Test Group Summary Report
C77 Pesticides in Soil
June 2024 PT Round

Issued: July 30, 2024

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.
$\pm u$:	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.

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

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

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

RSZ $\geq$ -2 and $\leq$ 2	no flag assigned
RSZ > 2	H (High)
RSZ > 3	VH (Very High)
RSZ < -2	L (LOW)
RSZ < -3	VL (Very Low)

3.4 DEVIATIONS FROM EVALUATION PROCEDURE

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

4.0 PT Round Specific Data Summary

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

4.1 SUMMARY STATISTICS

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

4.2 *z*- SCORE PLOTS[1]

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] For some reports, the colour coding for methods is not being displayed properly.

4,4'-DDT (P,P'-DDT)

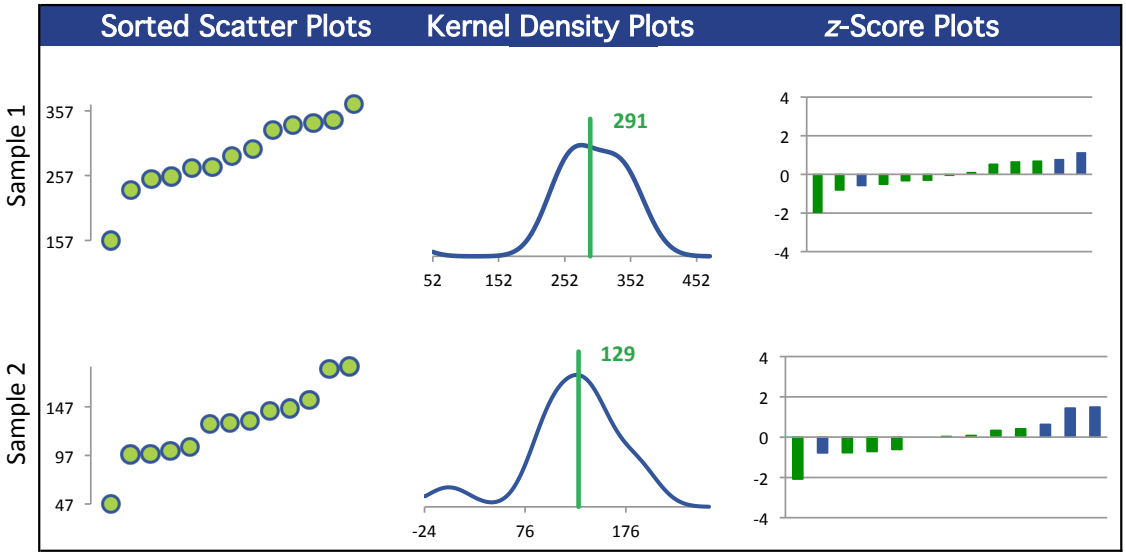
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	287	130	266	110
Robust Mean µg/kg	291	129	255	104
U µg/kg	18.8	13.7	17.4	7.63
Robust Standard Deviation µg/kg	54.3	39.5	50.1	22.0
Regression Standard Deviation µg/kg	67.9	31.6	59.9	26.0
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	67.9	39.5	59.9	26.0
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	1	1	0

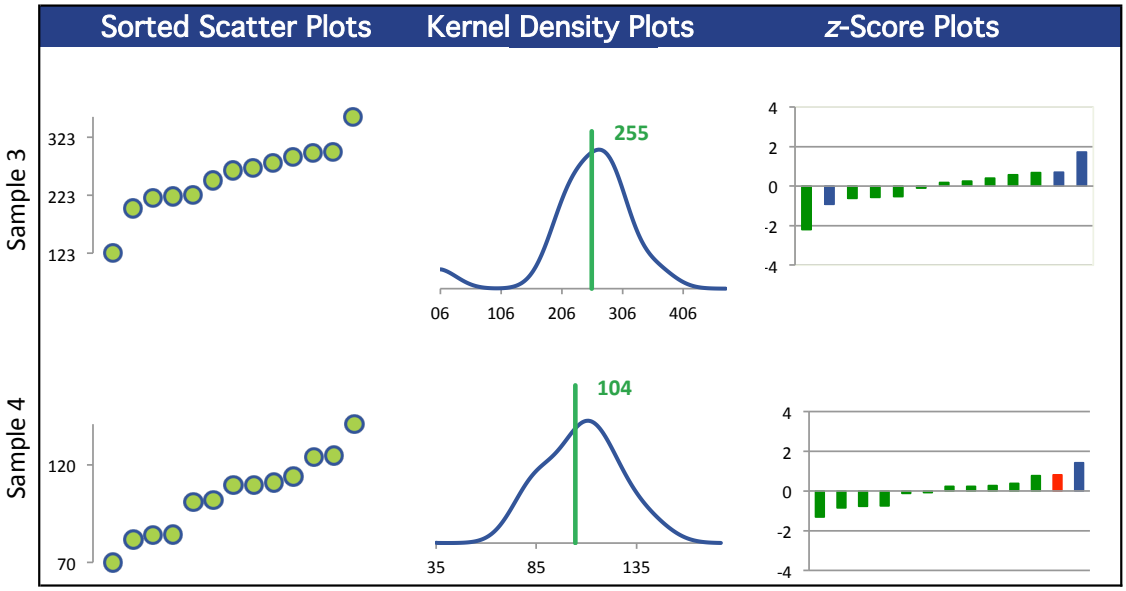
Methods Used

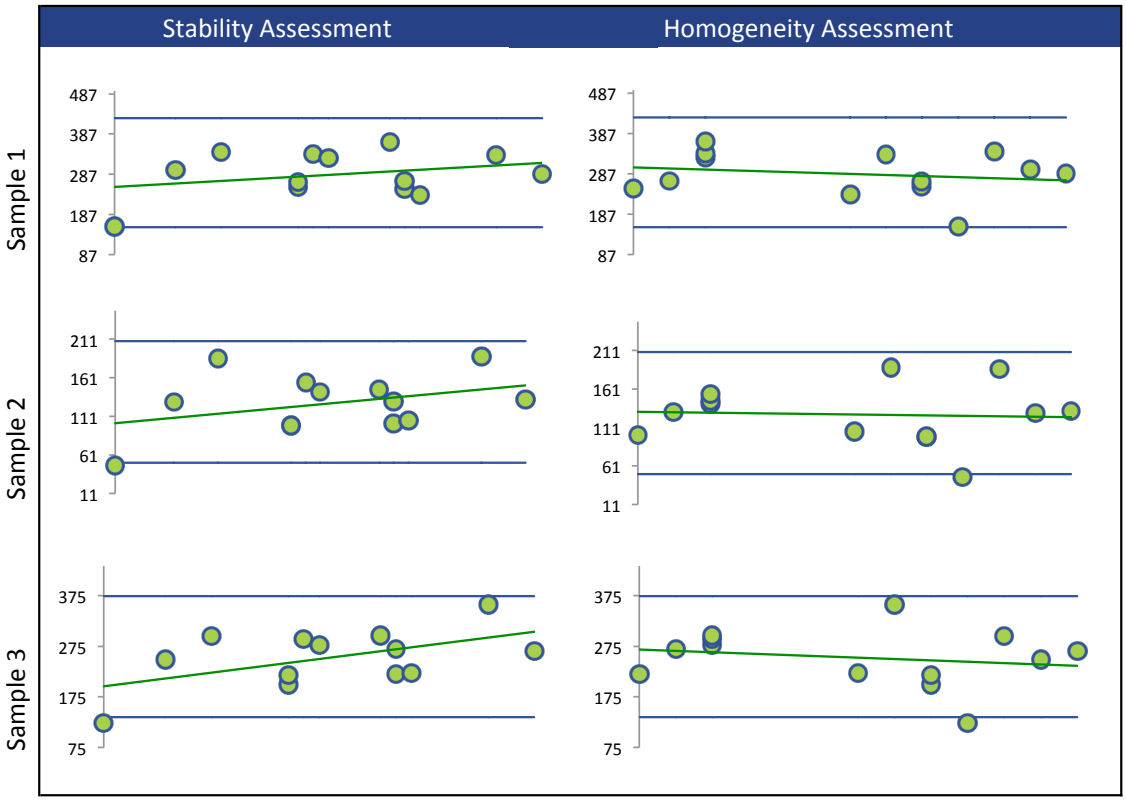
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	5	5	5	5
GC/ECD - SHAKE EXTRACTION (Red)	1	1	1	1
GC/MS - EXTRACTION (Green)	4	4	4	4
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



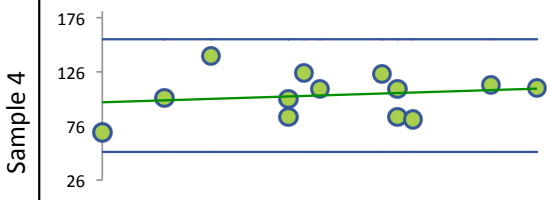
4,4'-DDT (P,P'-DDT)


