

Test Group Summary Report

C73 Residual Solvents in Oil

October 2024 PT Round

Issued: November 27, 2024

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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).

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} = the Assigned Value;
SDPA = 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 = the number of samples

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

$RSZ \geq -2$ 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

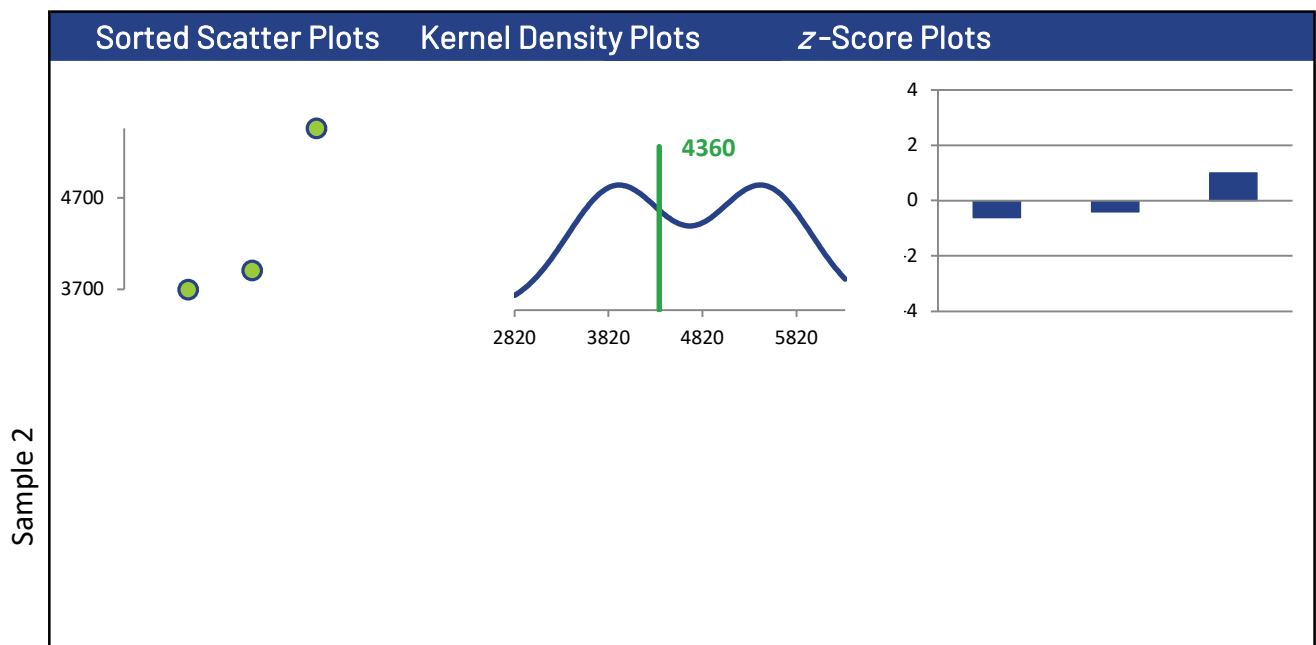
Excluded Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	3	0	0	0
Median µg/g	3910			
Robust Mean µg/g	4360			
U µg/g	787			
Robust Standard Deviation µg/g	1090			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1090			
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

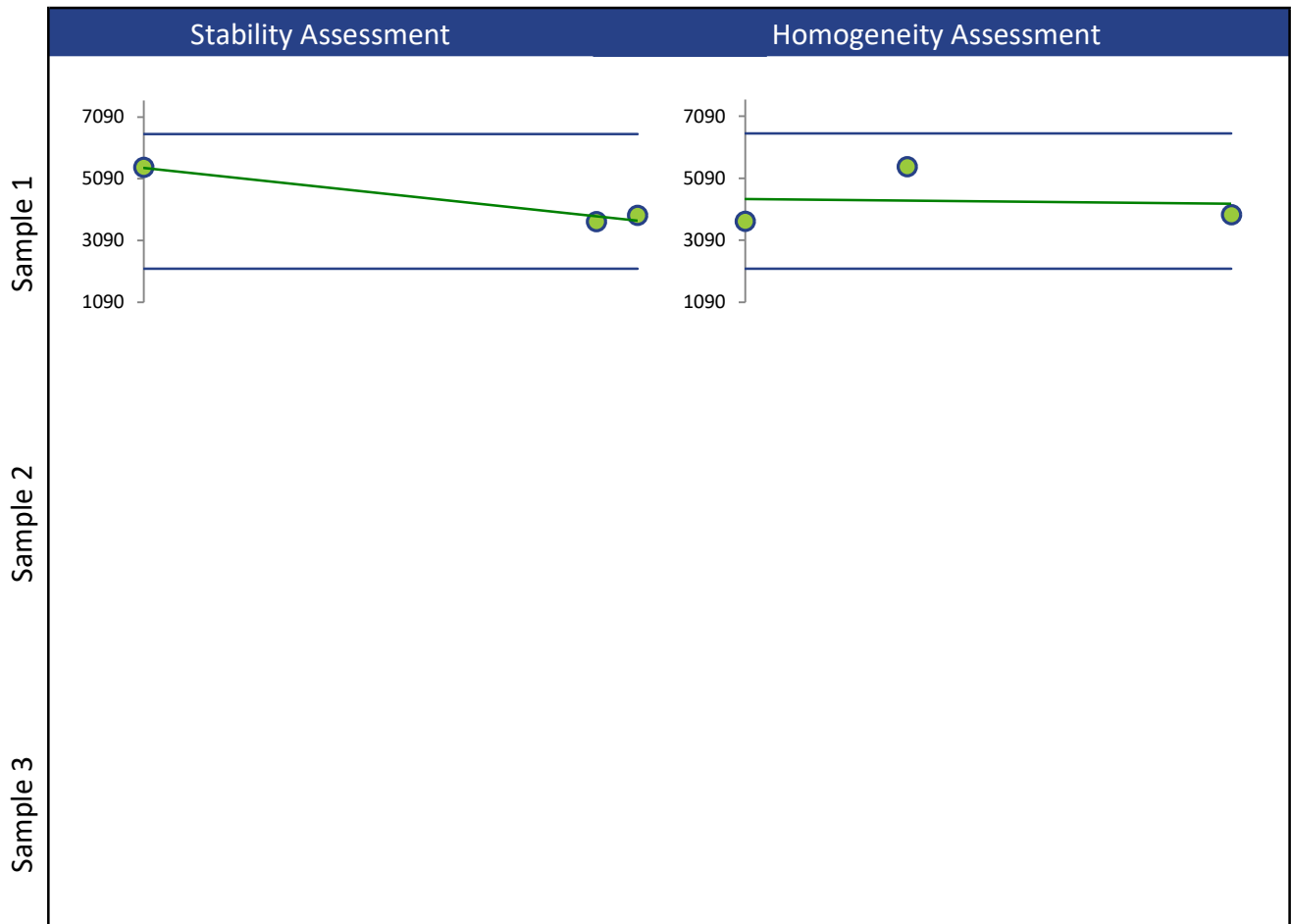
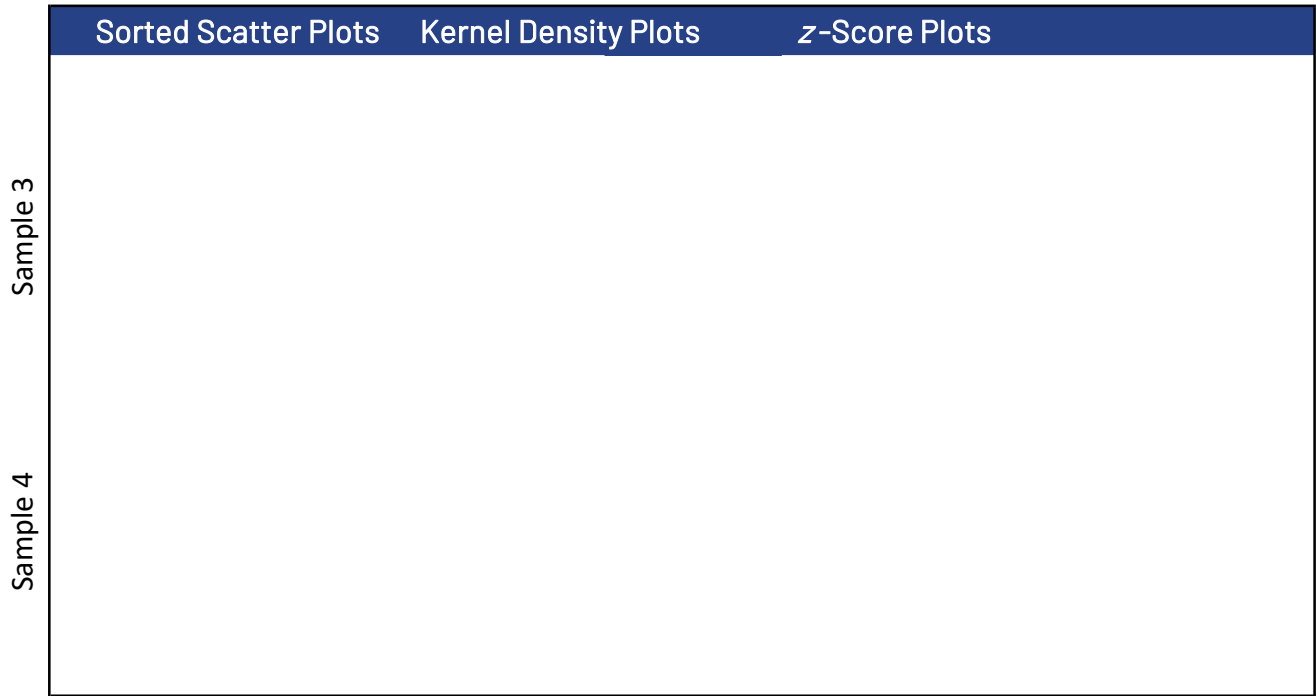
Methods Used

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

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



1-BUTANOL (N-BUTANOL)

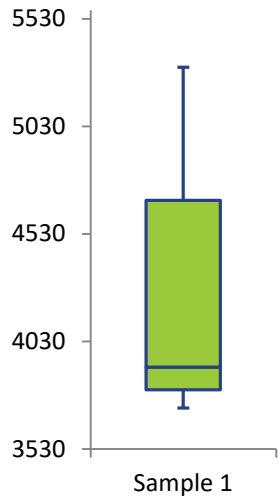


1-BUTANOL (N-BUTANOL)

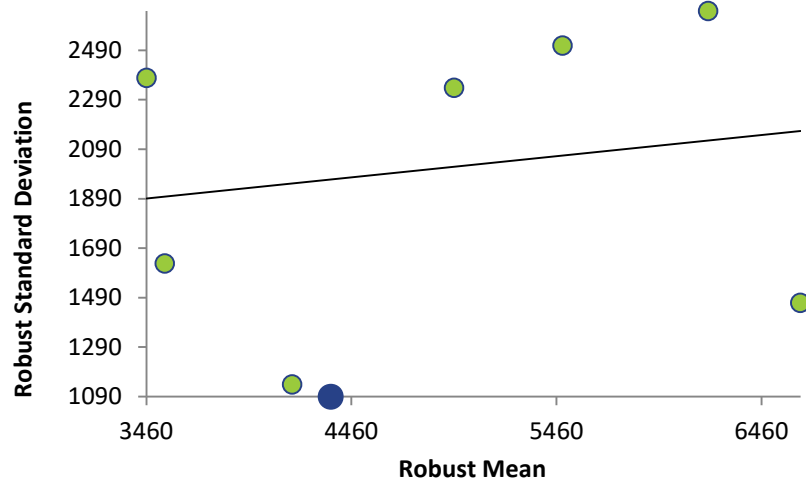
	Stability Assessment	Homogeneity Assessment
Sample 4		

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

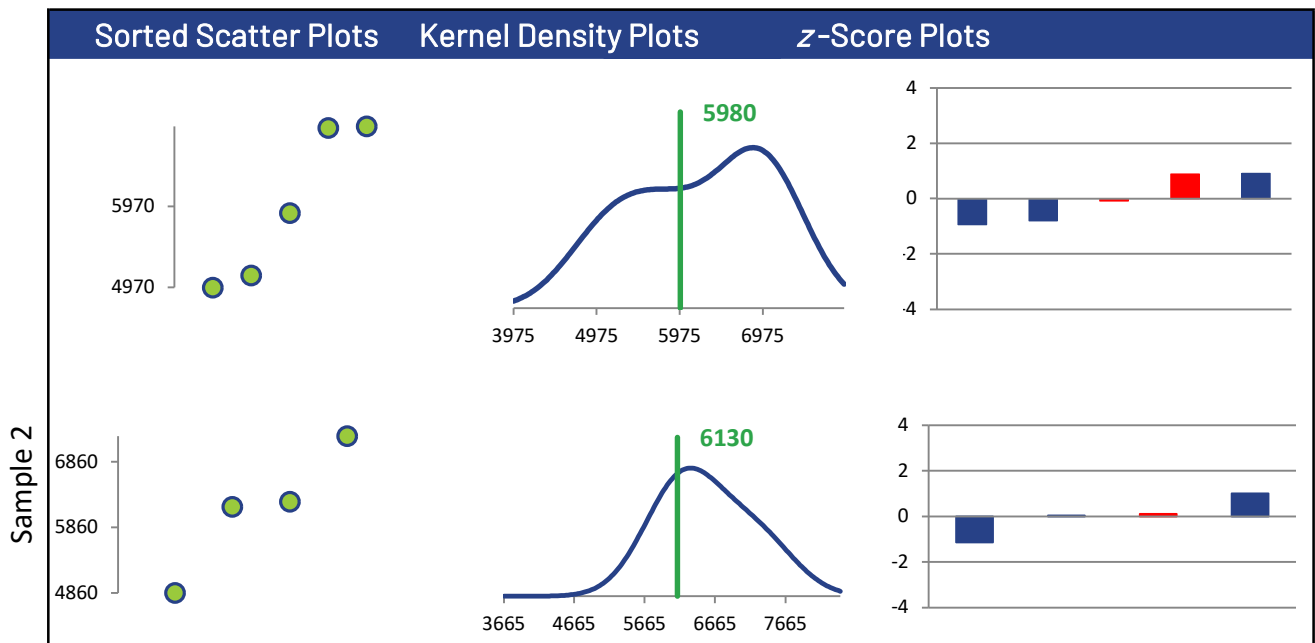
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	4	0	0
Median µg/g	5890	6210		
Robust Mean µg/g	5980	6130		
U µg/g	604	694		
Robust Standard Deviation µg/g	1080	1110		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1080	1110		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

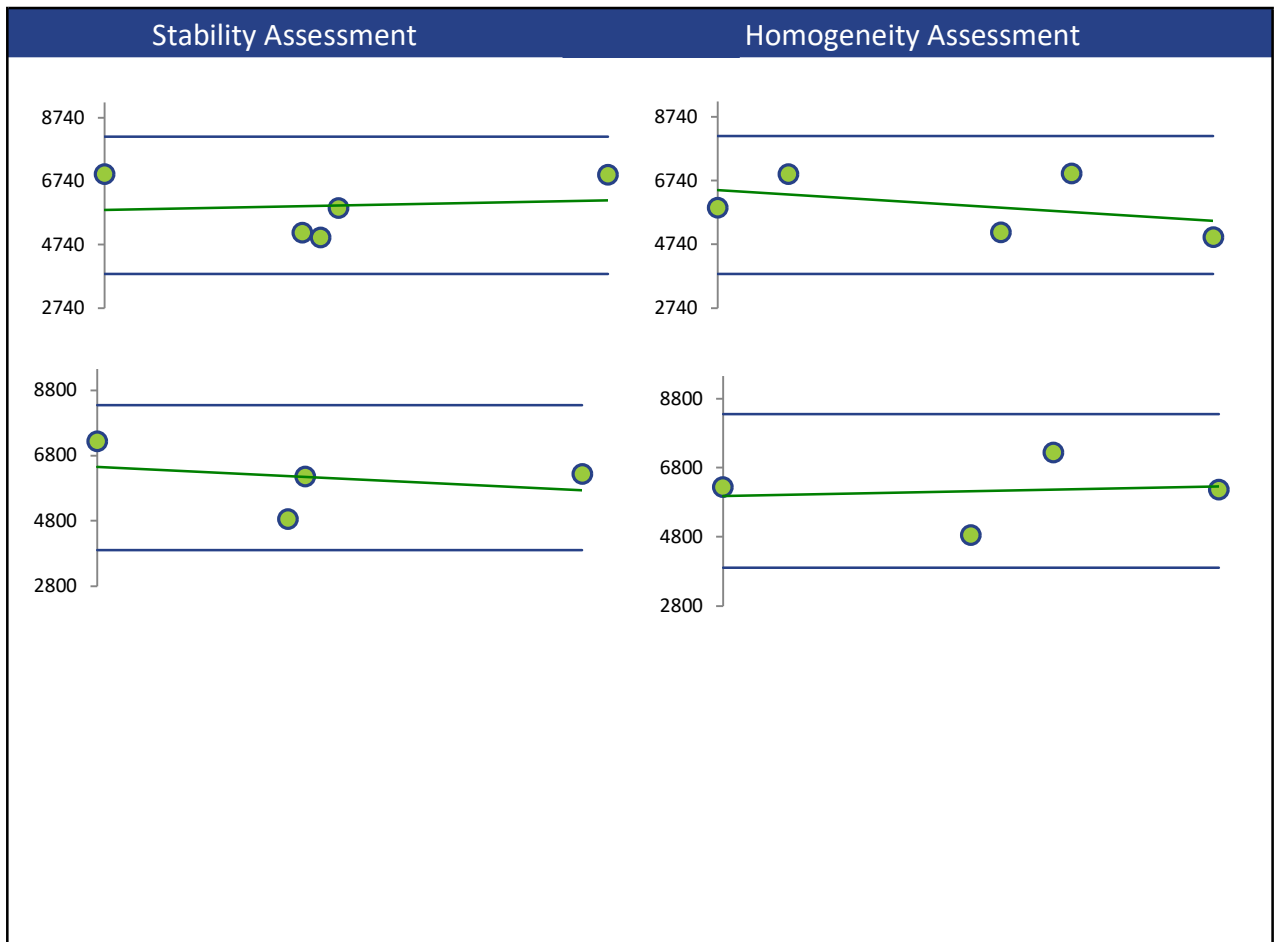
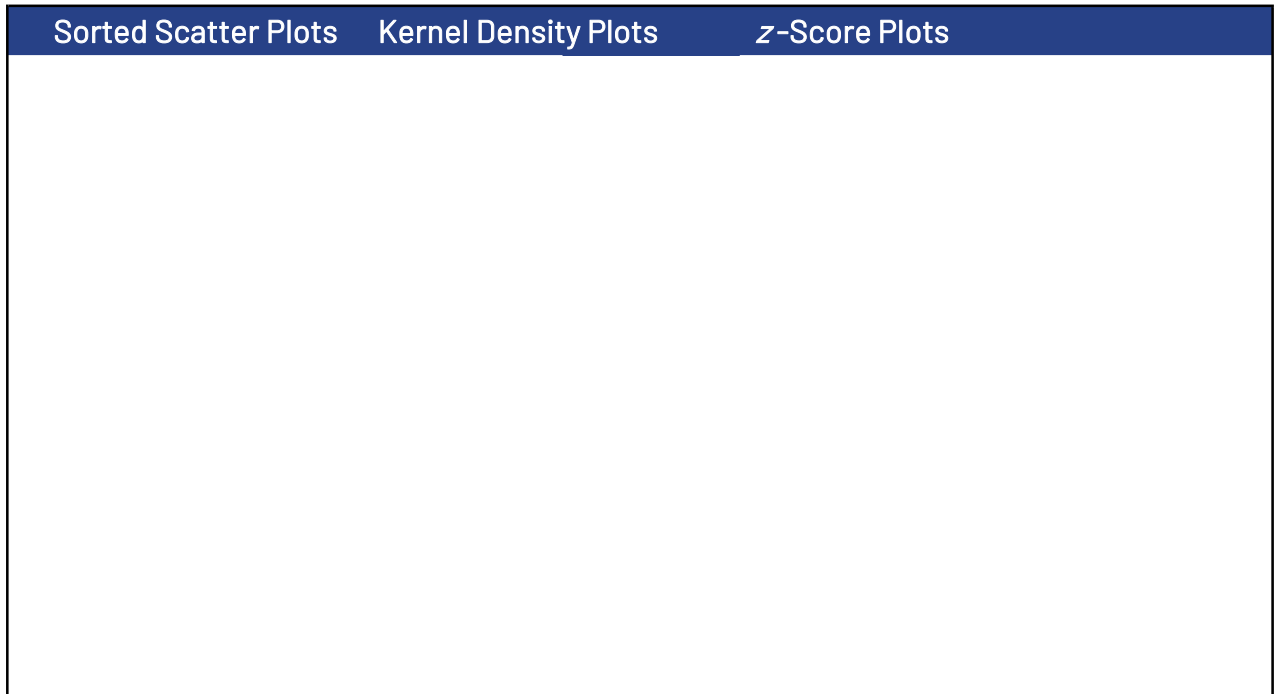
Methods Used

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

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

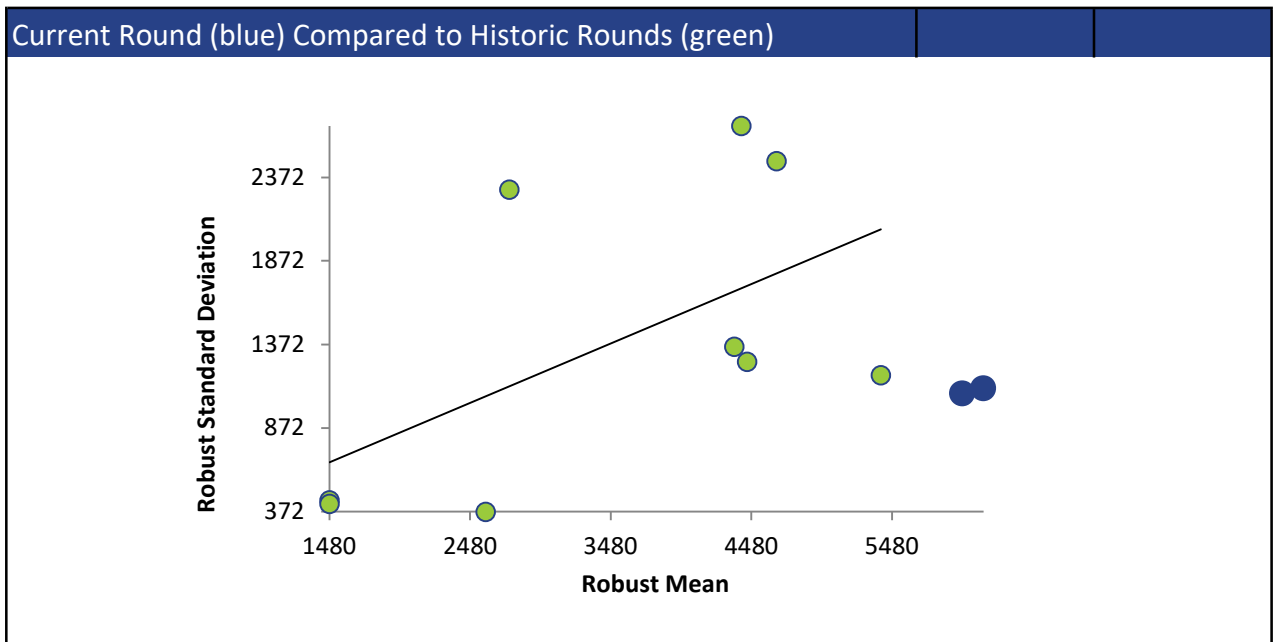
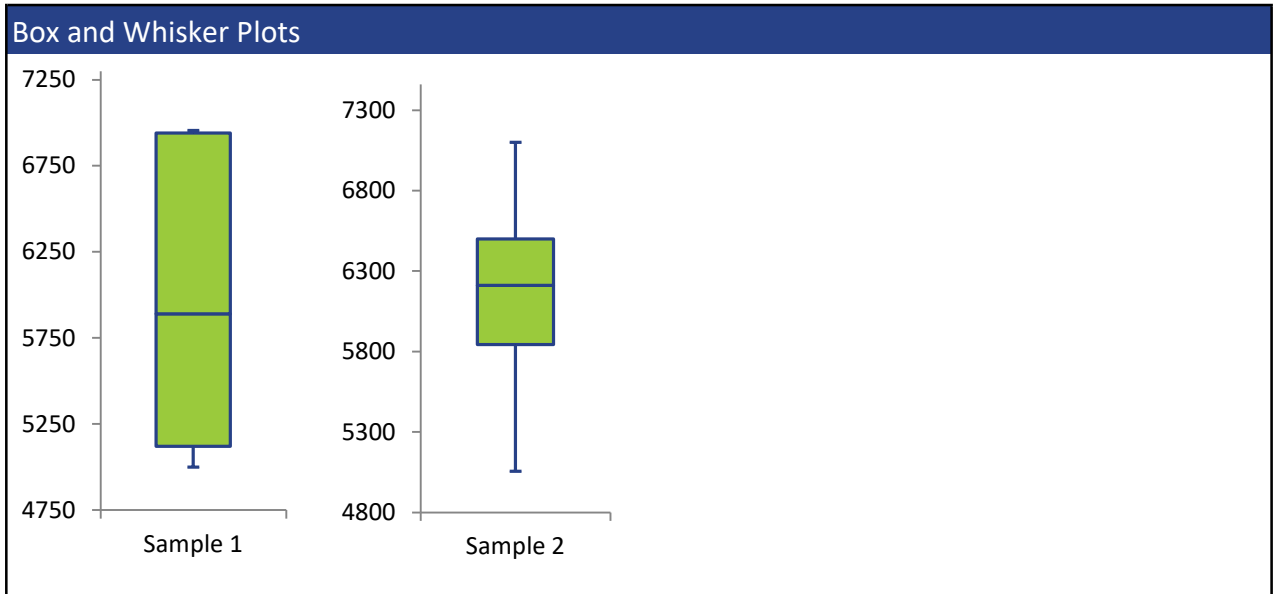


1-PENTANOL



1-PENTANOL

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



1-PROPANOL (PROPANOL)

Summary Statistics

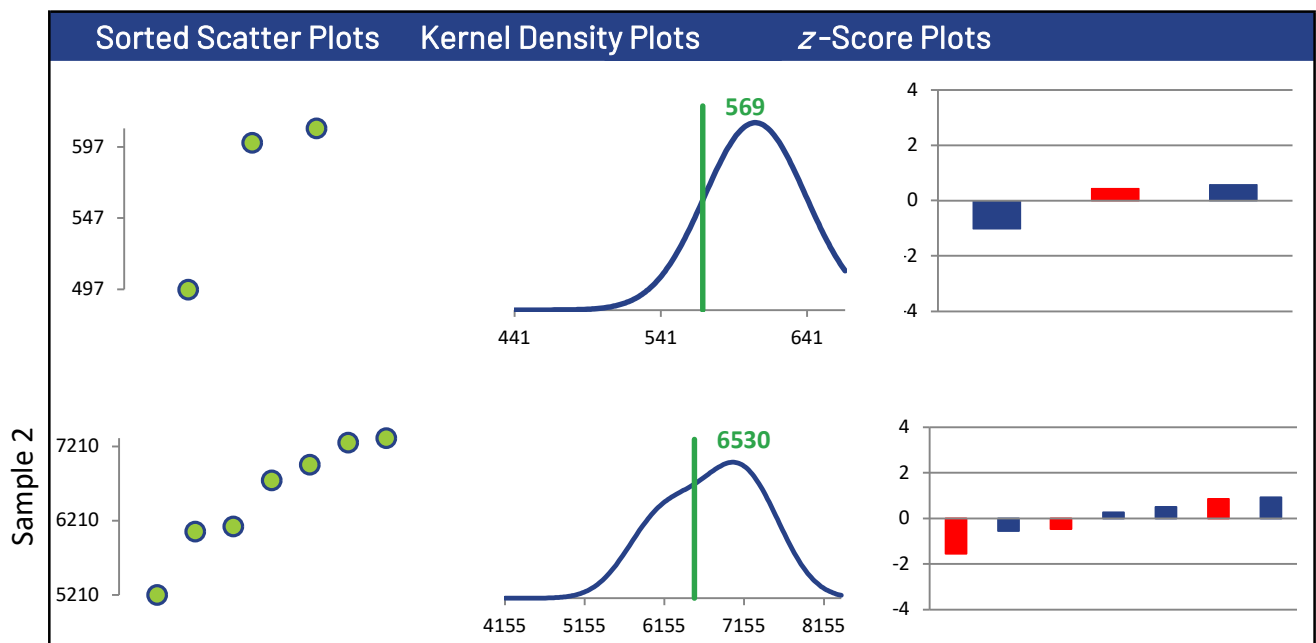
Excluded

Statistic	C73-1	C73-2	C73-3	C73-4
N	3	7	0	0
Median µg/g	600	6750		
Robust Mean µg/g	569	6530		
U µg/g	51.2	403		
Robust Standard Deviation µg/g	70.9	854		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	70.9	854		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

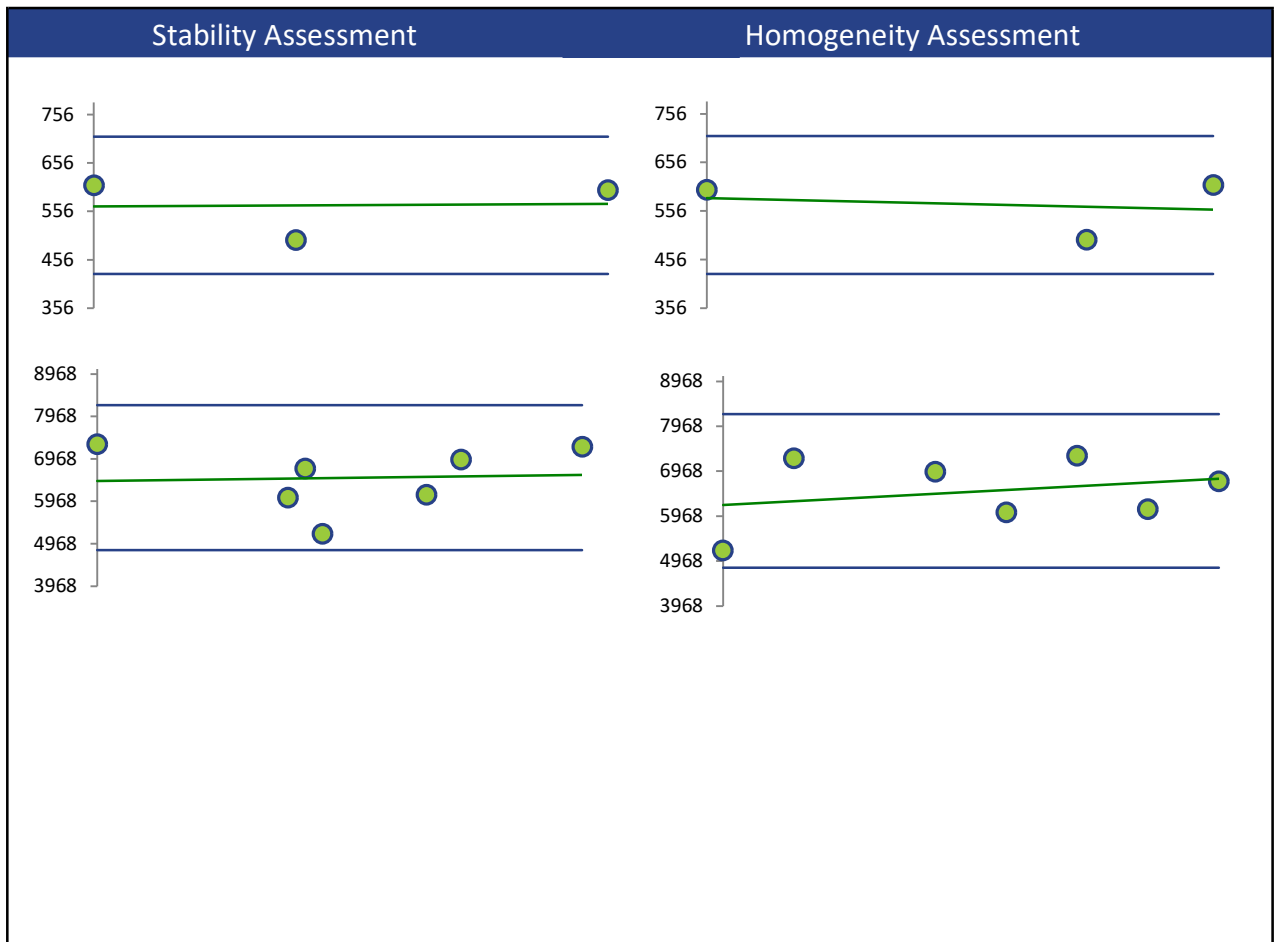
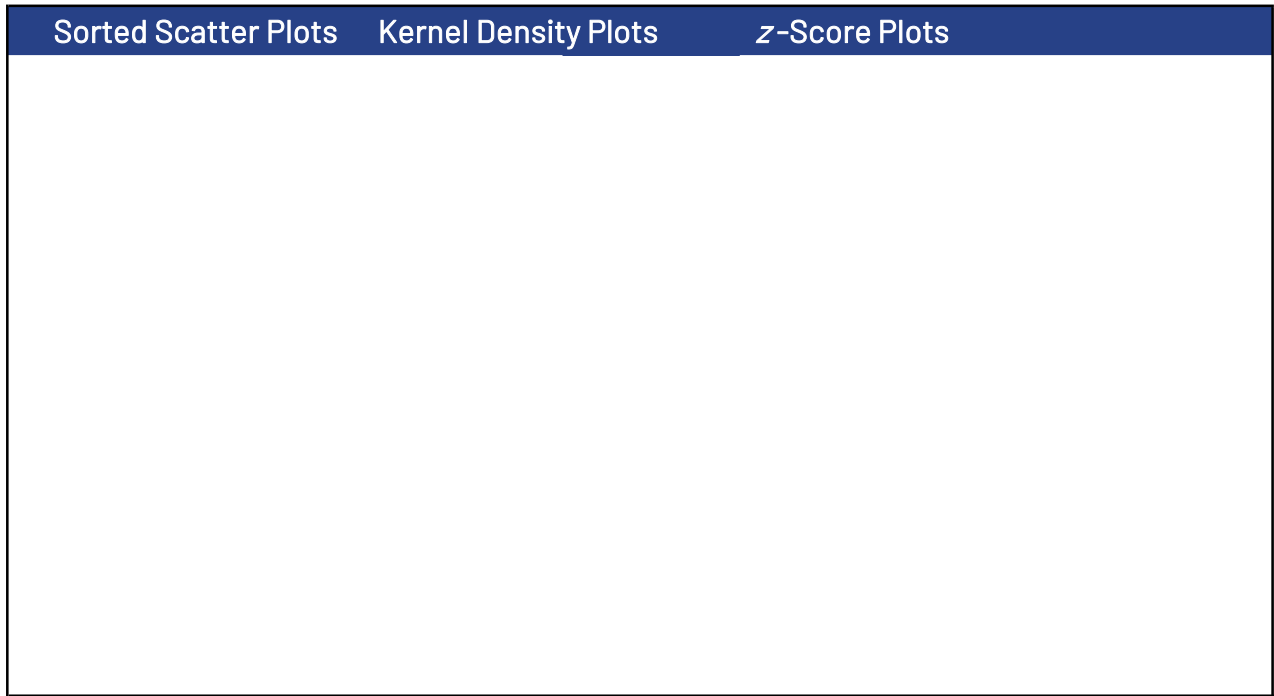
Methods Used

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

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

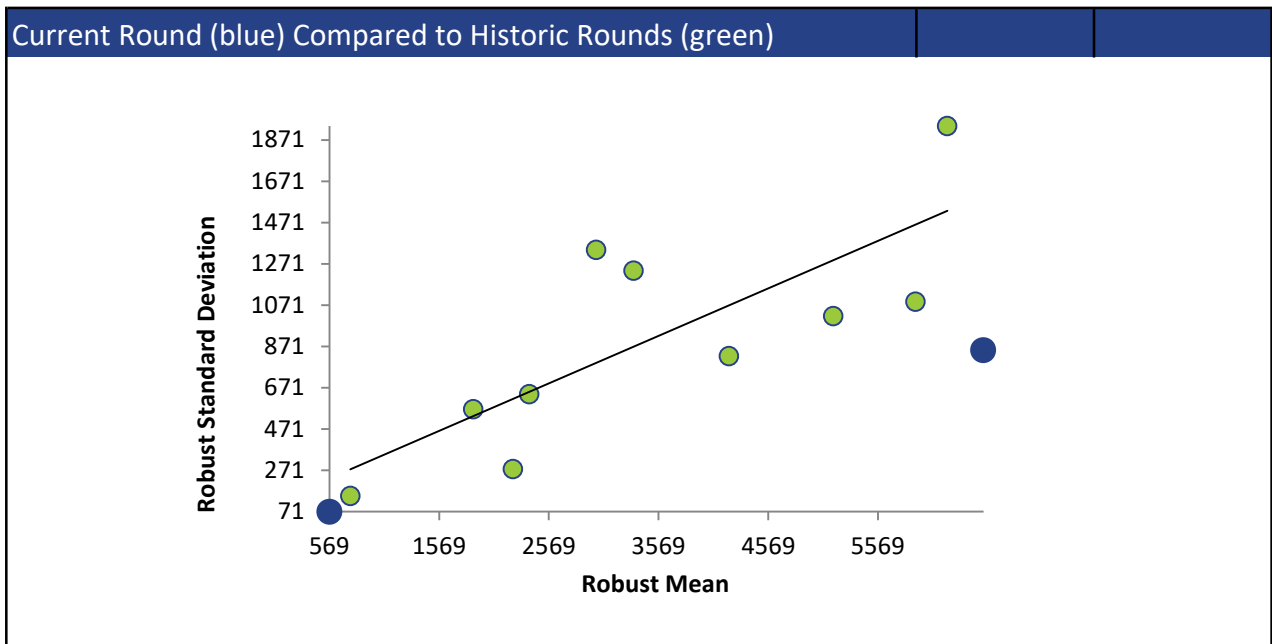
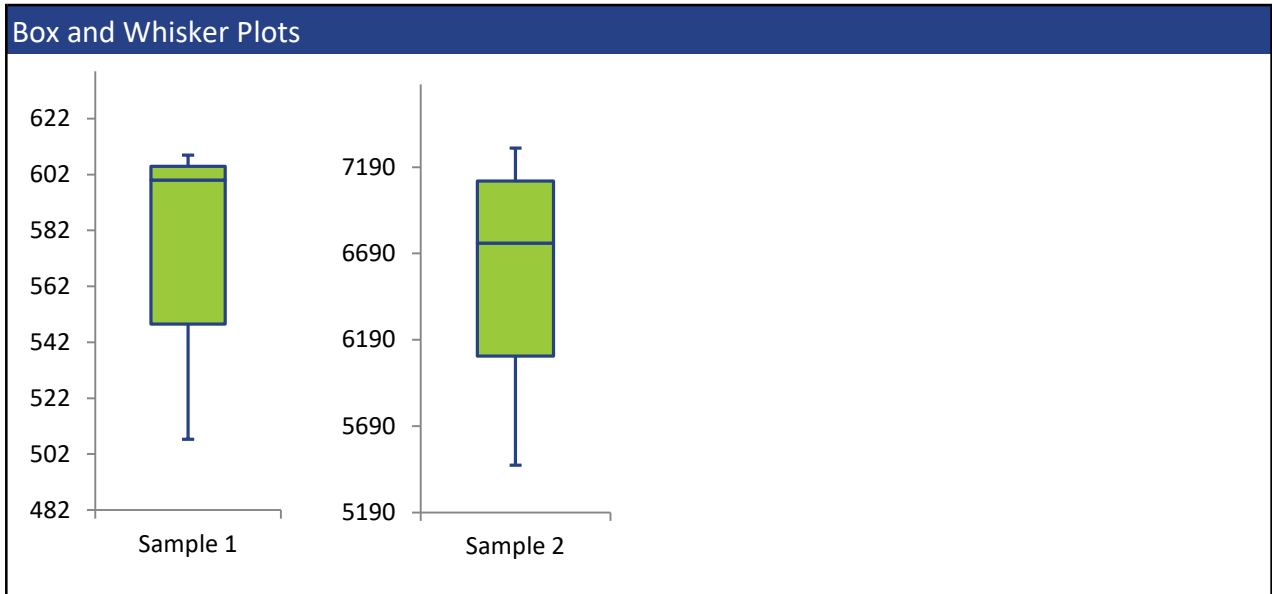


