTANE

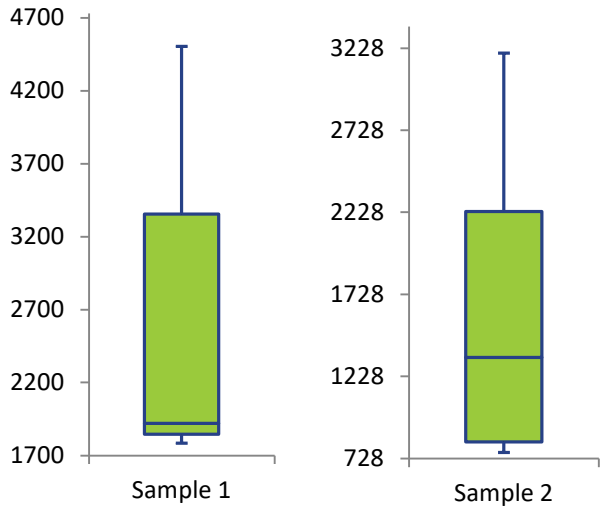
Sample 4

Stability Assessment	Homogeneity Assessment

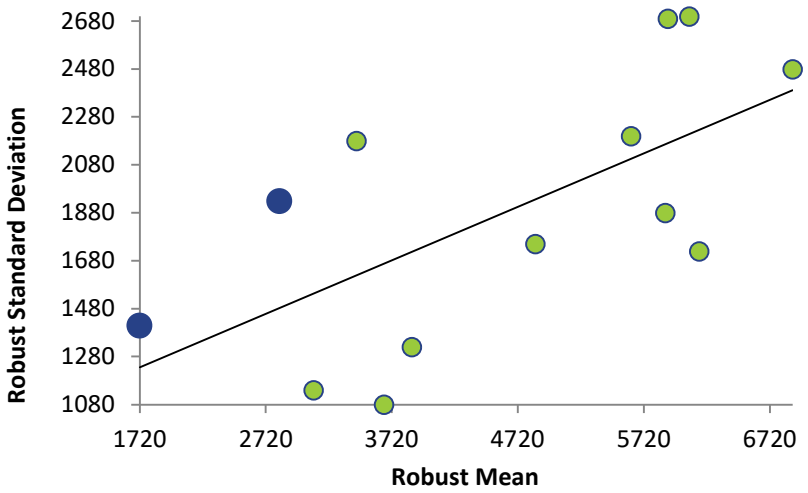
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ISOBUTANOL (2-METHYL-1-PROPANOL)

Summary Statistics

Not Spiked **Excluded**

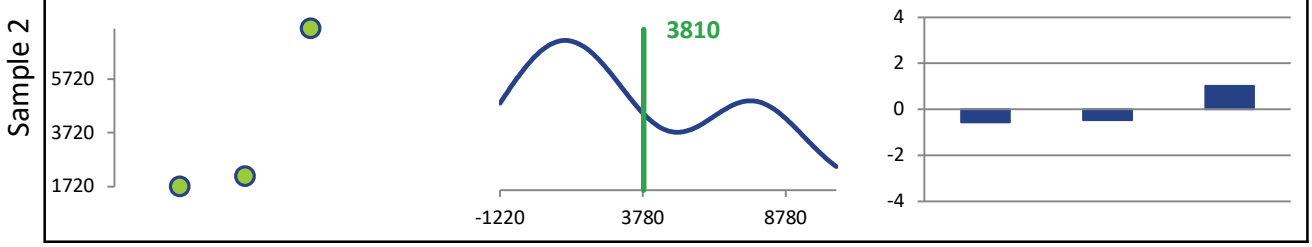
Statistic	C73-1	C73-2	C73-3	C73-4
N	0	3	0	0
Median µg/g		2100		
Robust Mean µg/g		3810		
U µg/g		2690		
Robust Standard Deviation µg/g		3730		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		3730		
Outliers	1	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	3	0	0

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

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



ISOBUTANOL (2-METHYL-1-PROPANOL)

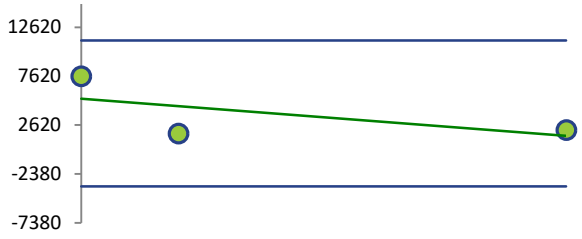
Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

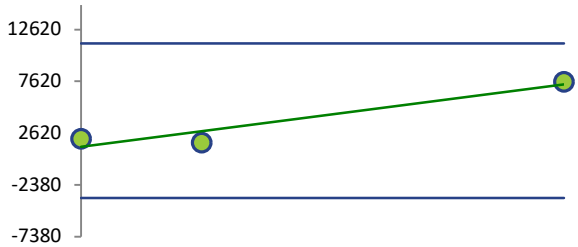
Sample 3

Sample 4

Stability Assessment | Homogeneity Assessment

Sample 1





Sample 2

Sample 3

ISOBUTANOL (2-METHYL-1-PROPANOL)

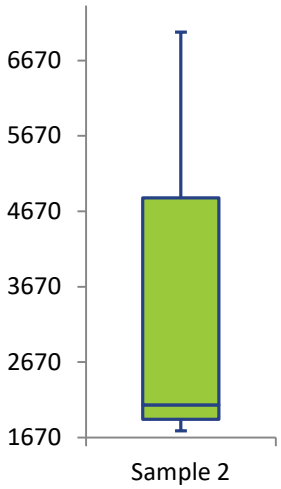
Sample 4

Stability Assessment	Homogeneity Assessment

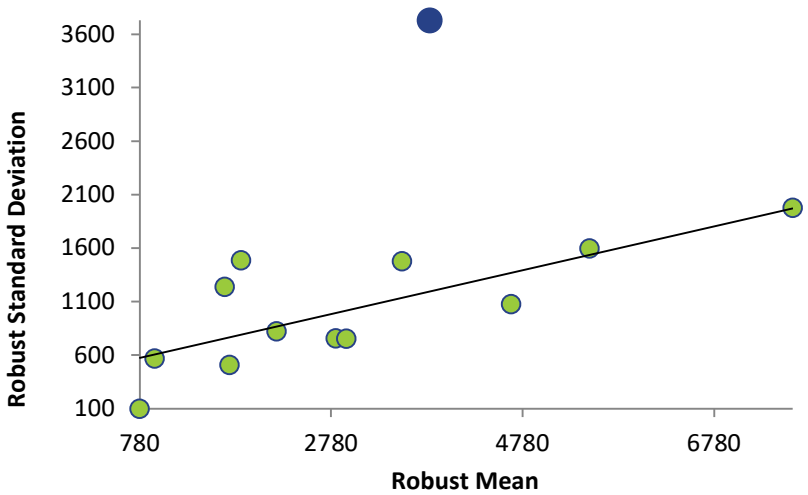
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ISOBUTYL ACETATE

Summary Statistics

Not Spiked

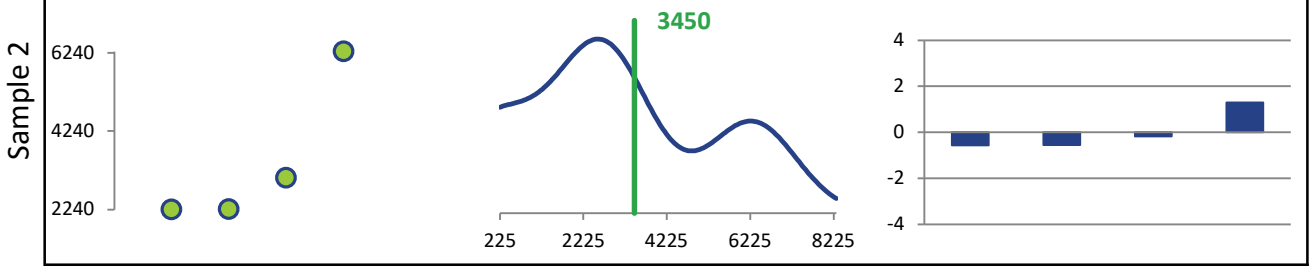
Statistic	C73-1	C73-2	C73-3	C73-4
N	0	4	0	0
Median µg/g		2650		
Robust Mean µg/g		3450		
U µg/g		1360		
Robust Standard Deviation µg/g		2170		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		2170		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