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
323
223
123
255
06
106
206
306
406
4
2
0
-2
-4
Sample 4
120
70
104
35
85
135
4
2
0
-2
-4

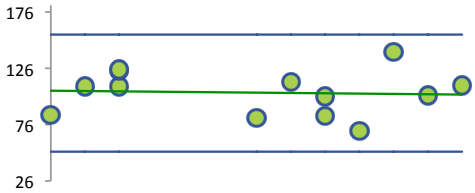

Stability Assessment
Homogeneity Assessment
Sample 1
487
387
287
187
87
Sample 2
211
161
111
61
11
Sample 3
375
275
175
75

4,4'-DDT (P,P'-DDT)

Stability Assessment



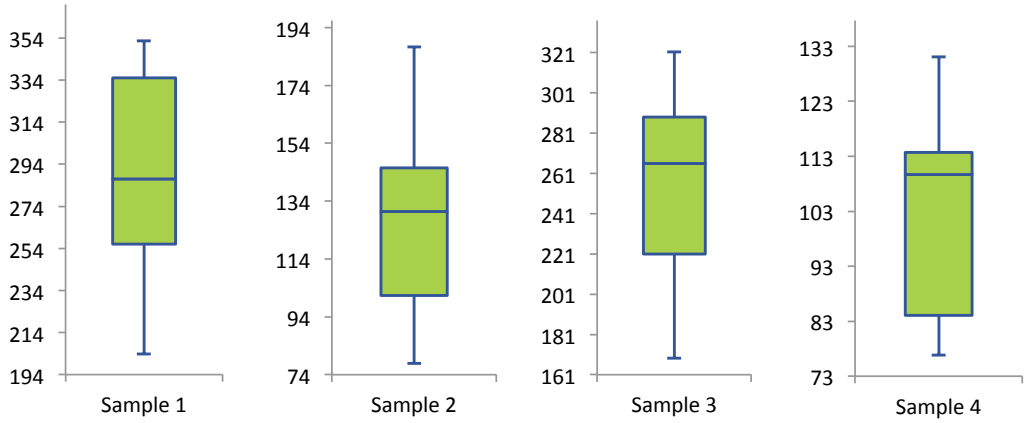
Homogeneity Assessment



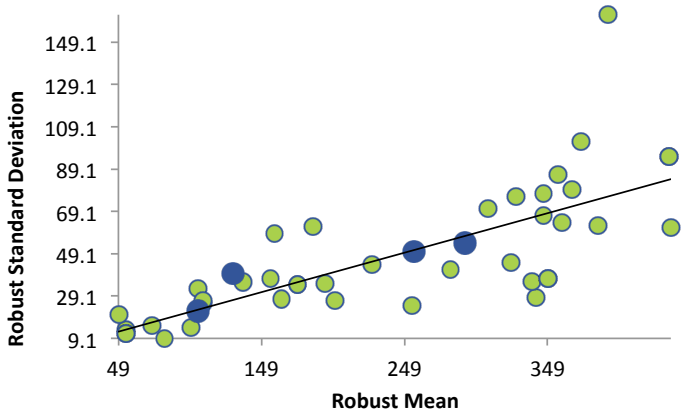
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ALDRIN

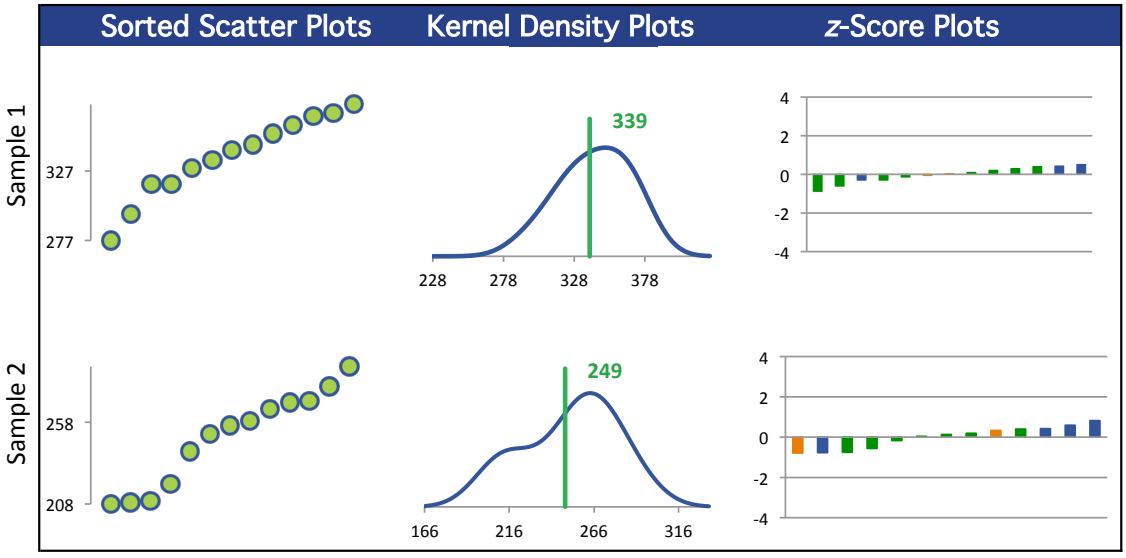
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	342	256	170	107
Robust Mean µg/kg	339	249	166	111
U µg/kg	10.6	11.3	6.76	4.09
Robust Standard Deviation µg/kg	30.5	32.6	19.5	11.8
Regression Standard Deviation µg/kg	70.4	52.2	35.4	24.3
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	70.4	52.2	35.4	24.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