1-PROPANOL (PROPANOL)



1-PROPANOL (PROPANOL)

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



2-BUTANOL

Summary Statistics

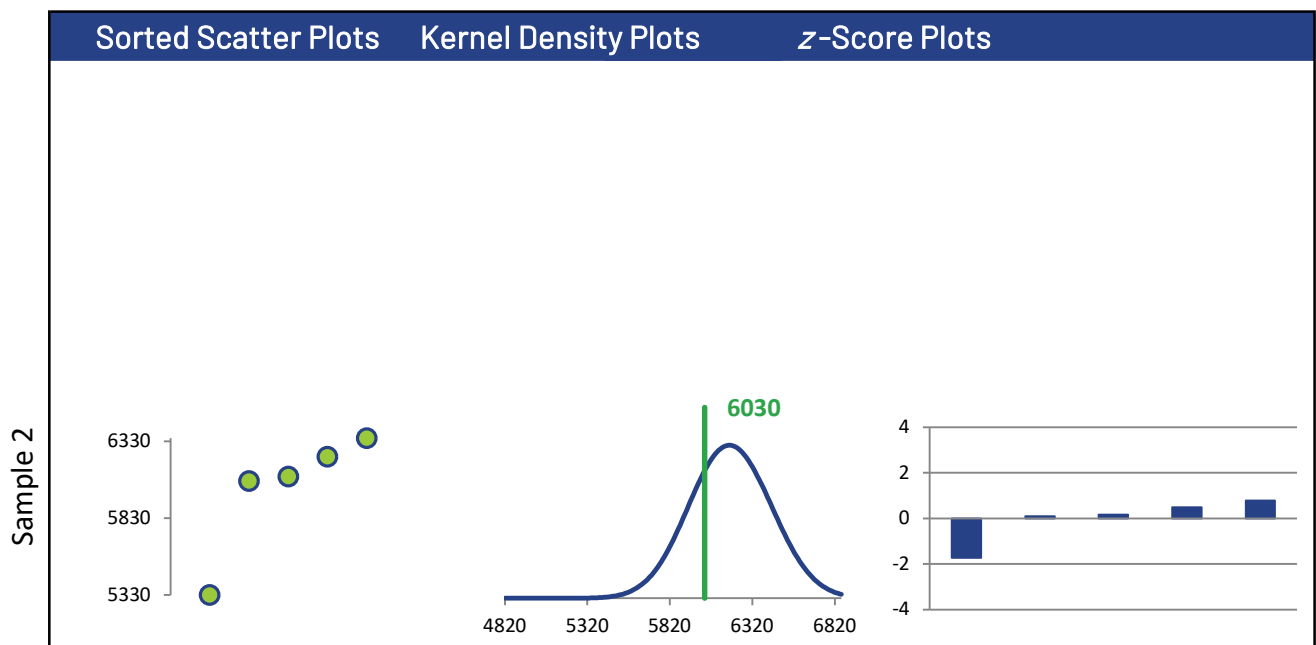
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	5	0	0
Median µg/g		6100		
Robust Mean µg/g		6030		
U µg/g		228		
Robust Standard Deviation µg/g		408		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		408		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

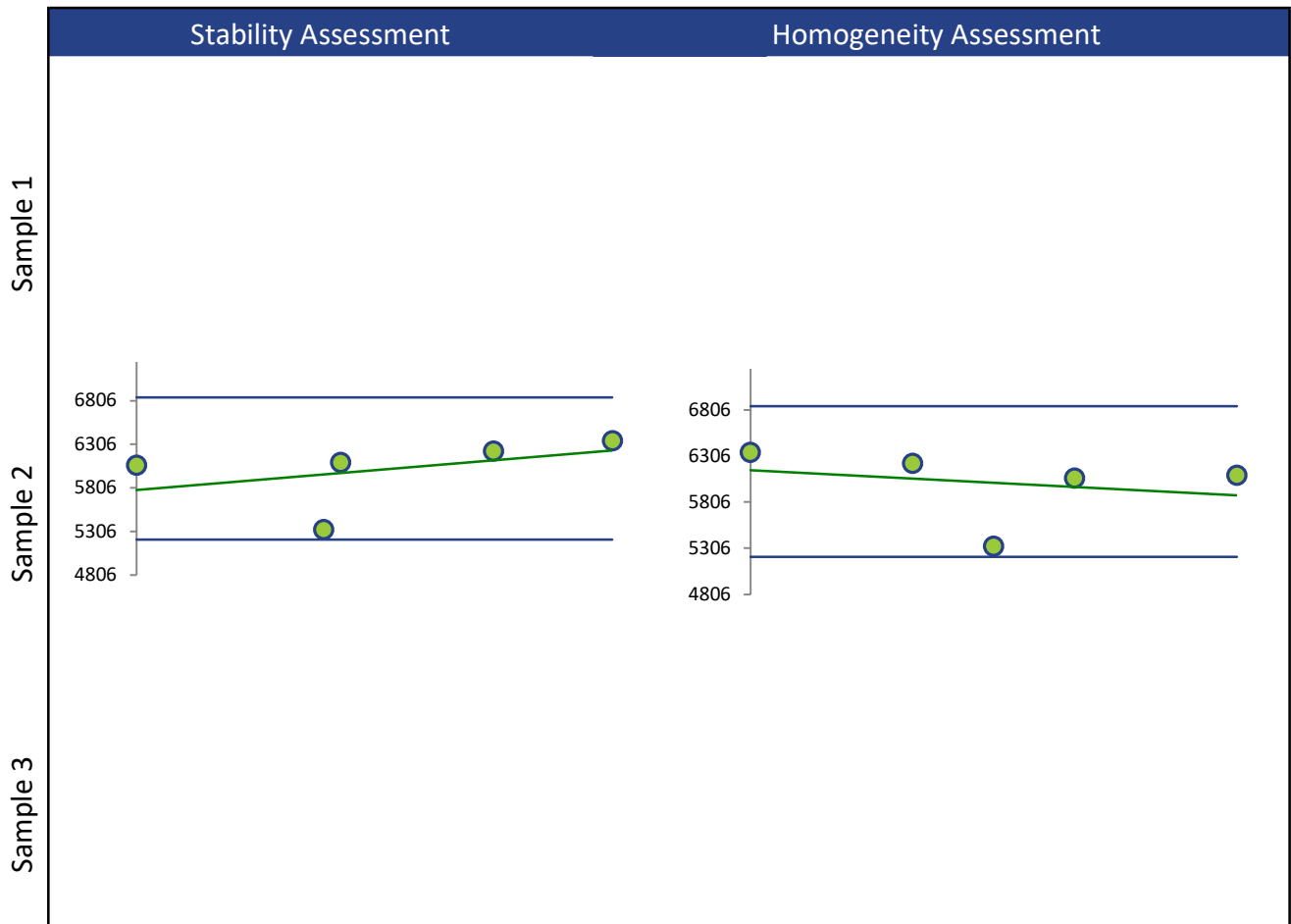
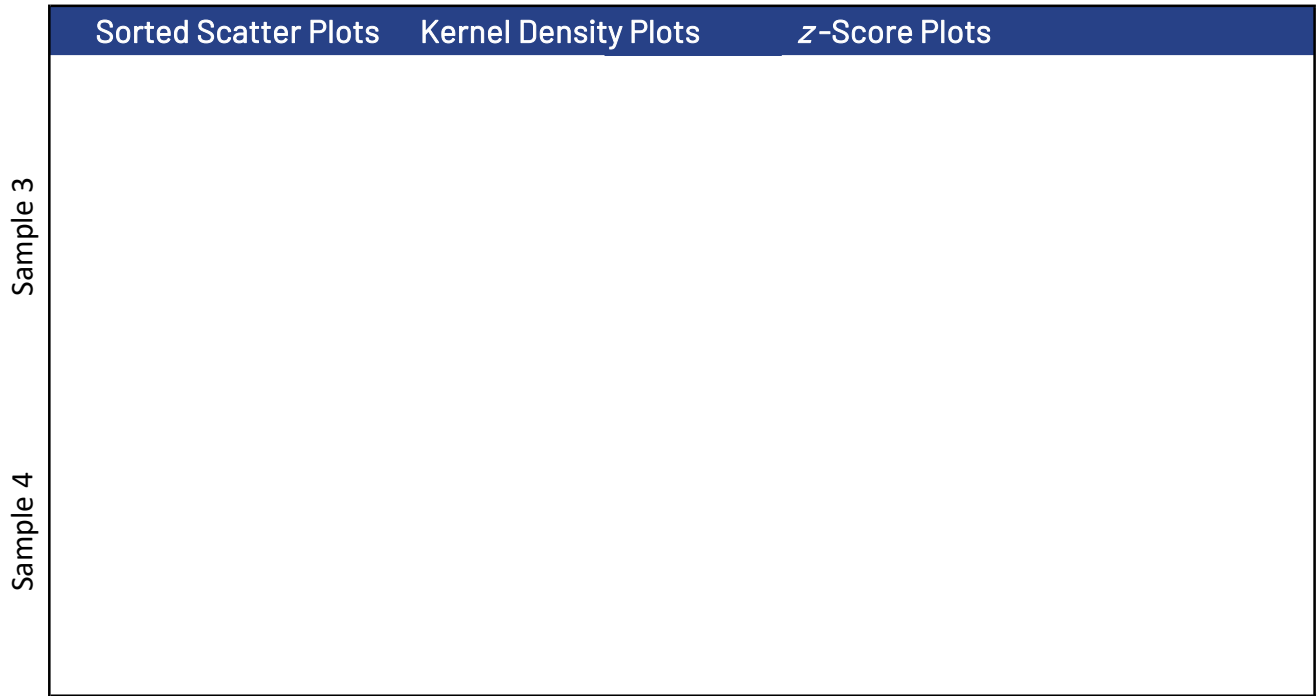
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	5	0	0

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



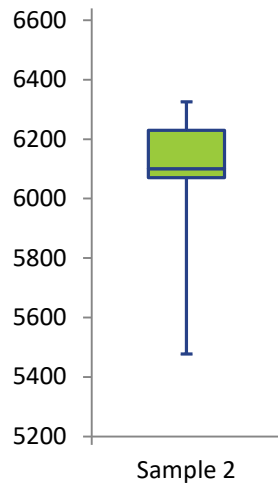
2-BUTANOL



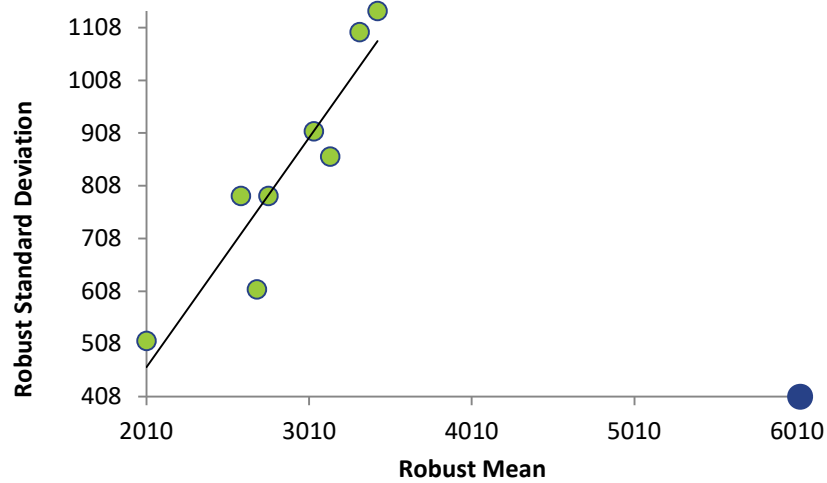
2-BUTANOL

	Stability Assessment	Homogeneity Assessment
Sample 4		
	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

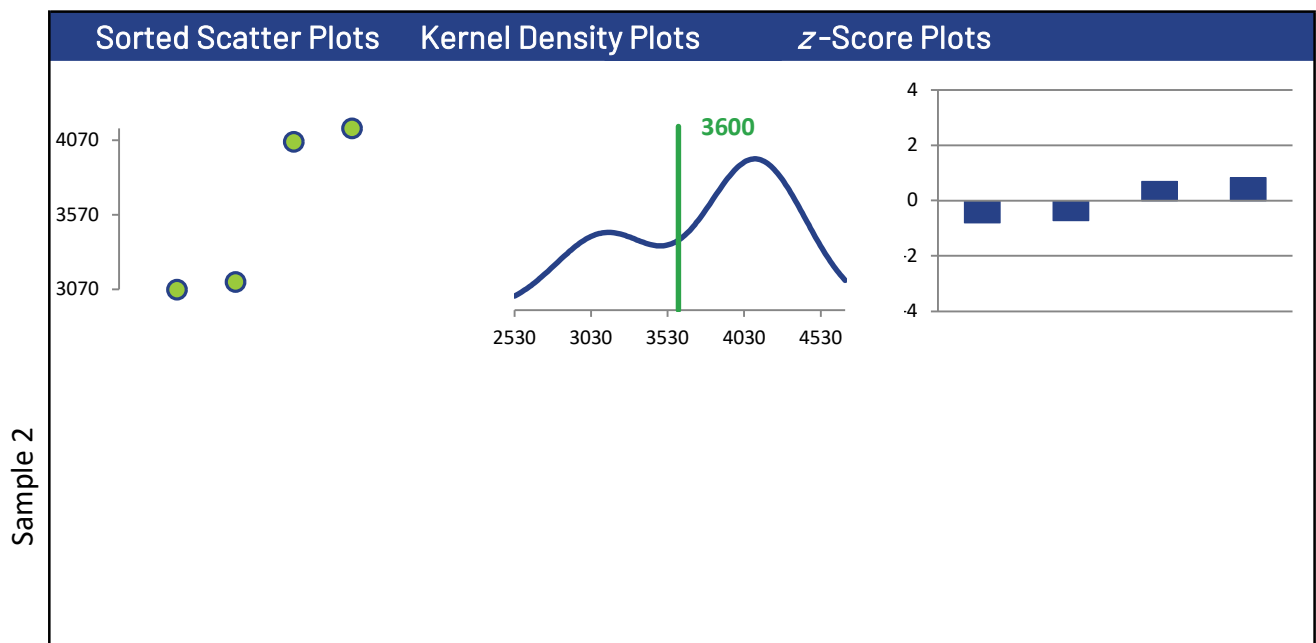
Excluded Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	0	0	0
Median µg/g	3590			
Robust Mean µg/g	3600			
U µg/g	414			
Robust Standard Deviation µg/g	663			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	663			
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

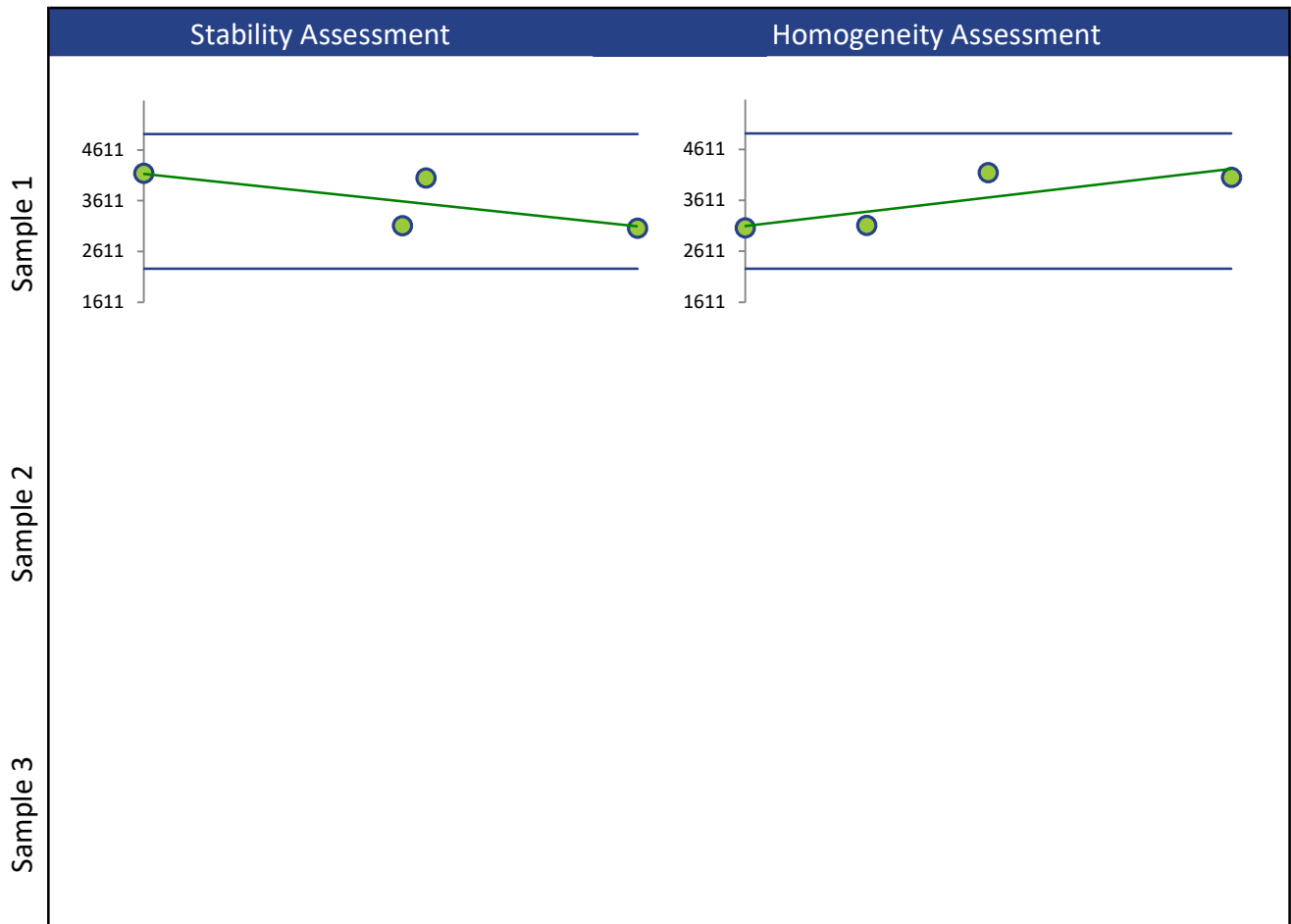
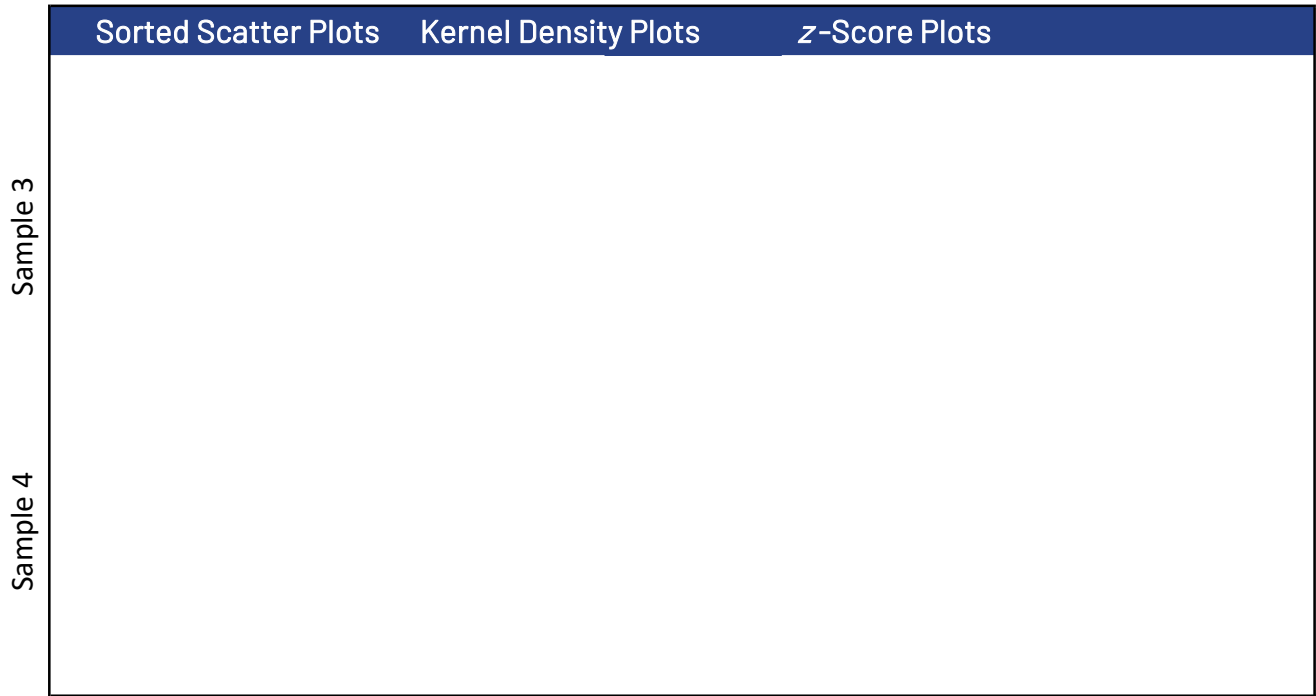
Methods Used

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



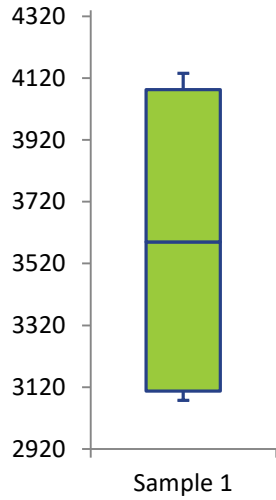
2-BUTANONE (METHYL ETHYL KETONE, MEK)



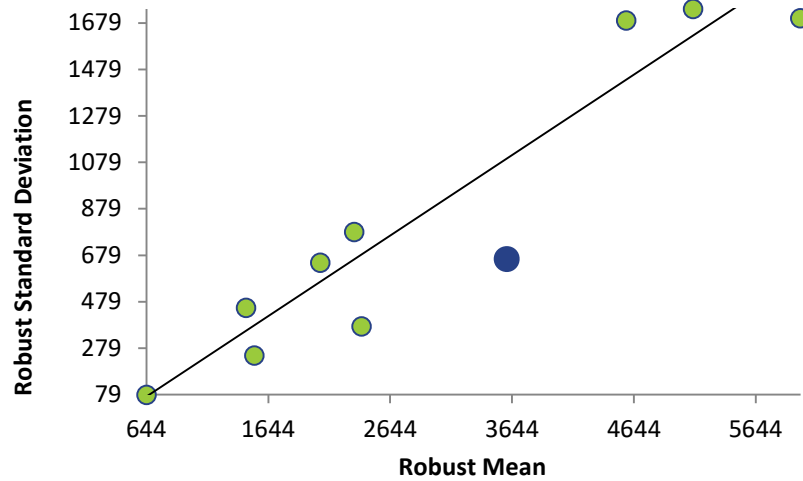
2-BUTANONE (METHYL ETHYL KETONE, MEK)

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	

Box and Whisker Plots



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



2-PROPANOL (ISOPROPYL ALCOHOL)

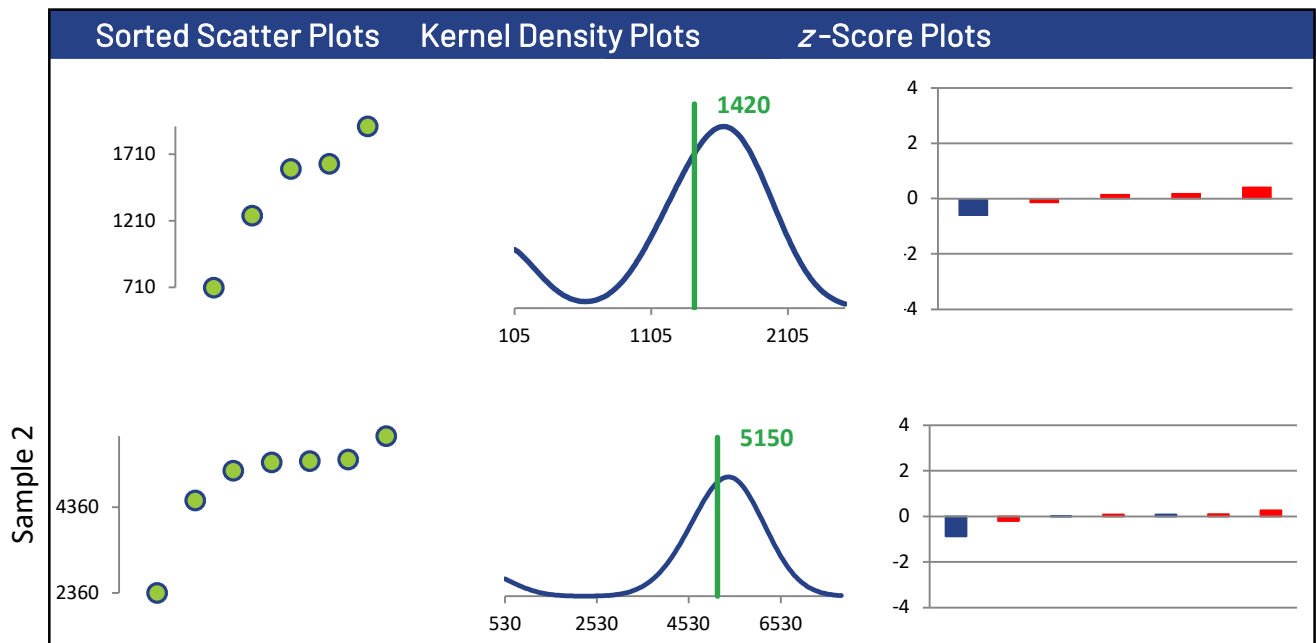
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	7	0	0
Median µg/g	1600	5410		
Robust Mean µg/g	1420	5150		
U µg/g	295	360		
Robust Standard Deviation µg/g	527	761		
Regression Standard Deviation µg/g				
Stability Flag		Stability		
Homogeneity Flag	Homogeneity			
Standard Deviation Used (SDPA) µg/g	1190	3200		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

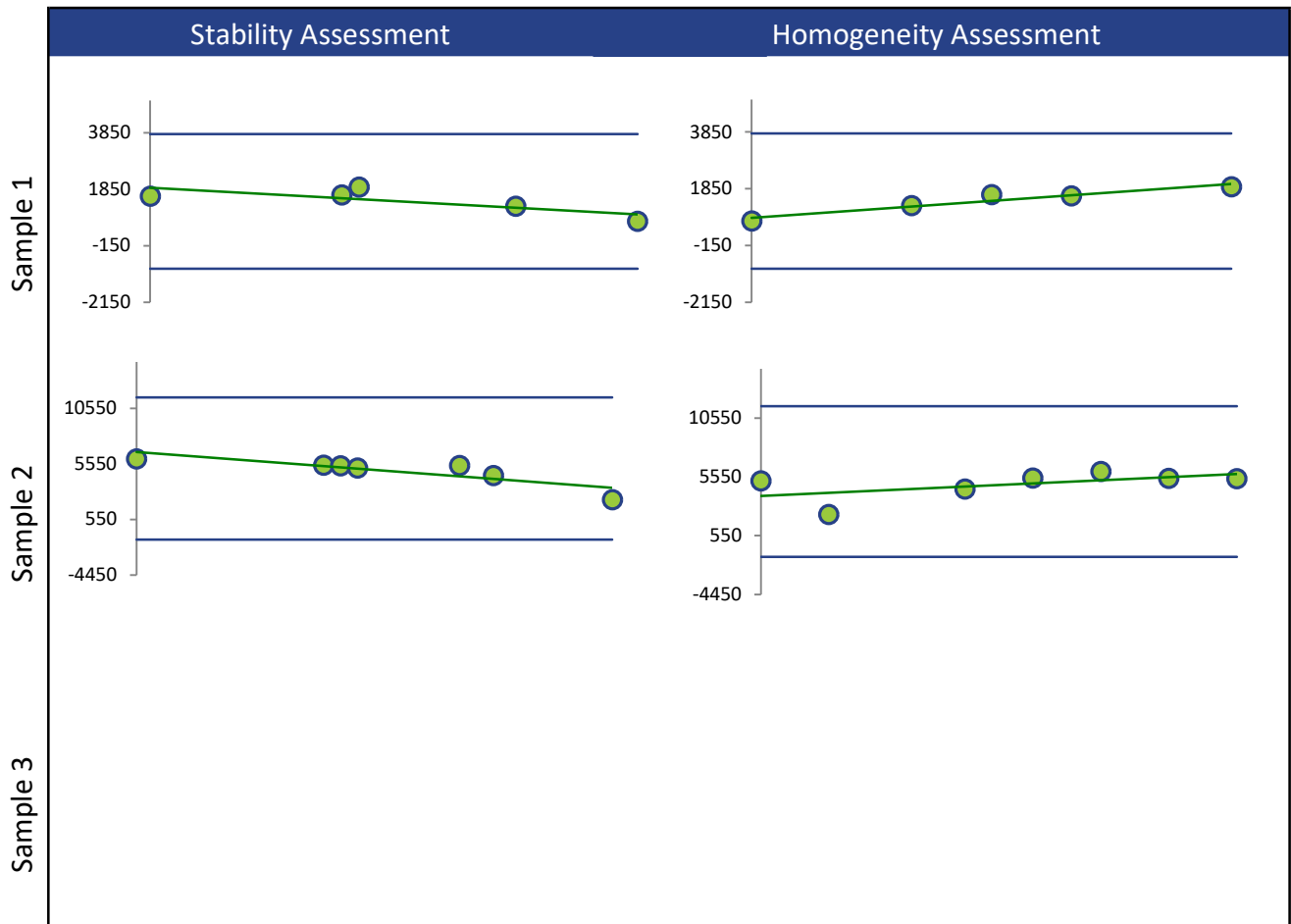
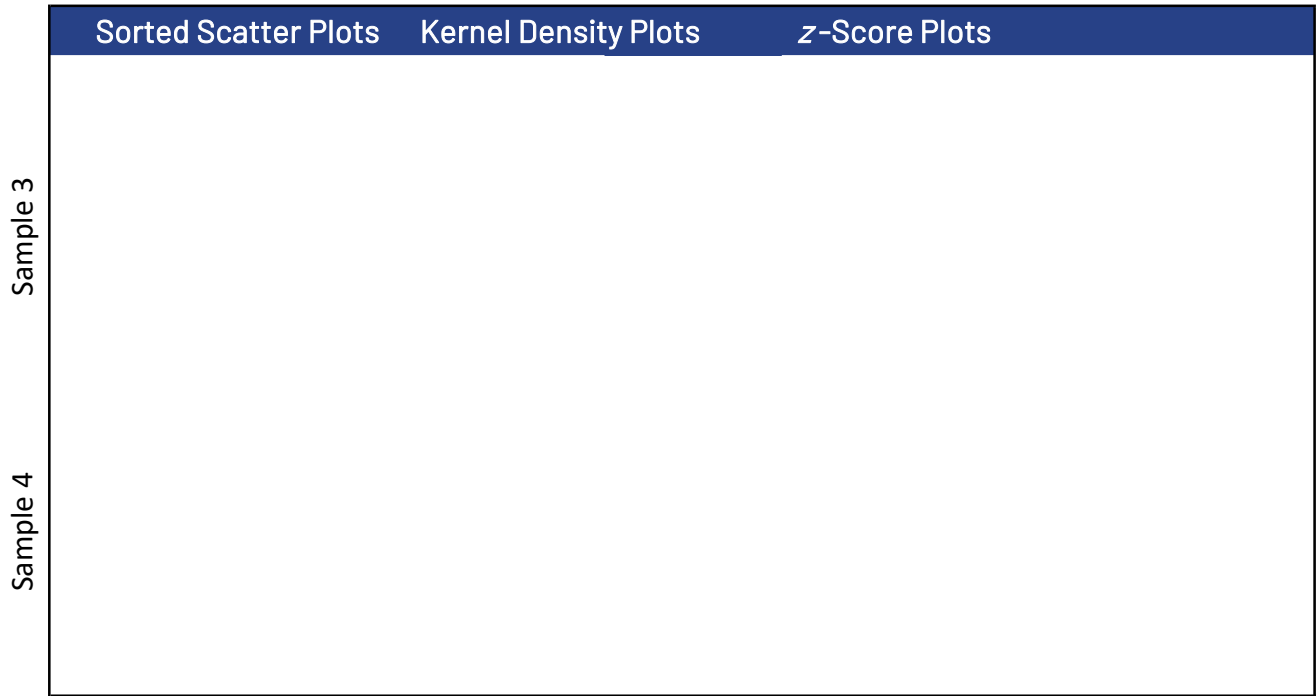
Methods Used

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

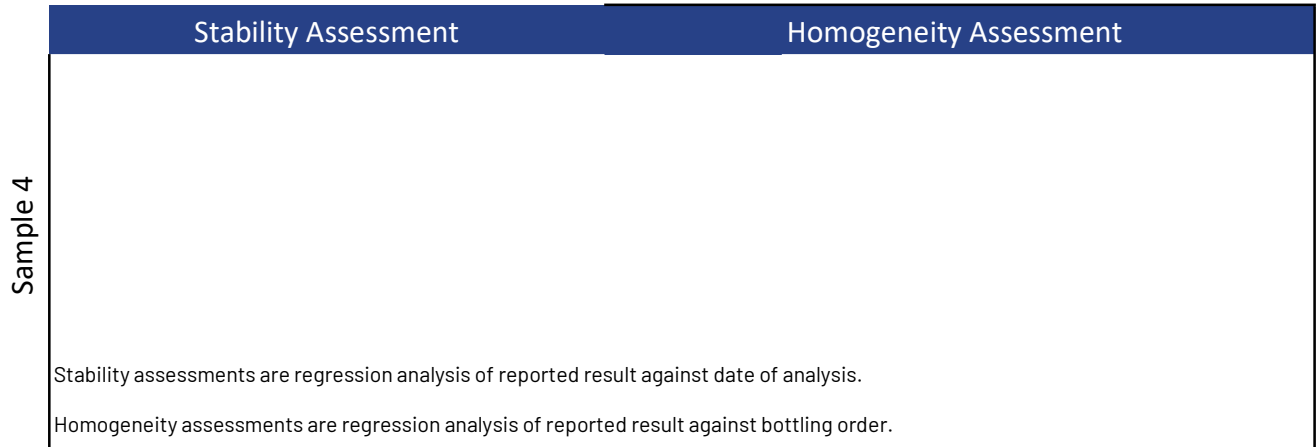
All summary stats and the plots below are based on the data excluding any flagged outliers



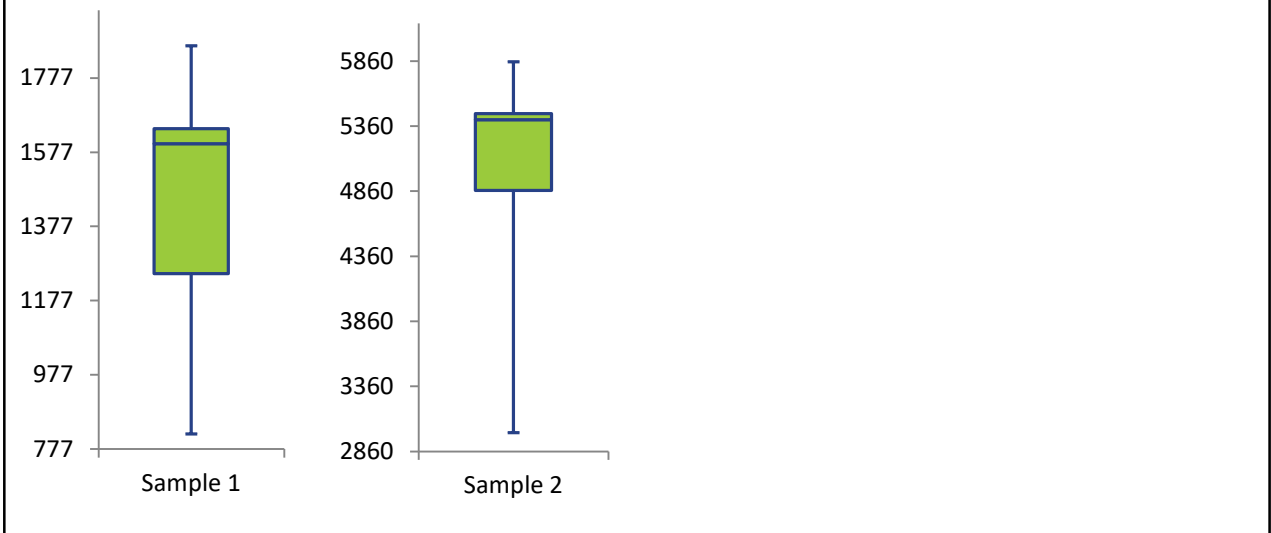
2-PROPANOL (ISOPROPYL ALCOHOL)



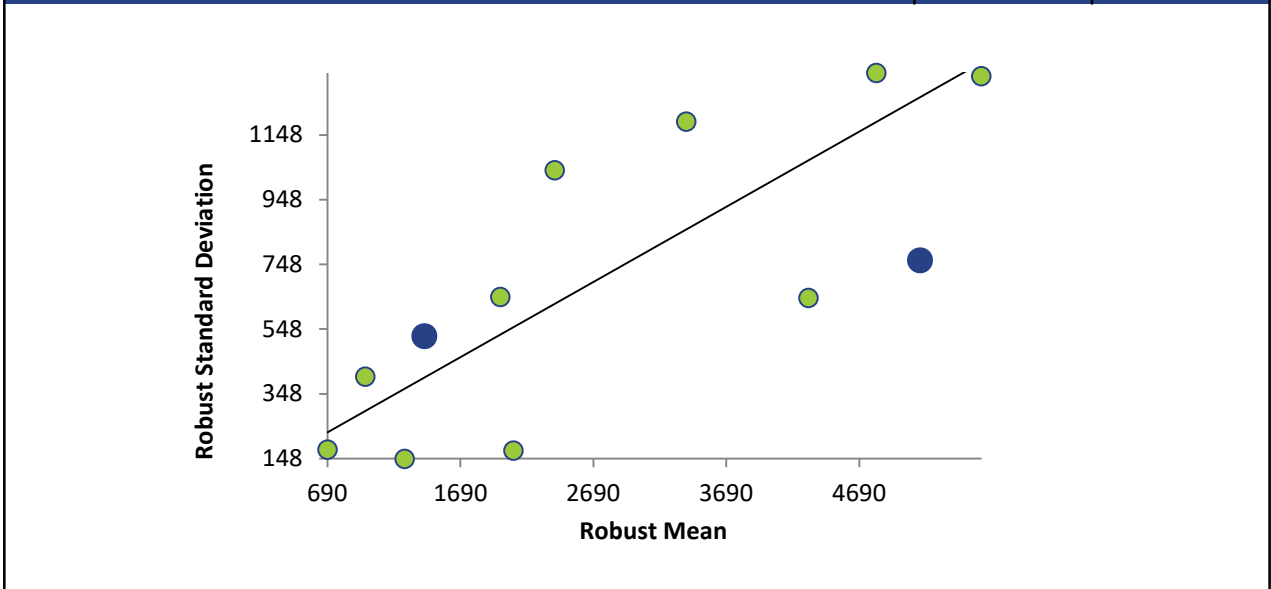
2-PROPANOL (ISOPROPYL ALCOHOL)