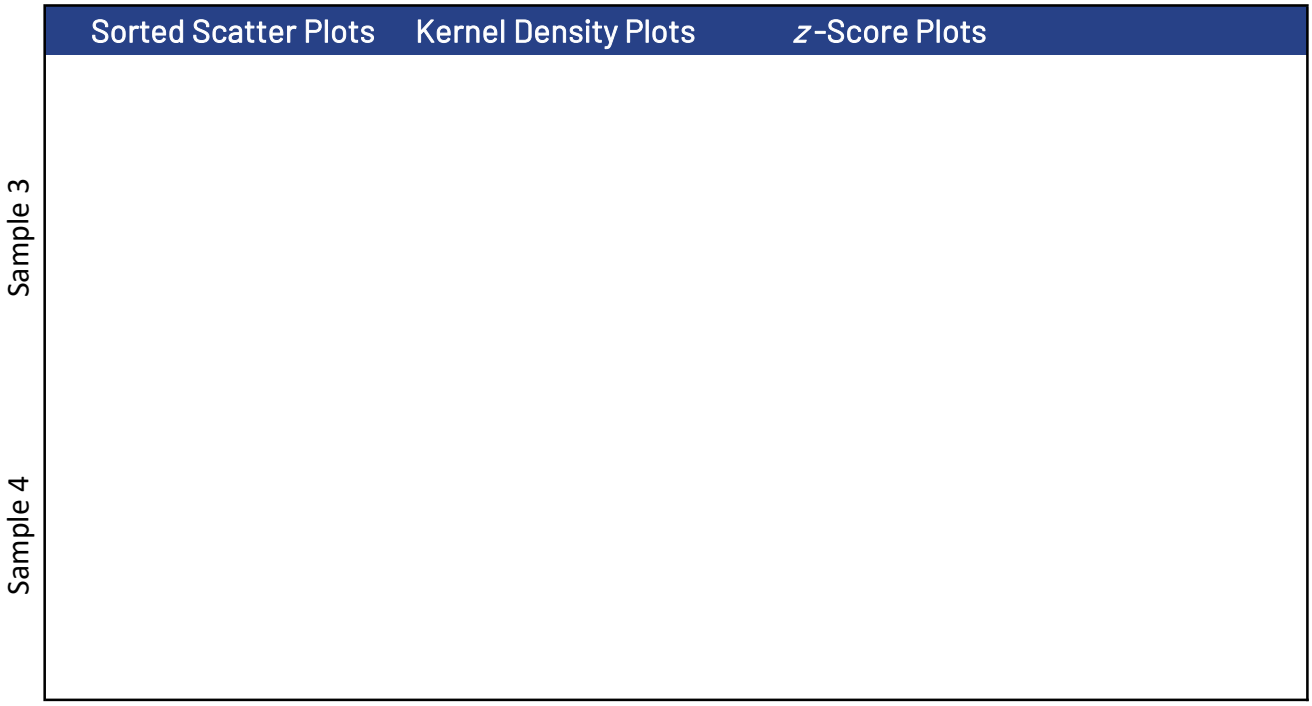
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	4	0	0

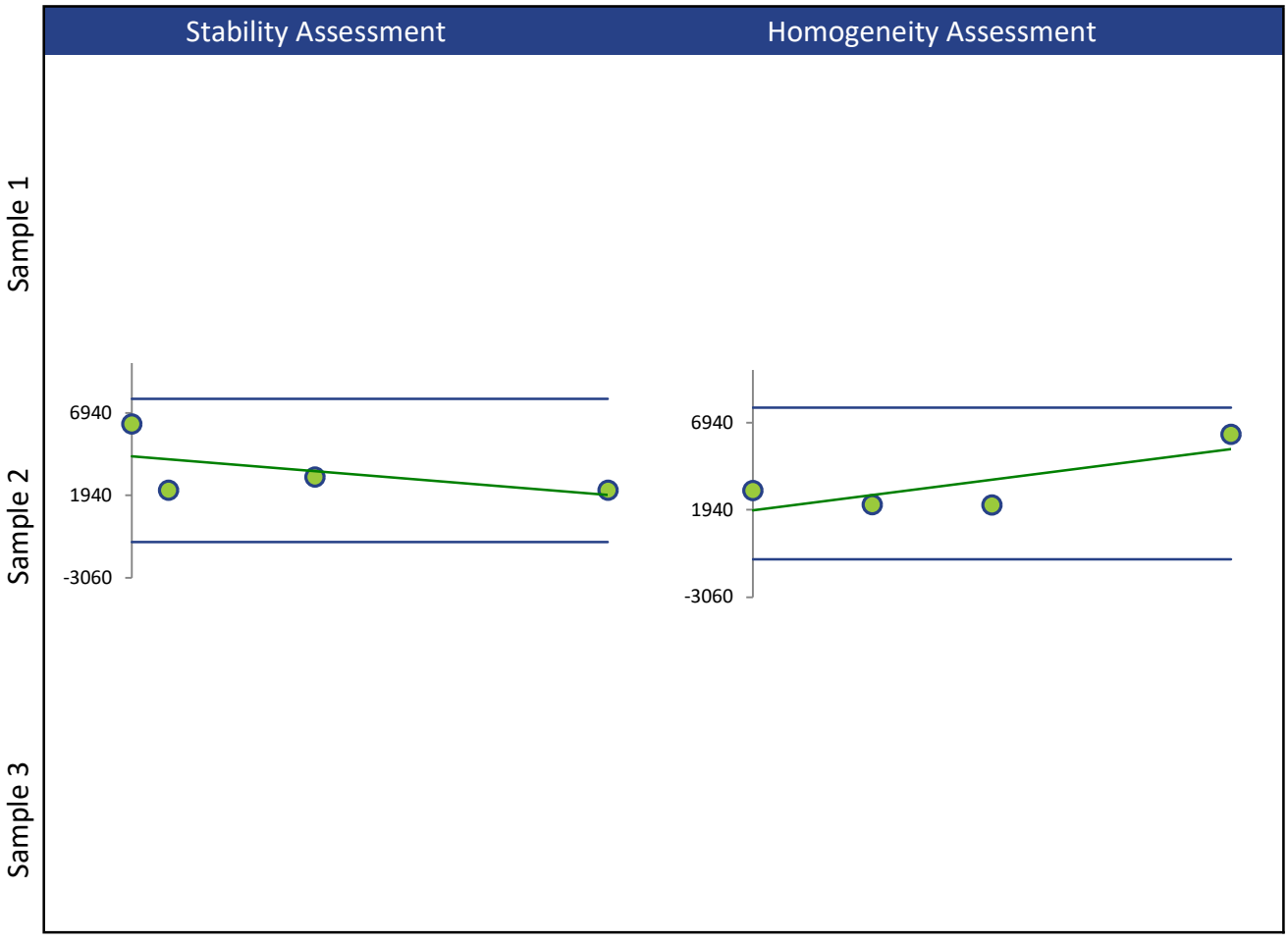
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



ISOBUTYL ACETATE





ISOBUTYL ACETATE

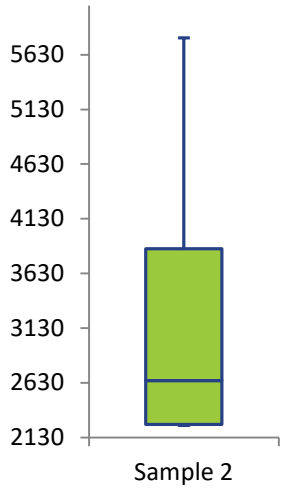
Sample 4

Stability Assessment	Homogeneity Assessment

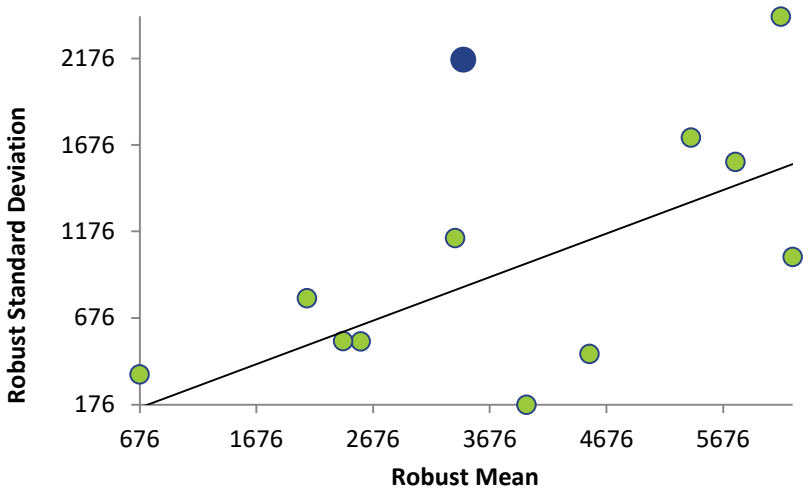
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ISOPROPYL ACETATE