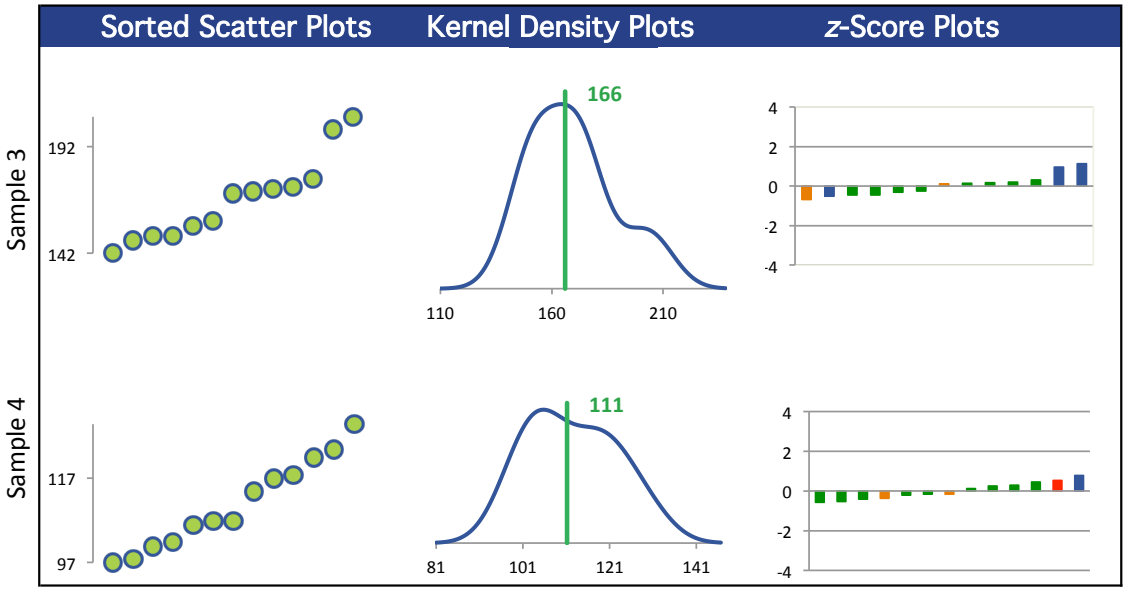
Methods Used

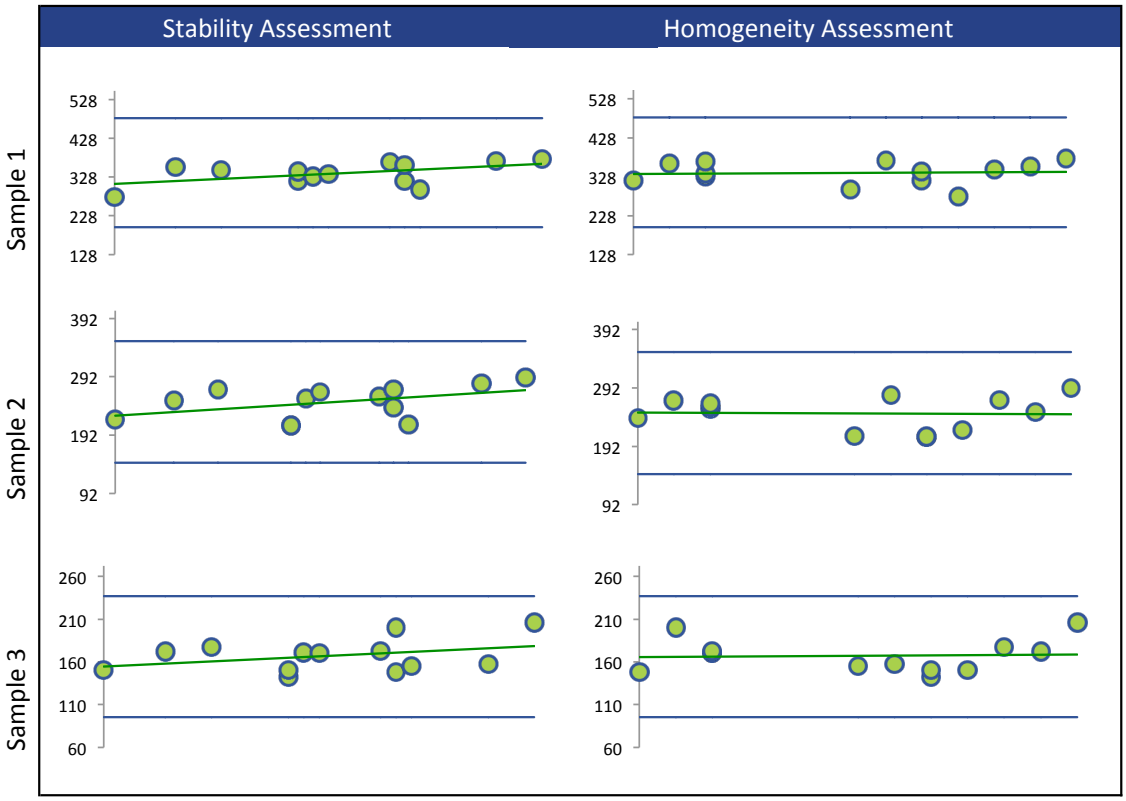
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	5	5	5	5
GC/ECD - SHAKE EXTRACTION (Red)	1	1	1	1
GC/MS - EXTRACTION (Green)	4	4	4	4
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



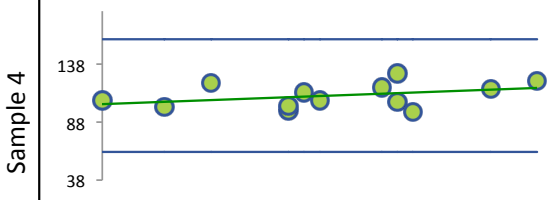
ALDRIN


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
192
142
166
110
160
210
4
2
0
-2
-4
Sample 4
117
97
111
81
101
121
141
4
2
0
-2
-4

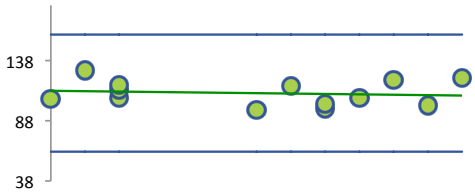

Stability Assessment
Homogeneity Assessment
Sample 1
528
428
328
228
128
Sample 2
392
292
192
92
Sample 3
260
210
160
110
60

ALDRIN

Stability Assessment



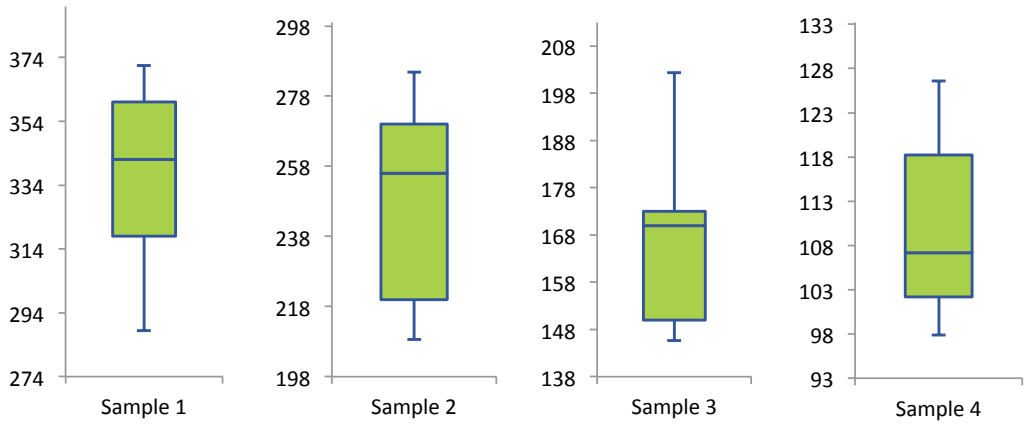
Homogeneity Assessment



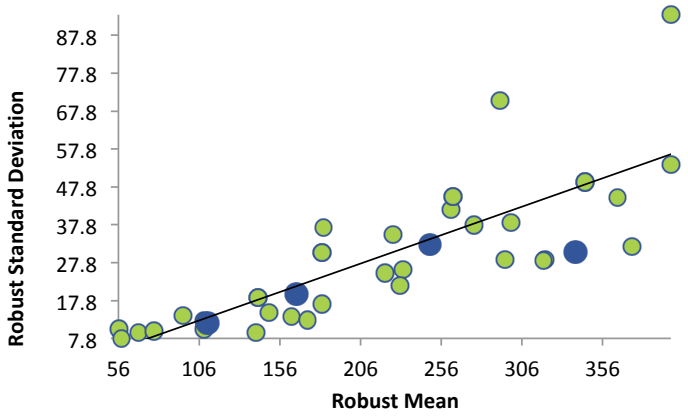
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ALPHA-BHC

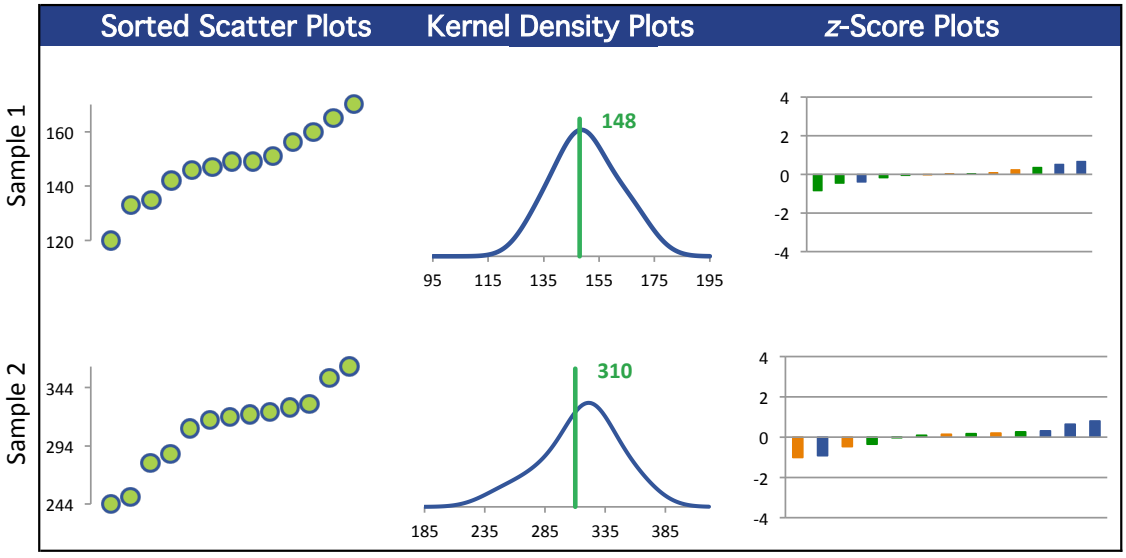
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	149	319	142	362
Robust Mean µg/kg	148	310	147	351
U µg/kg	4.82	13.2	5.62	11.5
Robust Standard Deviation µg/kg	13.9	38.2	16.2	33.2
Regression Standard Deviation µg/kg	32.9	65.3	32.7	73.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	32.9	65.3	32.7	73.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