Box and Whisker Plots



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



3-METHYL-1-BUTANOL

Summary Statistics

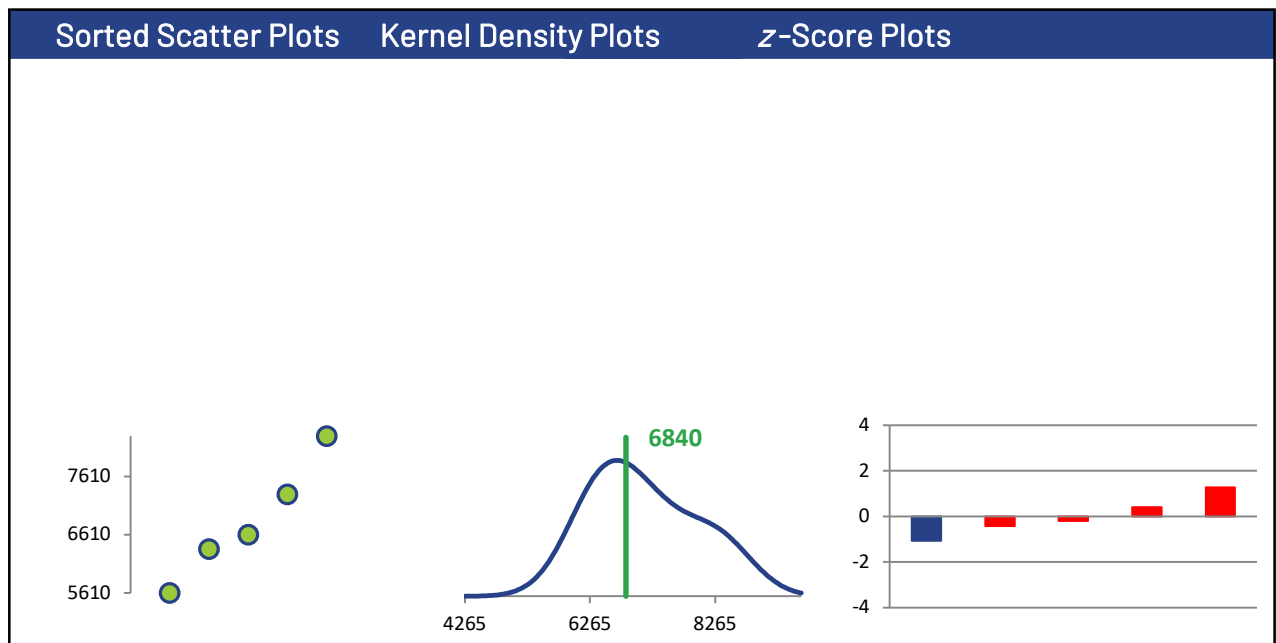
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	5	0	0
Median µg/g		6610		
Robust Mean µg/g		6840		
U µg/g		643		
Robust Standard Deviation µg/g		1150		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		1150		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

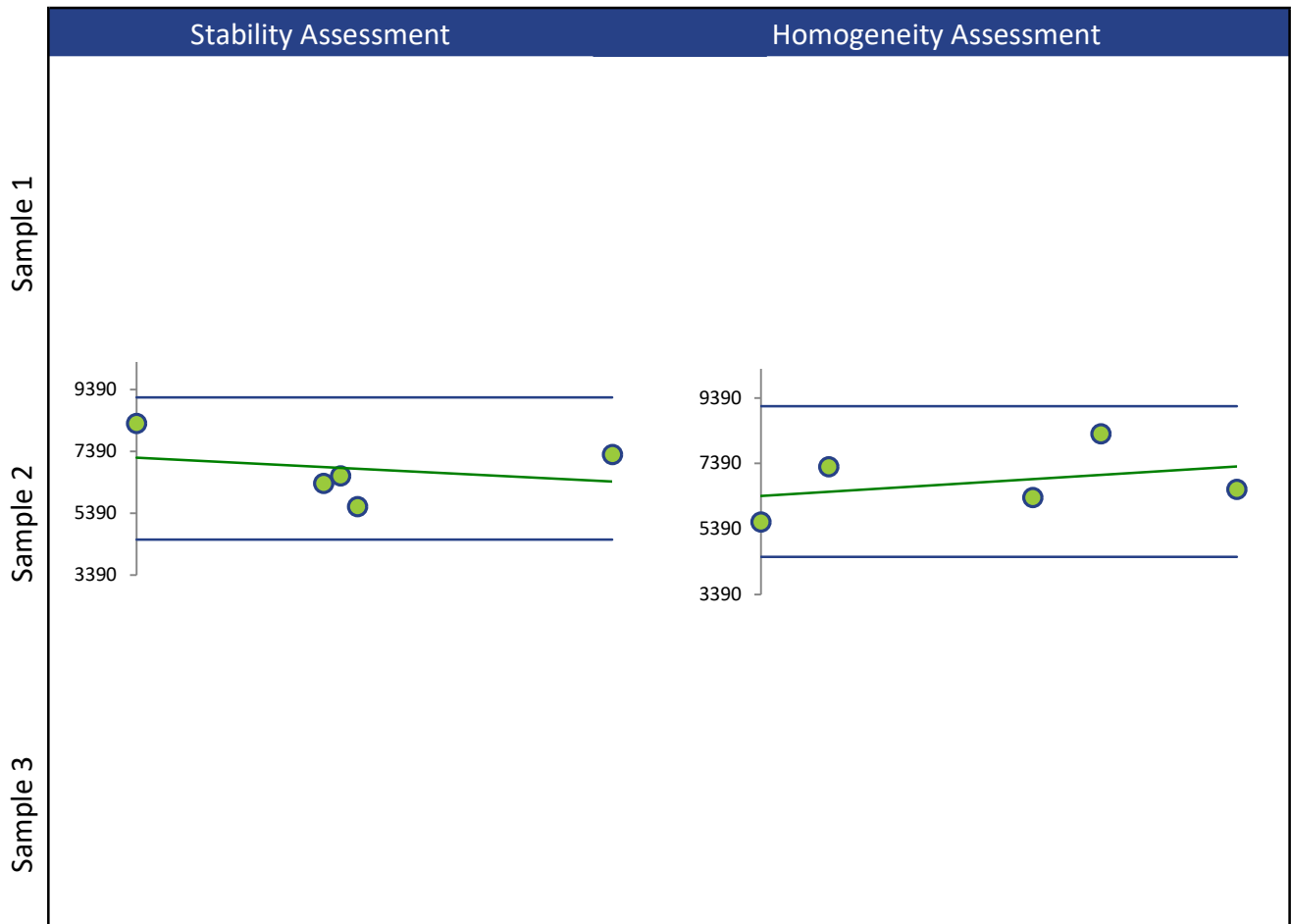
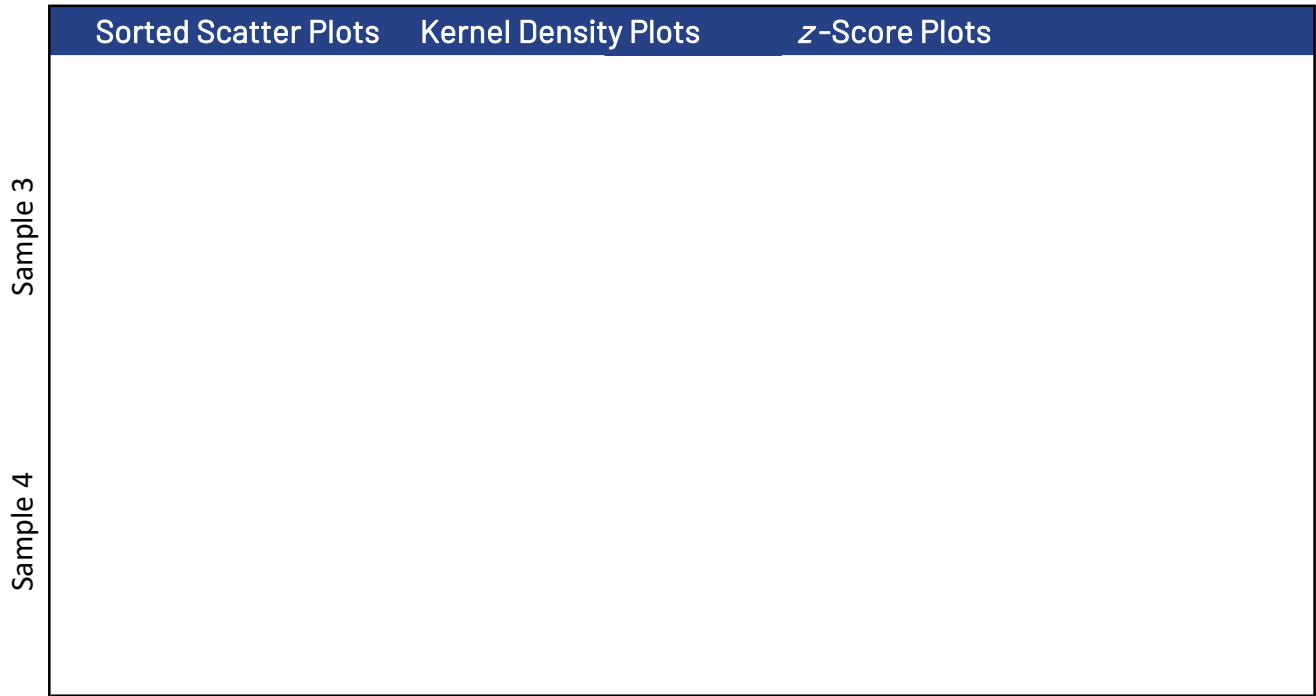
Methods Used

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

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

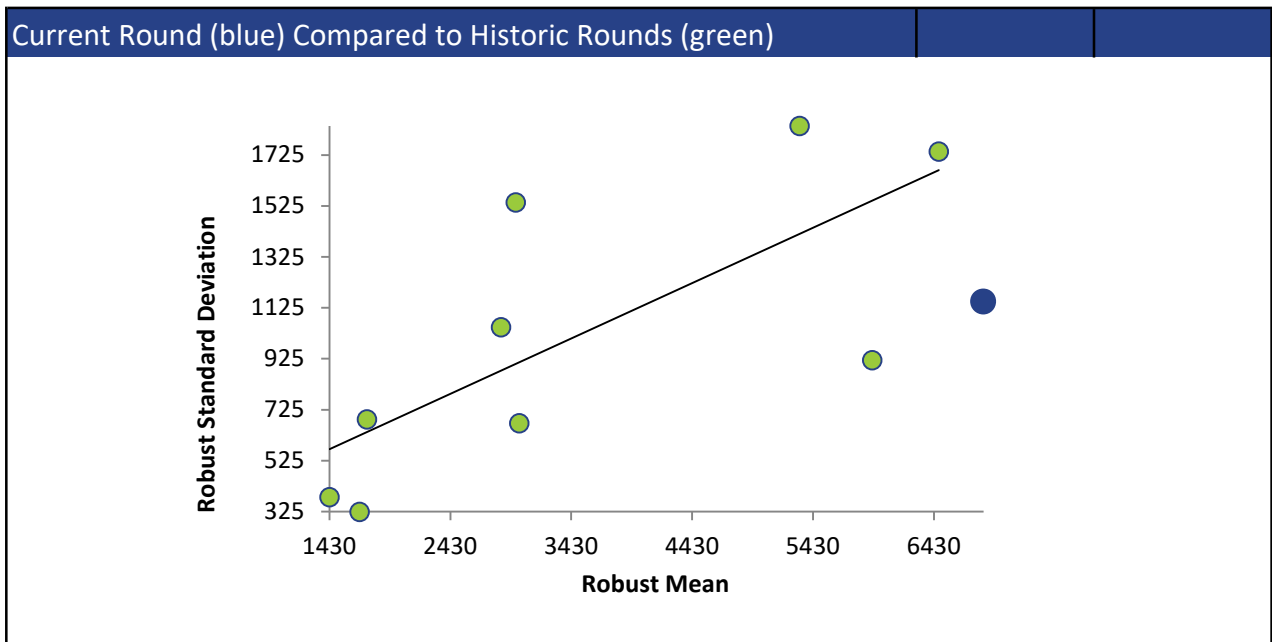
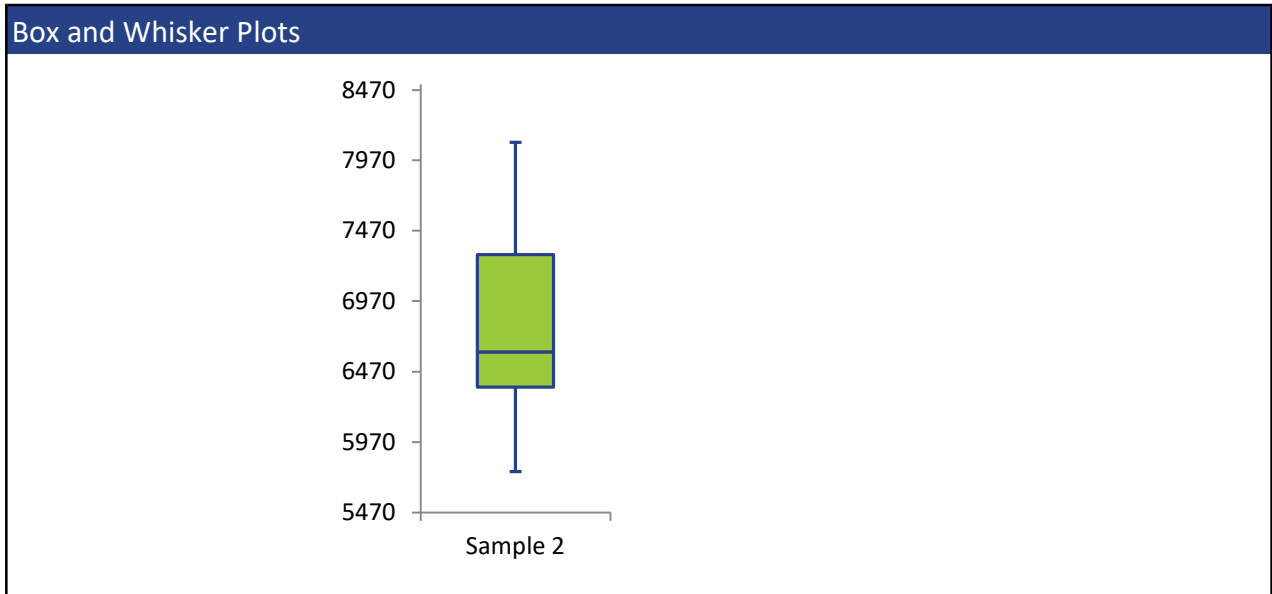


3-METHYL-1-BUTANOL



3-METHYL-1-BUTANOL

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



ACETONE (2-PROPANONE)

Summary Statistics

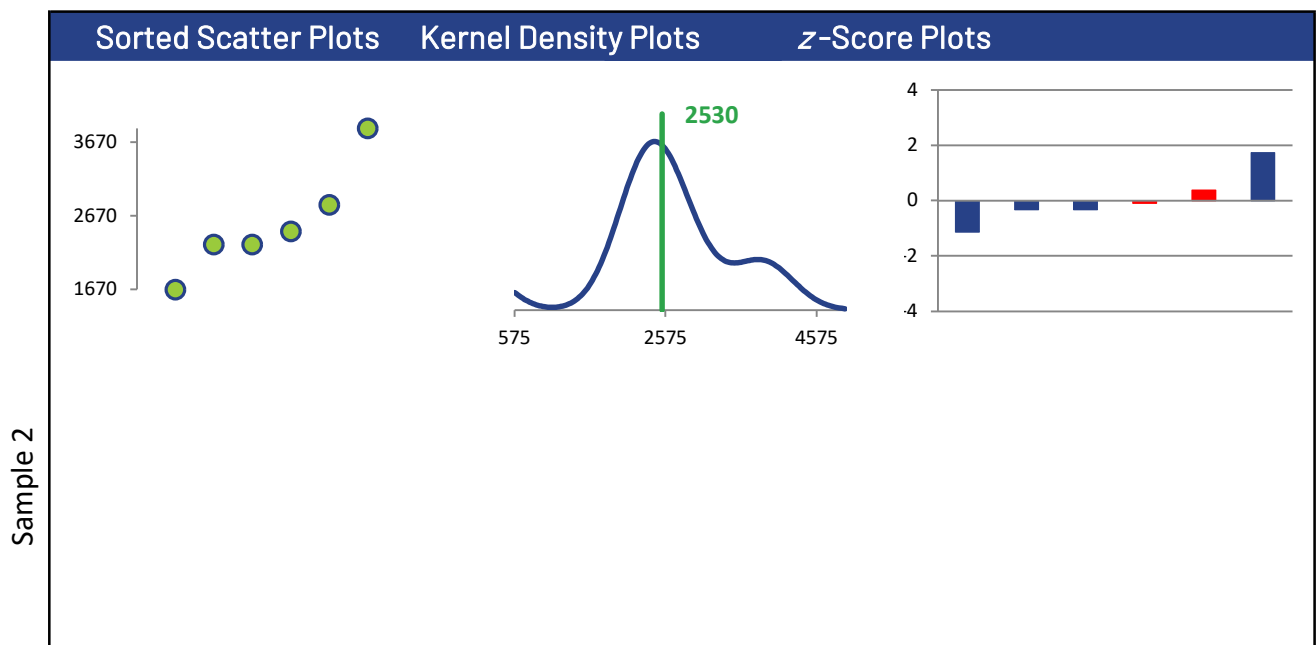
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	6	0	0	0
Median µg/g	2370			
Robust Mean µg/g	2530			
U µg/g	390			
Robust Standard Deviation µg/g	764			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	764			
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

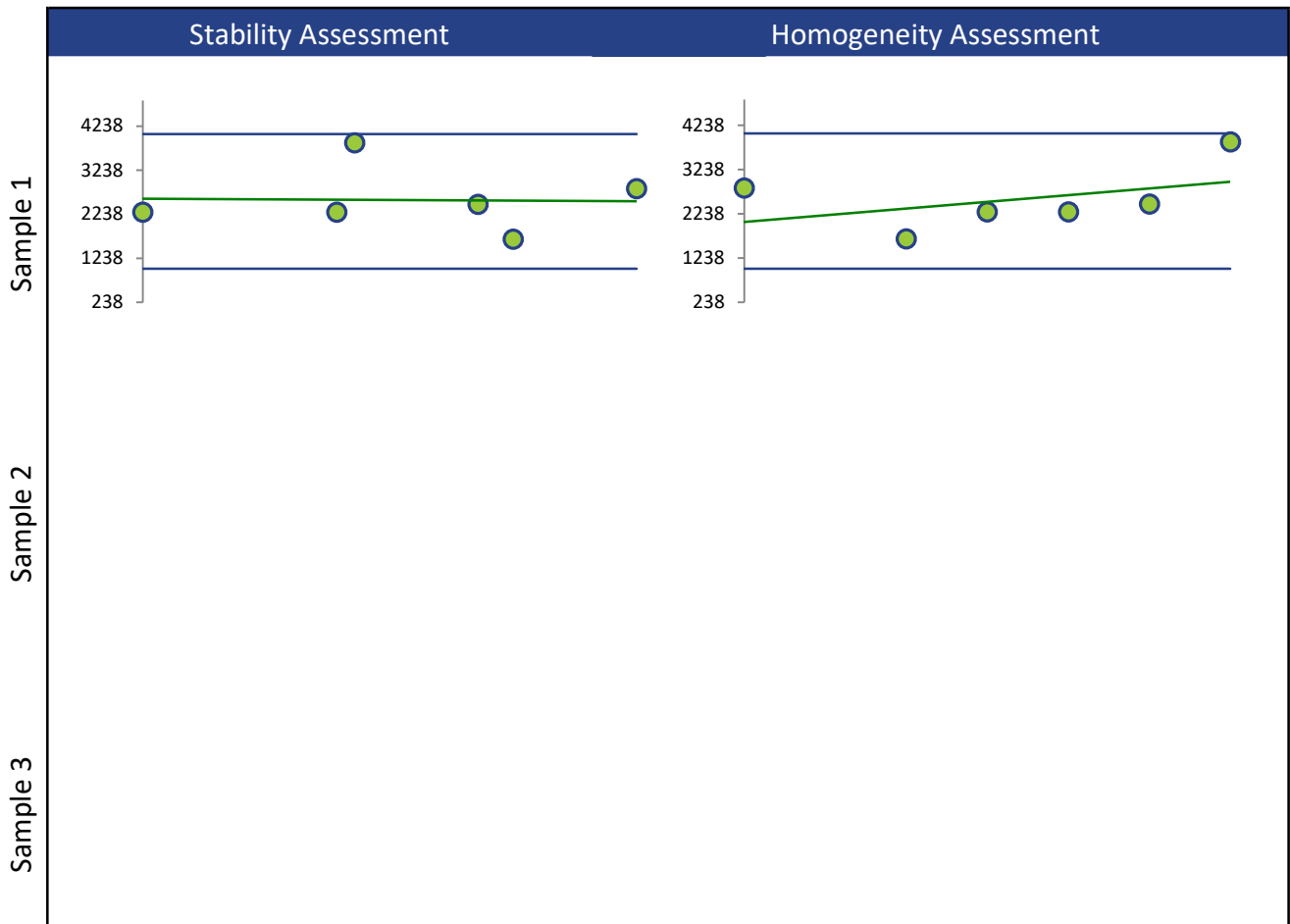
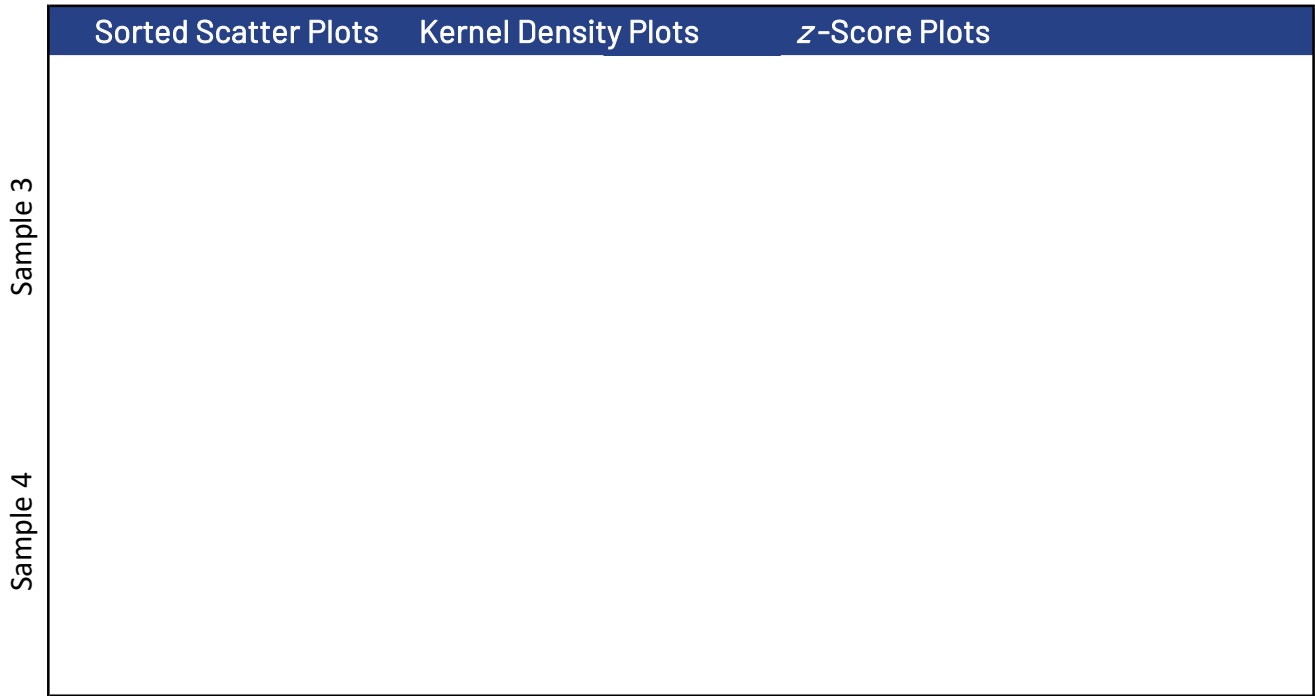
Methods Used

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

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



ACETONE (2-PROPANONE)



ACETONE (2-PROPANONE)

	Stability Assessment	Homogeneity Assessment
Sample 4		

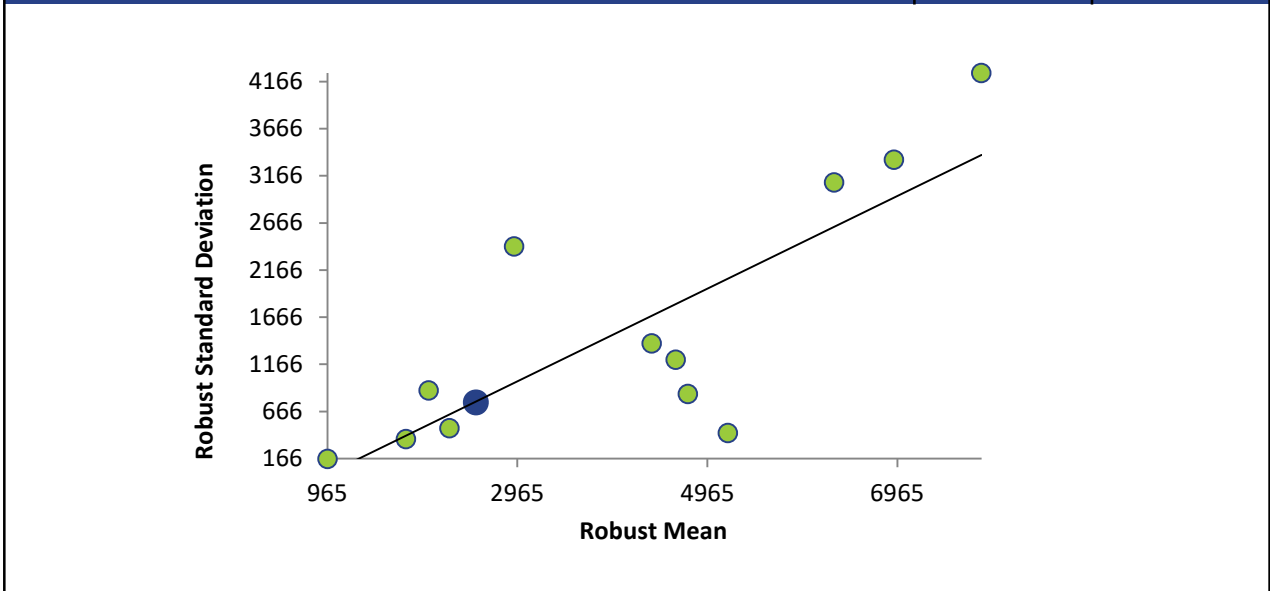
Stability assessments are regression analysis of reported result against date of analysis.

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

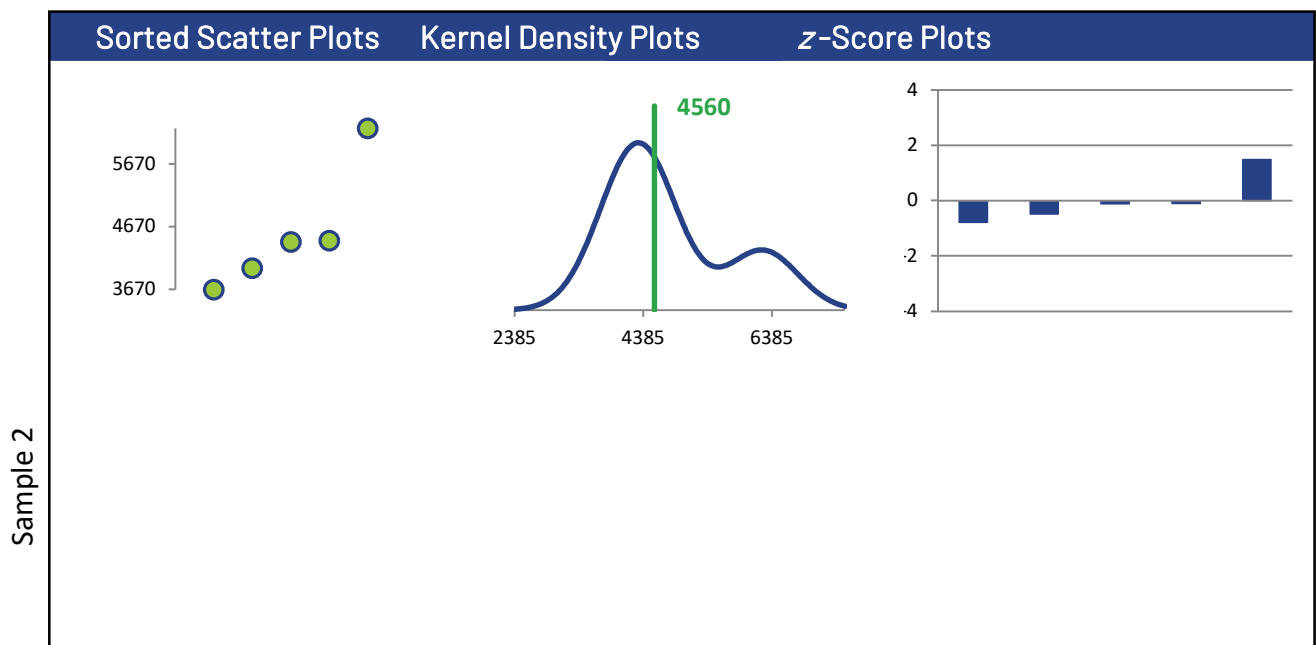
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	0	0	0
Median µg/g	4430			
Robust Mean µg/g	4560			
U µg/g	632			
Robust Standard Deviation µg/g	1130			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	1130			
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

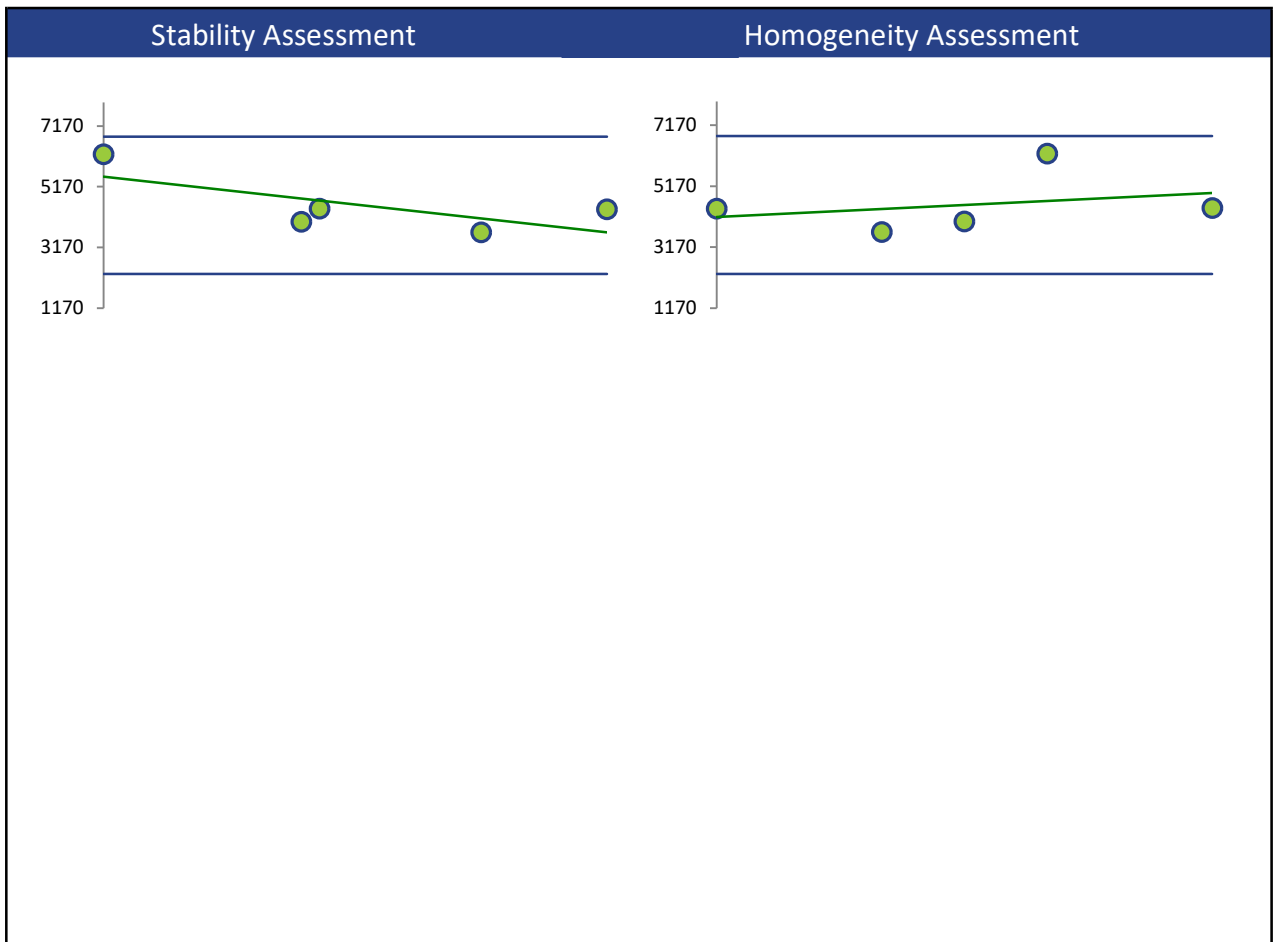
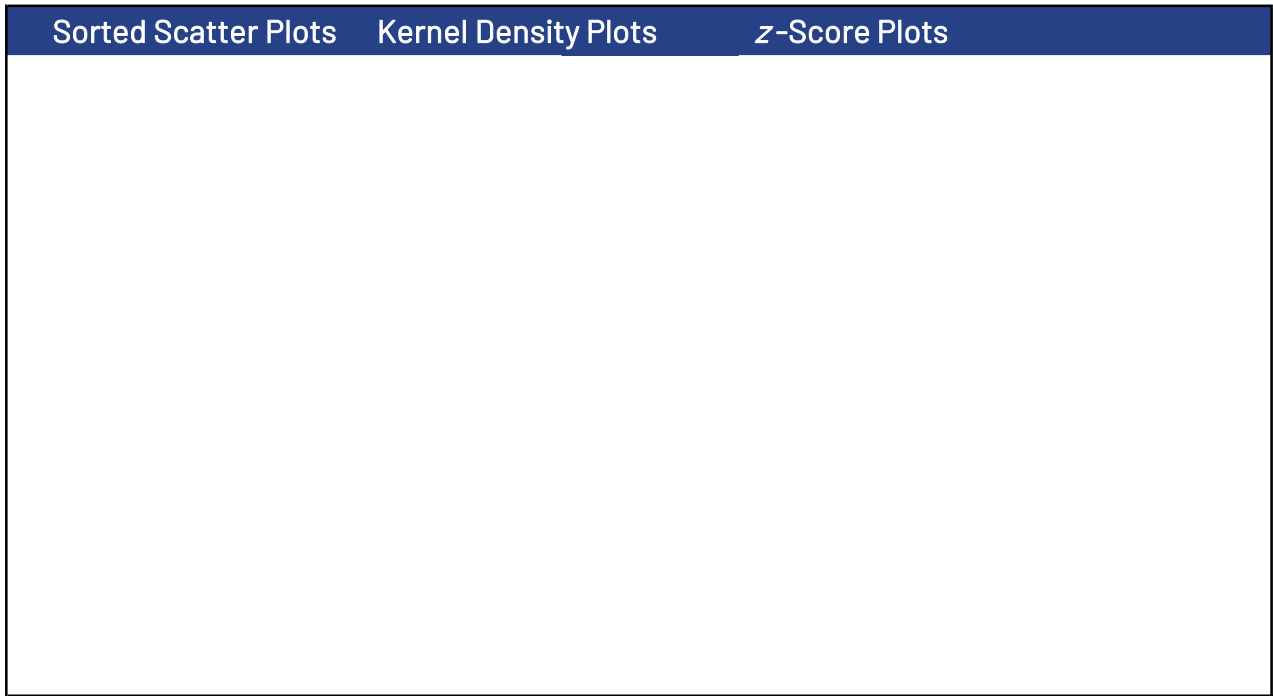
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	5	0	0	0