Summary Statistics

Not Spiked

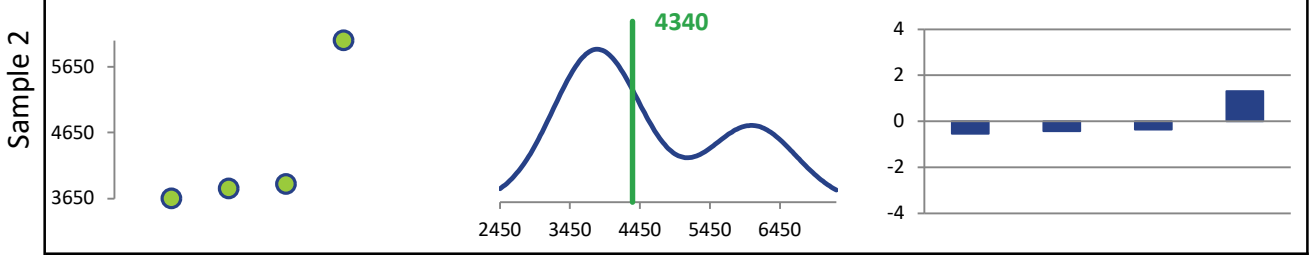
Statistic	C73-1	C73-2	C73-3	C73-4
N	0	4	0	0
Median µg/g		3840		
Robust Mean µg/g		4340		
U µg/g		813		
Robust Standard Deviation µg/g		1300		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		1300		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

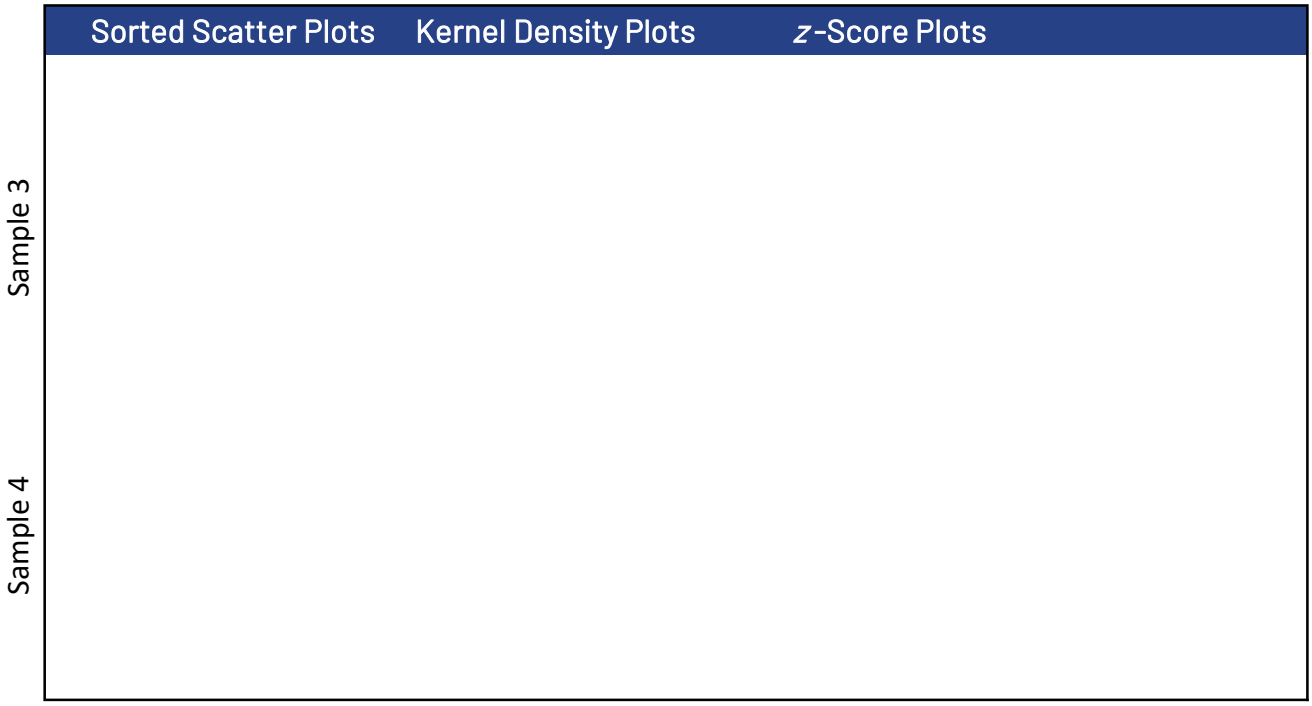
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	4	0	0

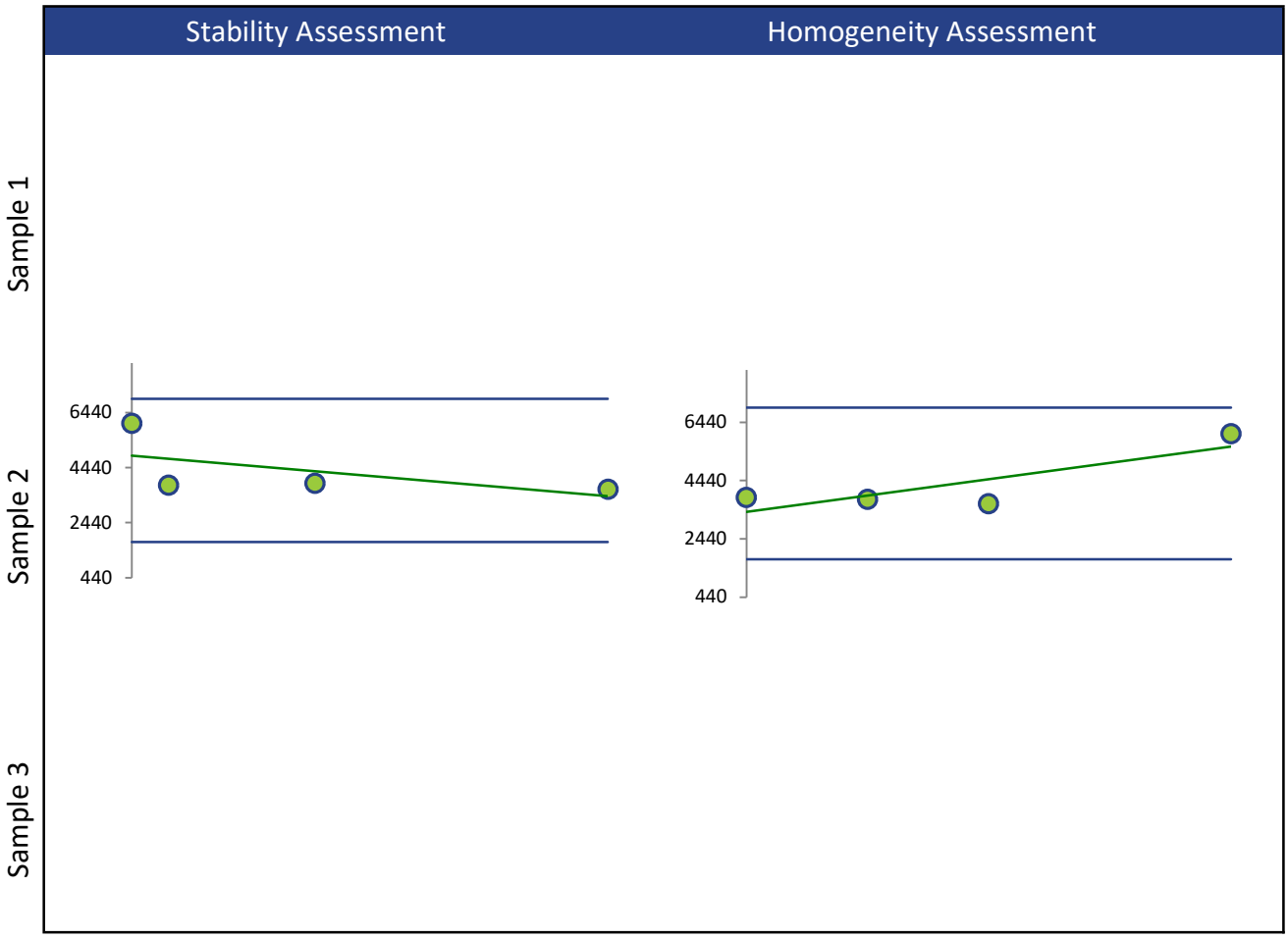
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