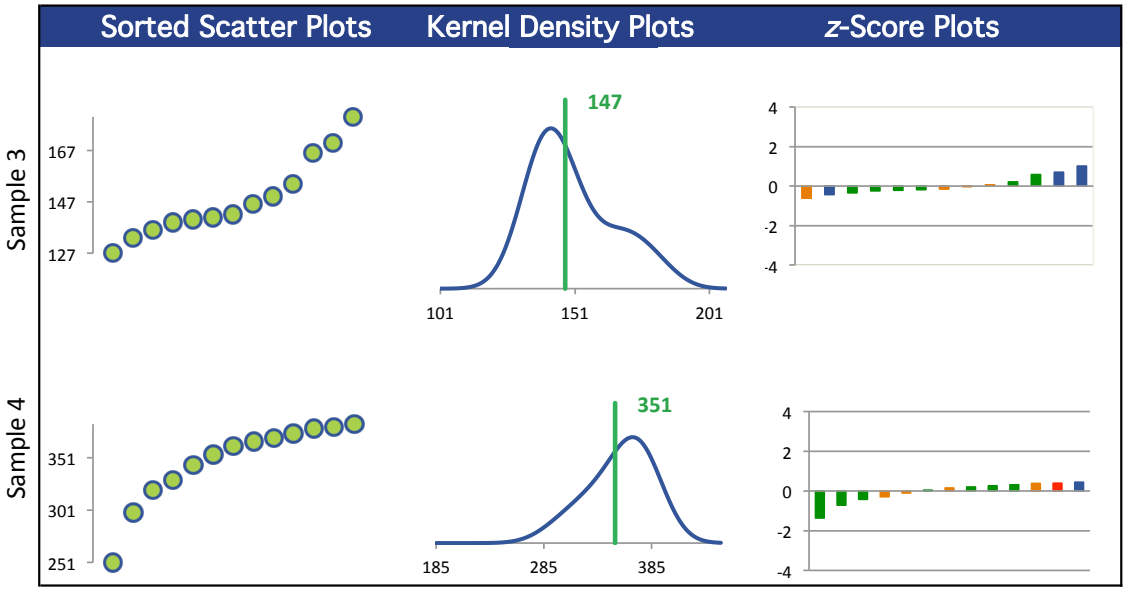
Methods Used

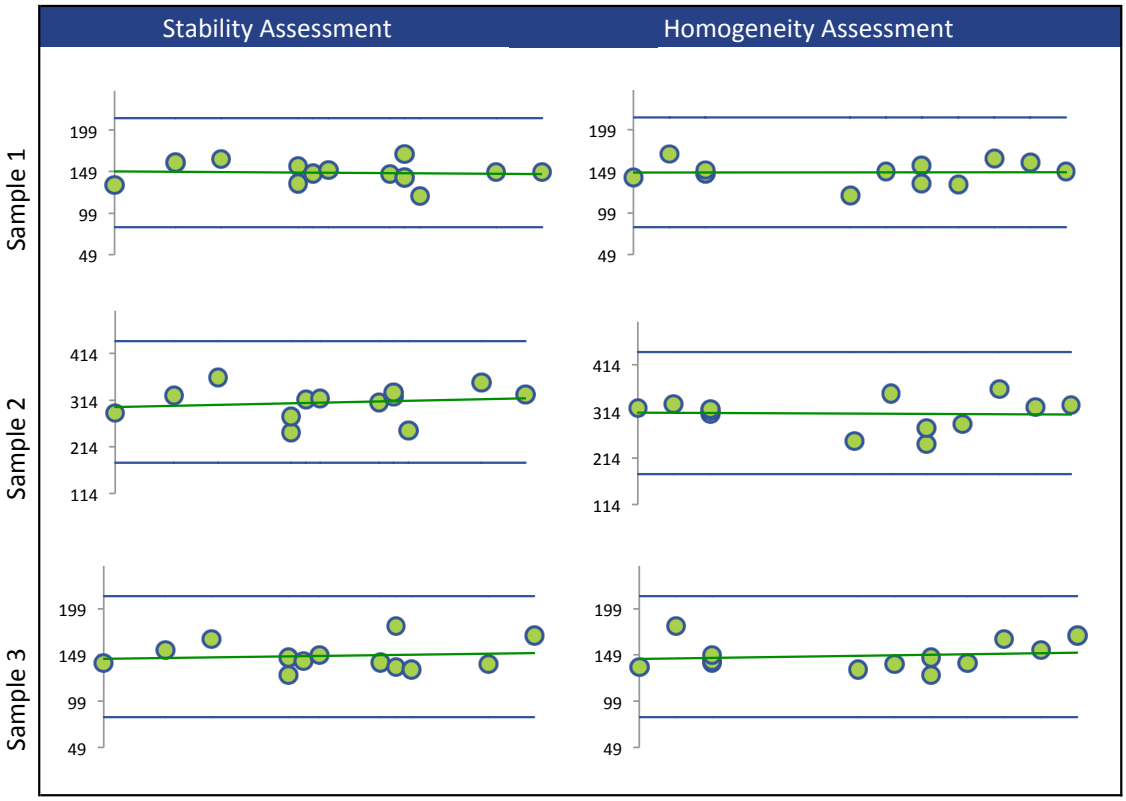
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - SHAKE EXTRACTION (Blue)	1	1	1	1
GC/ECD - EXTRACTION (Red)	5	5	5	5
GC/MS - EXTRACTION (Green)	4	4	4	4
HI RESOLUTION GC/MS (Orange)	1	1	1	1
GC/MS/MS (Black)	2	2	2	2

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



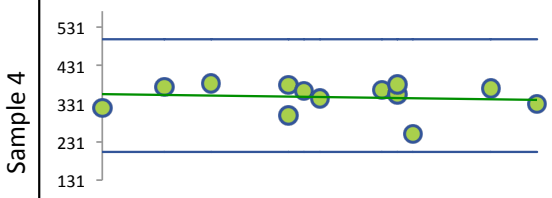
ALPHA-BHC


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
167
147
127
147
101
151
201
4
2
0
-2
-4
Sample 4
351
301
251
351
185
285
385
4
2
0
-2
-4

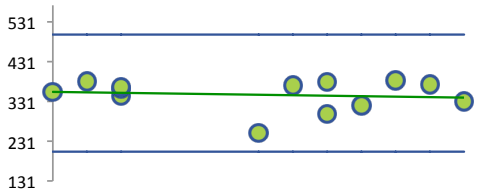

Stability Assessment
Homogeneity Assessment
Sample 1
199
149
99
49
199
149
99
49
Sample 2
414
314
214
114
414
314
214
114
Sample 3
199
149
99
49
199
149
99
49

ALPHA-BHC

Stability Assessment



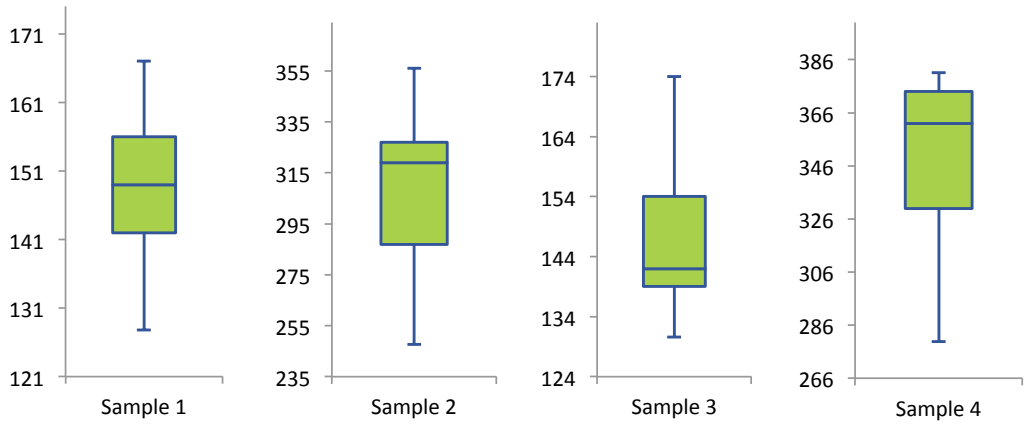
Homogeneity Assessment



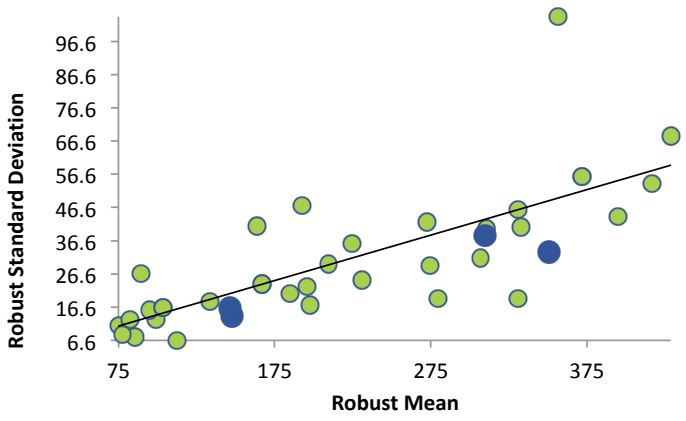
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ALPHA-CHLORDANE