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

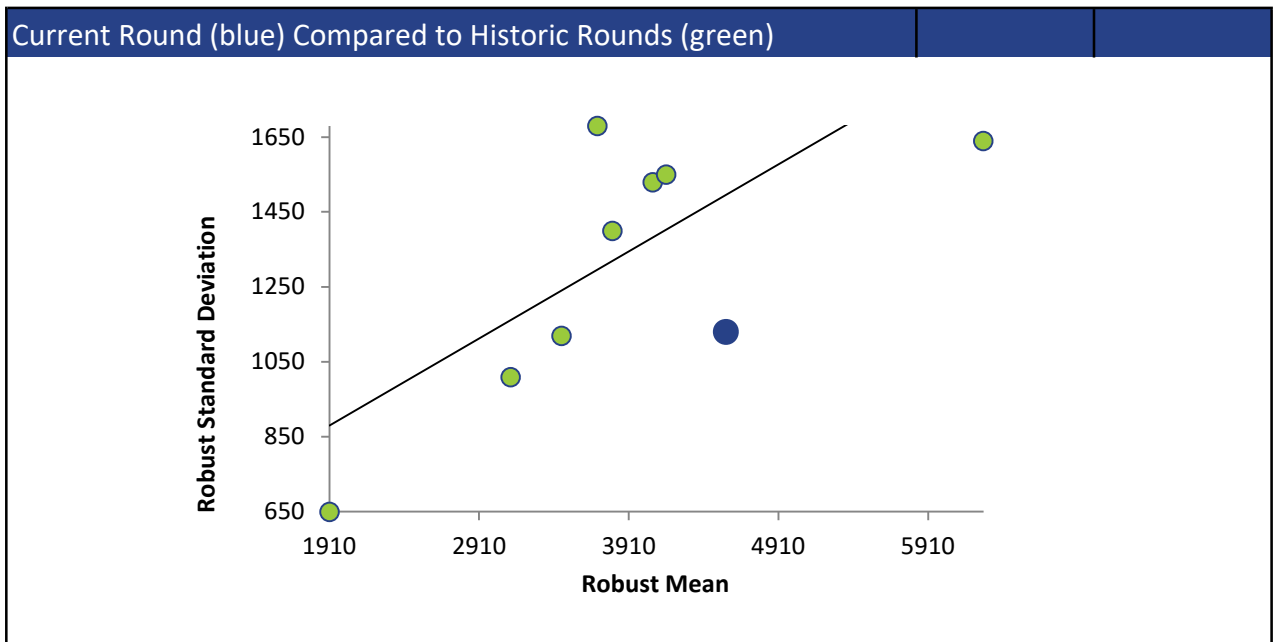


ANISOLE



ANISOLE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



BUTANE

Summary Statistics

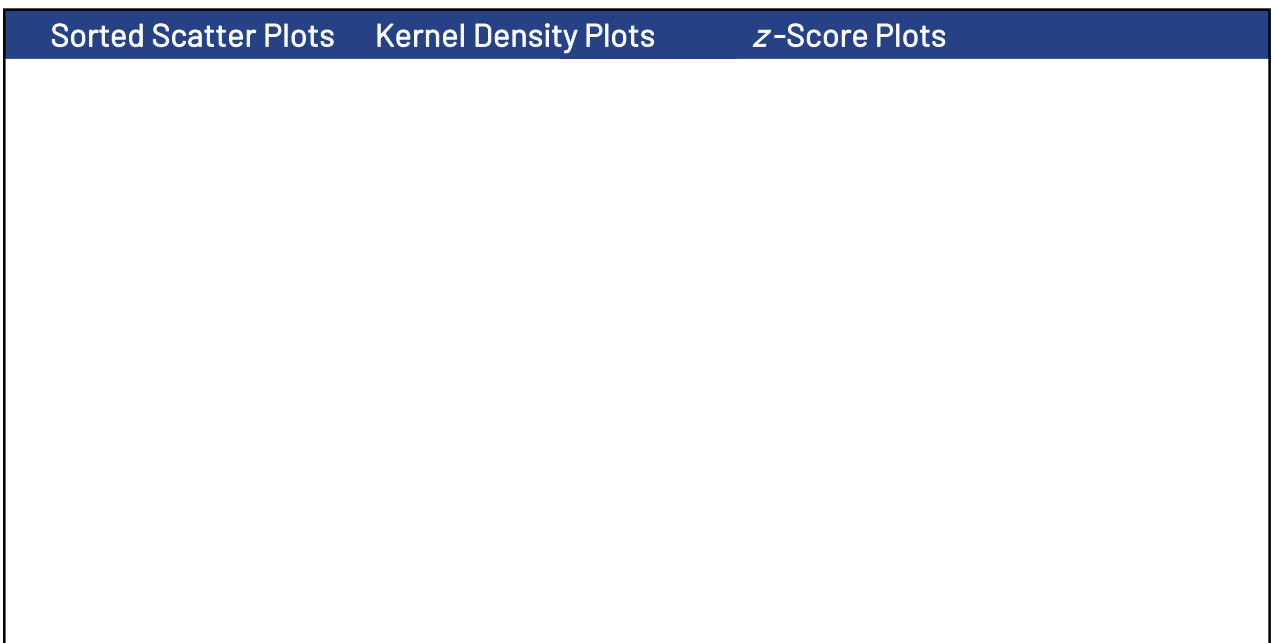
Not Spiked Not Spiked

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

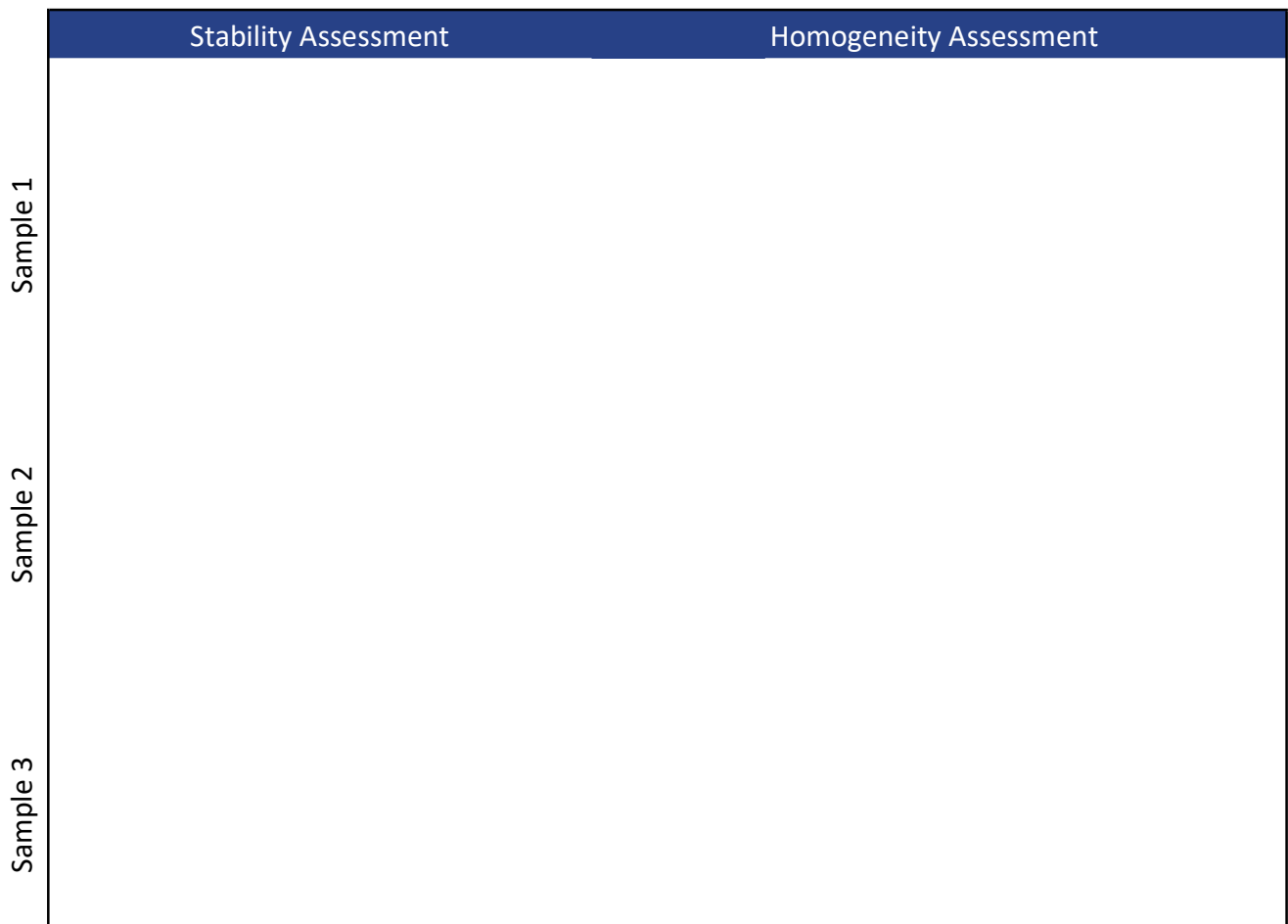
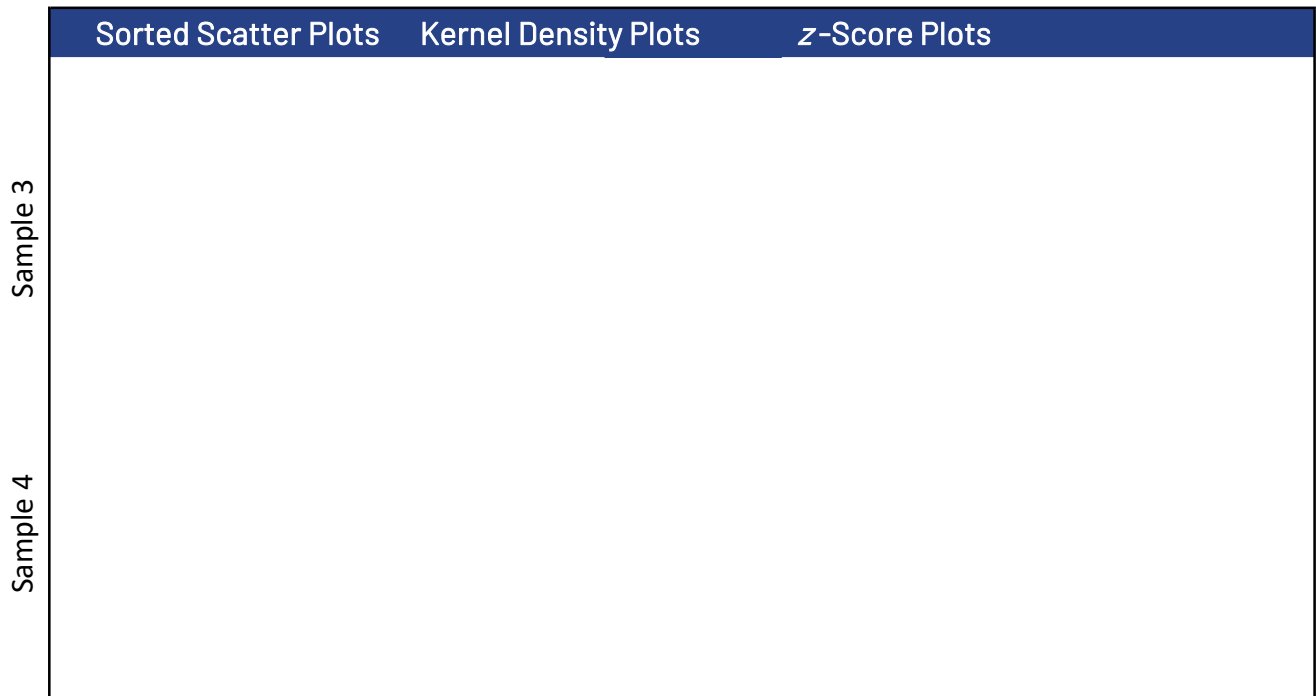
Methods Used

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



BUTANE

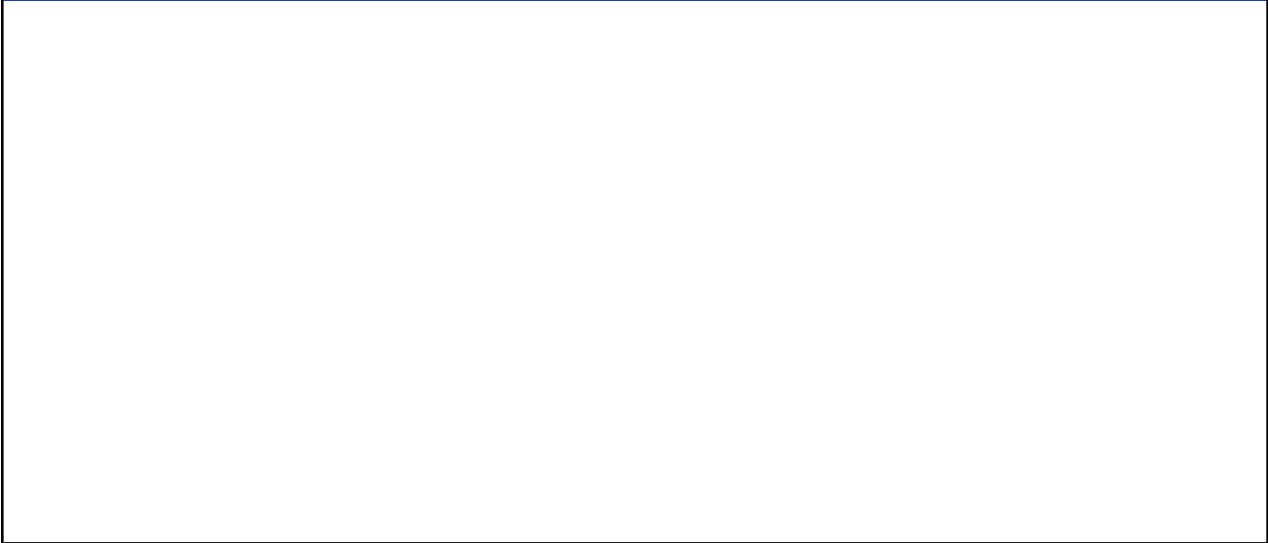


BUTANE

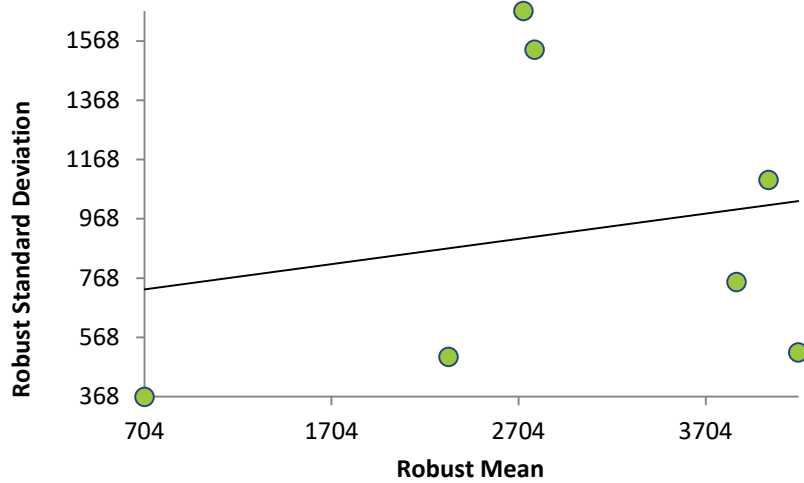
	Stability Assessment	Homogeneity Assessment
Sample 4		

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

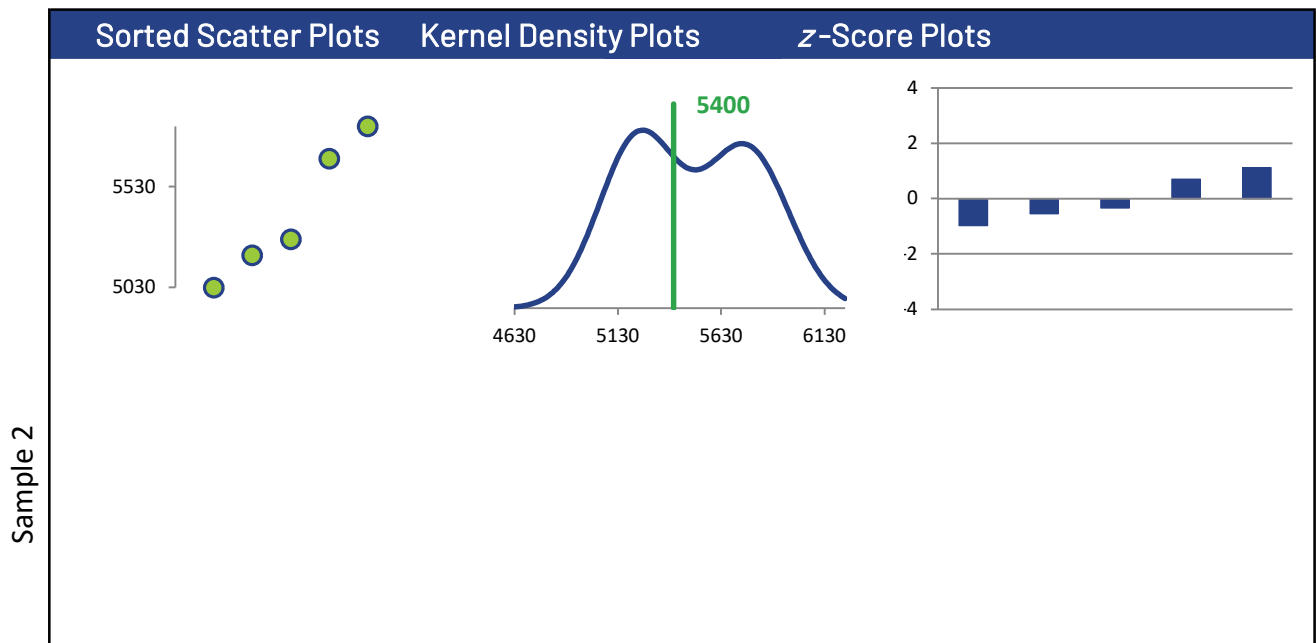
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	0	0	0
Median µg/g	5270			
Robust Mean µg/g	5400			
U µg/g	214			
Robust Standard Deviation µg/g	383			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	383			
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

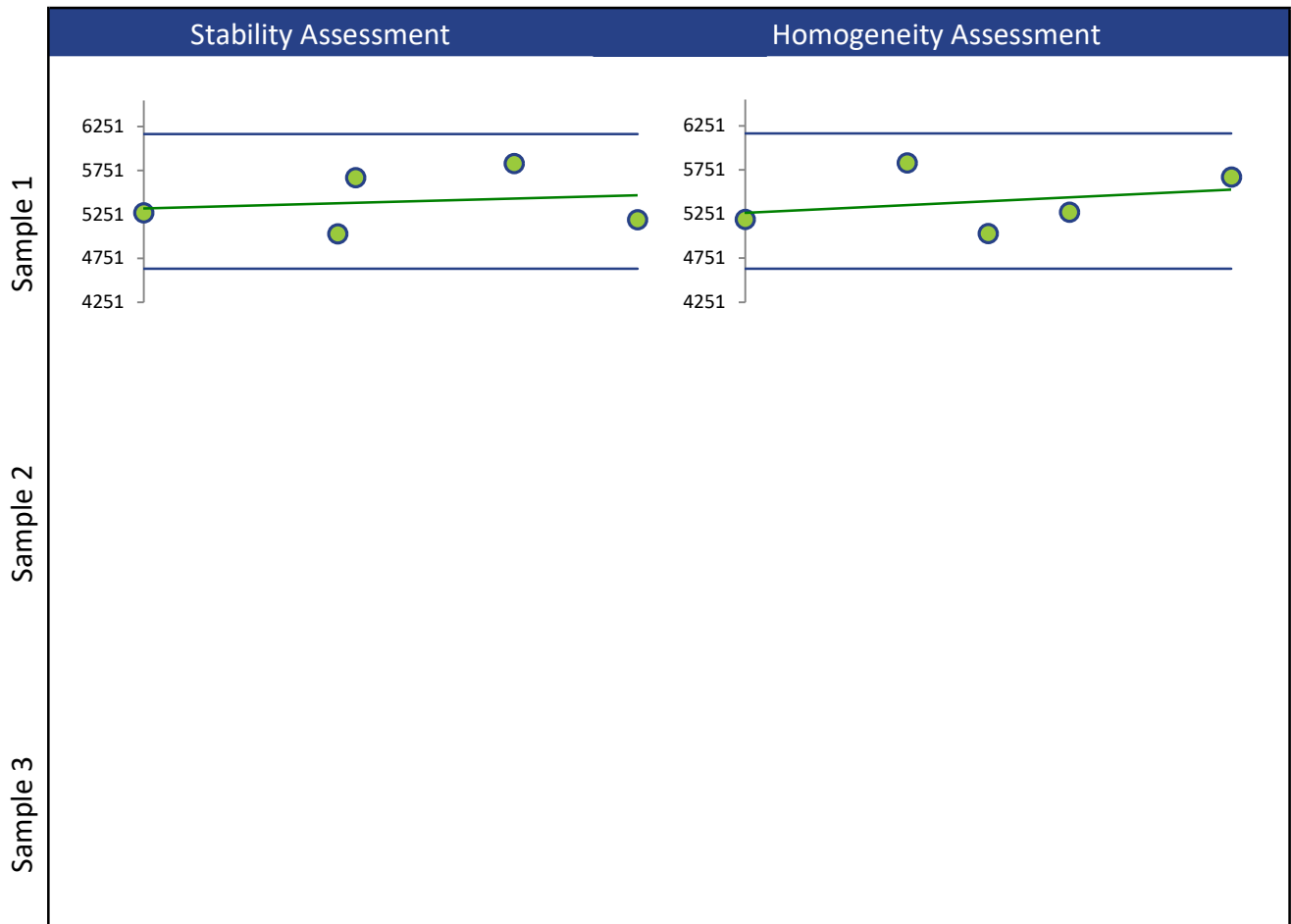
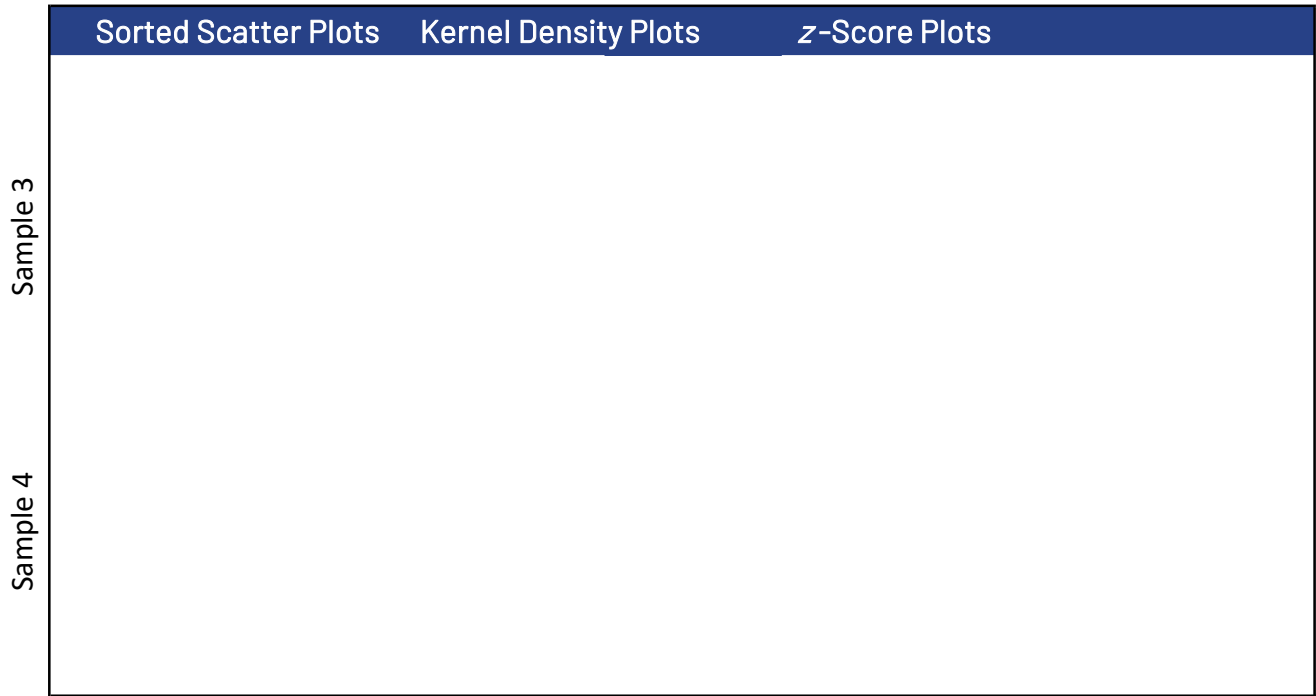
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	5	0	0	0

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



BUTYL ACETATE

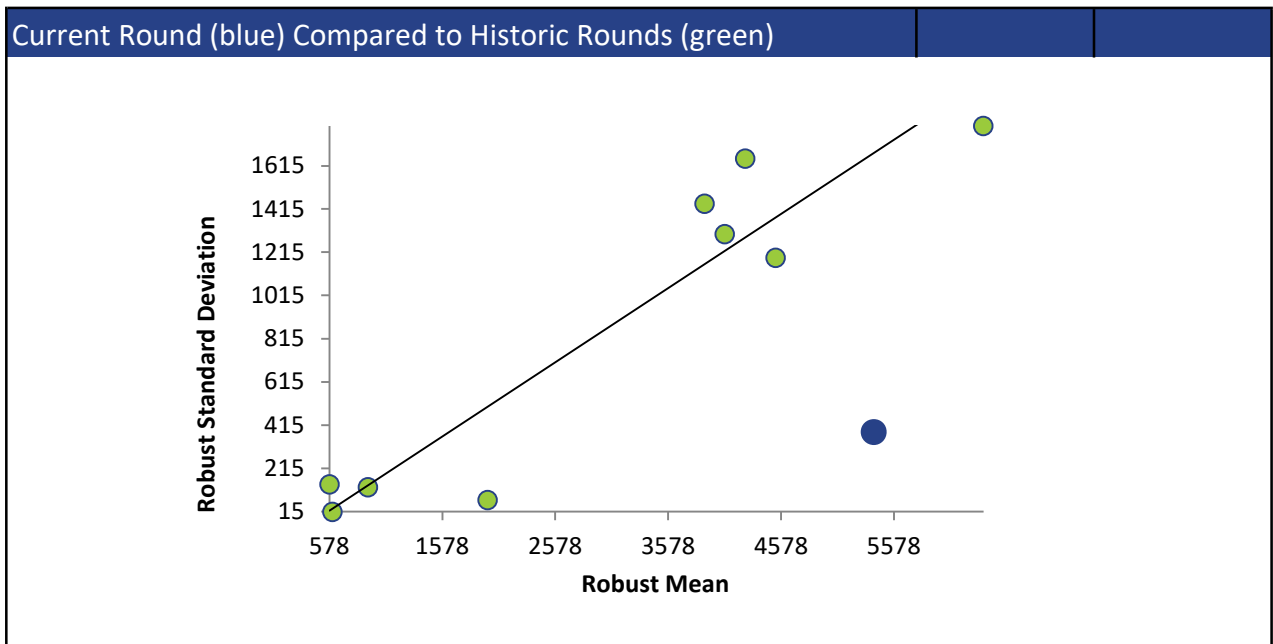


BUTYL ACETATE

	Stability Assessment	Homogeneity Assessment
Sample 4		

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

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



DIMETHYL SULFOXIDE

Summary Statistics

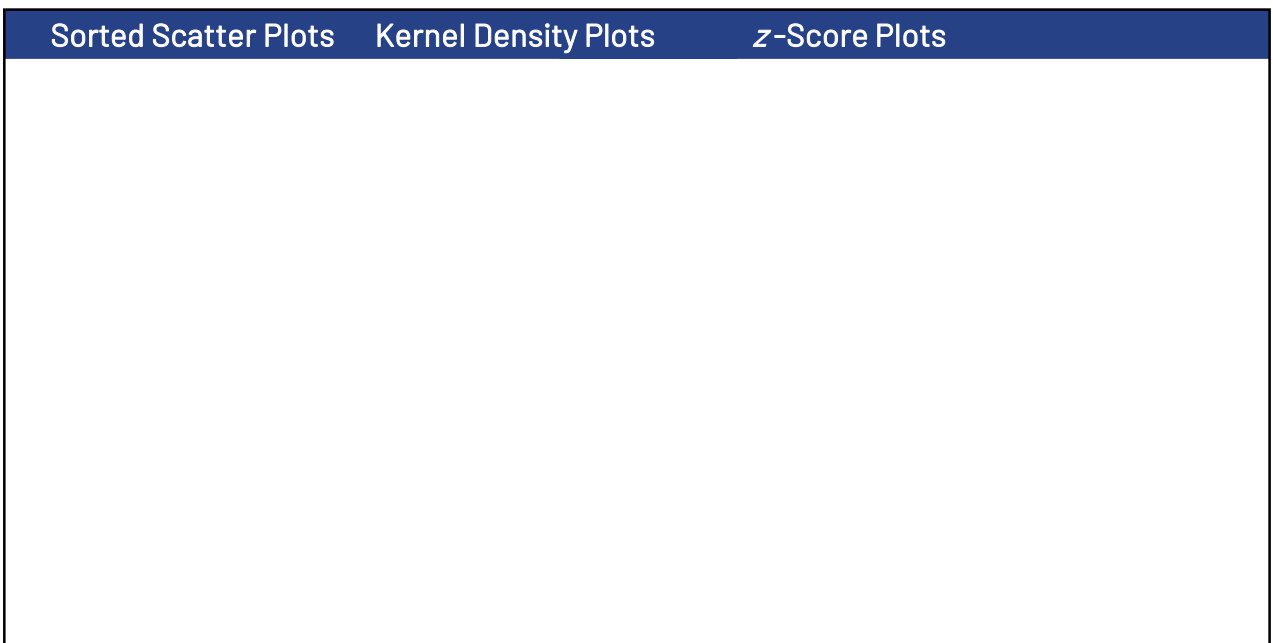
Not Spiked Not Spiked

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	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

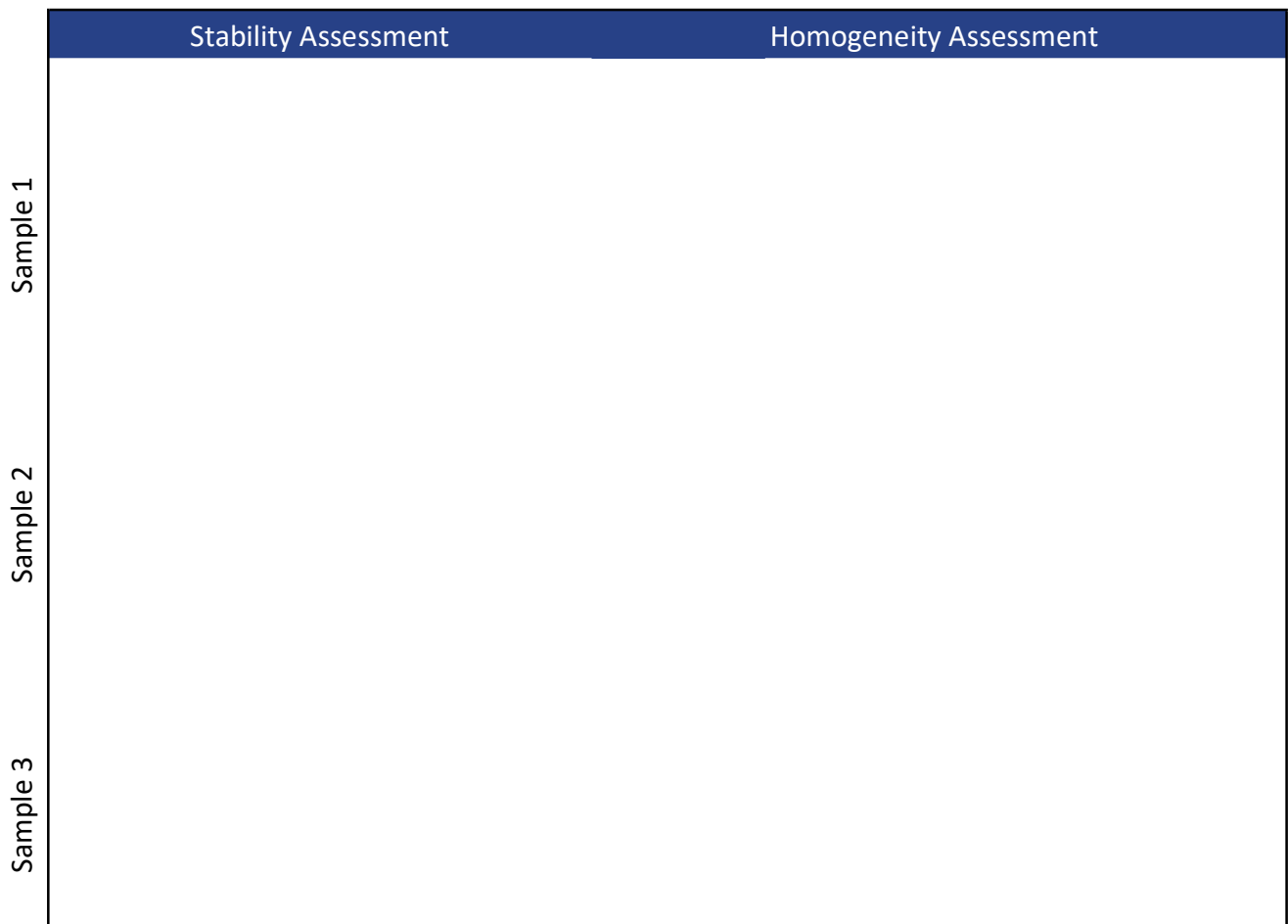
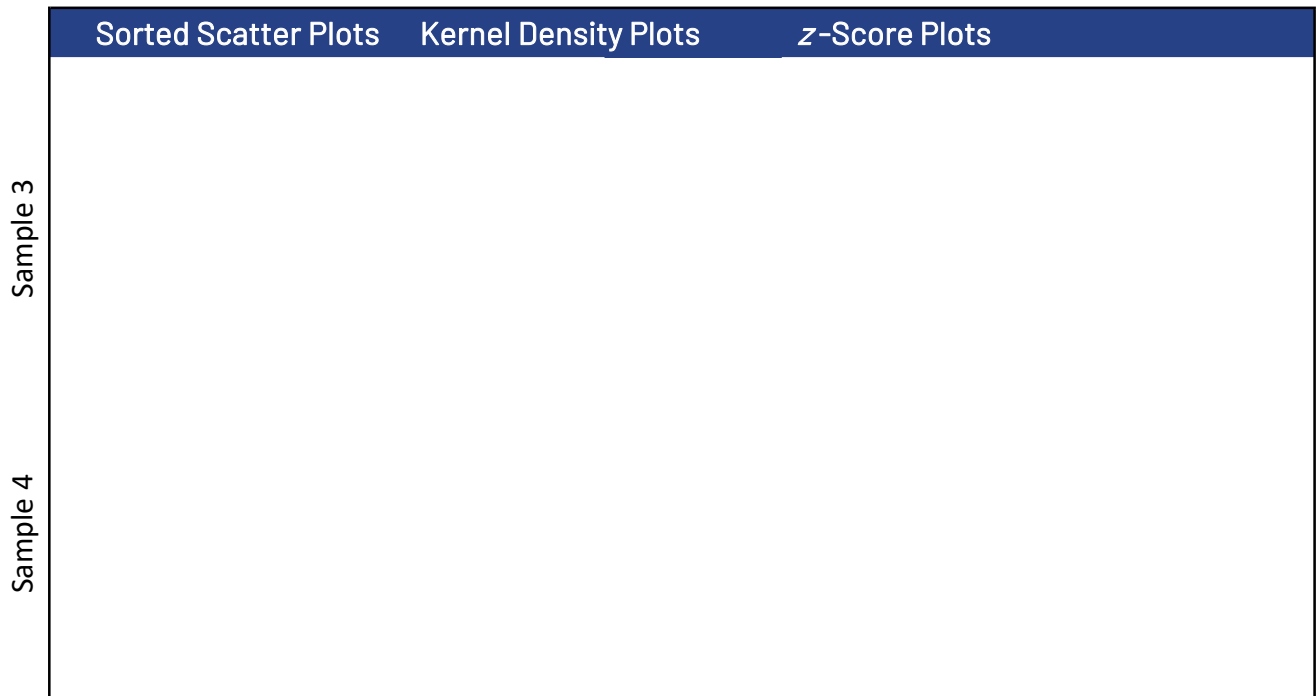
Methods Used

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

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



DIMETHYL SULFOXIDE

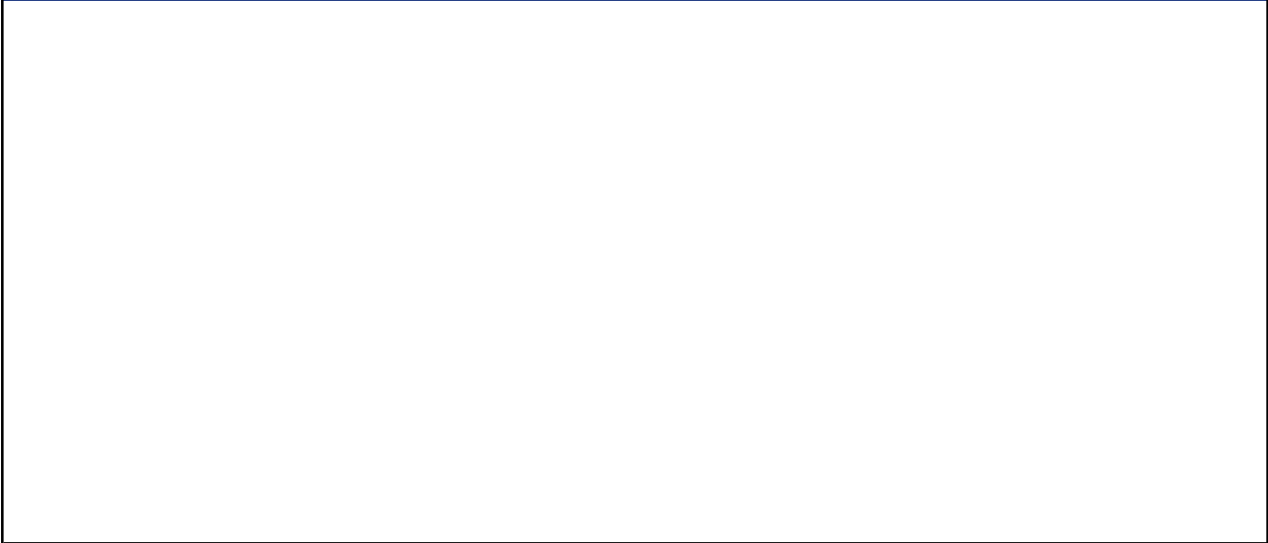


DIMETHYL SULFOXIDE

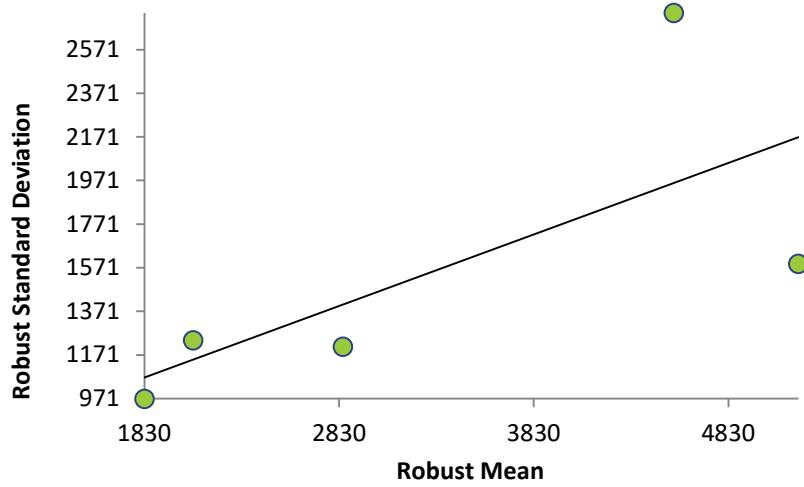
	Stability Assessment	Homogeneity Assessment
Sample 4		

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

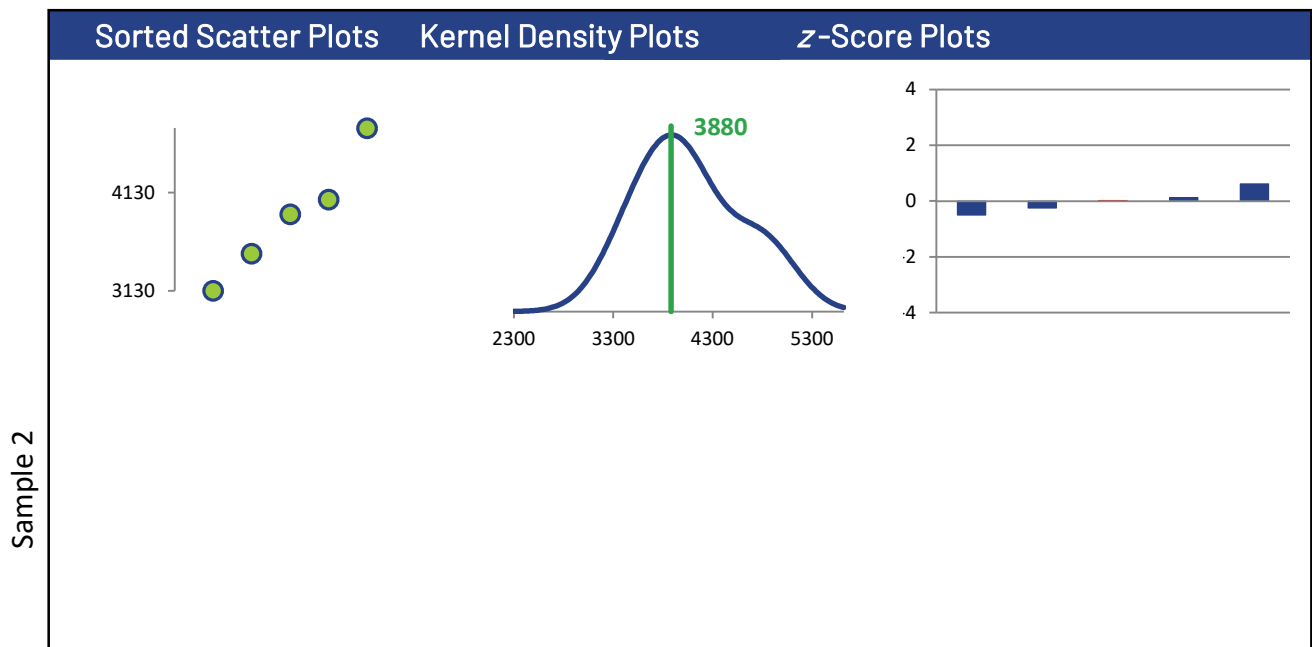
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	0	0	0
Median µg/g	3910			
Robust Mean µg/g	3880			
U µg/g	396			
Robust Standard Deviation µg/g	708			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag	Homogeneity			
Standard Deviation Used (SDPA) µg/g	1490			
Outliers	1	1	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