ISOPROPYL ACETATE





ISOPROPYL ACETATE

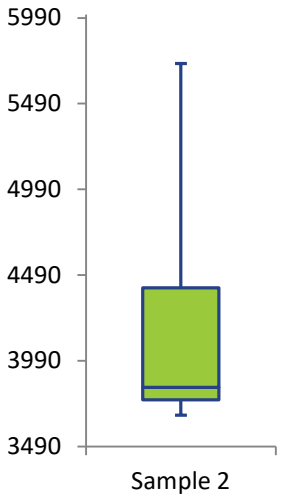
Sample 4

Stability Assessment	Homogeneity Assessment

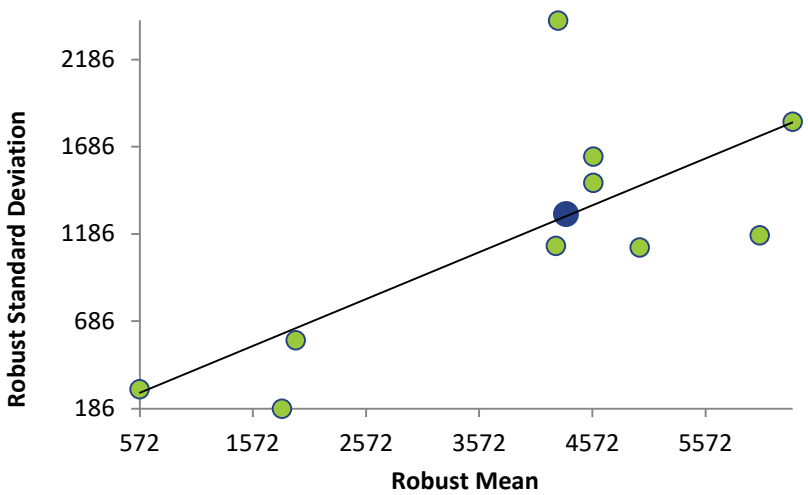
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



METHYL ACETATE

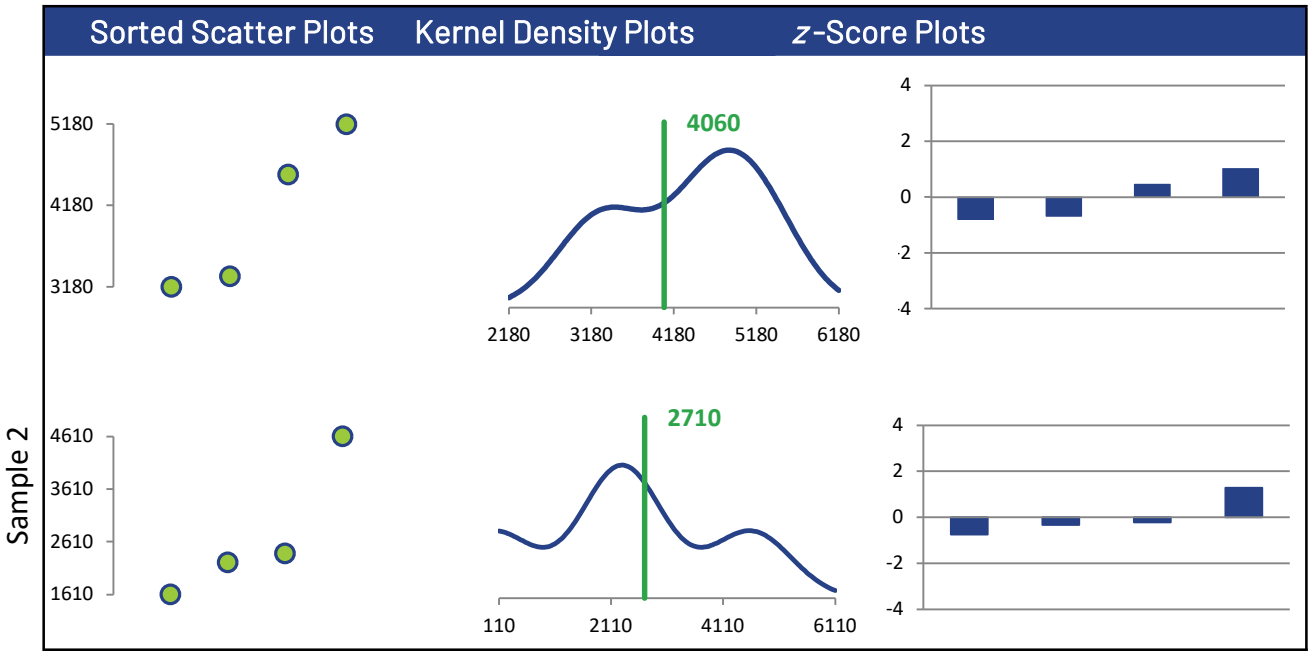
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	4	0	0
Median µg/g	3940	2310		
Robust Mean µg/g	4060	2710		
U µg/g	688	931		
Robust Standard Deviation µg/g	1100	1490		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1100	1490		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	4	0	0

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



METHYL ACETATE

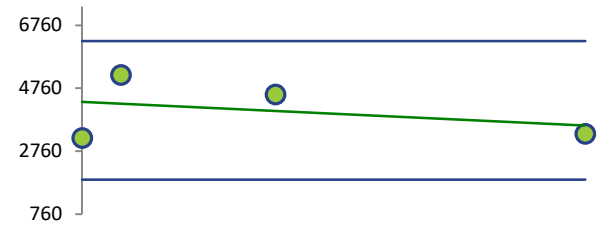
Sorted Scatter Plots | Kernel Density Plots | *z*-Score Plots

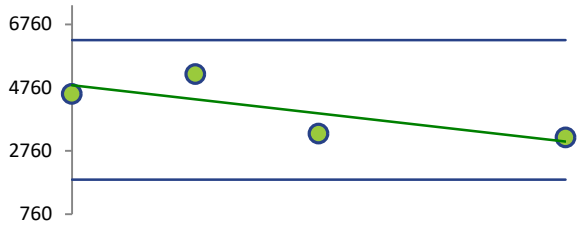
Sample 3

Sample 4

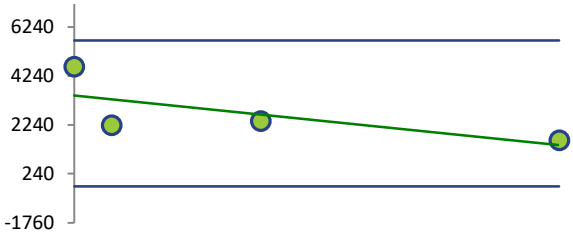
Stability Assessment | Homogeneity Assessment