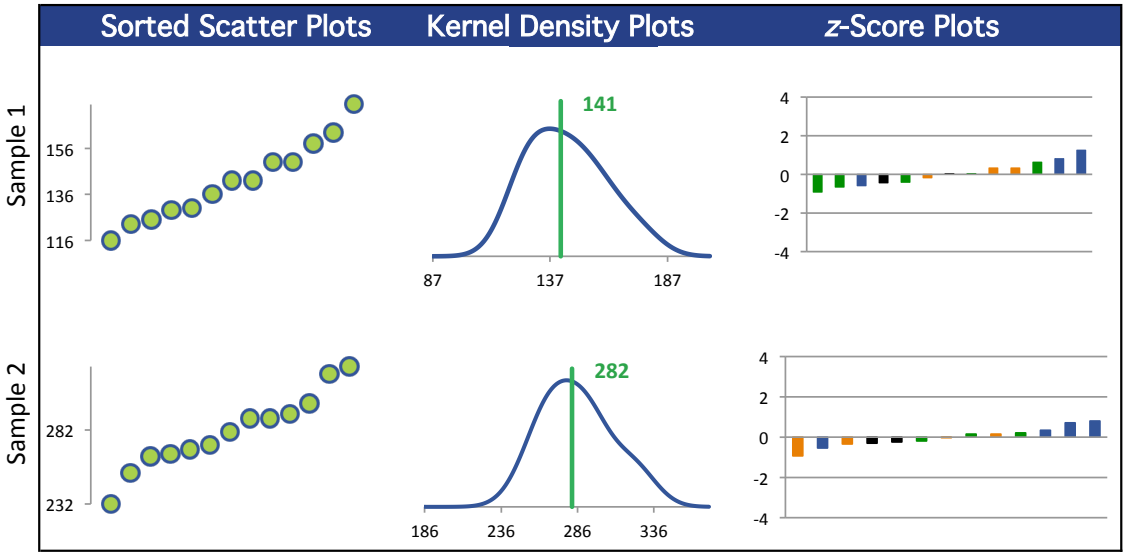
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	142	281	184	342
Robust Mean µg/kg	141	282	183	336
U µg/kg	6.41	9.57	7.77	11.7
Robust Standard Deviation µg/kg	18.5	27.6	22.4	33.7
Regression Standard Deviation µg/kg	27.1	53.5	35.1	63.7
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	27.1	53.5	35.1	63.7
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

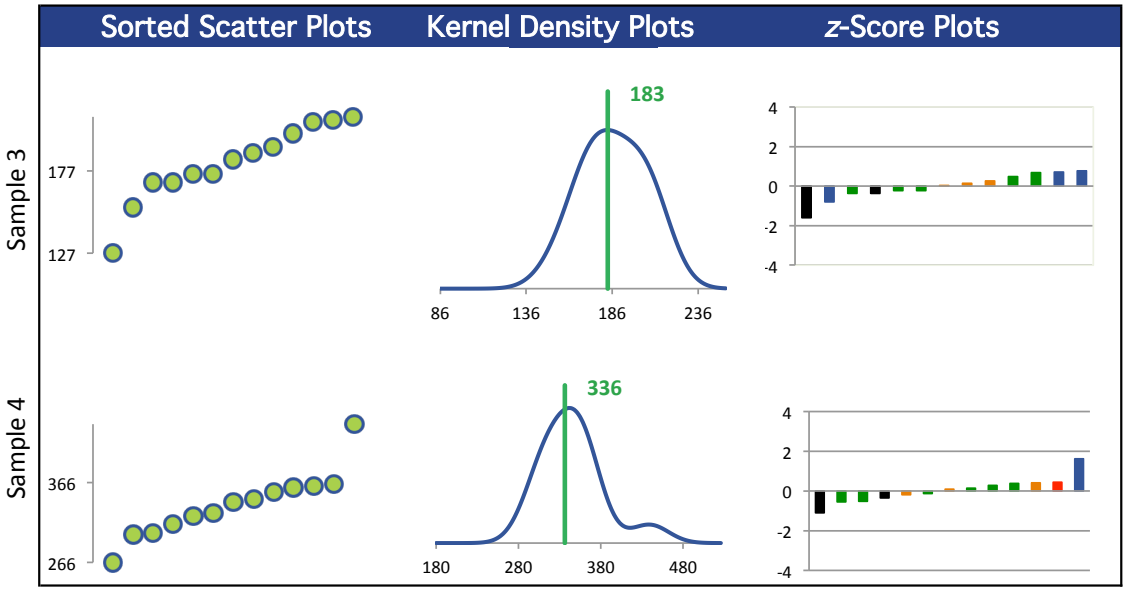
Methods Used

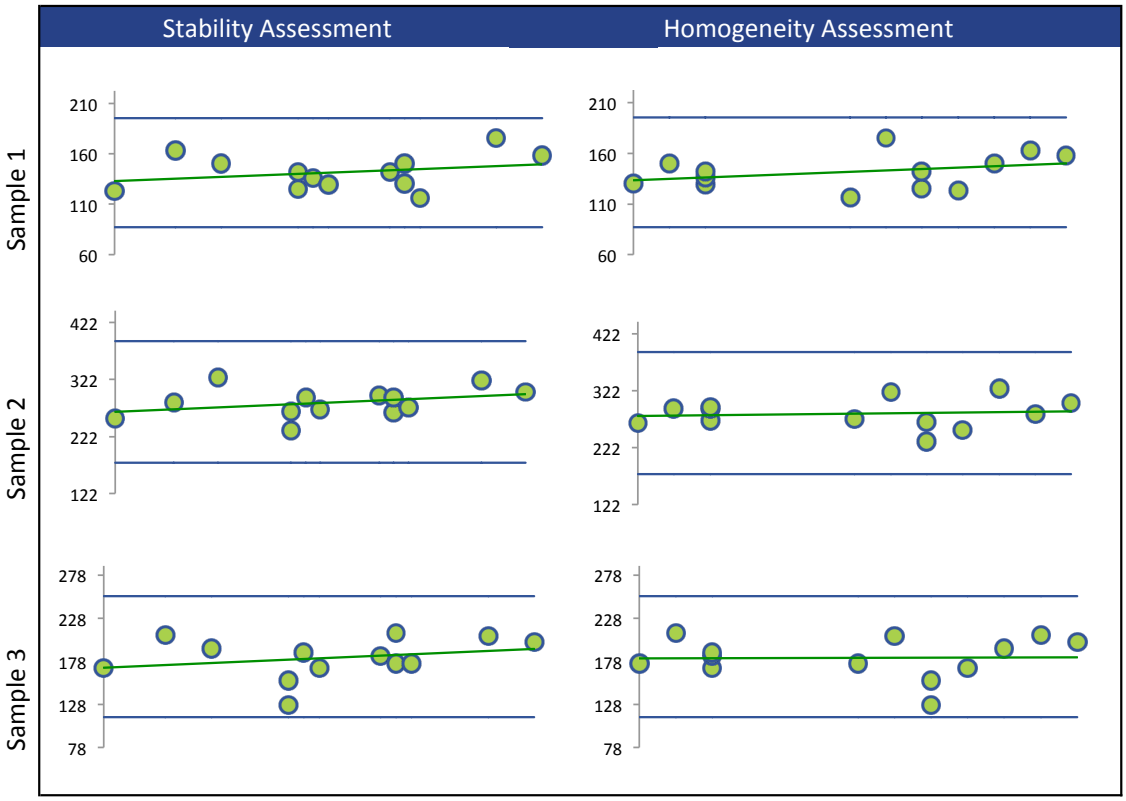
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - SHAKE EXTRACTION (Blue)	1	1	1	1
GC/ECD - EXTRACTION (Red)	5	5	5	5
GC/MS - EXTRACTION (Green)	4	4	4	4
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



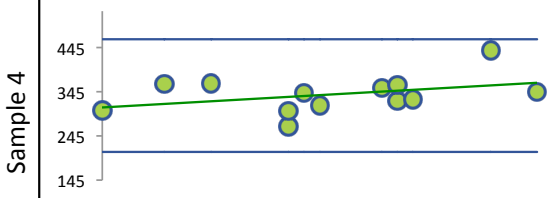
ALPHA-CHLORDANE



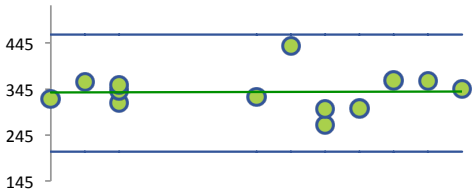


ALPHA-CHLORDANE

Stability Assessment



Homogeneity Assessment



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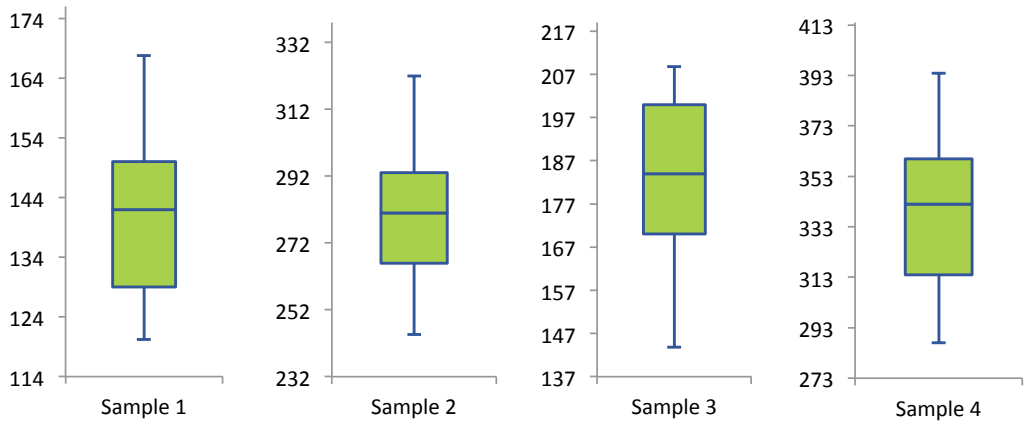
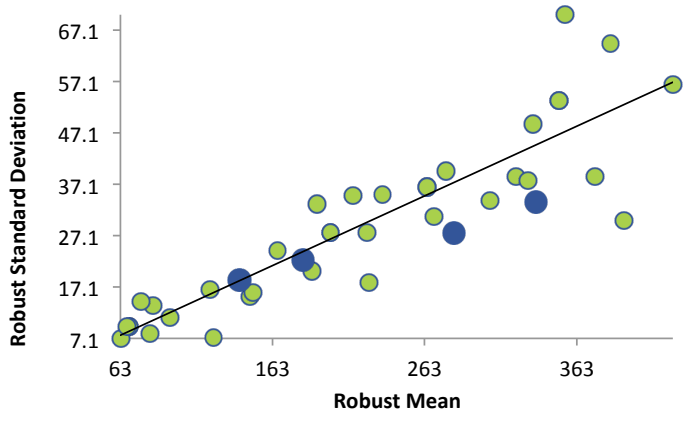
Homogeneity assessments are regression analysis of reported result against bottling order.