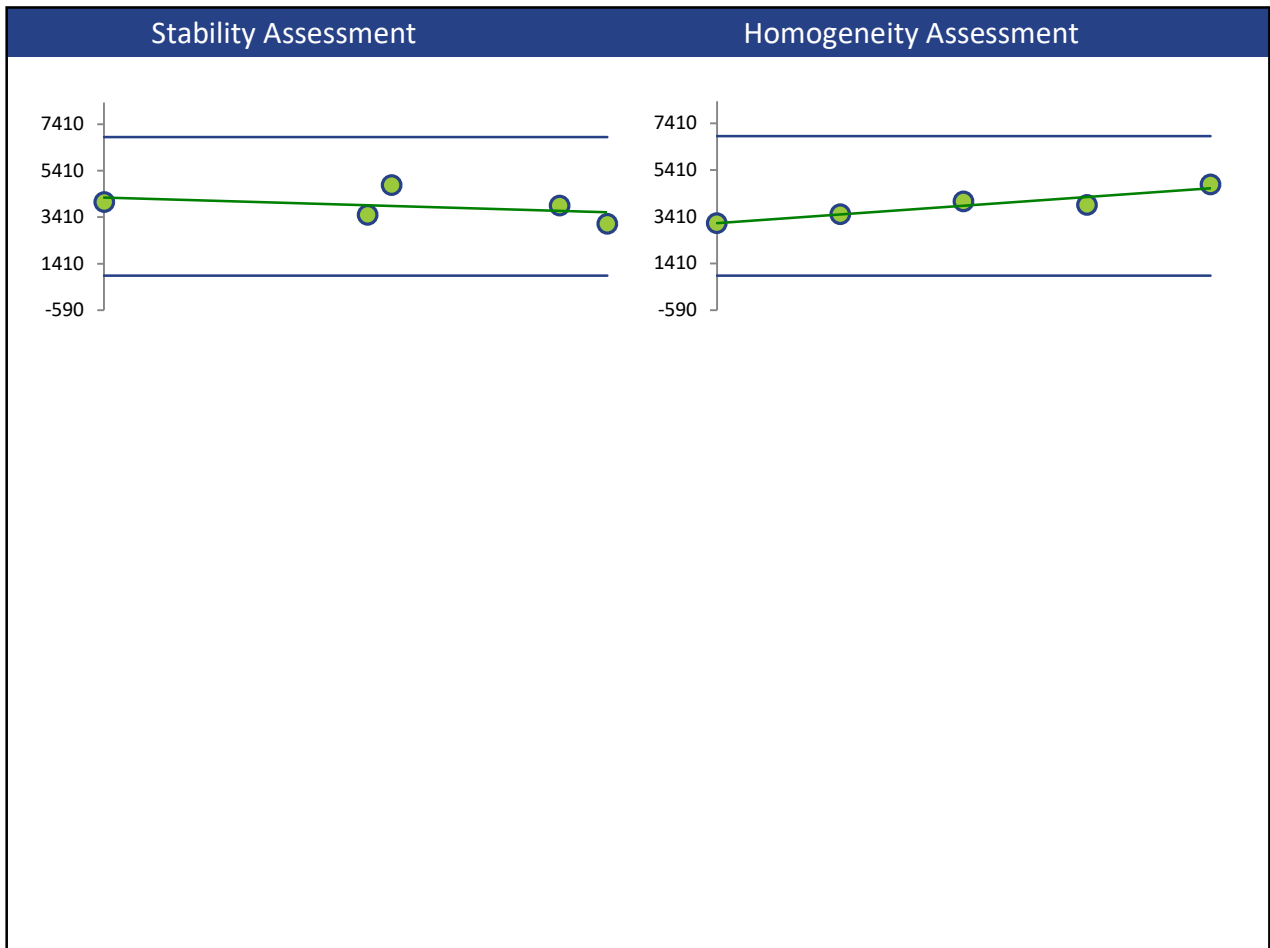
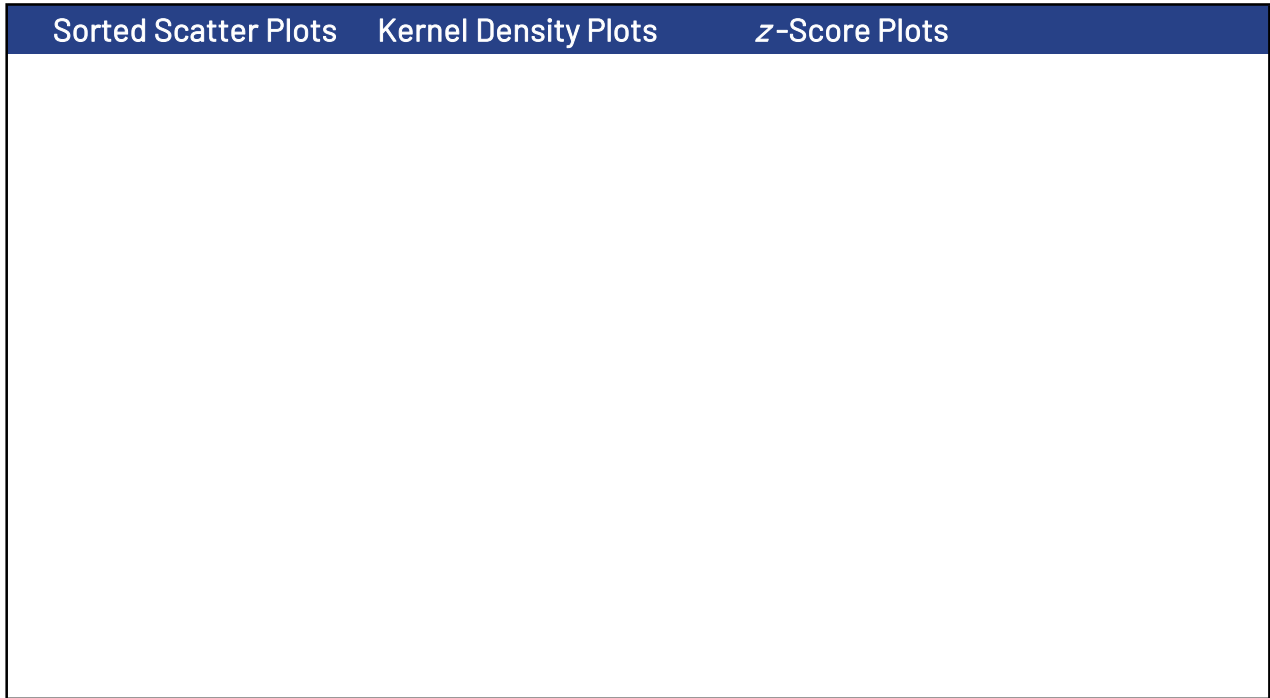
Methods Used

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

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

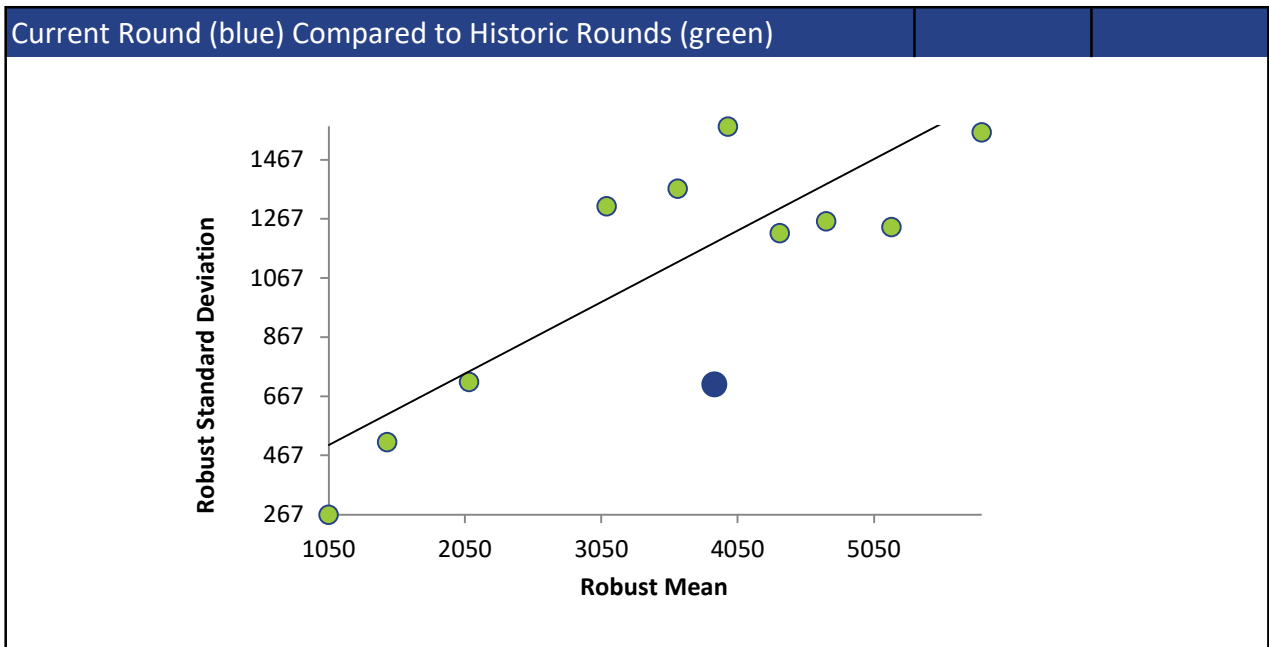
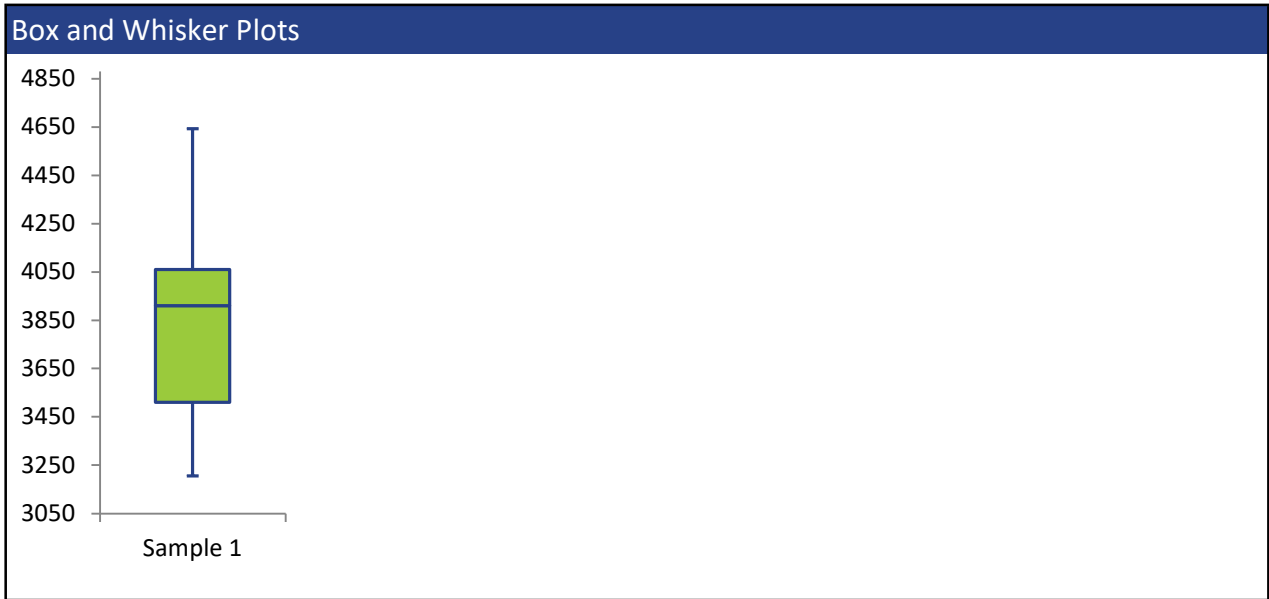


ETHANOL



ETHANOL

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



ETHYL ACETATE

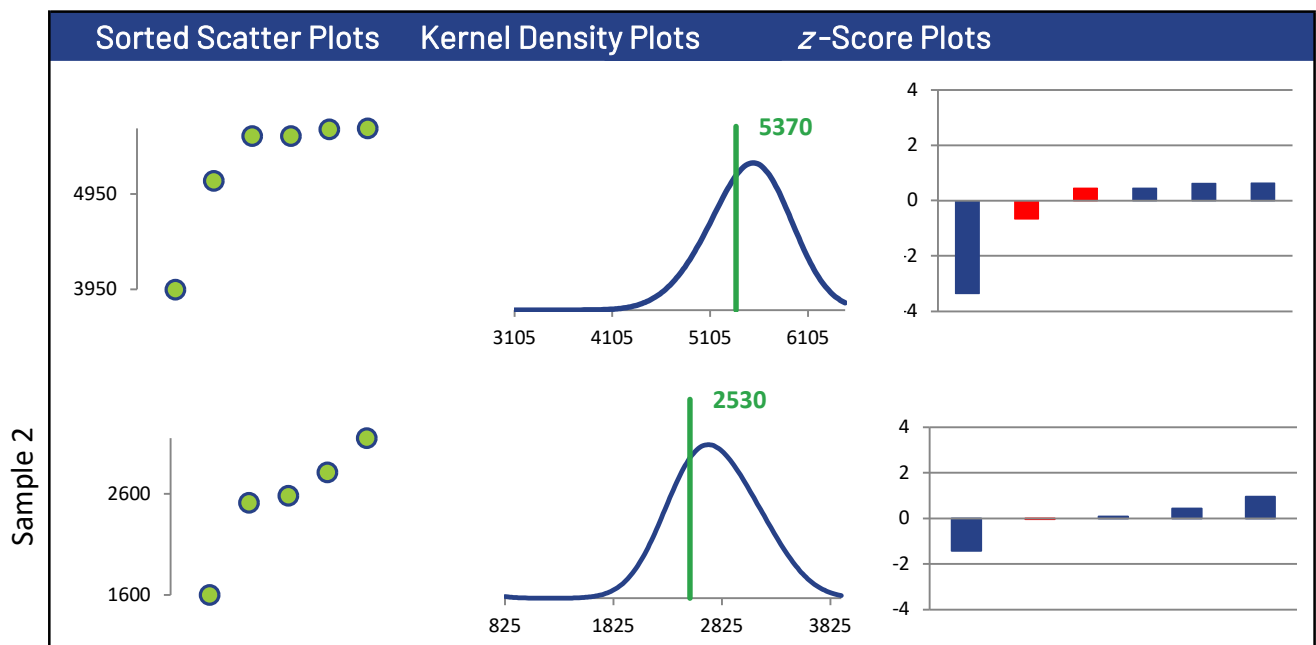
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	6	5	0	0
Median µg/g	5560	2580		
Robust Mean µg/g	5370	2530		
U µg/g	215	366		
Robust Standard Deviation µg/g	422	654		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	422	654		
Outliers	0	0	0	0
z >3.0	1	0	0	0
2< z <3	0	0	0	0

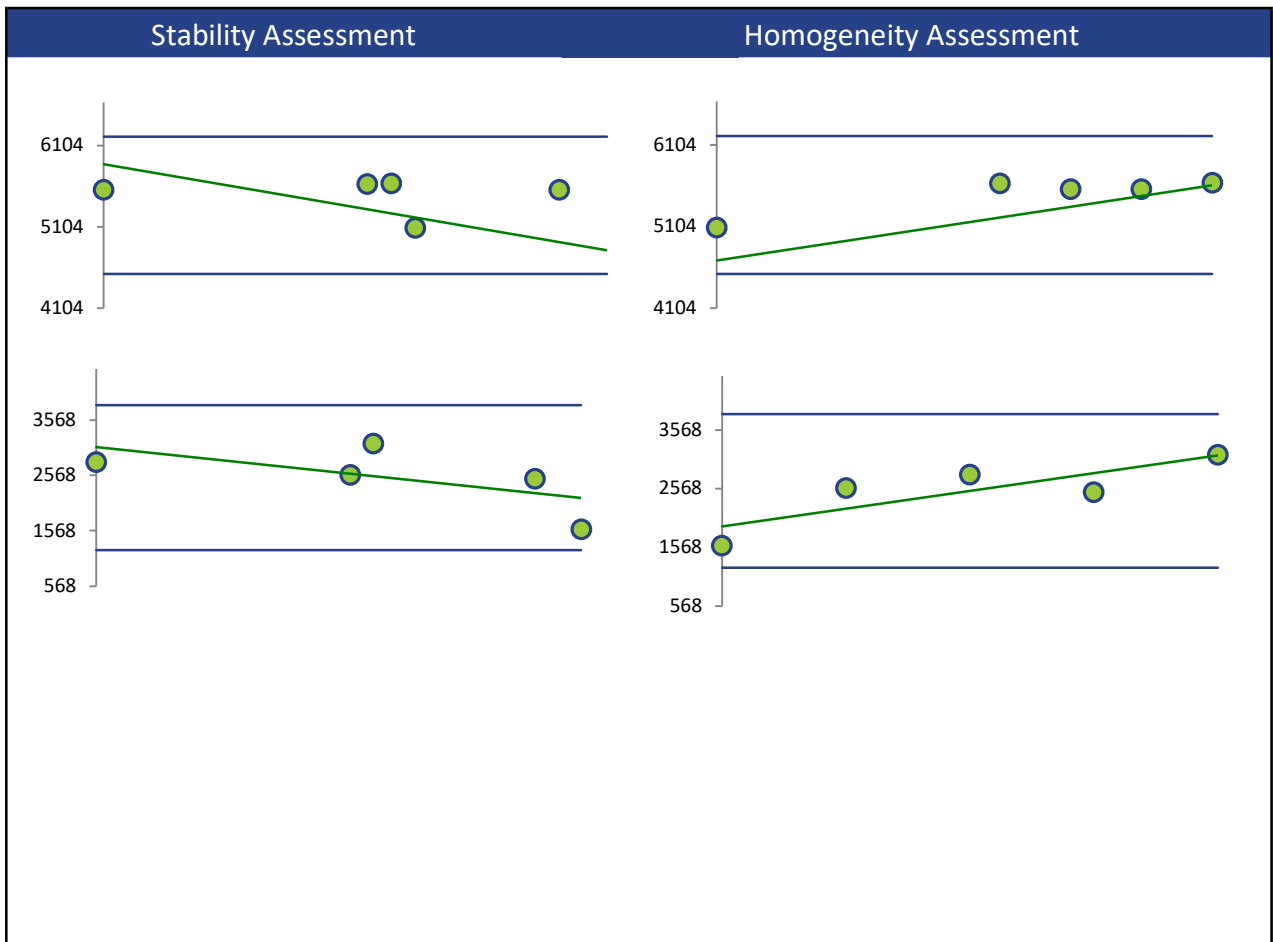
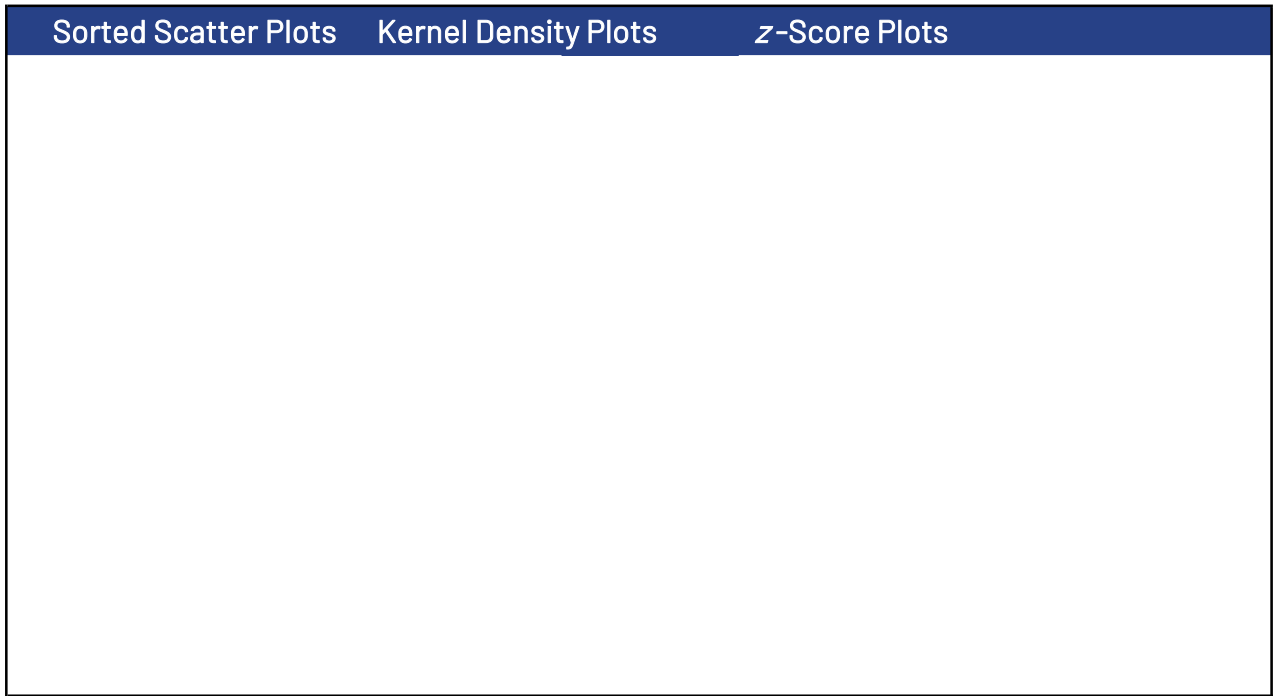
Methods Used

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

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

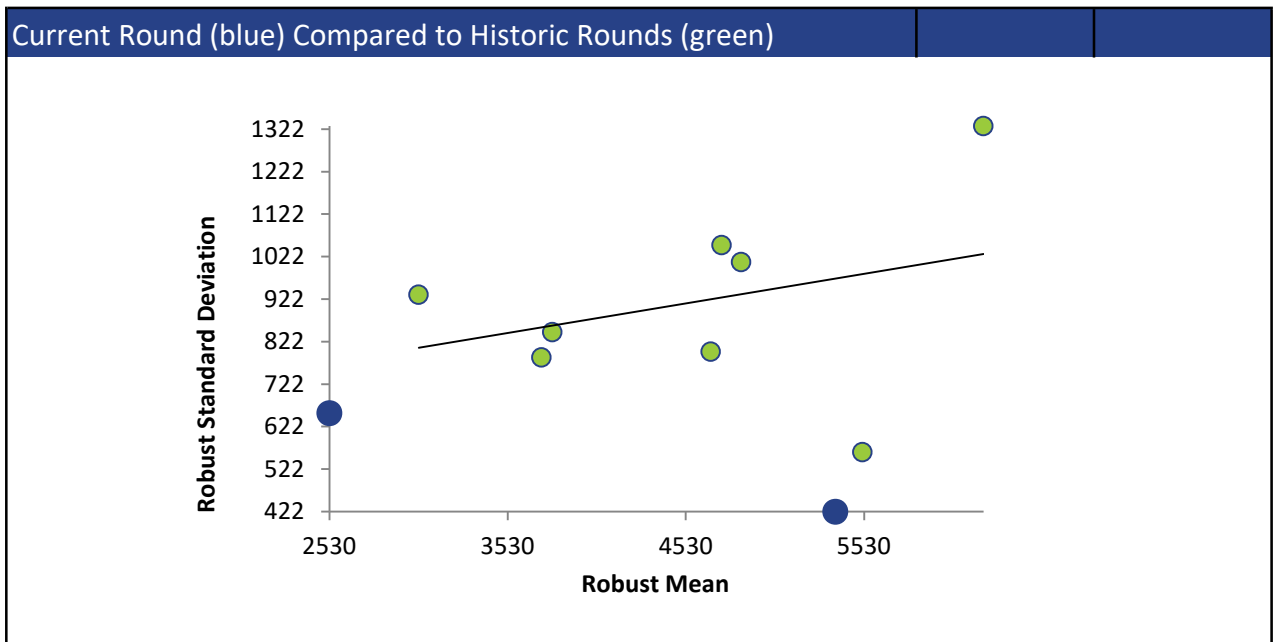
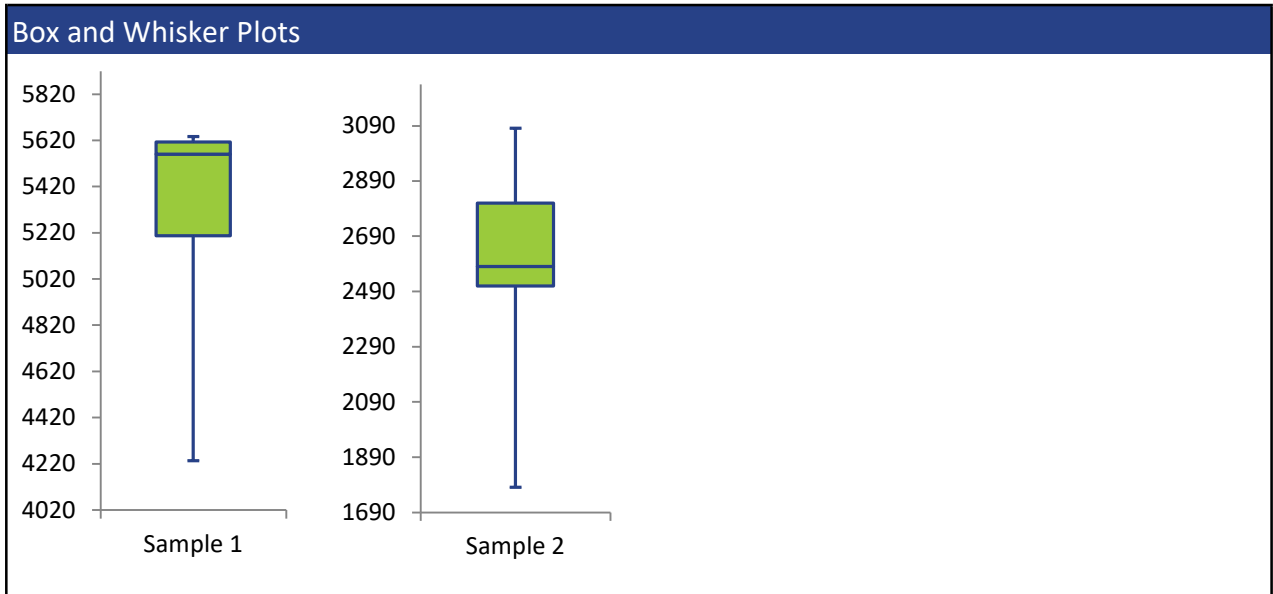


ETHYL ACETATE



ETHYL ACETATE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



ETHYL ETHER

Summary Statistics

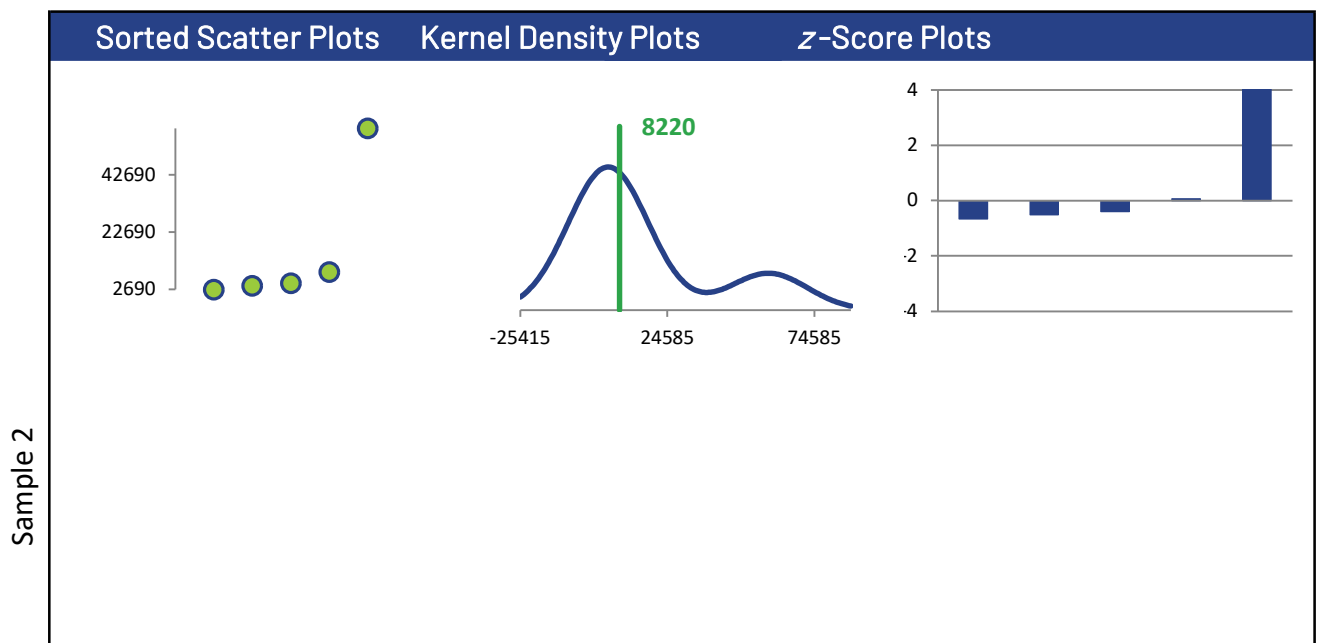
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	0	0	0
Median µg/g	4940			
Robust Mean µg/g	8220			
U µg/g	4650			
Robust Standard Deviation µg/g	8320			
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	8320			
Outliers	0	0	0	0
z >3.0	1	0	0	0
2< z <3	0	0	0	0

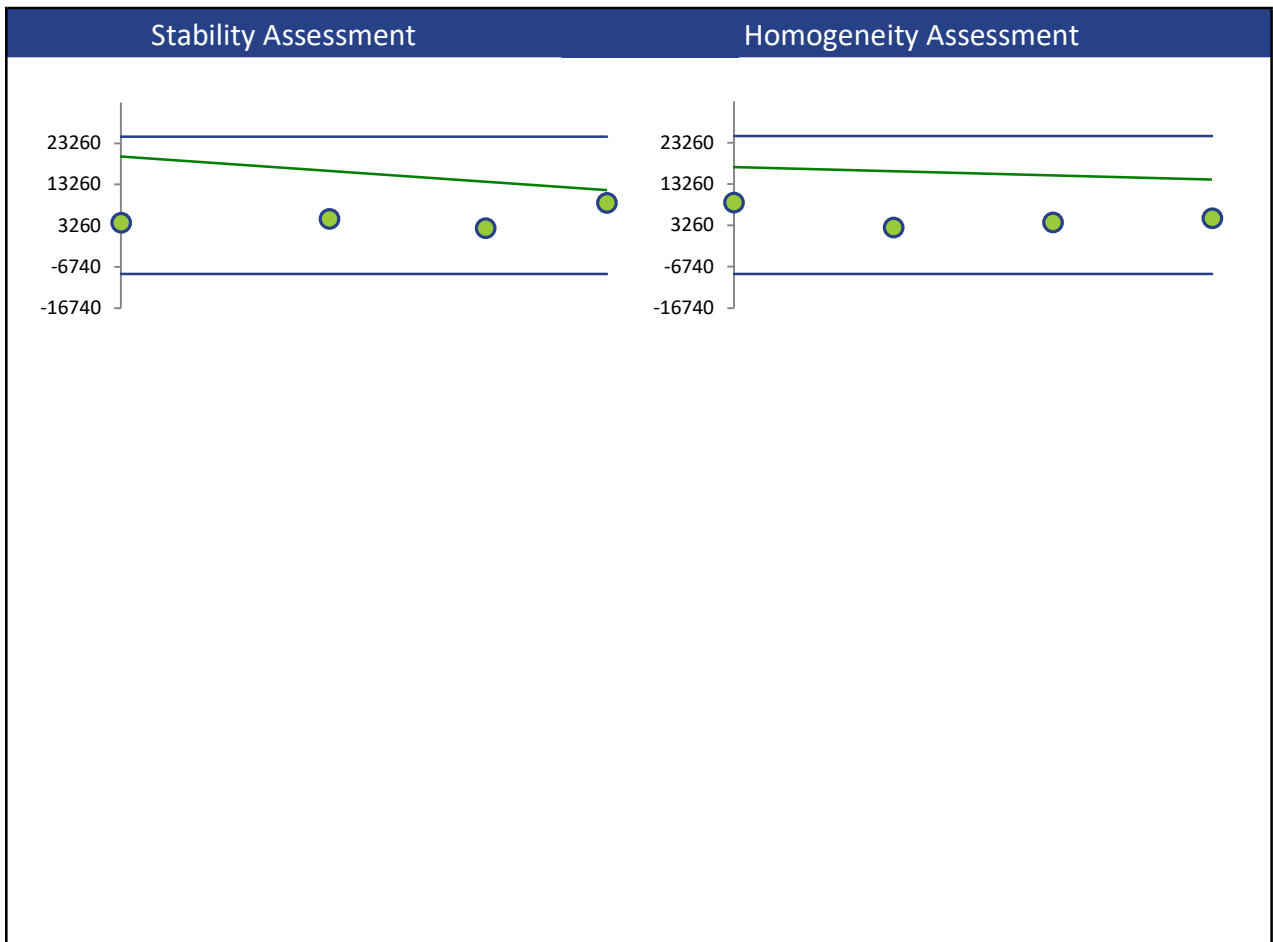
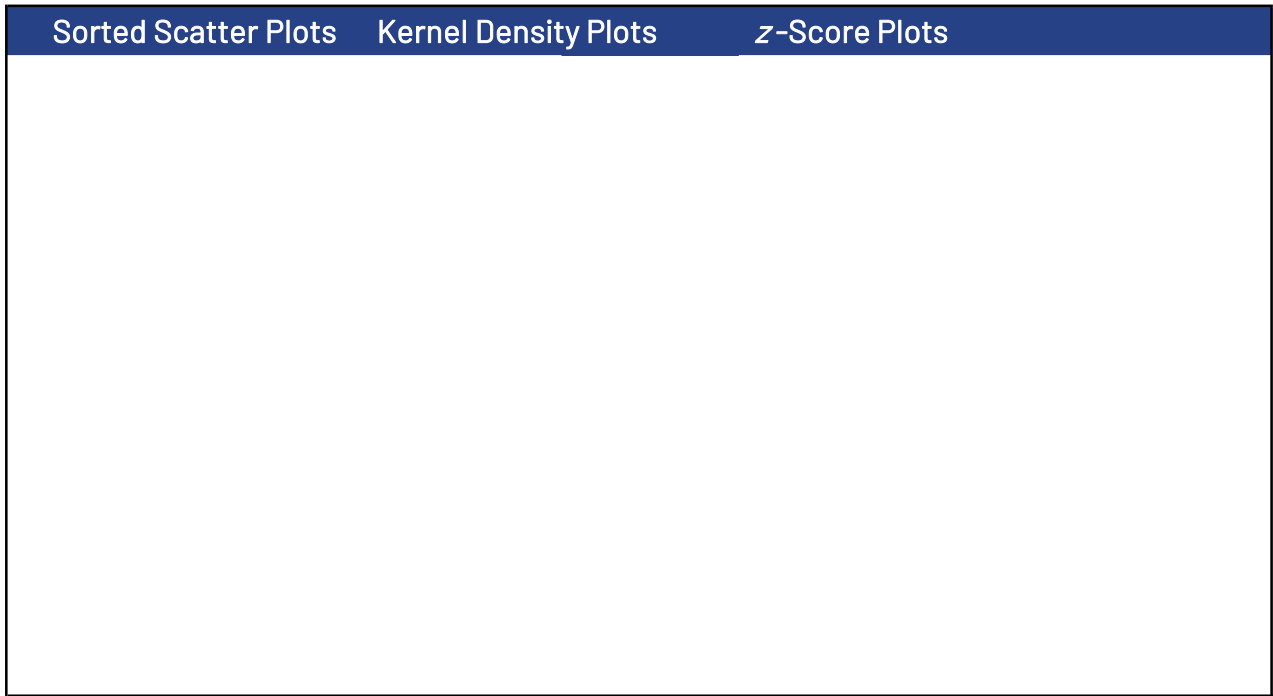
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	5	0	0	0

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



ETHYL ETHER



ETHYL ETHER

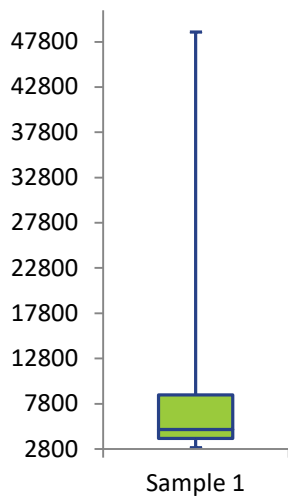
Stability Assessment Homogeneity Assessment

Sample 4

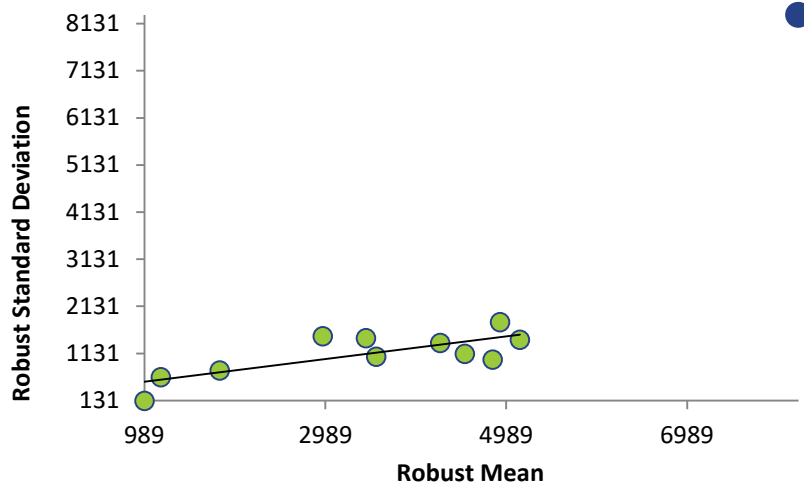
Stability assessments are regression analysis of reported result against date of analysis.