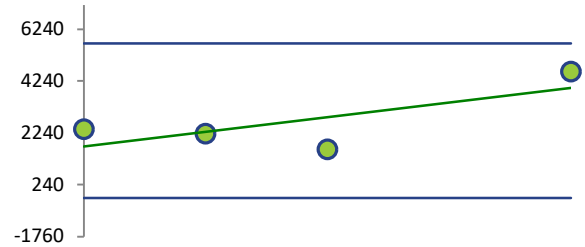
Sample 1





Sample 2





Sample 3

METHYL ACETATE

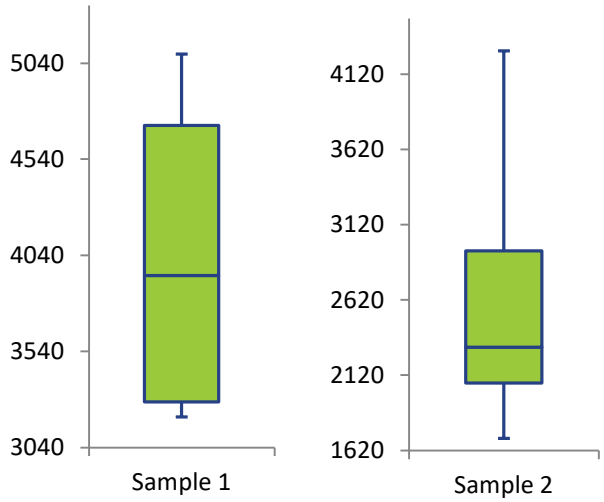
Sample 4

Stability Assessment	Homogeneity Assessment

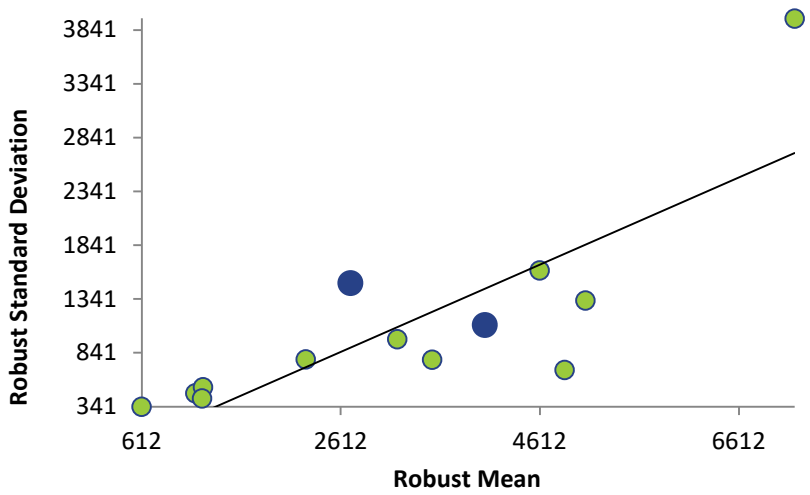
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



PENTANE

Summary Statistics

Excluded **Not Spiked**

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	0	0	0
Median µg/g	3120			
Robust Mean µg/g	3550			
U µg/g	1920			
Robust Standard Deviation µg/g	3070			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	3070			
Outliers	0	1	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

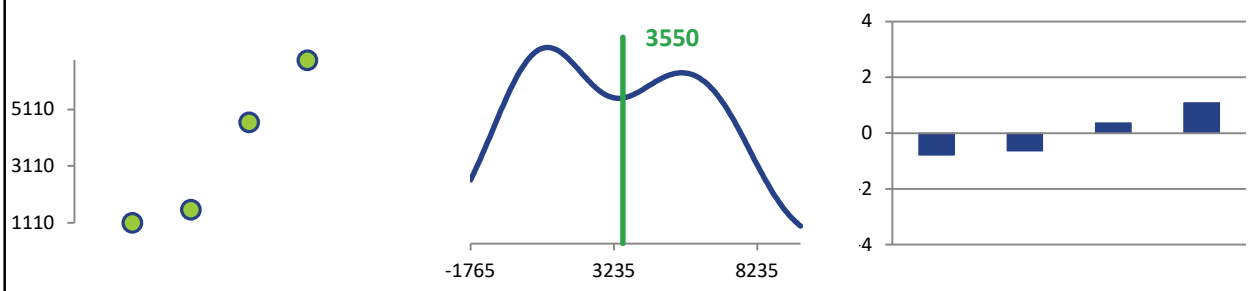
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	4	0	0	0

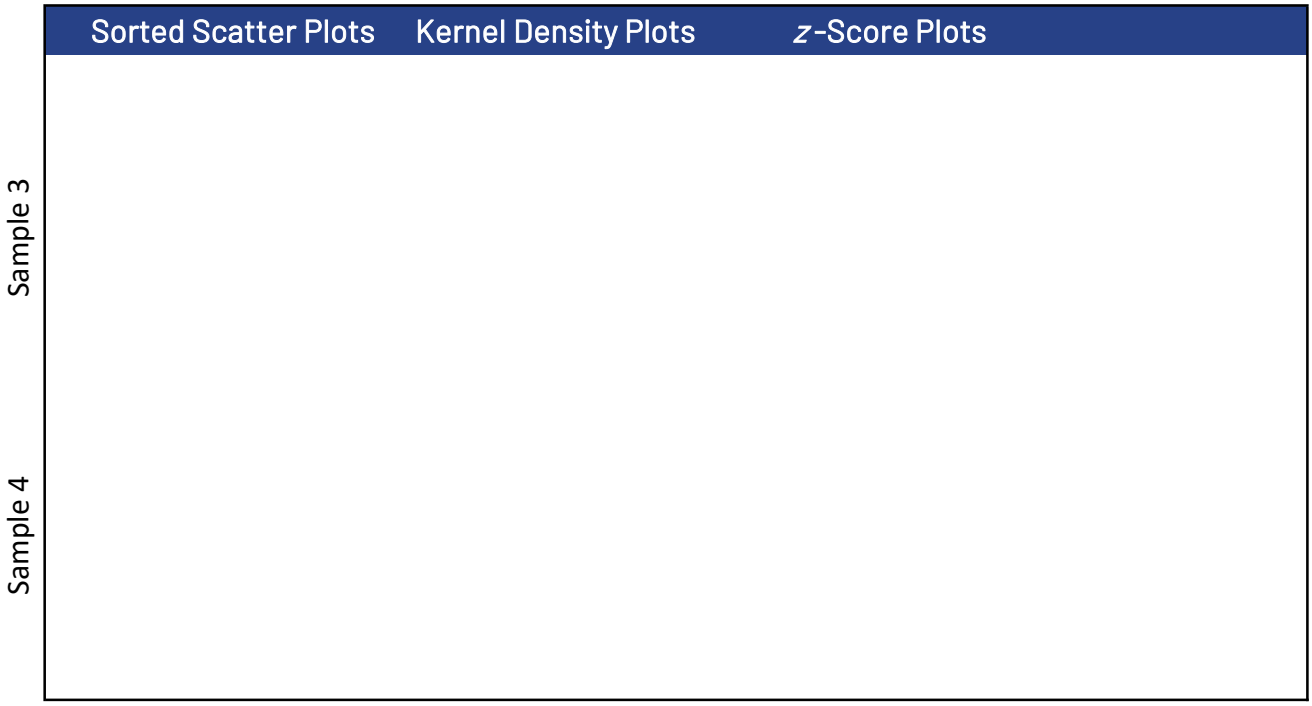
All summary stats and the plots below are based on the data excluding any flagged outliers