Box and Whisker Plots



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



BETA-BHC

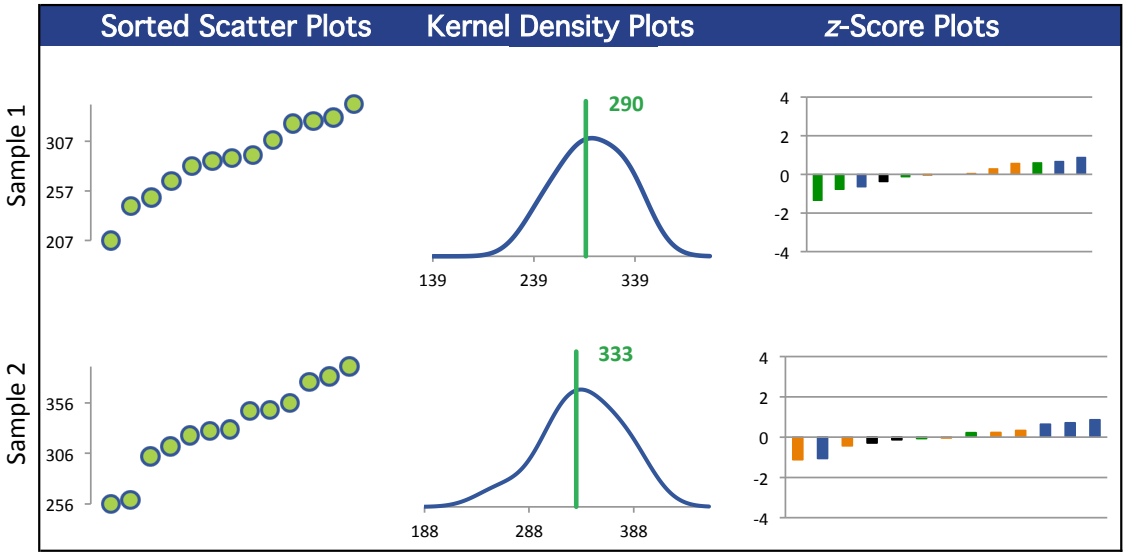
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	290	330	67.9	190
Robust Mean µg/kg	290	333	68.1	187
U µg/kg	14.2	15.9	3.37	10.9
Robust Standard Deviation µg/kg	41.1	46.0	9.72	31.4
Regression Standard Deviation µg/kg	61.3	69.0	21.6	42.8
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	61.3	69.0	21.6	42.8
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

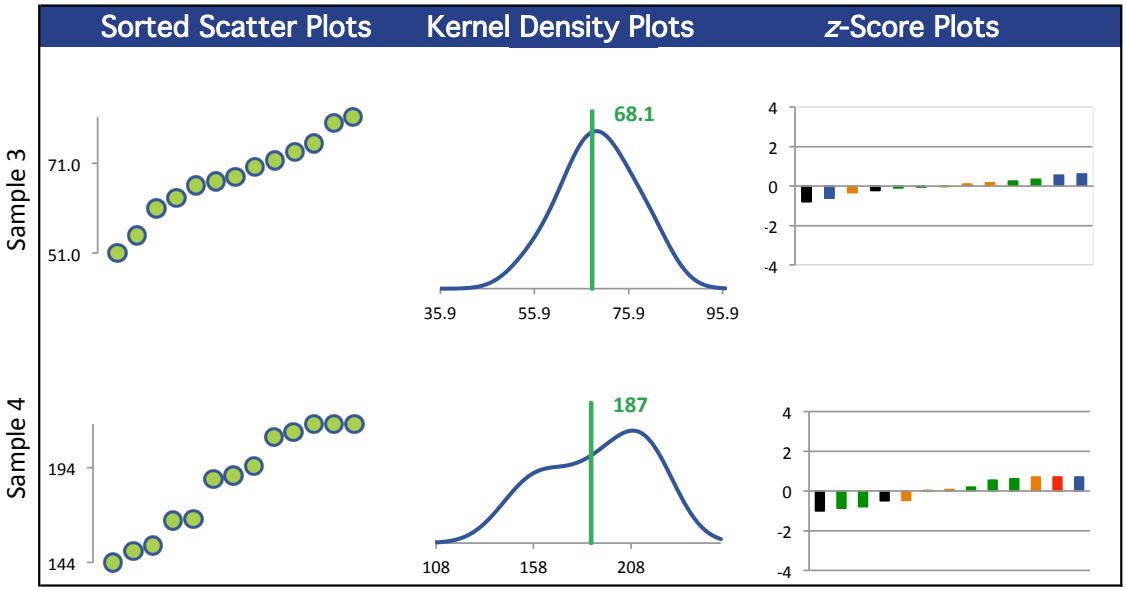
Methods Used

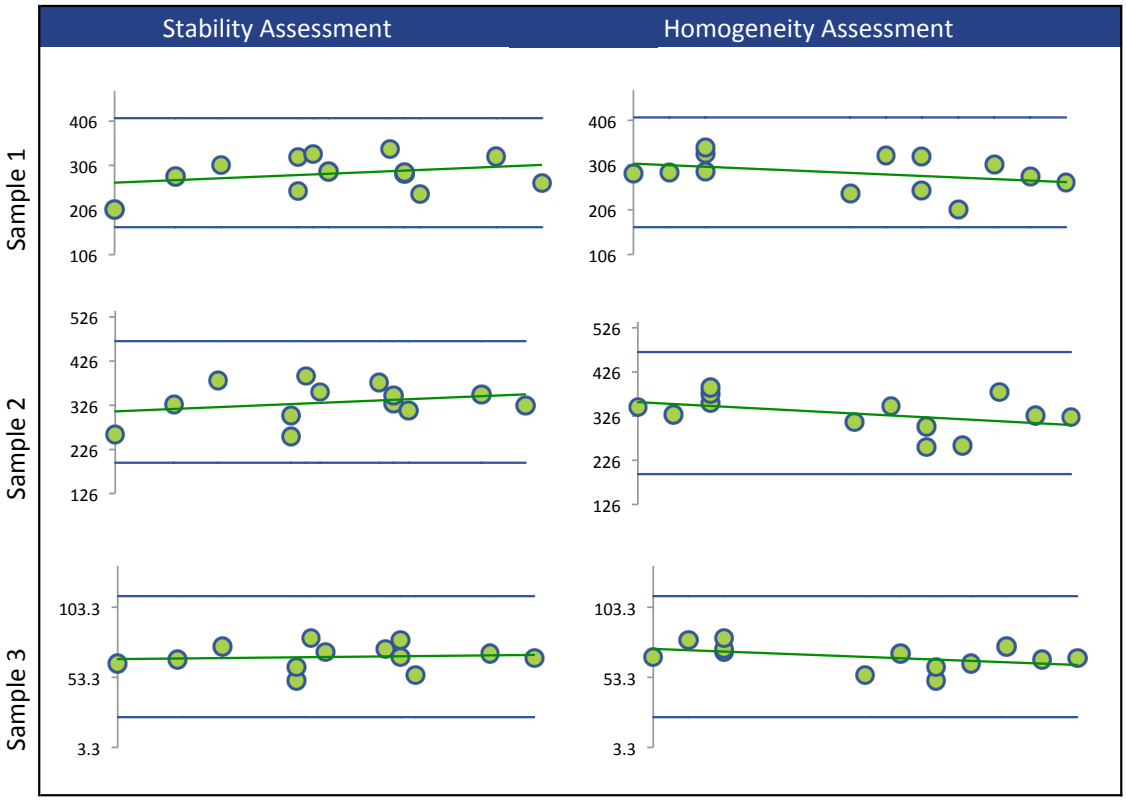
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	5	5	5	5
GC/ECD - SHAKE EXTRACTION (Red)	1	1	1	1
GC/MS - EXTRACTION (Green)	4	4	4	4
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