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

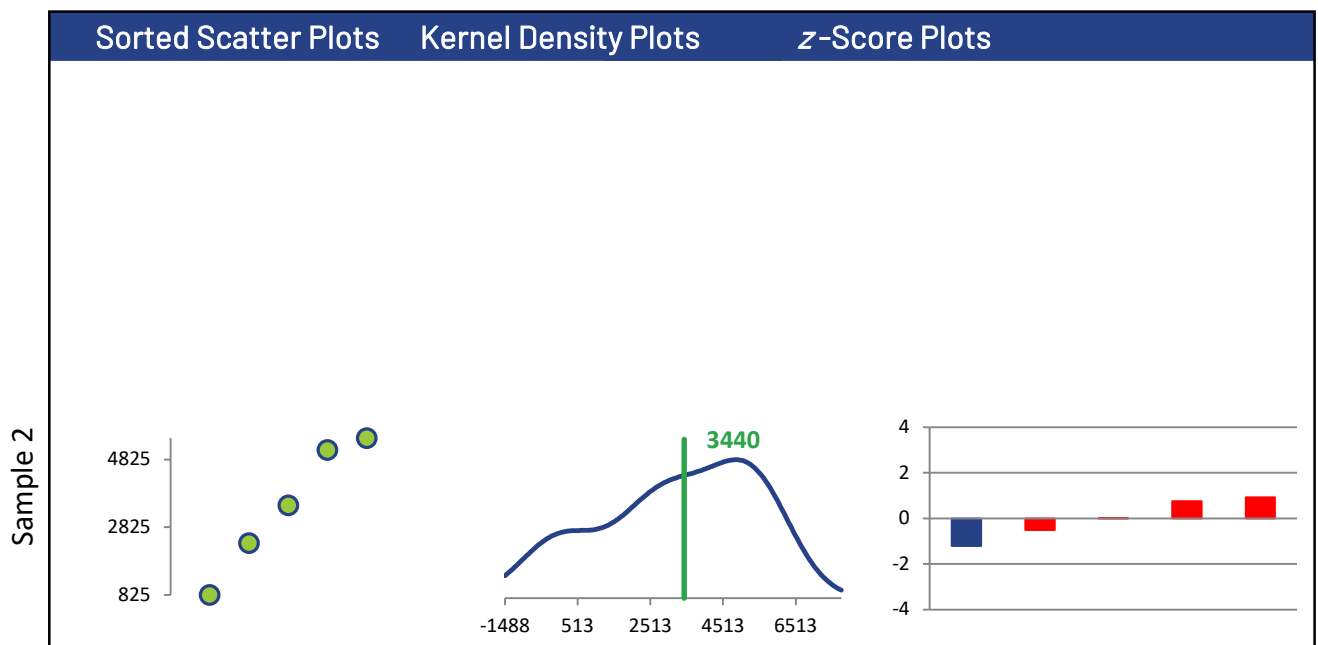
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	5	0	0
Median µg/g		3470		
Robust Mean µg/g		3440		
U µg/g		1220		
Robust Standard Deviation µg/g		2180		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		2180		
Outliers	1	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

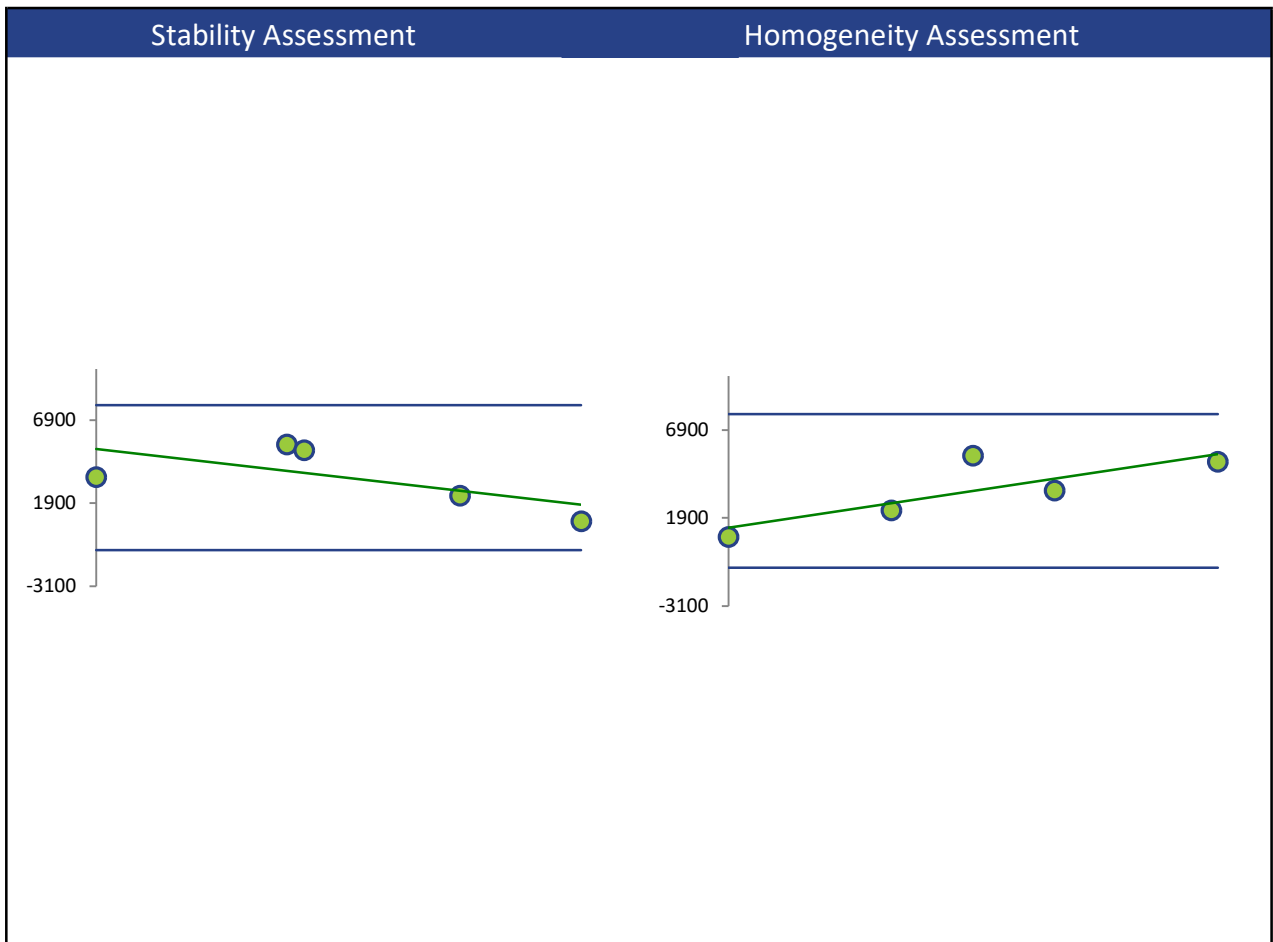
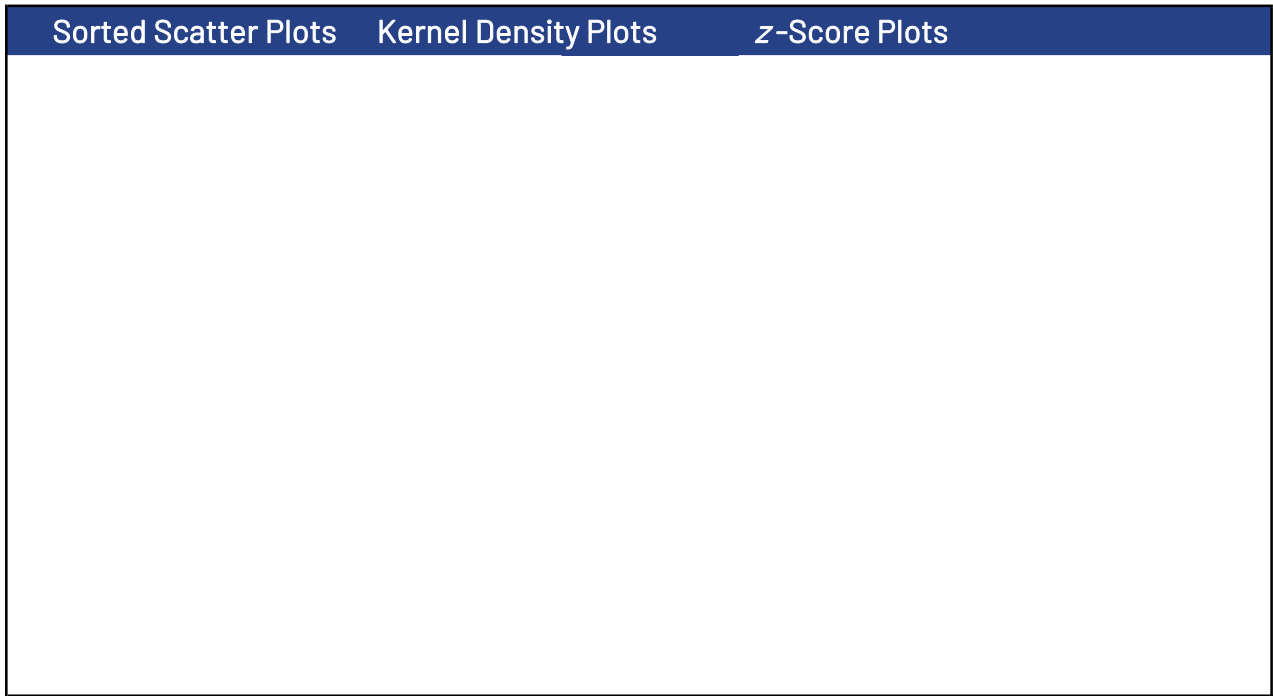
Methods Used

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

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

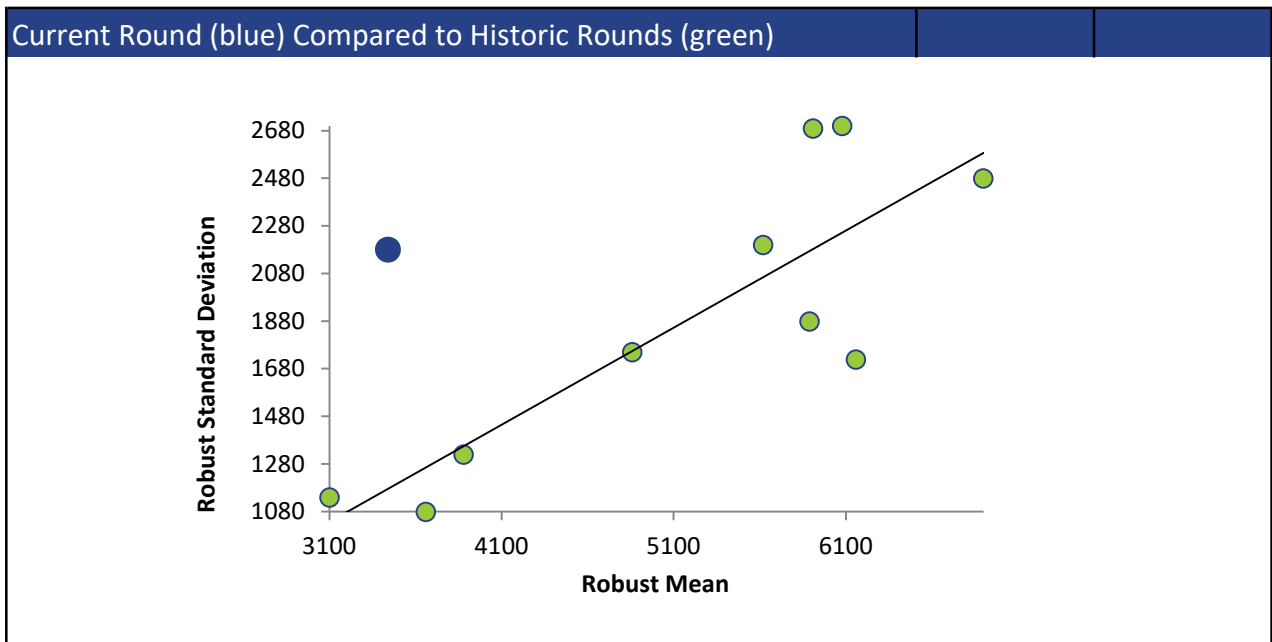
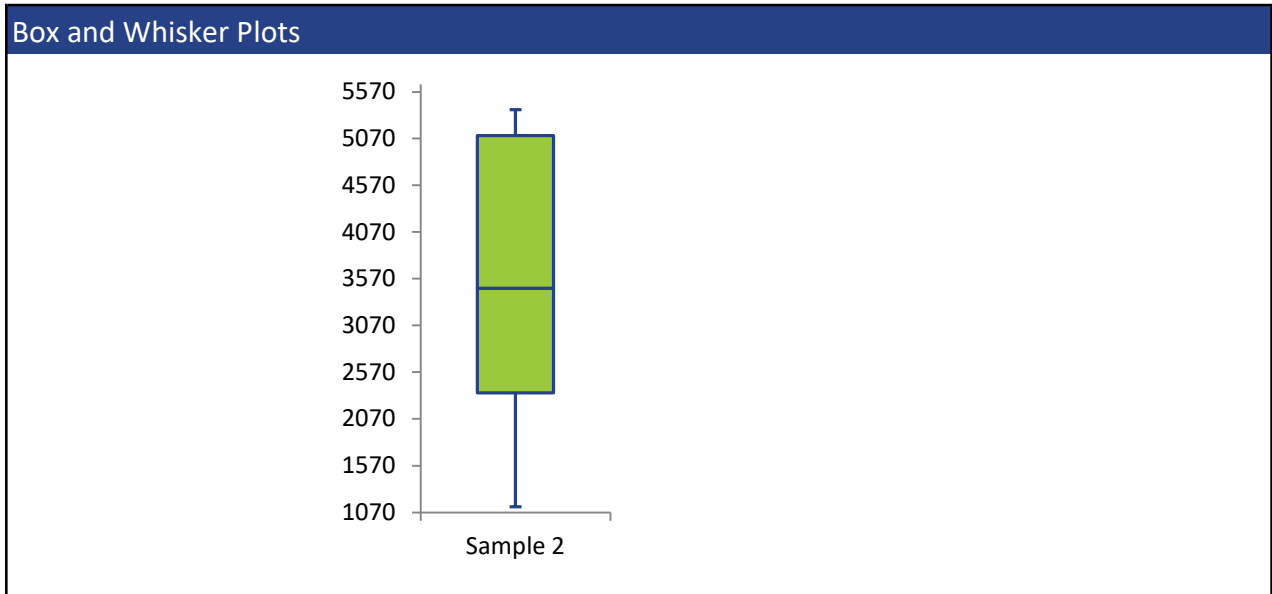


HEPTANE



HEPTANE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



ISOBUTANOL (2-METHYL-1-PROPANOL)

Summary Statistics

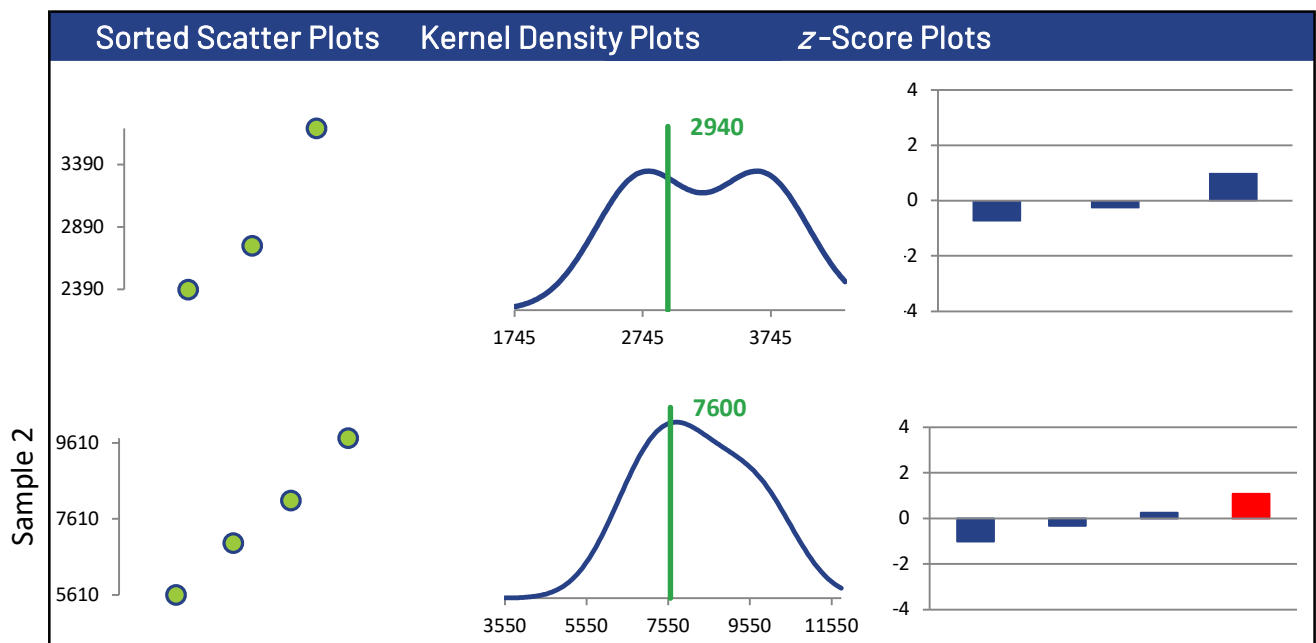
Excluded

Statistic	C73-1	C73-2	C73-3	C73-4
N	3	4	0	0
Median µg/g	2740	7530		
Robust Mean µg/g	2940	7600		
U µg/g	546	1240		
Robust Standard Deviation µg/g	757	1980		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	757	1980		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

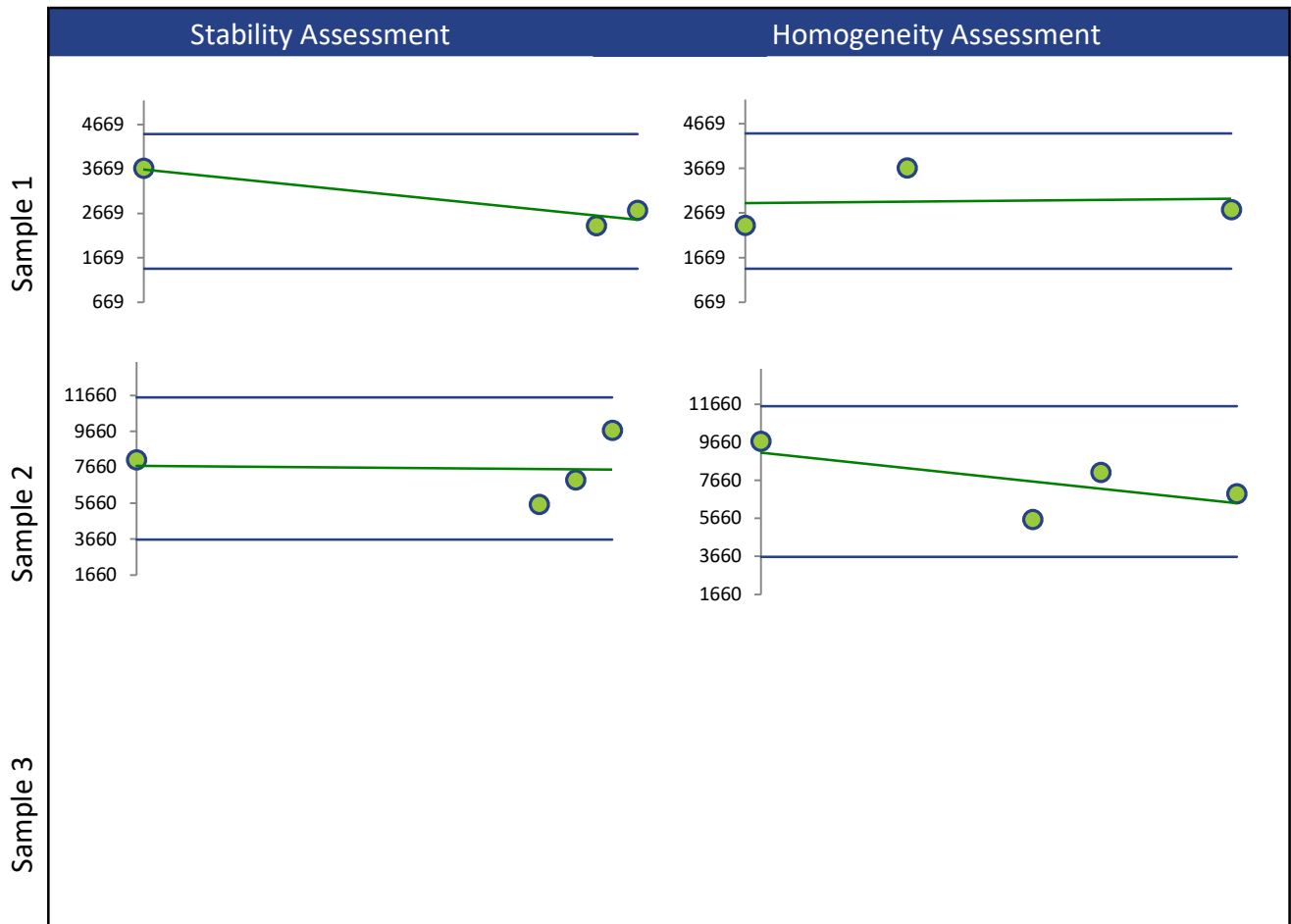
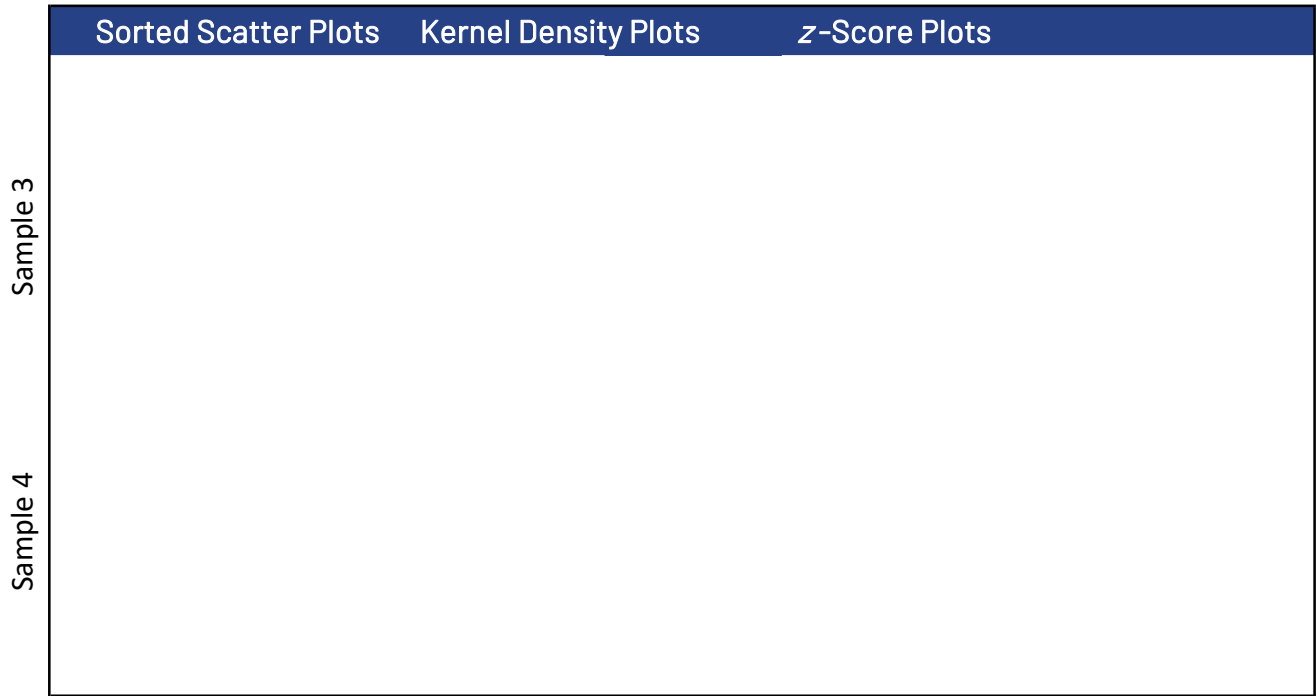
Methods Used

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

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



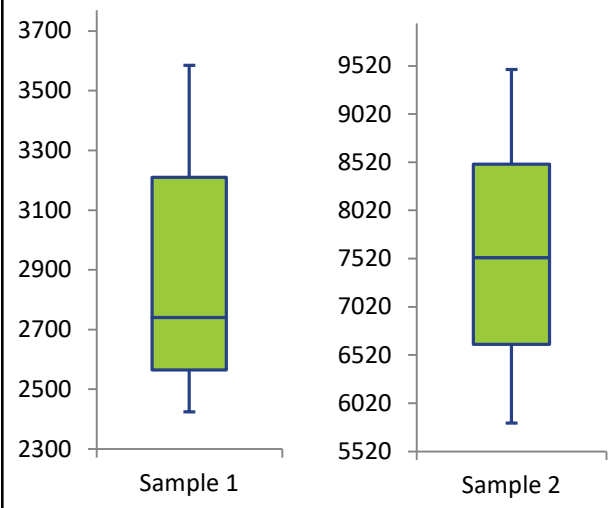
ISOBUTANOL (2-METHYL-1-PROPANOL)



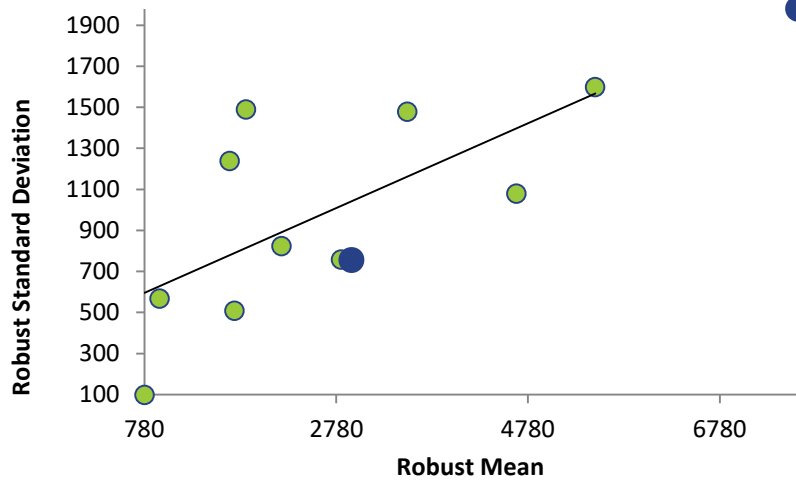
ISOBUTANOL (2-METHYL-1-PROPANOL)

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	

Box and Whisker Plots



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



ISOBUTYL ACETATE

Summary Statistics

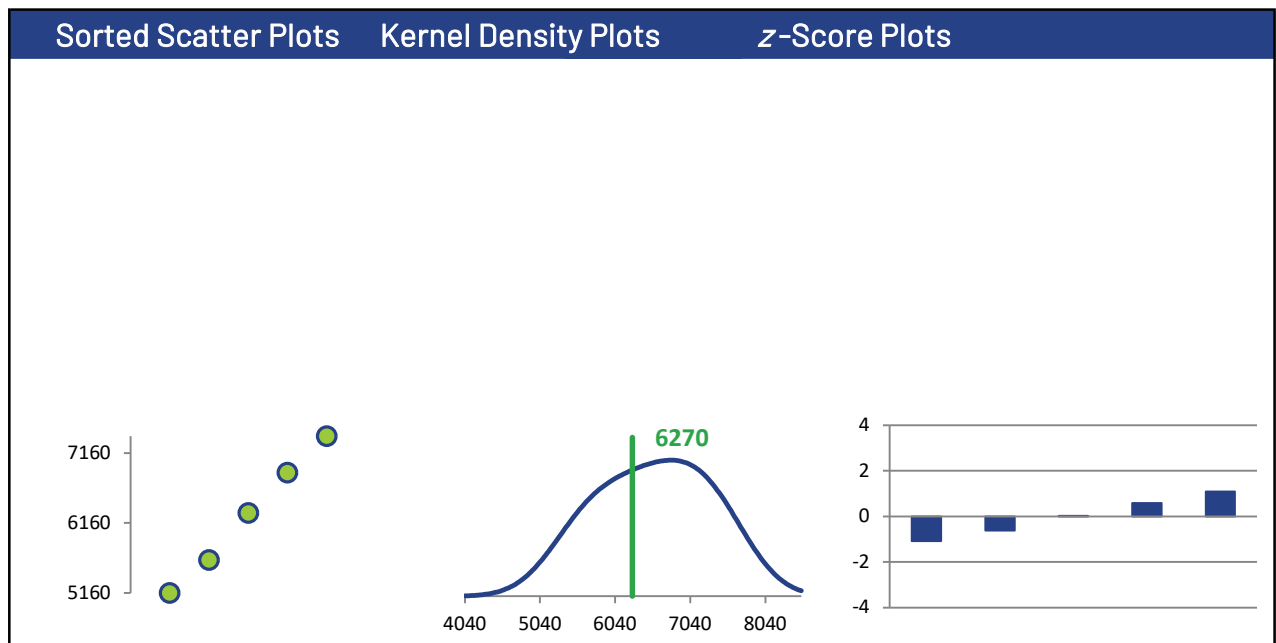
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	5	0	0
Median µg/g		6300		
Robust Mean µg/g		6270		
U µg/g		576		
Robust Standard Deviation µg/g		1030		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		1030		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

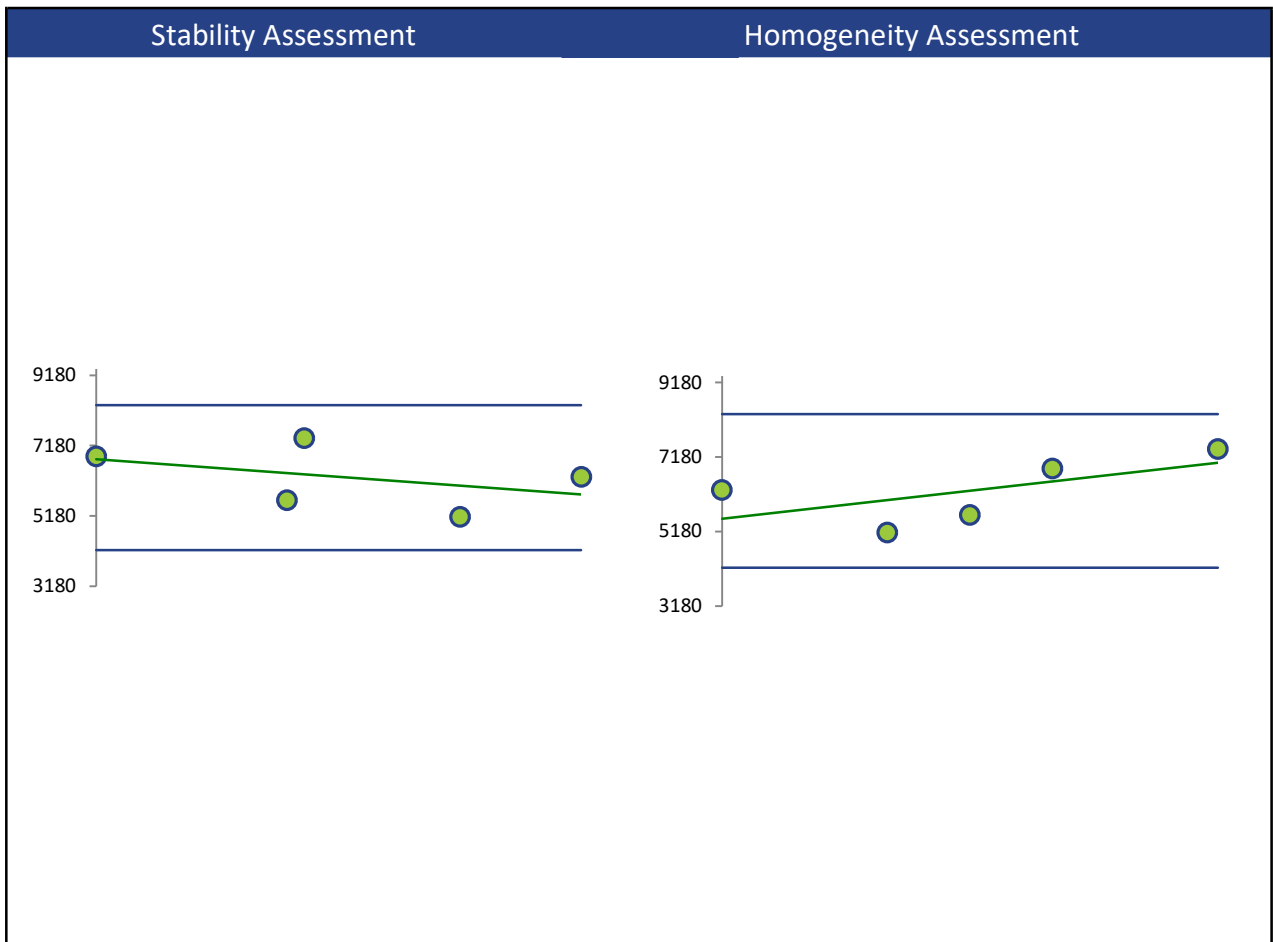
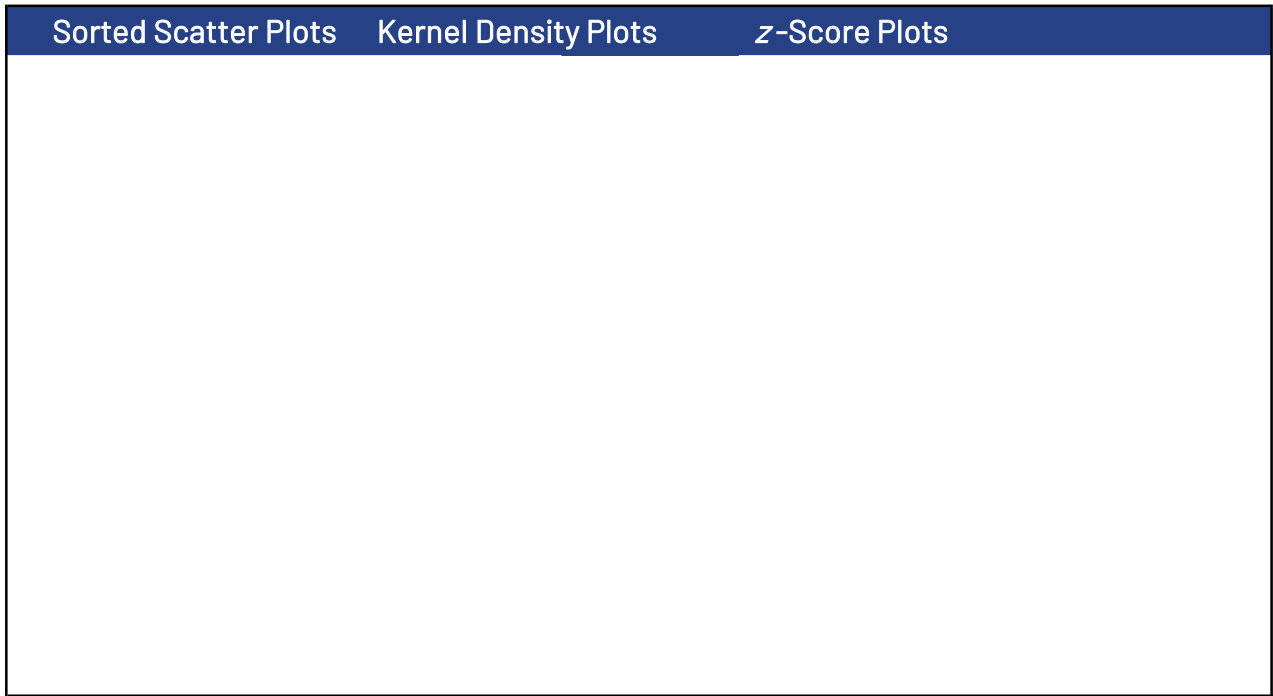
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	5	0	0

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

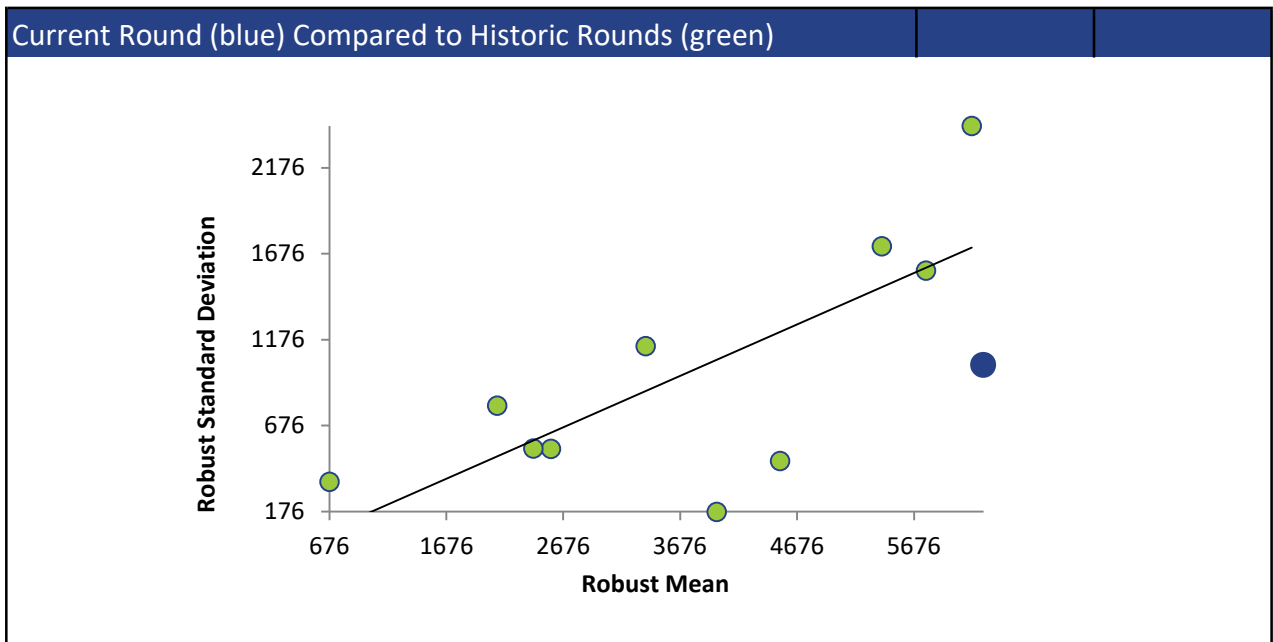
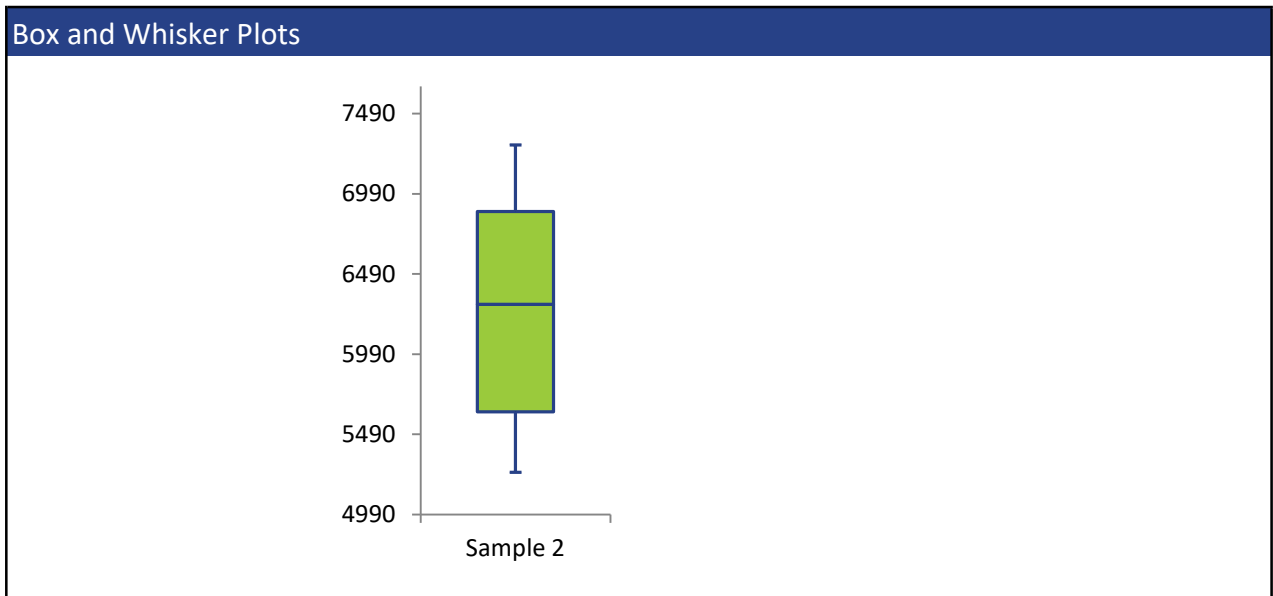