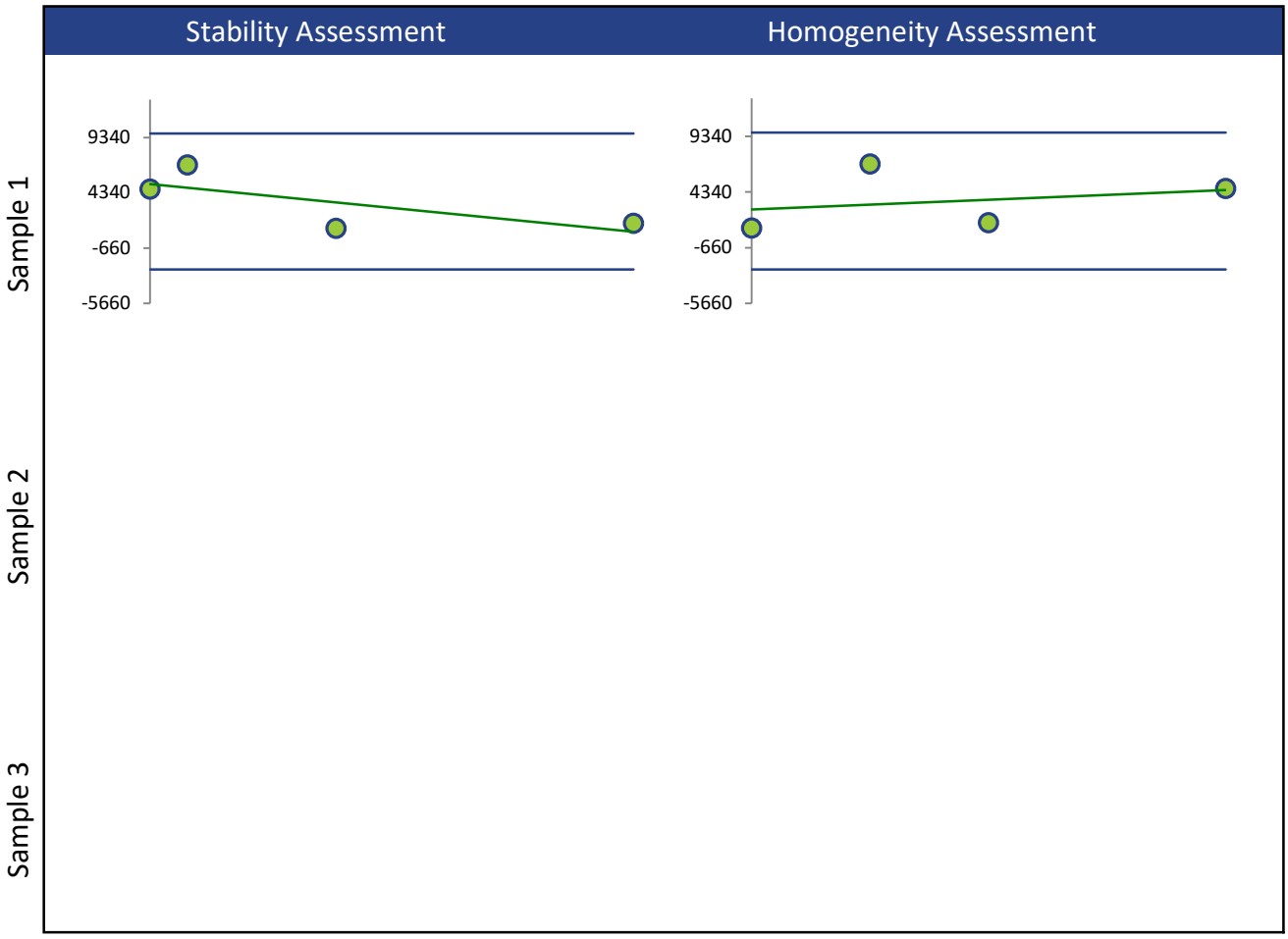
Sample 2

Sorted Scatter Plots Kernel Density Plots *z*-Score Plots



PENTANE


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
Sample 4


Stability Assessment
Homogeneity Assessment
9340
4340
-660
-5660
9340
4340
-660
-5660
Sample 1
Sample 2
Sample 3

PENTANE

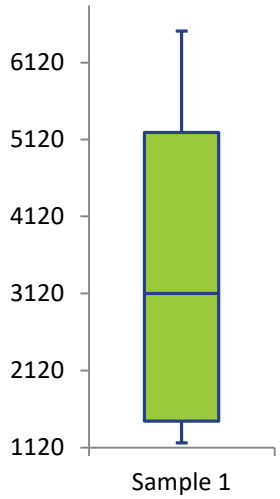
Sample 4

Stability Assessment	Homogeneity Assessment

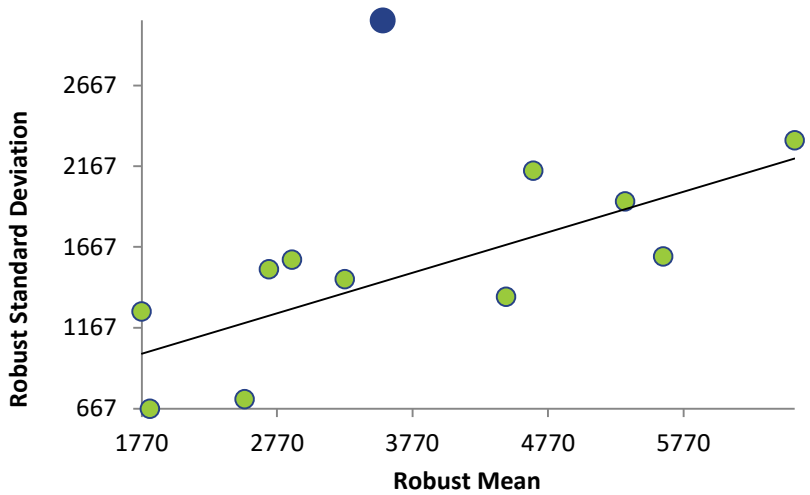
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



PROPANE

Summary Statistics

Not Spiked **Excluded**

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	0	0	0
Median µg/g				
Robust Mean µg/g				
U µg/g				
Robust Standard Deviation µg/g				
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g				
Outliers	0	2	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C73-1	C73-2	C73-3	C73-4

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

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 2

PROPANE

Sample 3

Sample 4

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 1

Sample 2

Sample 3

Stability Assessment	Homogeneity Assessment

PROPANE

Sample 4

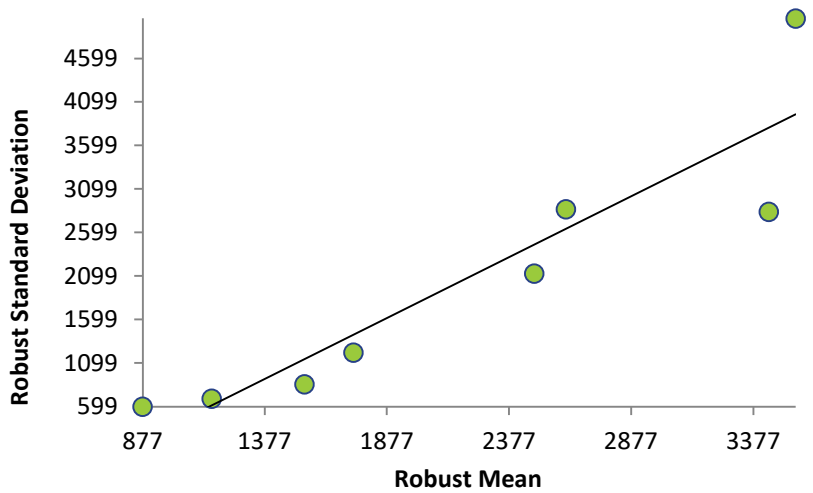
Stability Assessment	Homogeneity Assessment

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

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

Box and Whisker Plots

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



PROPYL ACETATE

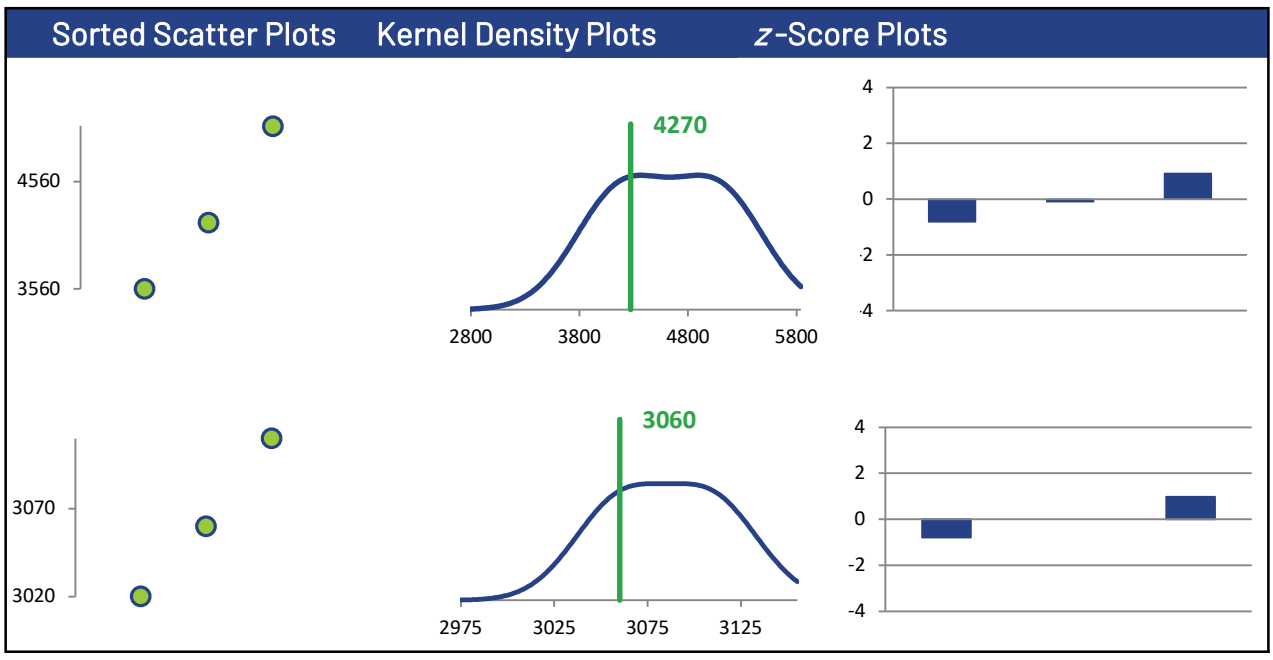
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	3	3	0	0
Median µg/g	4180	3060		
Robust Mean µg/g	4270	3060		
U µg/g	626	36.9		
Robust Standard Deviation µg/g	867	51.1		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	867	51.1		
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