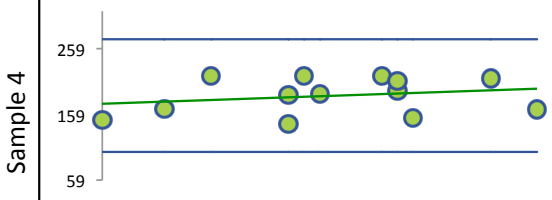
BETA-BHC


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
71.0
51.0
68.1
35.9
55.9
75.9
95.9
4
2
0
-2
-4
Sample 4
194
144
187
108
158
208
4
2
0
-2
-4

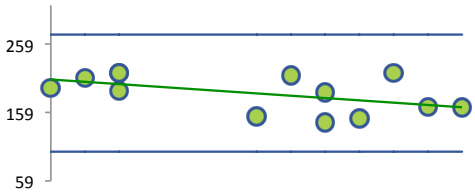

Stability Assessment
Homogeneity Assessment
Sample 1
406
306
206
106
406
306
206
106
Sample 2
526
426
326
226
126
526
426
326
226
126
Sample 3
103.3
53.3
3.3
103.3
53.3
3.3

BETA-BHC

Stability Assessment



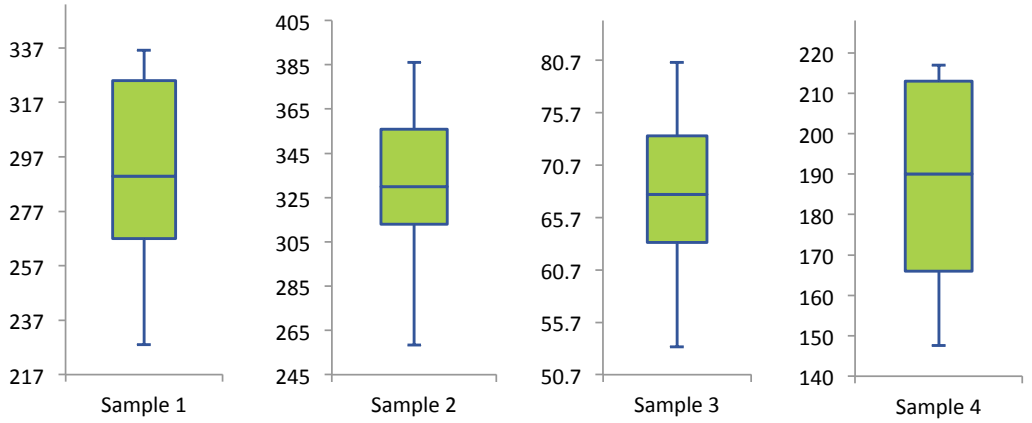
Homogeneity Assessment



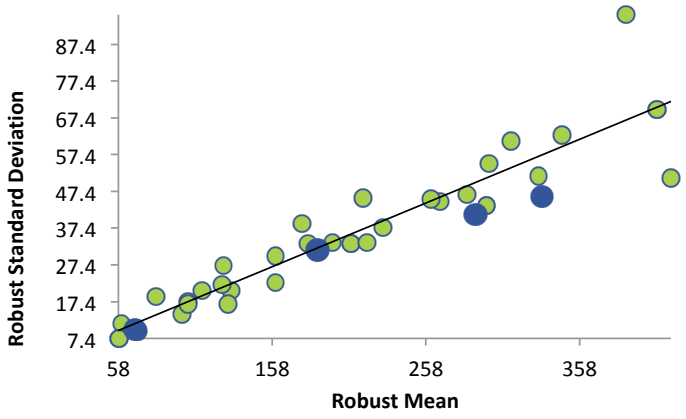
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



DIELDRIN

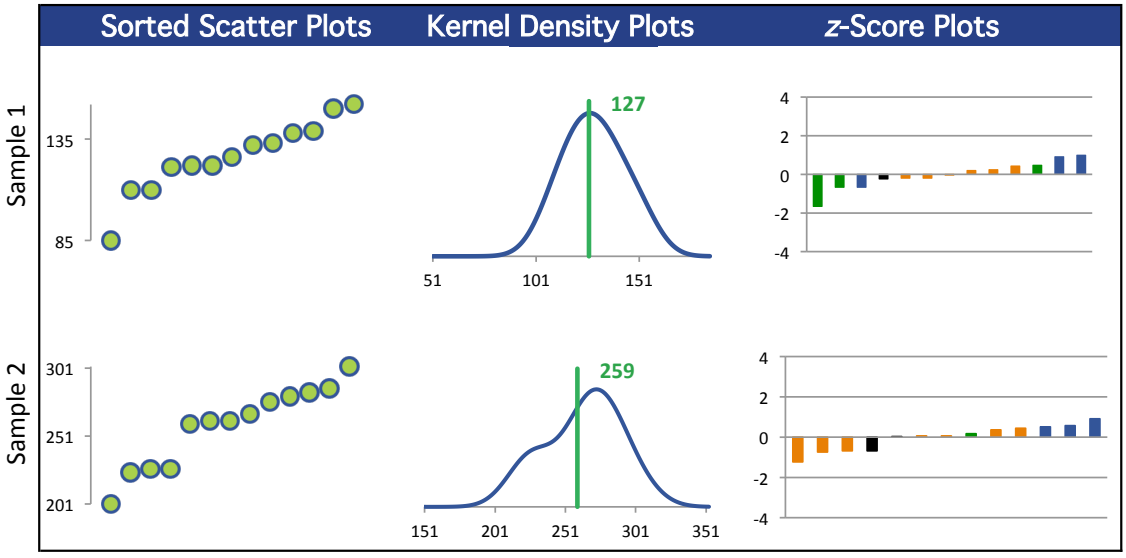
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	126	262	405	197
Robust Mean µg/kg	127	259	392	198
U µg/kg	6.00	11.1	21.4	9.46
Robust Standard Deviation µg/kg	17.3	32.0	61.6	27.3
Regression Standard Deviation µg/kg	25.3	47.3	69.6	37.2
Stability Flag				
Homogeneity Flag				Homogeneity
Standard Deviation Used (SDPA) µg/kg	25.3	47.3	69.6	41.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