ISOBUTYL ACETATE



ISOBUTYL ACETATE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



ISOPROPYL ACETATE

Summary Statistics

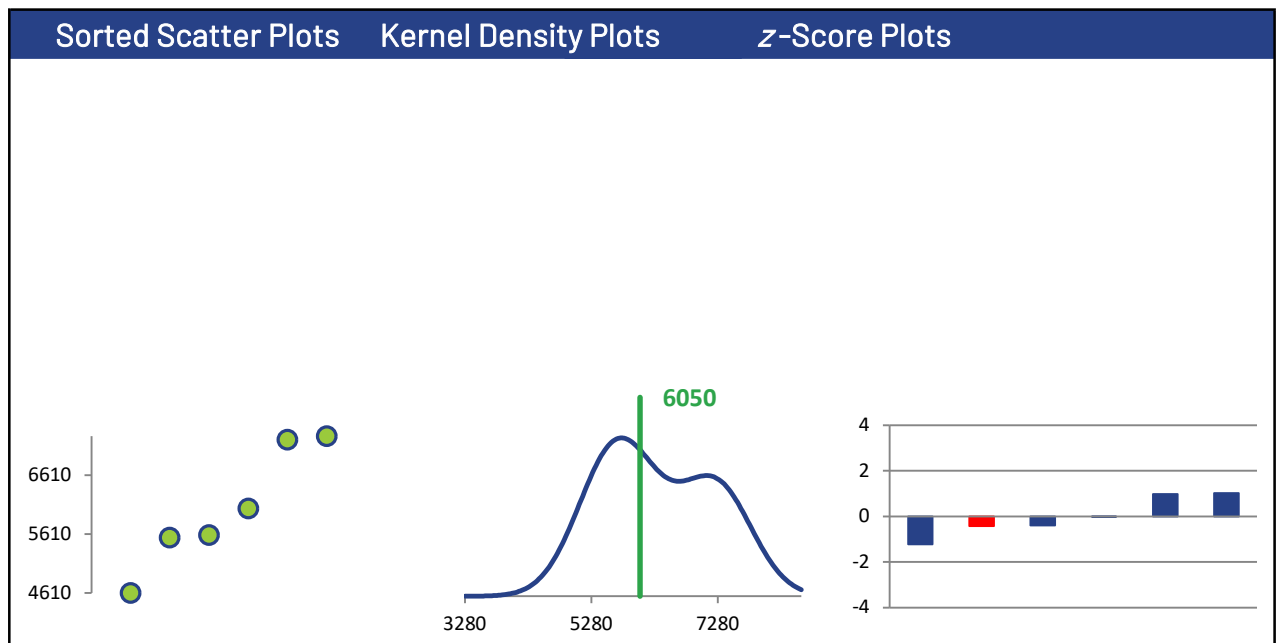
Not Spiked

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	6	0	0
Median µg/g		5820		
Robust Mean µg/g		6050		
U µg/g		602		
Robust Standard Deviation µg/g		1180		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		1180		
Outliers	1	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

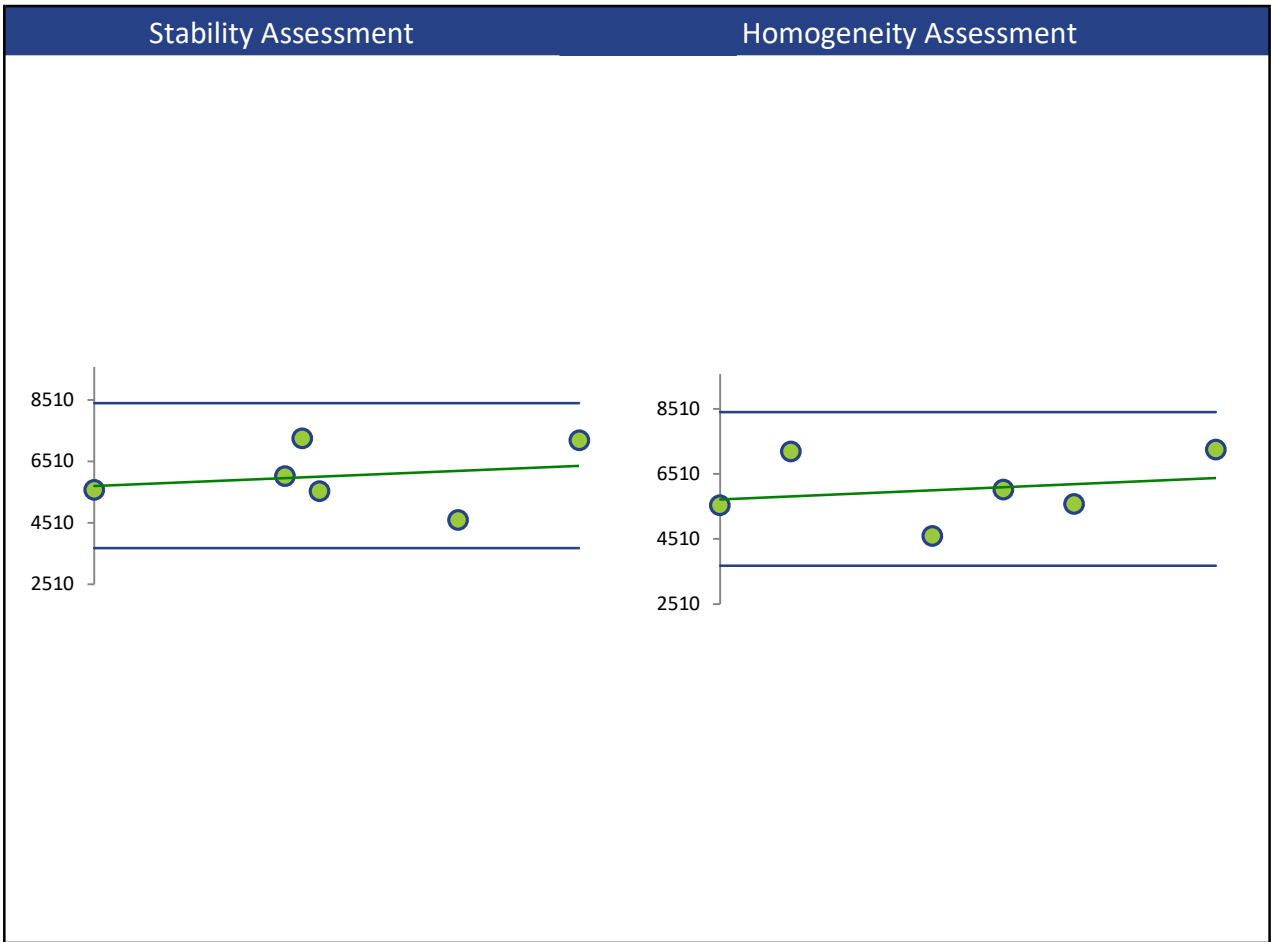
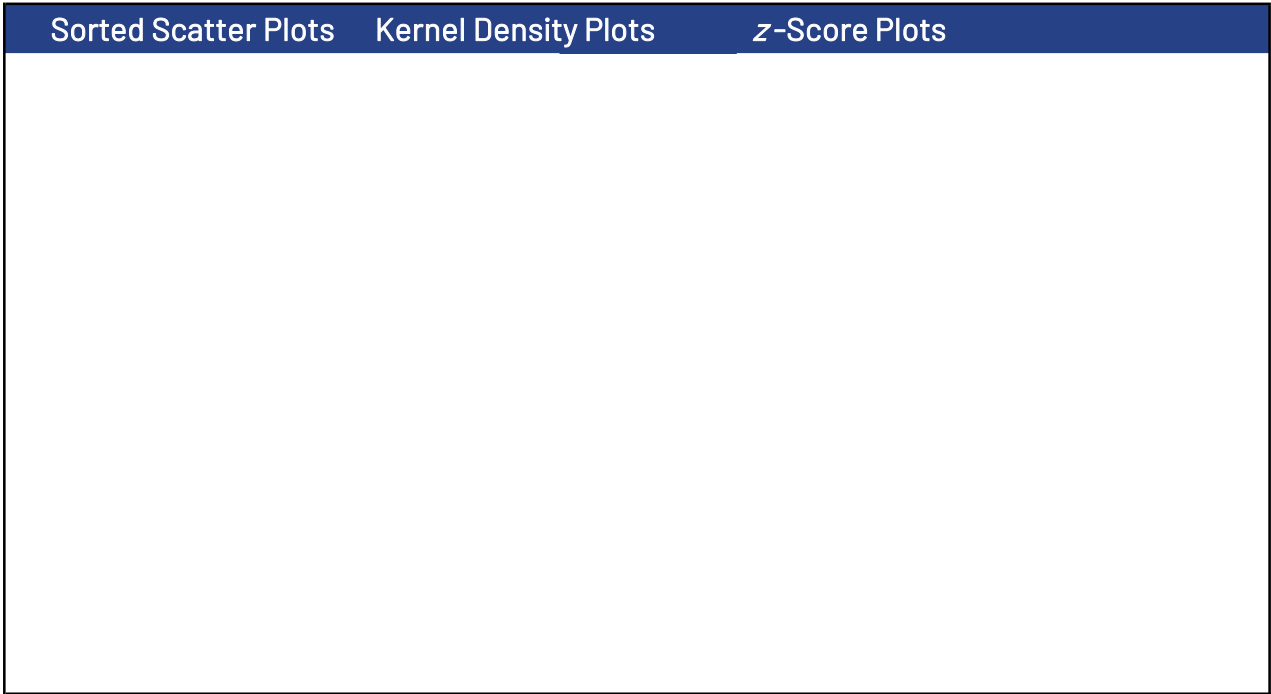
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	0	5	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

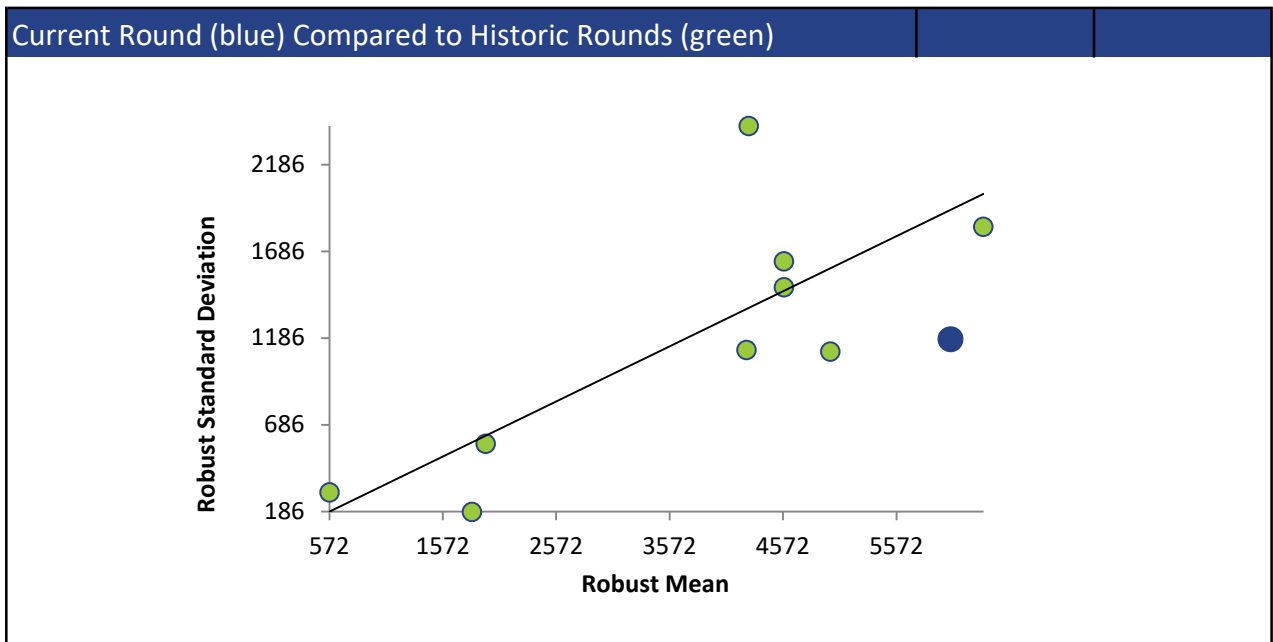
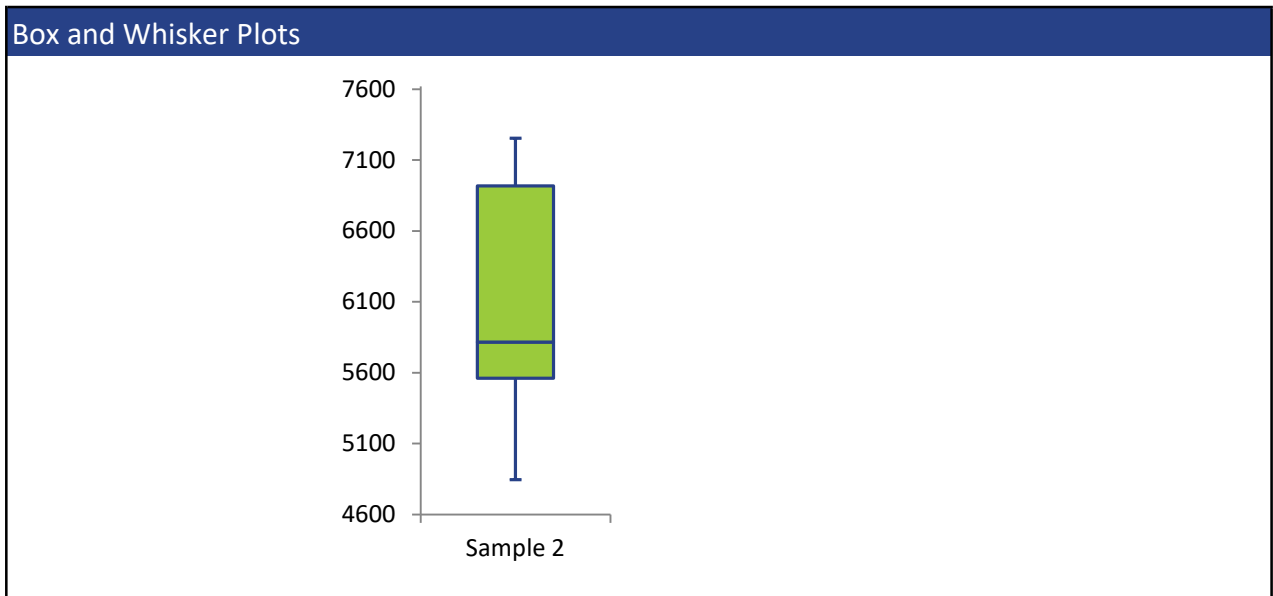


ISOPROPYL ACETATE



ISOPROPYL ACETATE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



METHYL ACETATE

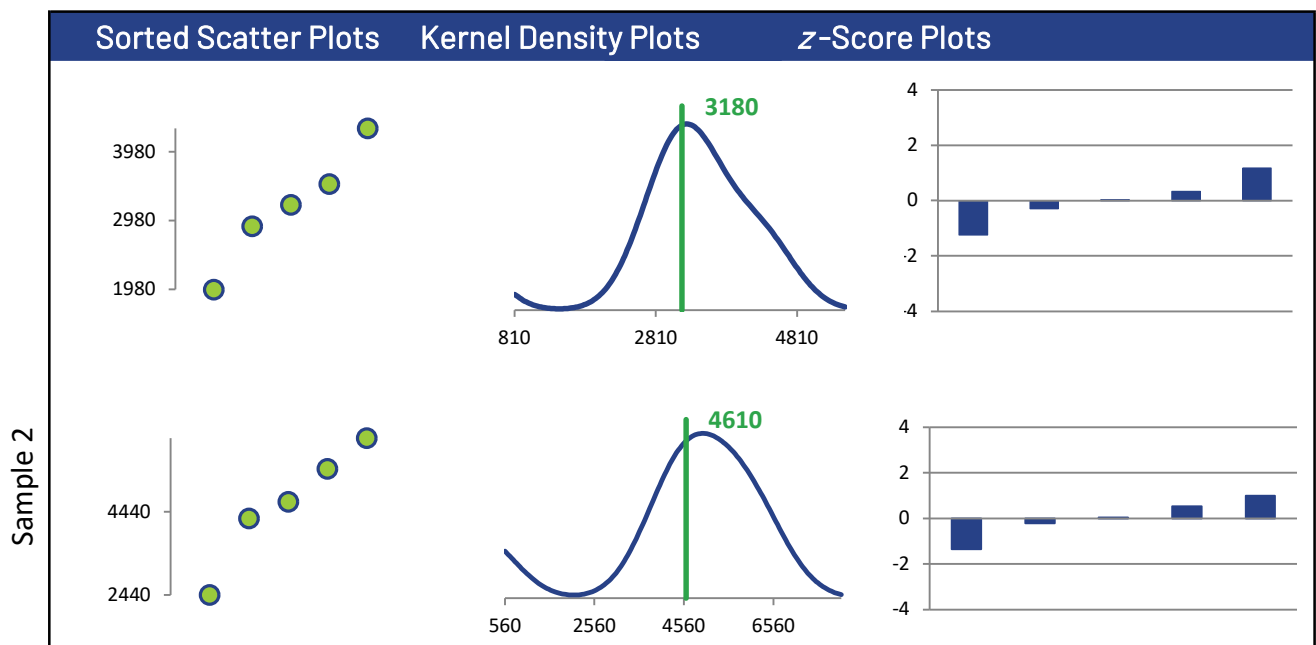
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	5	5	0	0
Median µg/g	3210	4670		
Robust Mean µg/g	3180	4610		
U µg/g	542	900		
Robust Standard Deviation µg/g	970	1610		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	970	1610		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

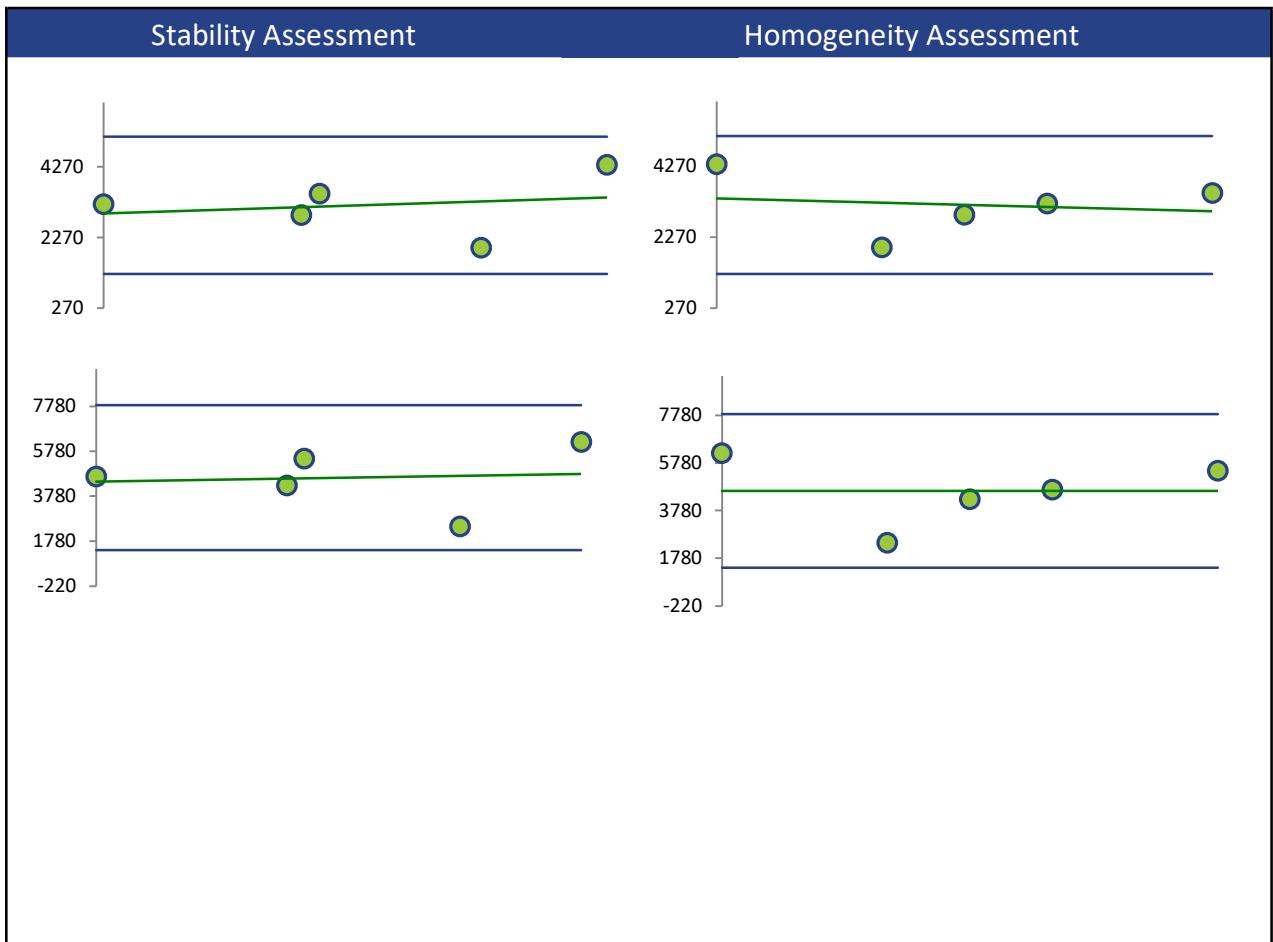
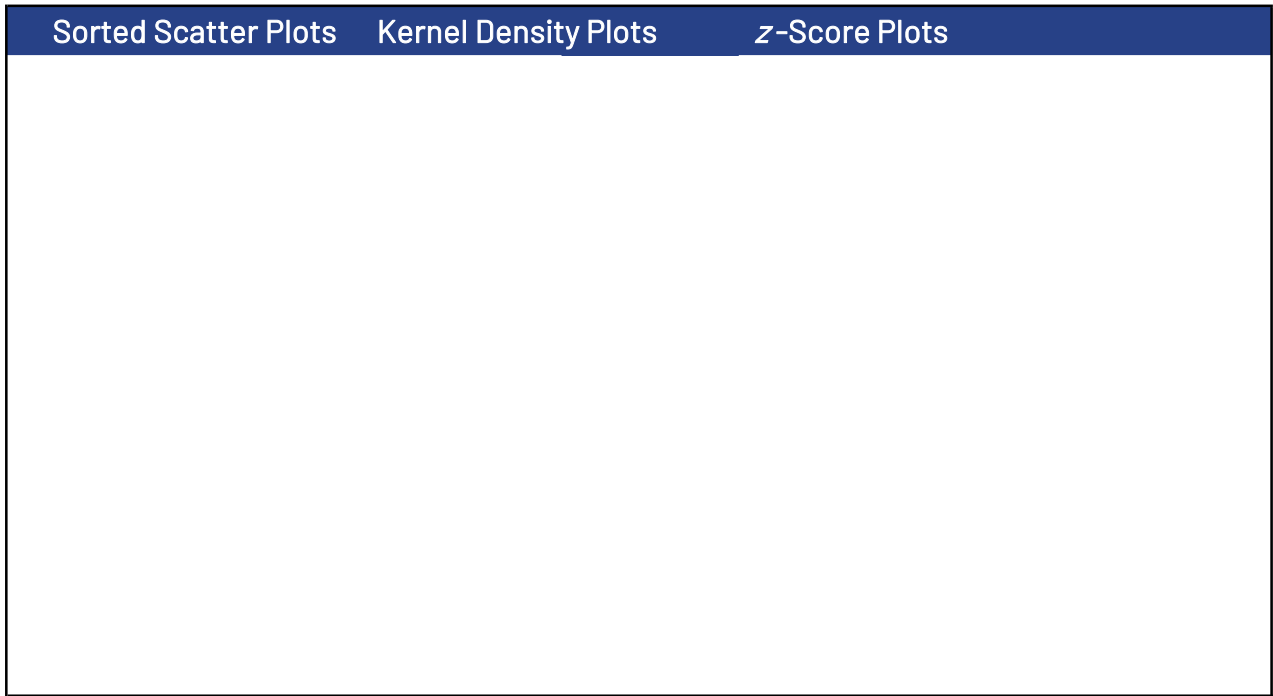
Methods Used

Method	C73-1	C73-2	C73-3	C73-4
GC/MS (Blue)	5	5	0	0

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

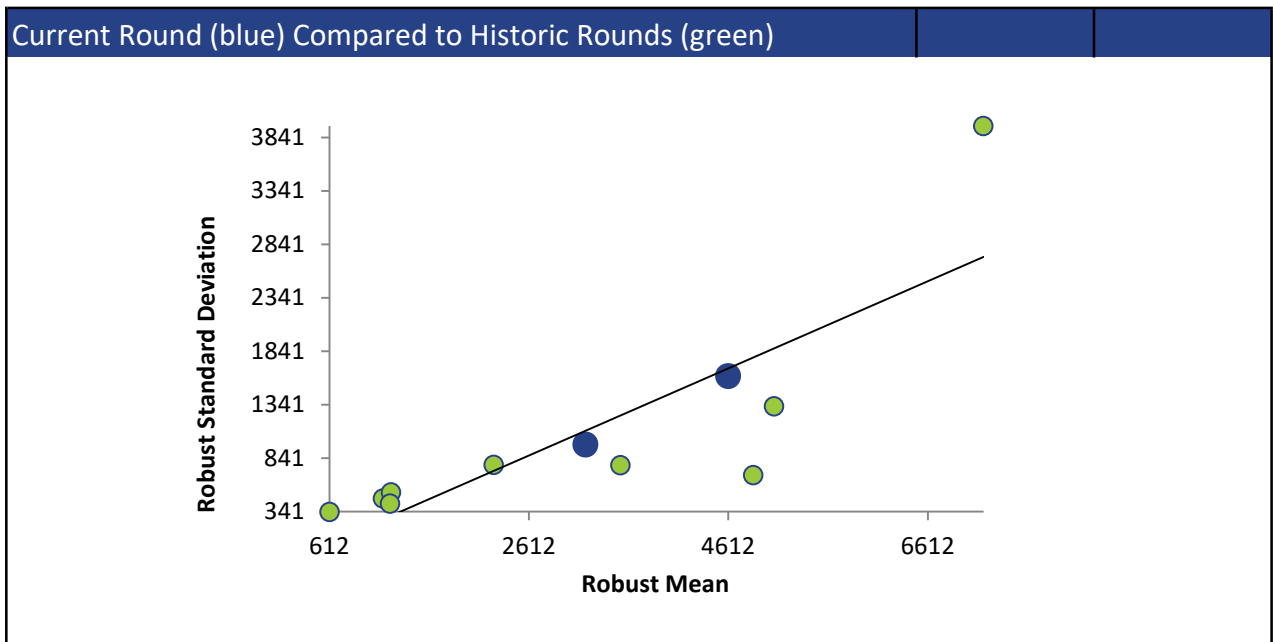
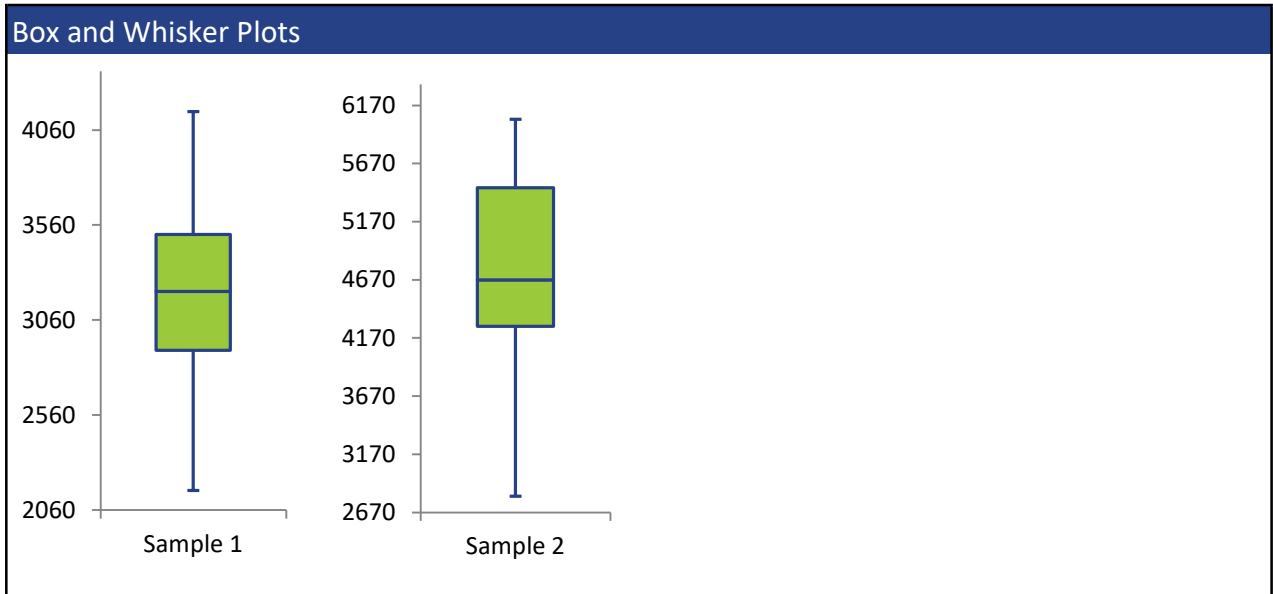


METHYL ACETATE



METHYL ACETATE

Stability Assessment	Homogeneity Assessment
<p style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">Sample 4</p> <p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



PENTANE

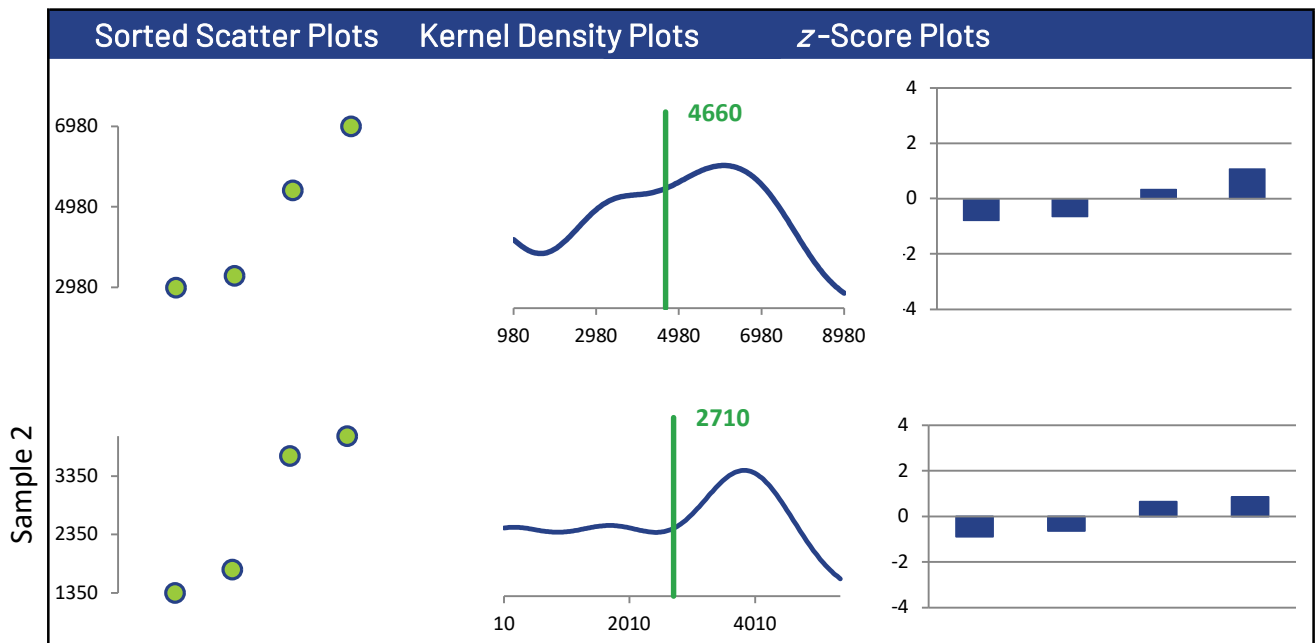
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	4	0	0
Median µg/g	4330	2720		
Robust Mean µg/g	4660	2710		
U µg/g	1340	956		
Robust Standard Deviation µg/g	2140	1530		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	2140	1530		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

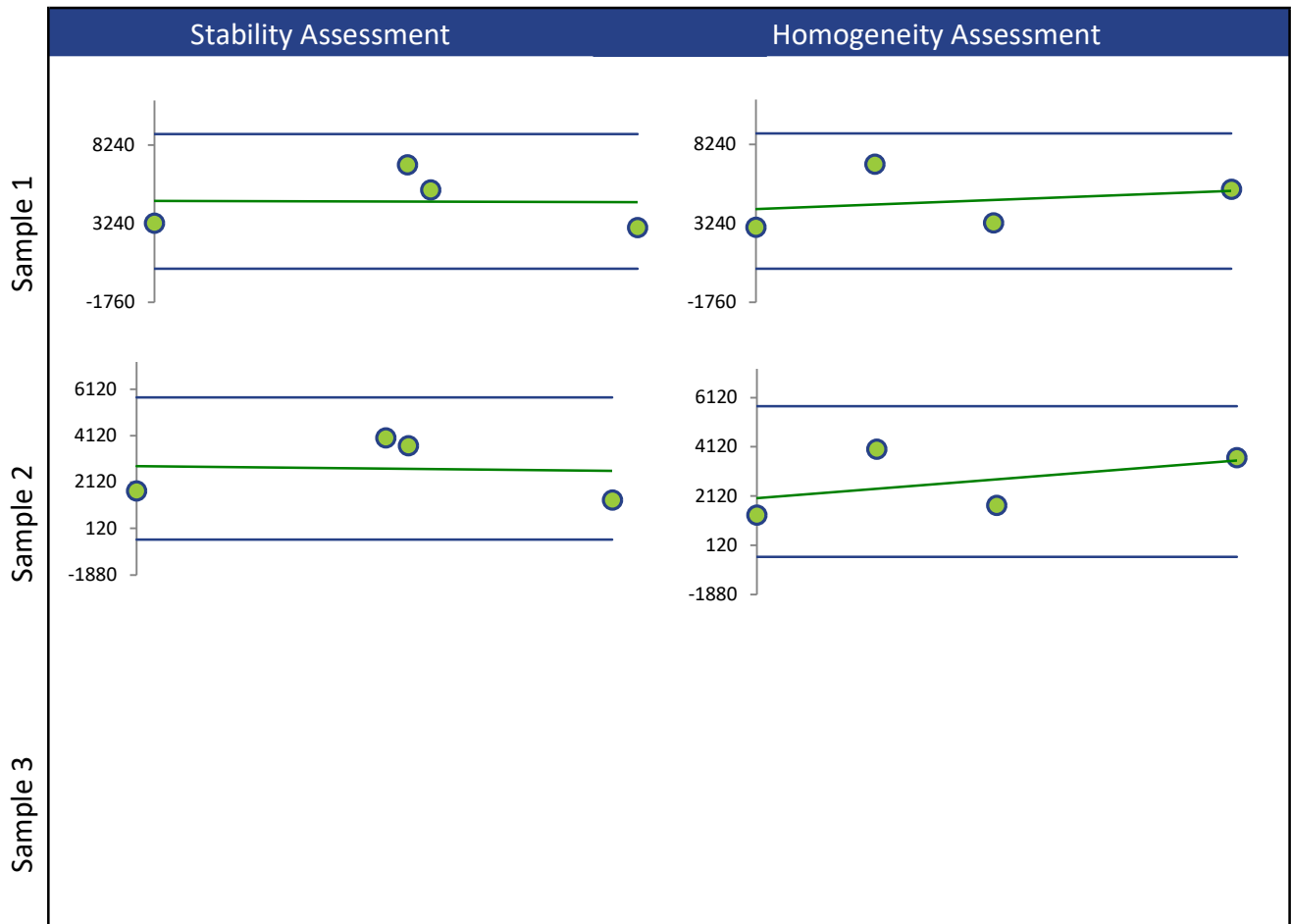
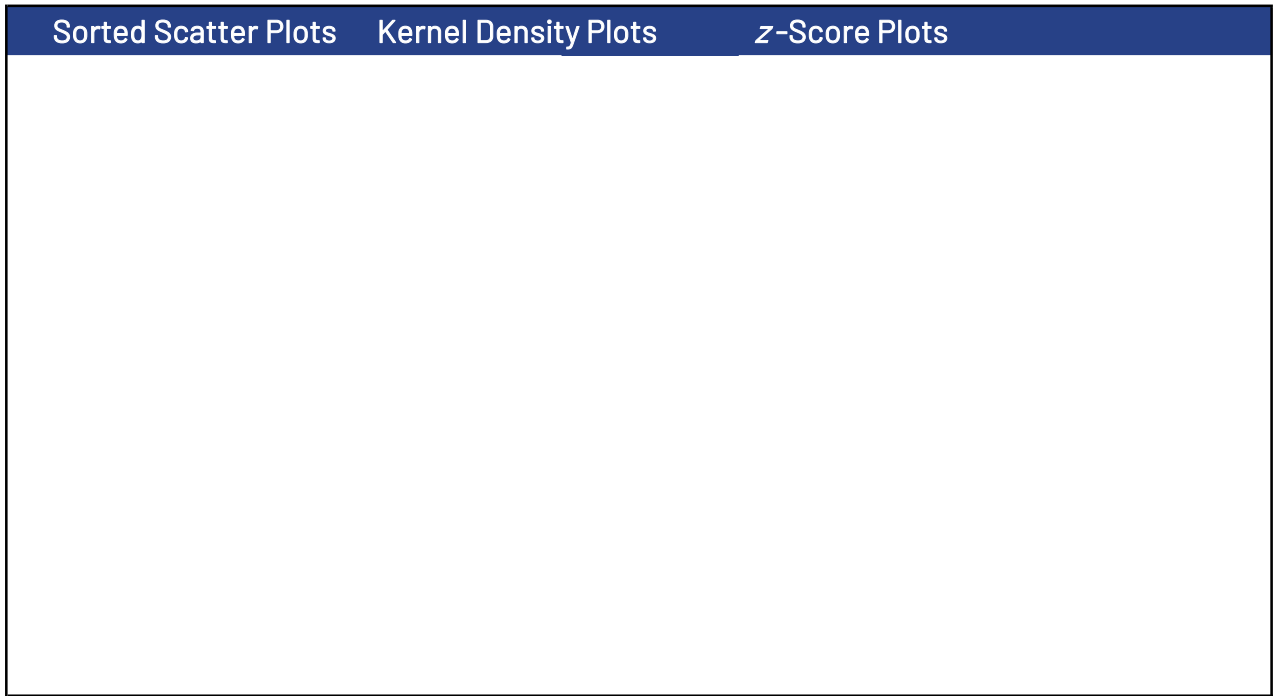
Methods Used