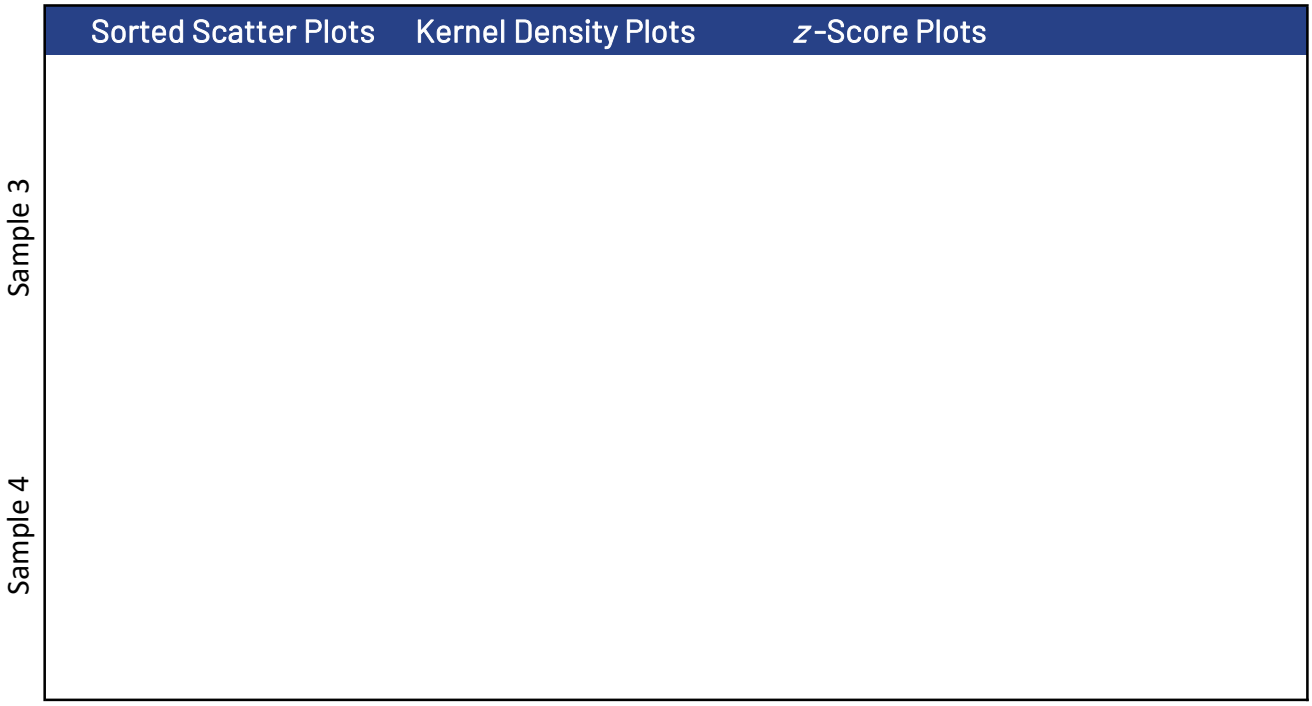
Methods Used

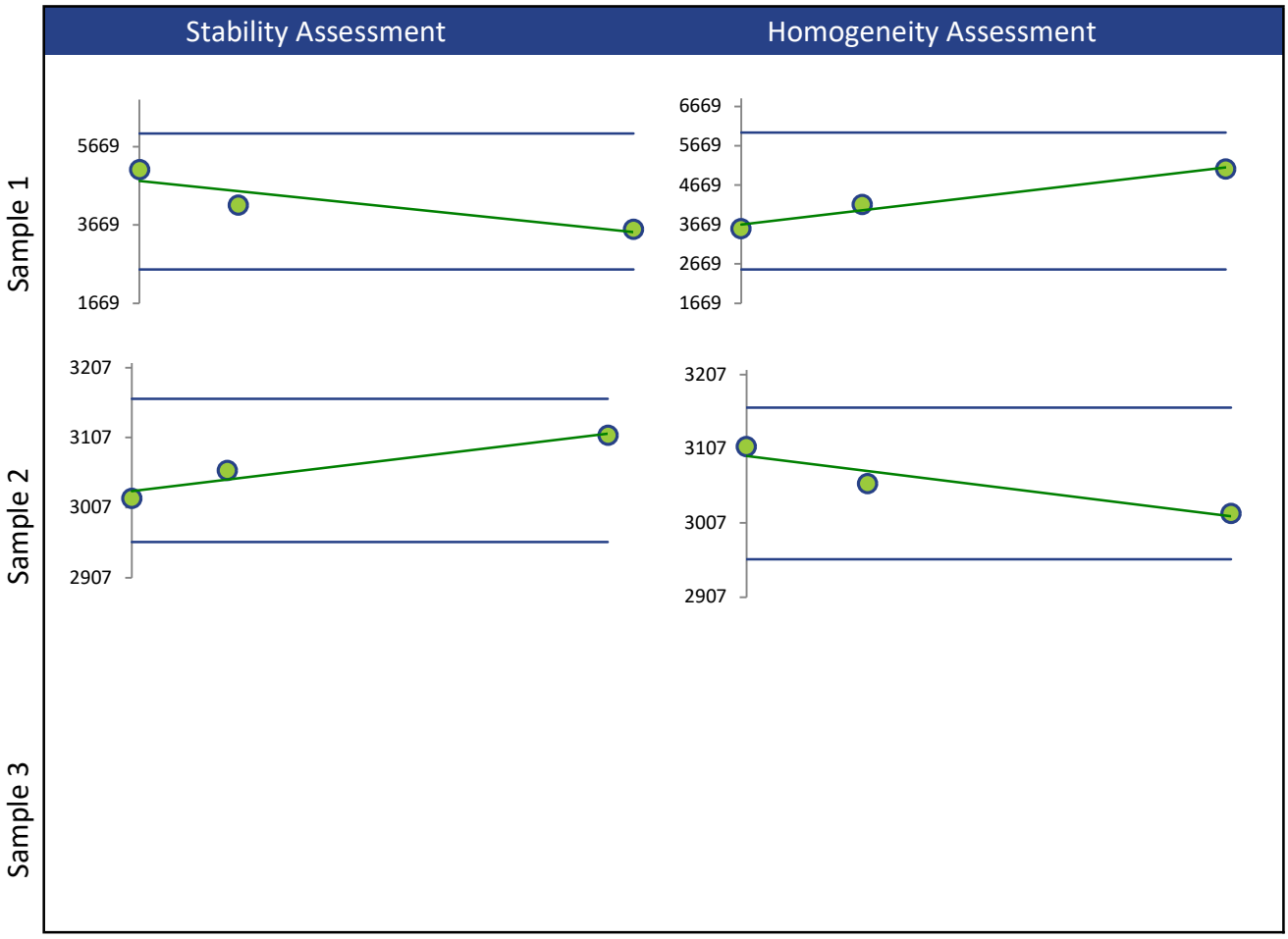
Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	3	3	0	0

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



PROPYL ACETATE





PROPYL ACETATE

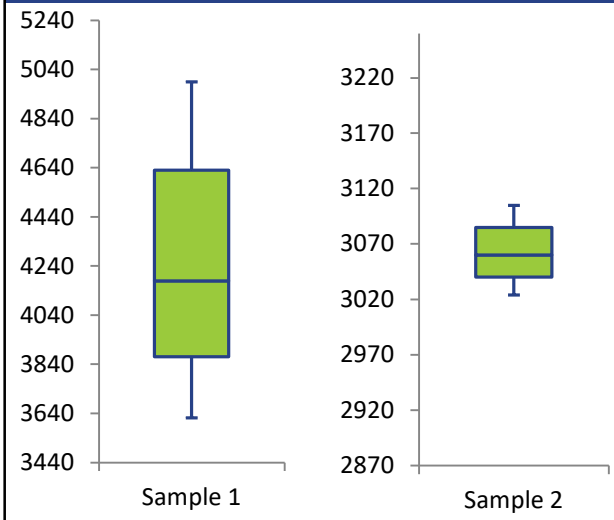
Sample 4

Stability Assessment	Homogeneity Assessment

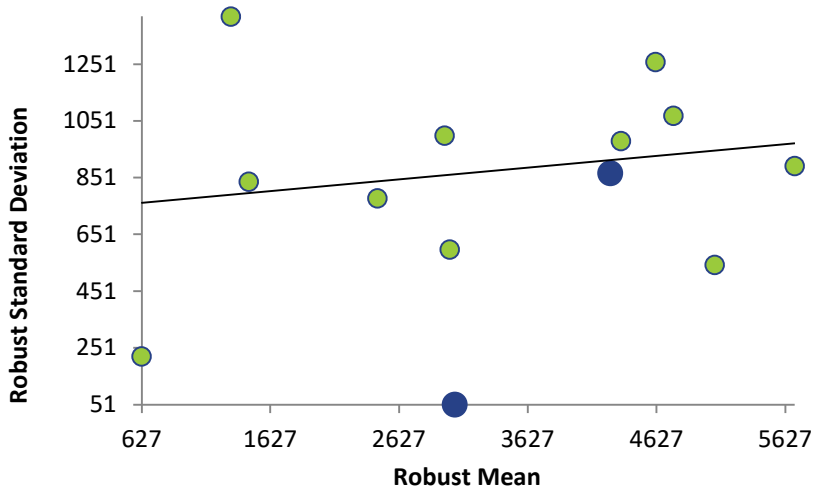
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



TRIETHYLAMINE

Summary Statistics

Not Spiked **Excluded**

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	0	0	0
Median µg/g				
Robust Mean µg/g				
U µg/g				
Robust Standard Deviation µg/g				
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g				
Outliers	0	1	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

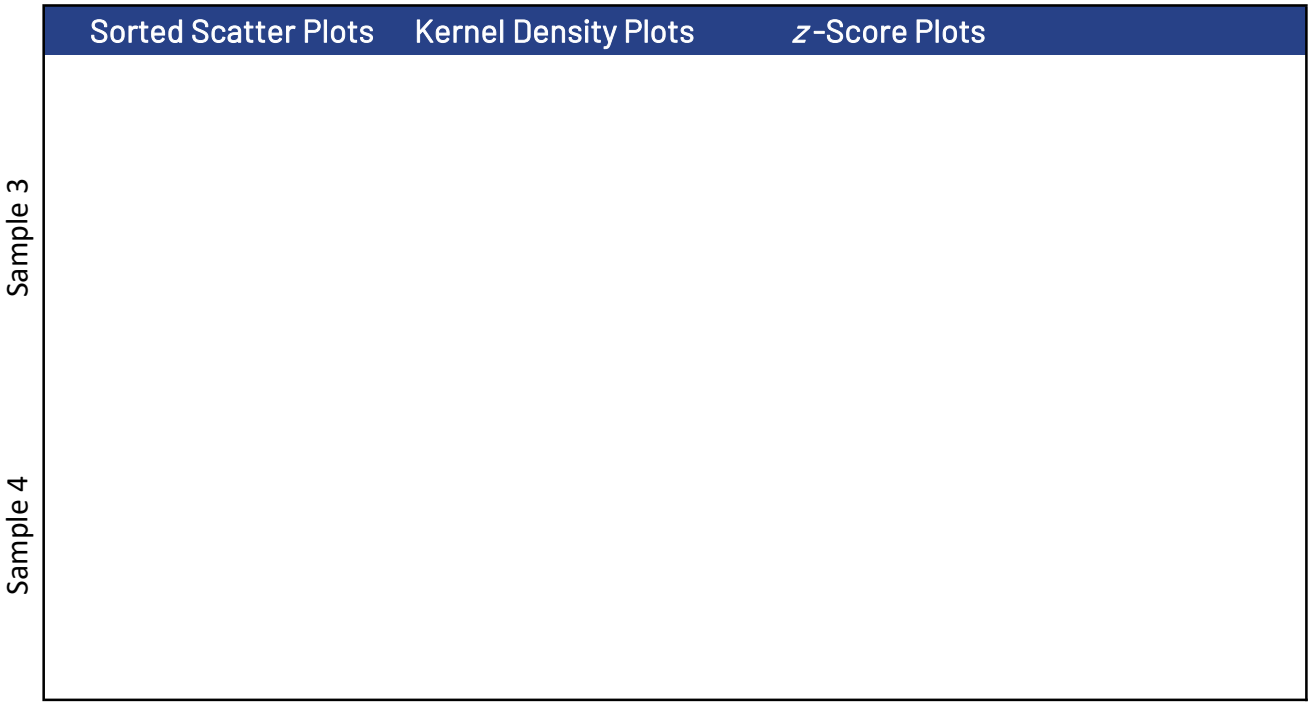
Method	C73-1	C73-2	C73-3	C73-4

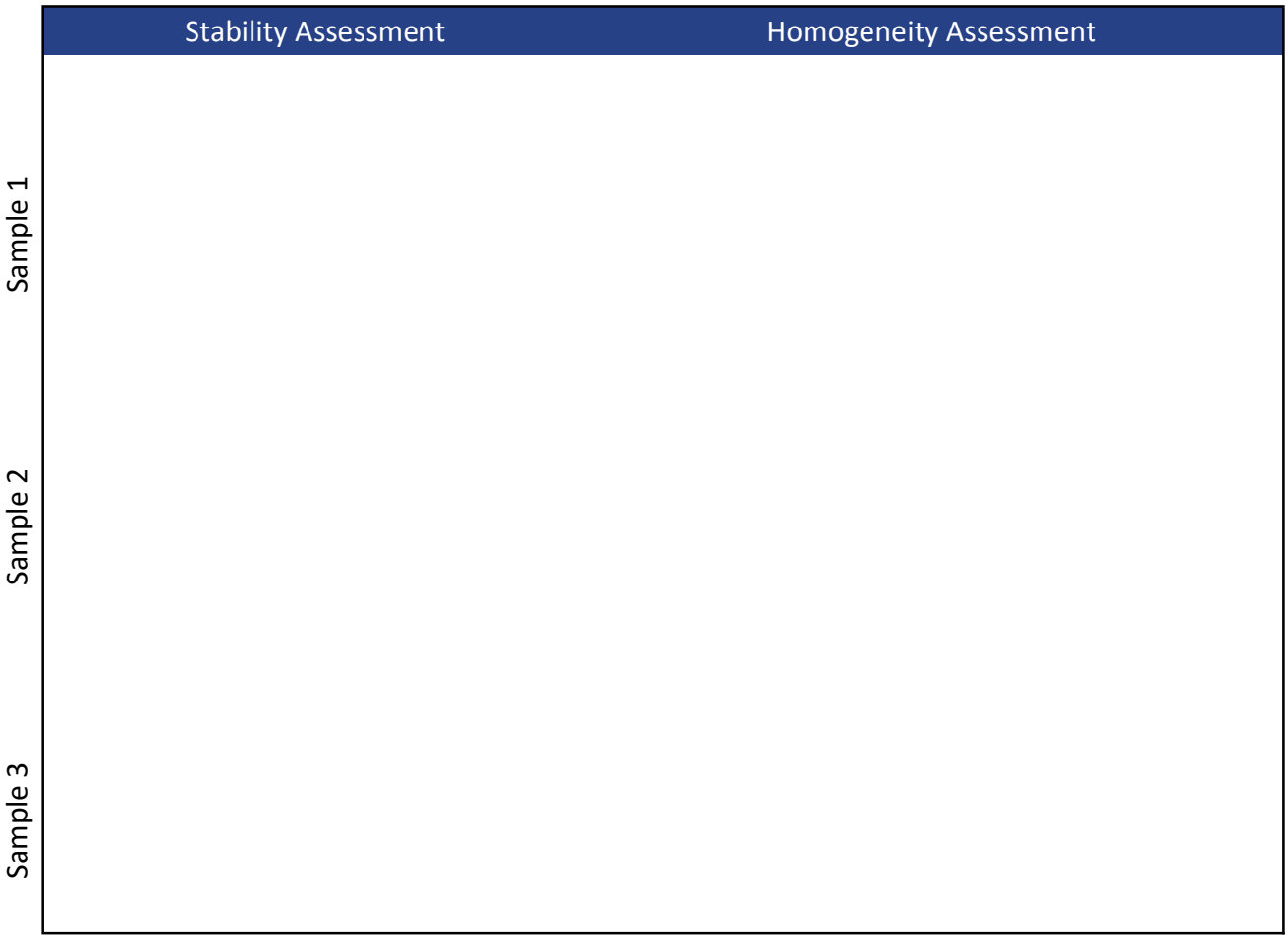
All summary stats and the plots below are based on the data excluding any flagged outliers

Sorted Scatter Plots	Kernel Density Plots	*z*-Score Plots

Sample 2

TRIETHYLAMINE





TRIETHYLAMINE

Sample 4

Stability Assessment	Homogeneity Assessment

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

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

Box and Whisker Plots

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