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



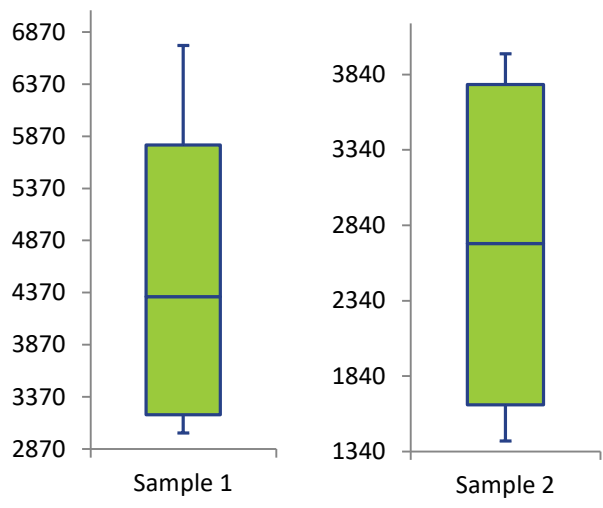
PENTANE



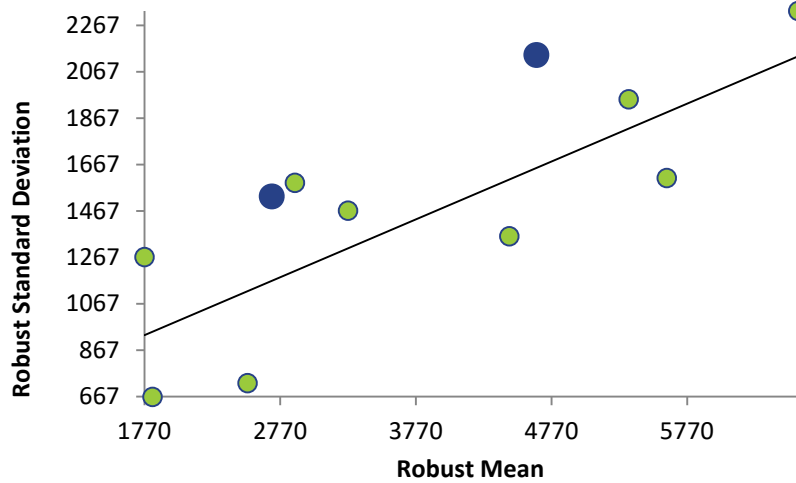
PENTANE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	

Box and Whisker Plots



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



PROPANE

Summary Statistics

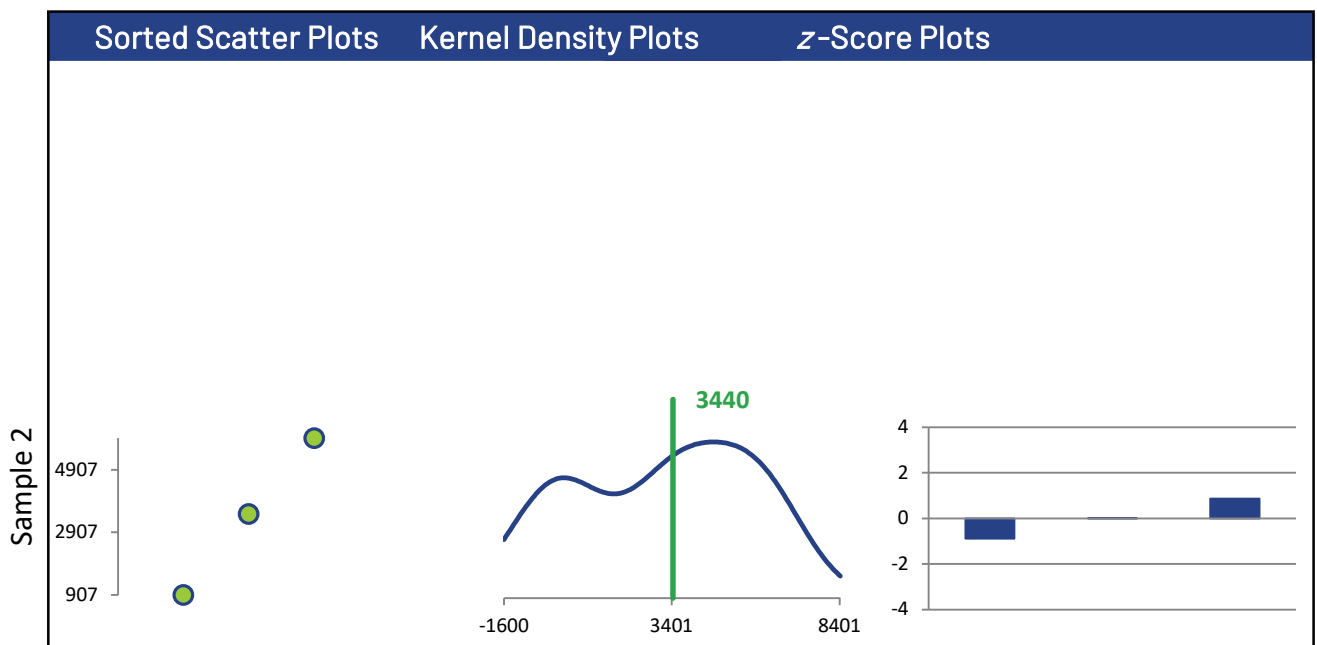
Not Spiked Excluded

Statistic	C73-1	C73-2	C73-3	C73-4
N	0	3	0	0
Median µg/g		3490		
Robust Mean µg/g		3440		
U µg/g		2050		
Robust Standard Deviation µg/g		2840		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g		2840		
Outliers	0	0	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

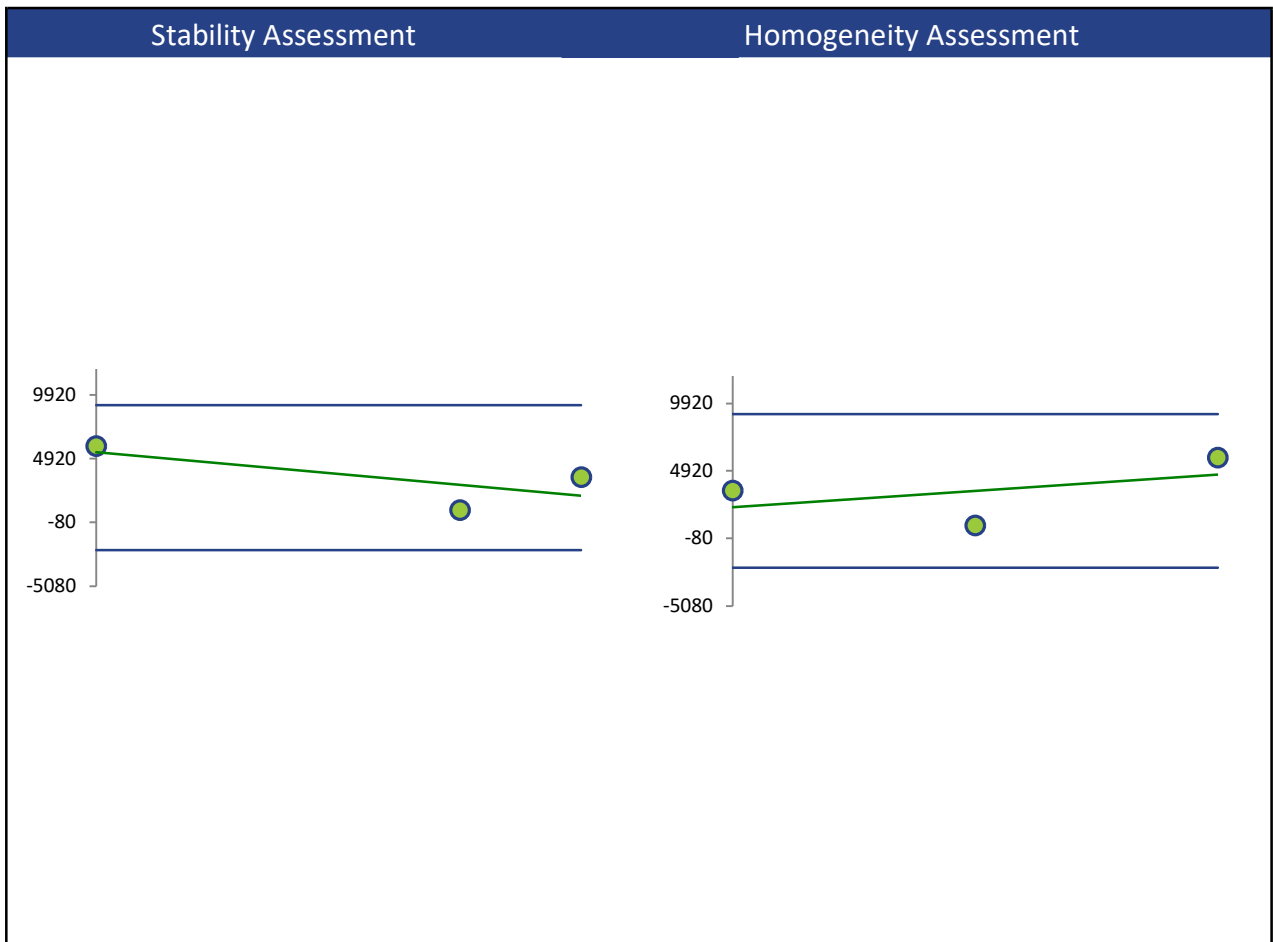
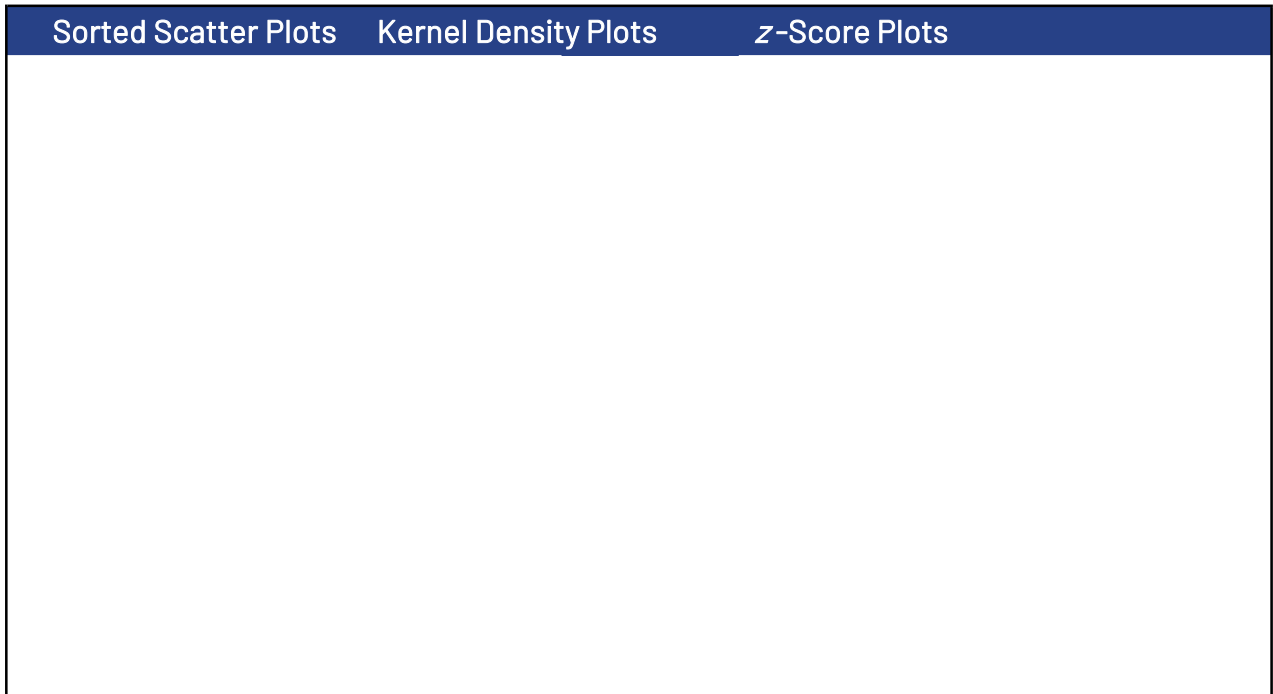
Methods Used

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

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

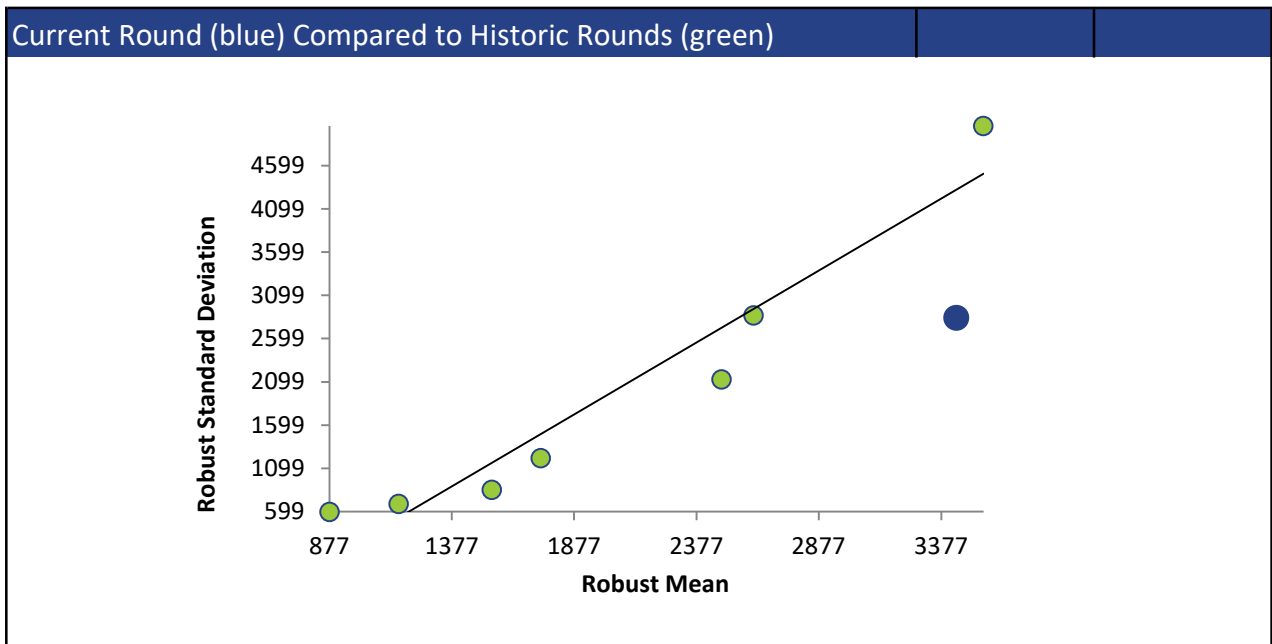
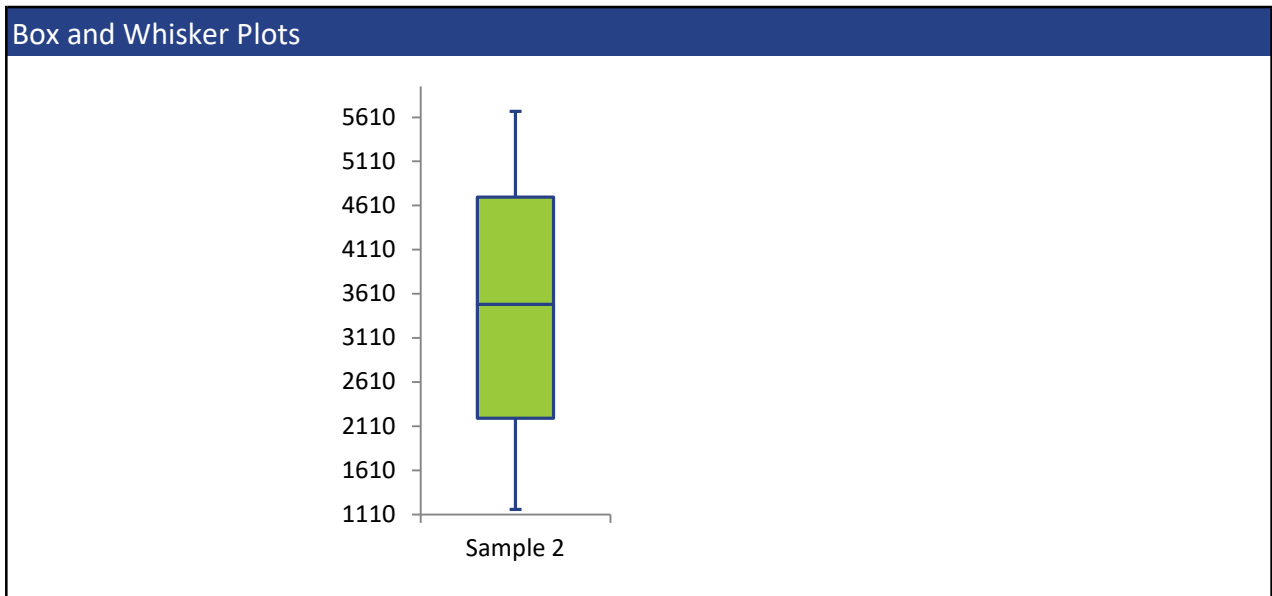


PROPANE



PROPANE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	



PROPYL ACETATE

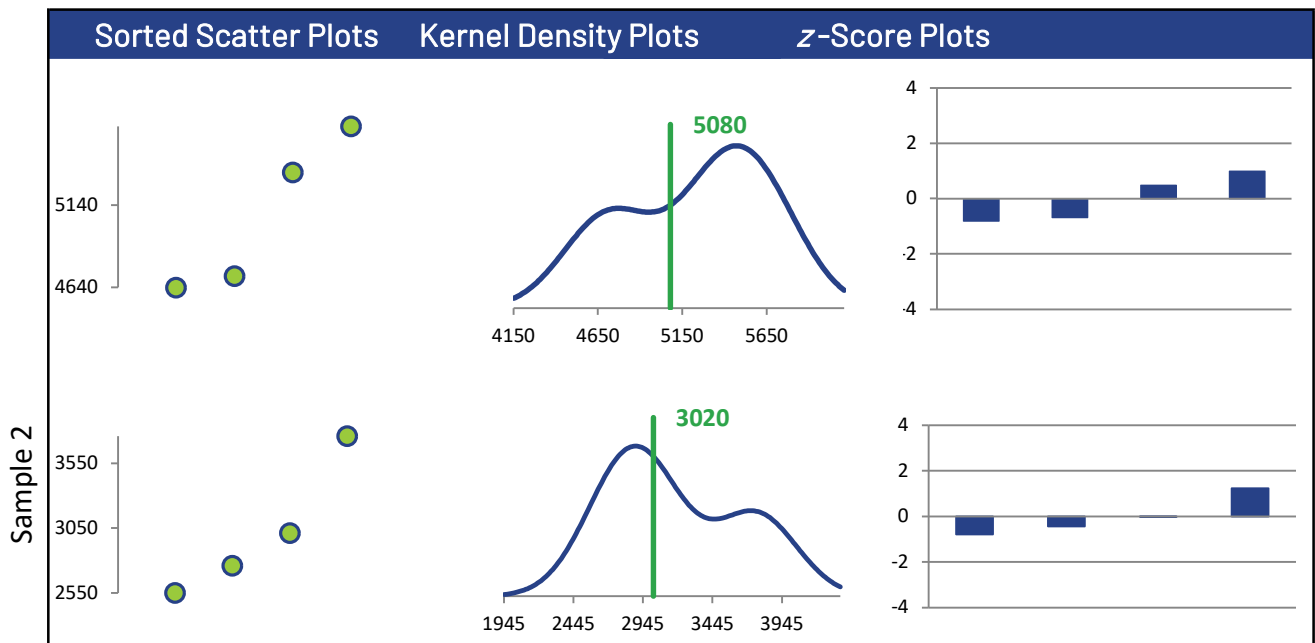
Summary Statistics

Statistic	C73-1	C73-2	C73-3	C73-4
N	4	4	0	0
Median µg/g	5030	2890		
Robust Mean µg/g	5080	3020		
U µg/g	340	374		
Robust Standard Deviation µg/g	544	599		
Regression Standard Deviation µg/g				
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/g	544	599		
Outliers	1	1	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

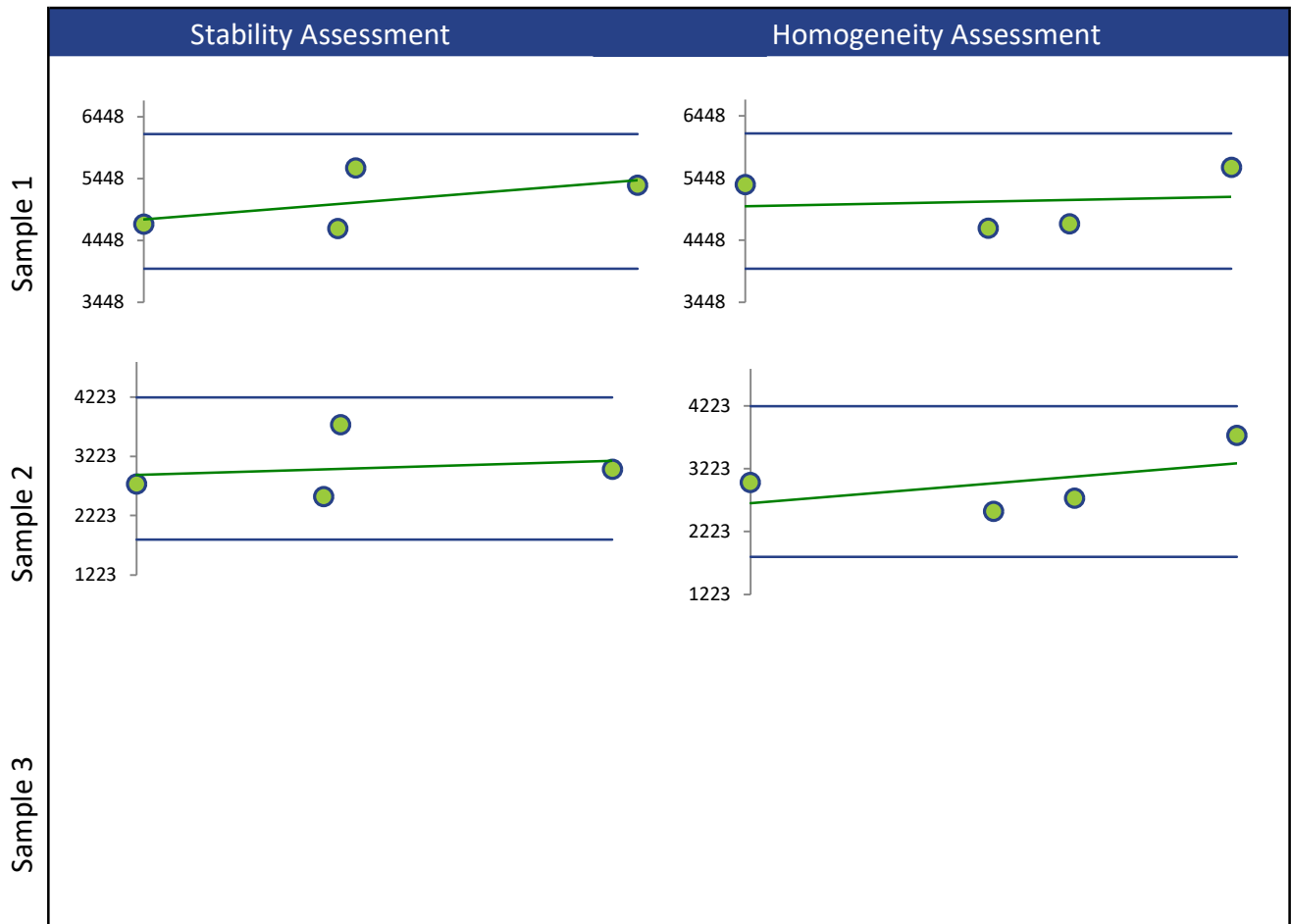
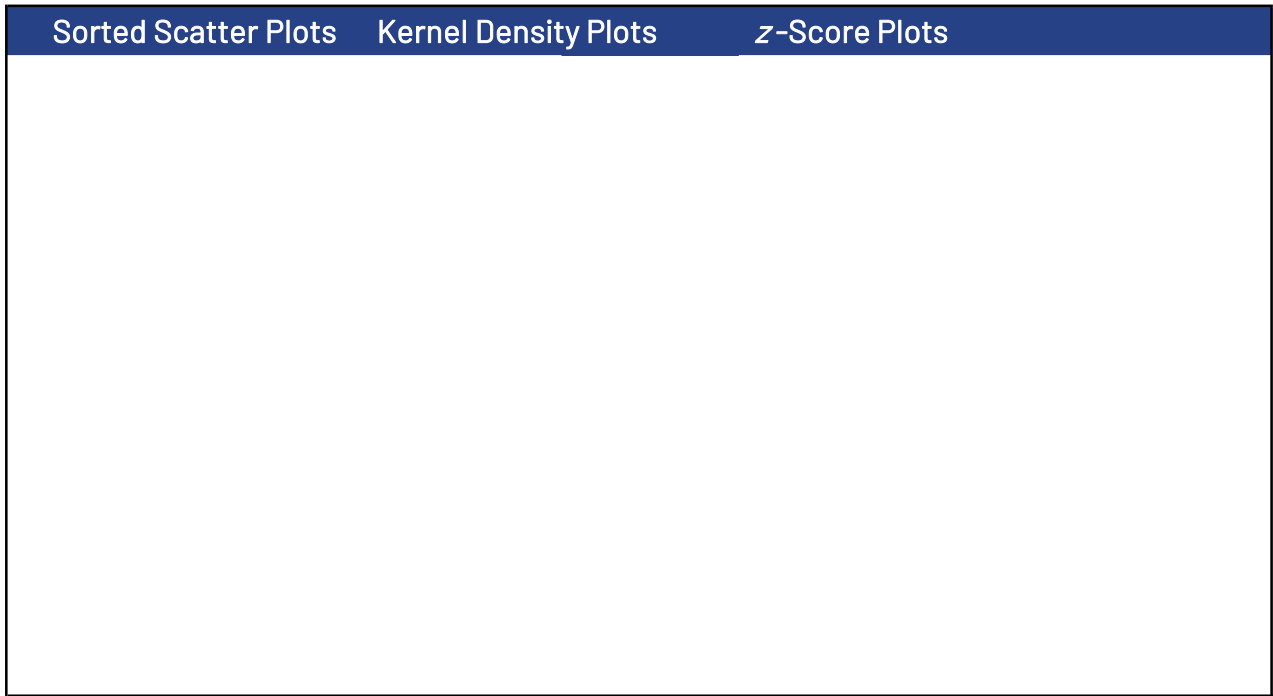
Methods Used

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

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



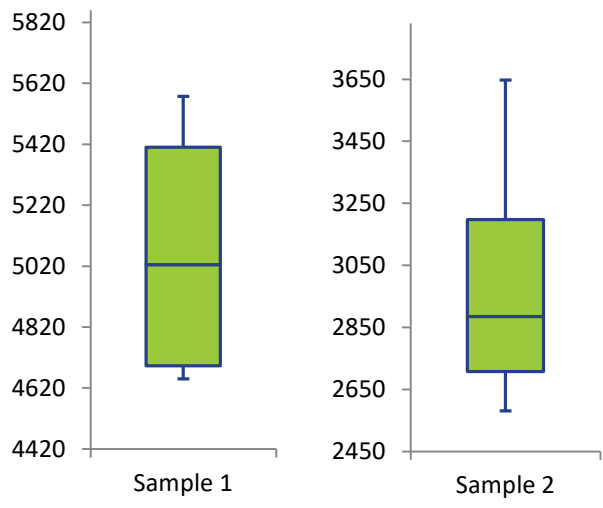
PROPYL ACETATE



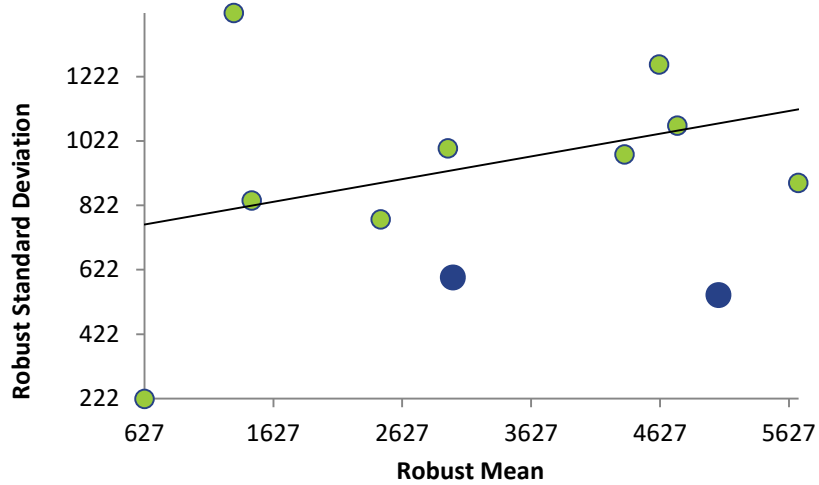
PROPYL ACETATE

	Stability Assessment	Homogeneity Assessment
Sample 4		
	<p>Stability assessments are regression analysis of reported result against date of analysis.</p> <p>Homogeneity assessments are regression analysis of reported result against bottling order.</p>	

Box and Whisker Plots



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



TRIETHYLAMINE

Summary Statistics

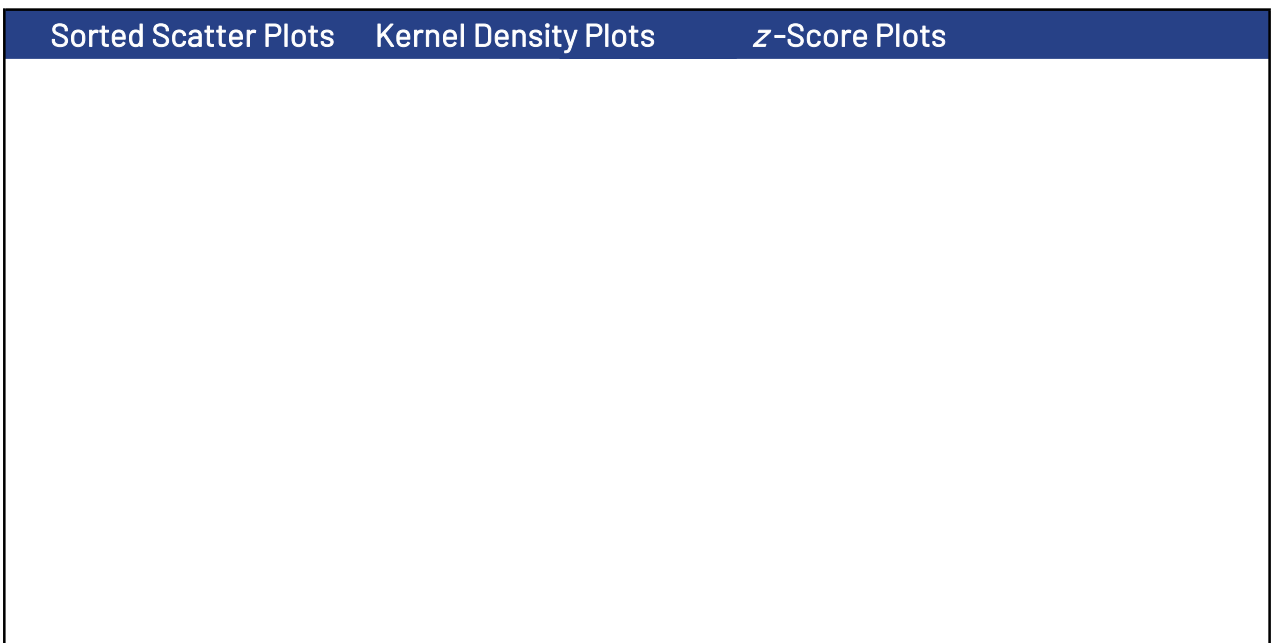
Not Spiked Not Spiked

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	0	1	0	0
z >3.0	0	0	0	0
2< z <3	0	0	0	0

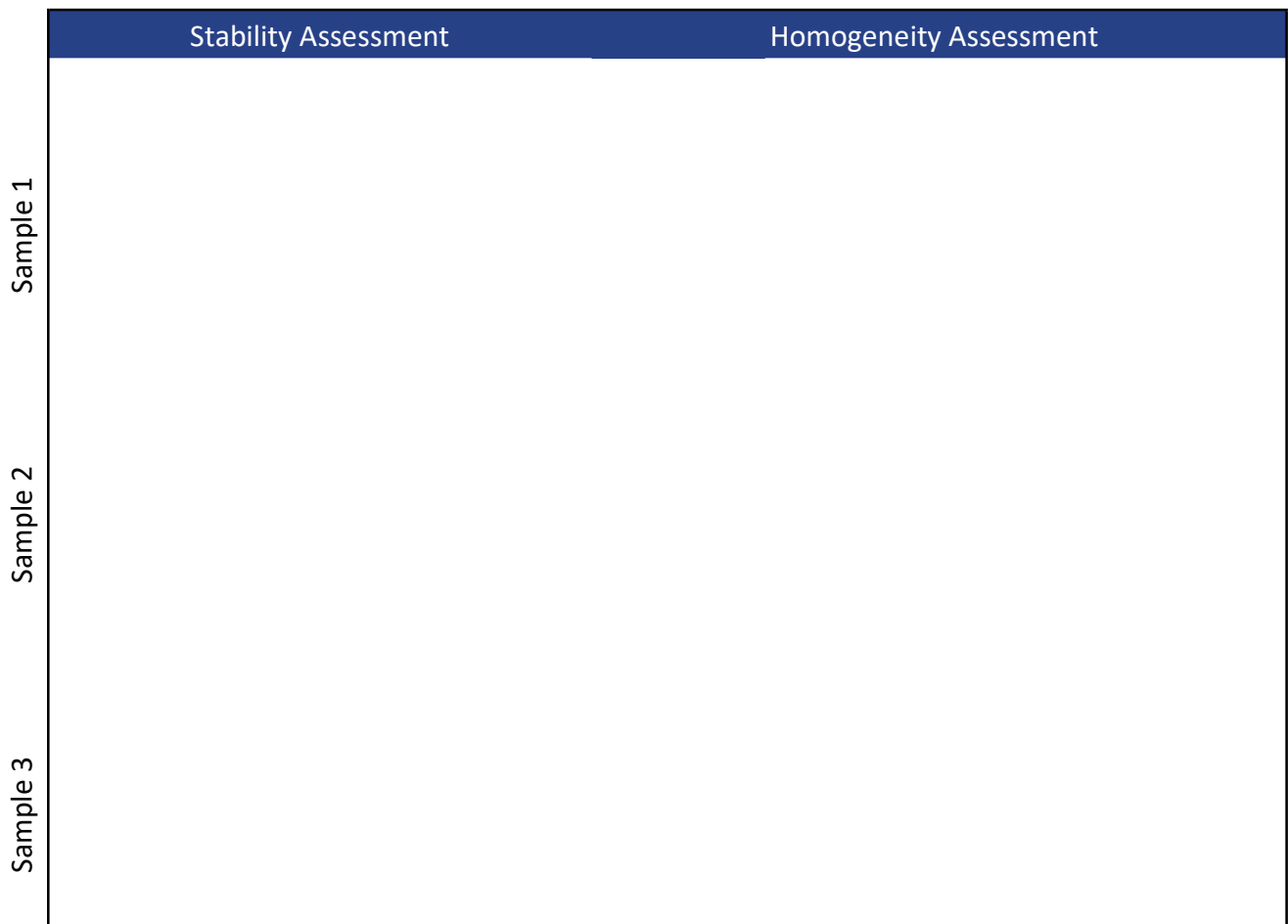
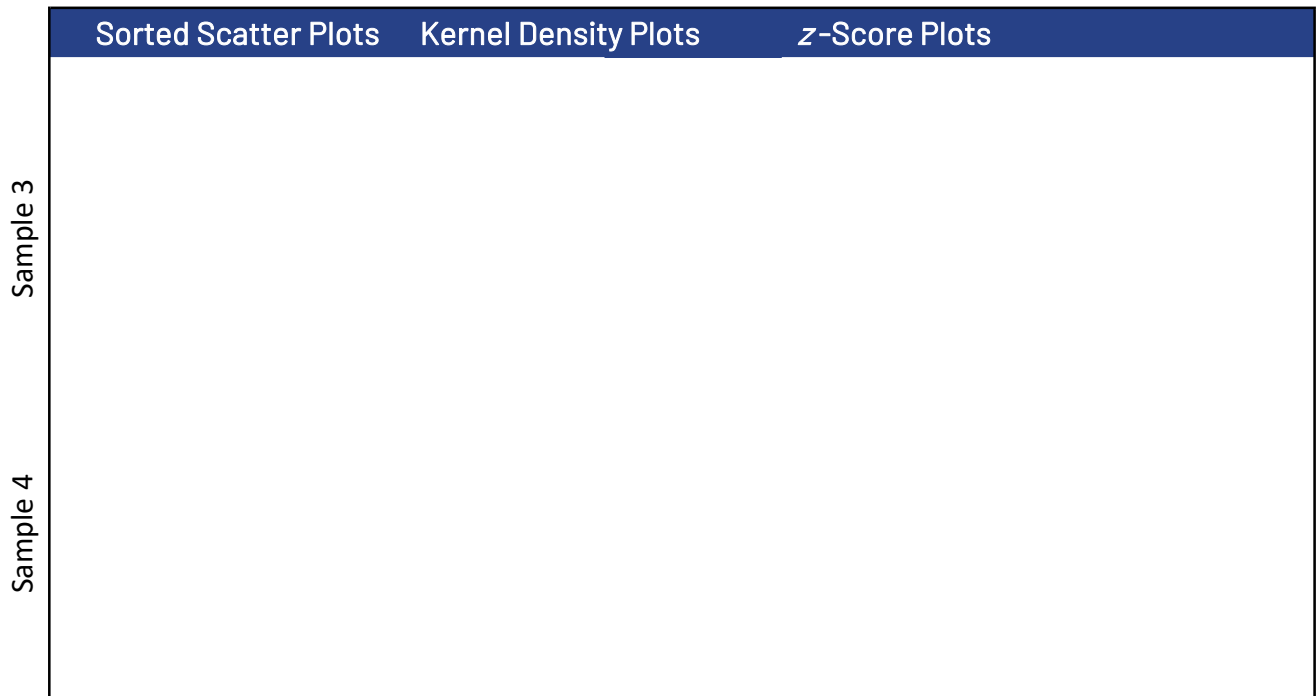
Methods Used

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



TRIETHYLAMINE

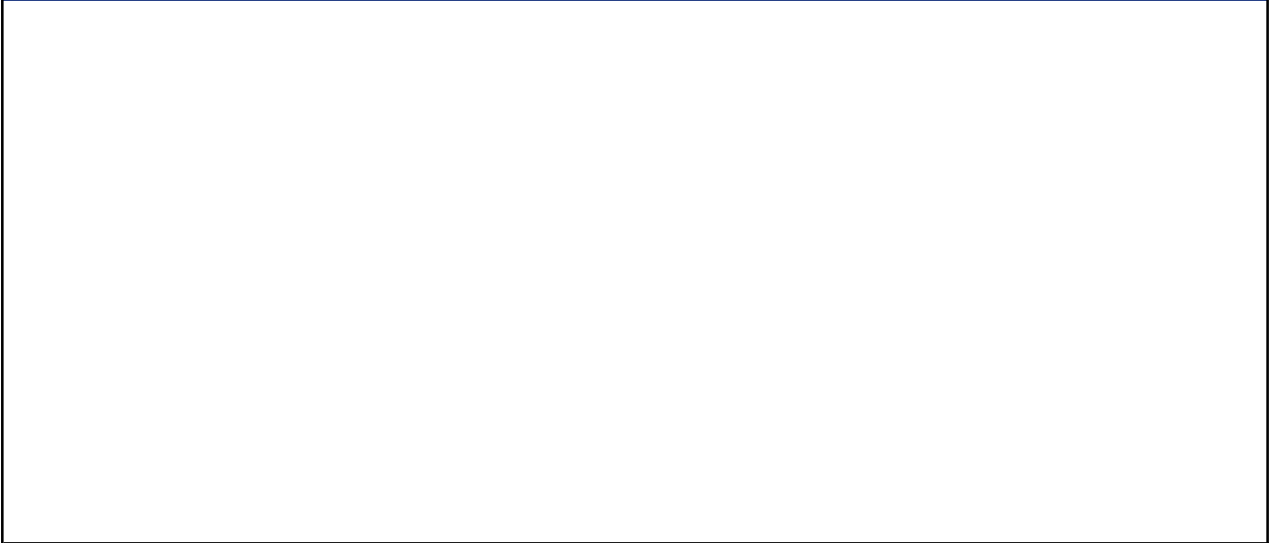


TRIETHYLAMINE

	Stability Assessment	Homogeneity Assessment
Sample 4		

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)