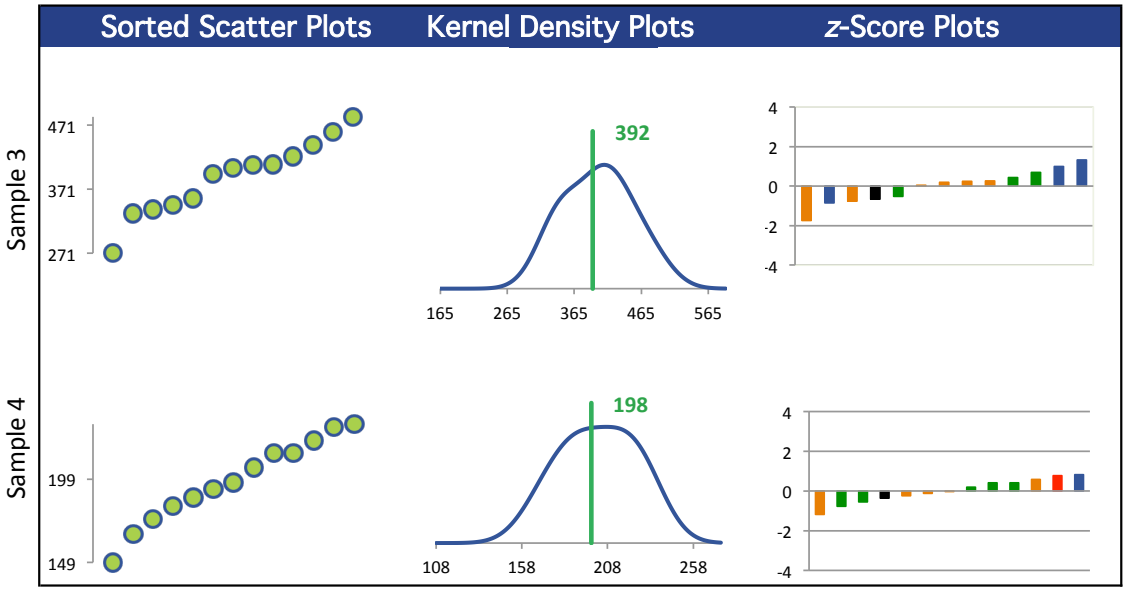
Methods Used

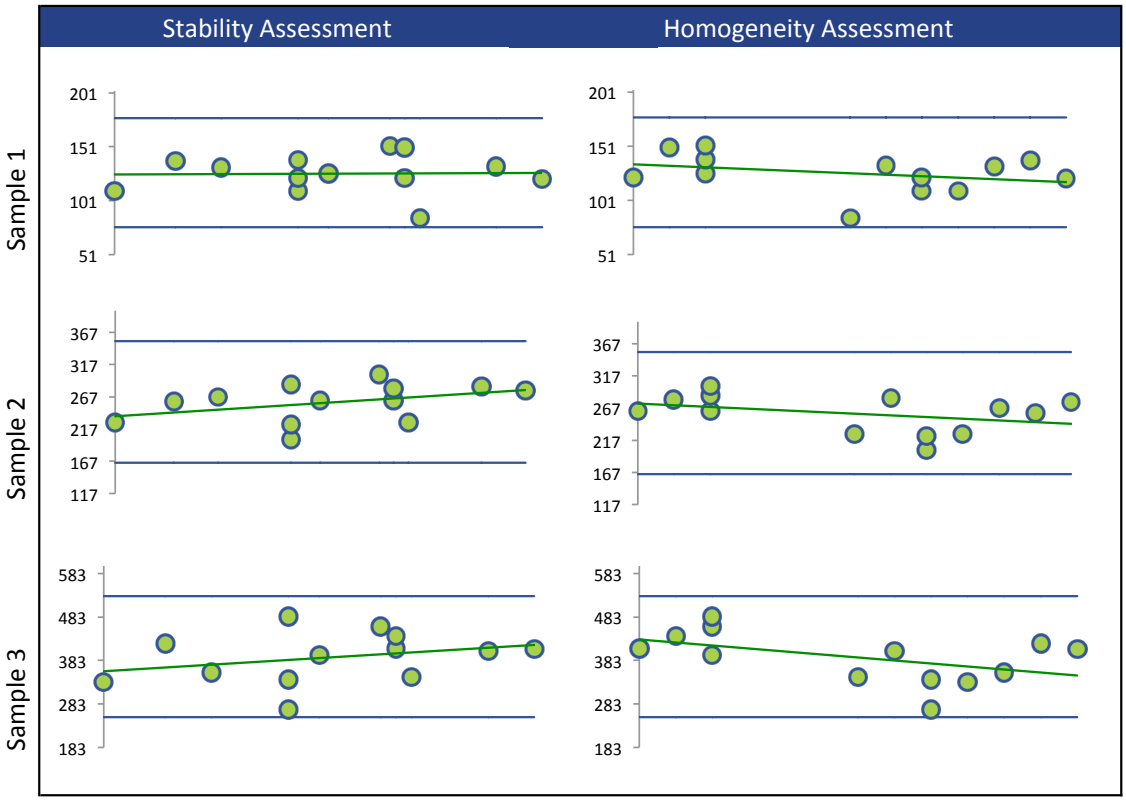
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - SHAKE EXTRACTION (Blue)	1	1	1	1
GC/ECD - EXTRACTION (Red)	6	6	6	6
GC/MS - EXTRACTION (Green)	3	3	3	3
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



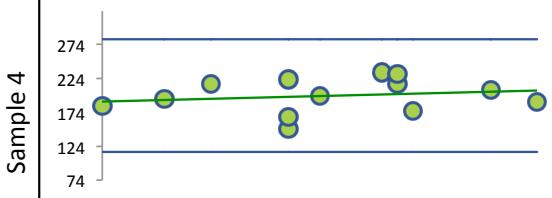
DIELDRIN


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
471
371
271
392
165
265
365
465
565
4
2
0
-2
-4
Sample 4
199
149
198
108
158
208
258
4
2
0
-2
-4

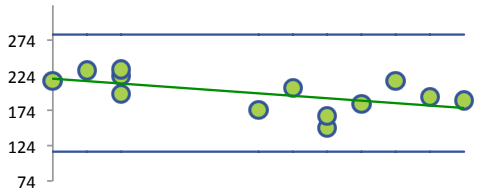

Stability Assessment
Homogeneity Assessment
Sample 1
201
151
101
51
Sample 2
367
317
267
217
167
117
Sample 3
583
483
383
283
183

DIELDRIN

Stability Assessment



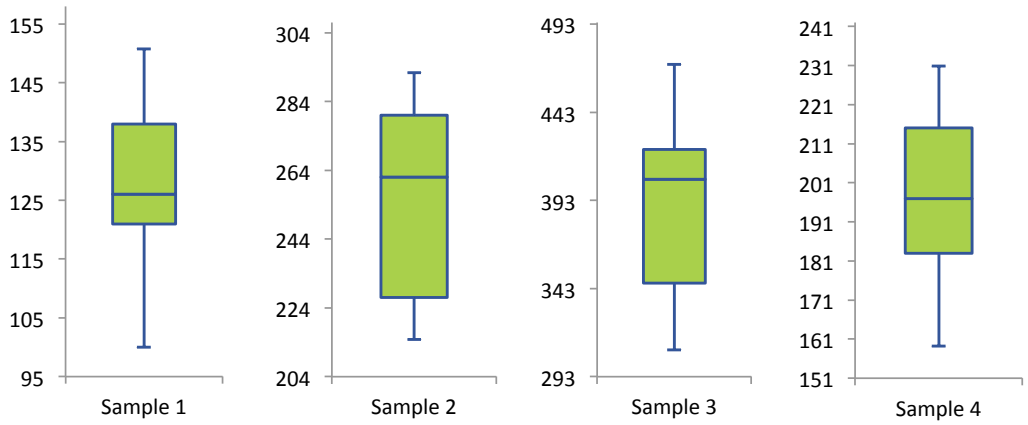
Homogeneity Assessment



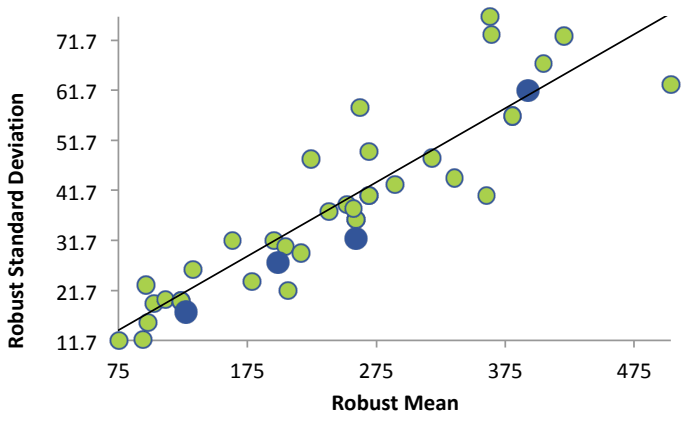
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ENDOSULFAN I (A-ENDOSULFAN)

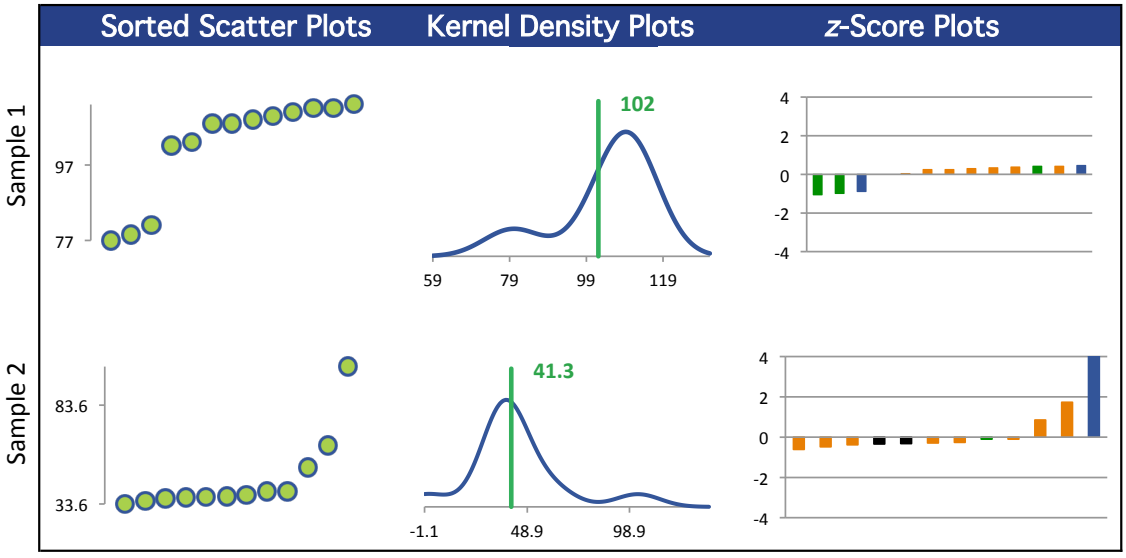
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	12	13	13
Median µg/kg	108	37.8	136	220
Robust Mean µg/kg	102	41.3	134	222
U µg/kg	4.99	3.08	4.33	6.38
Robust Standard Deviation µg/kg	14.4	8.54	12.5	18.4
Regression Standard Deviation µg/kg	23.7	12.6	29.5	45.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	23.7	12.6	29.5	45.5
Outliers	0	0	0	0
|z|>3.0	0	1	0	0
2<|z|<3	0	0	0	0

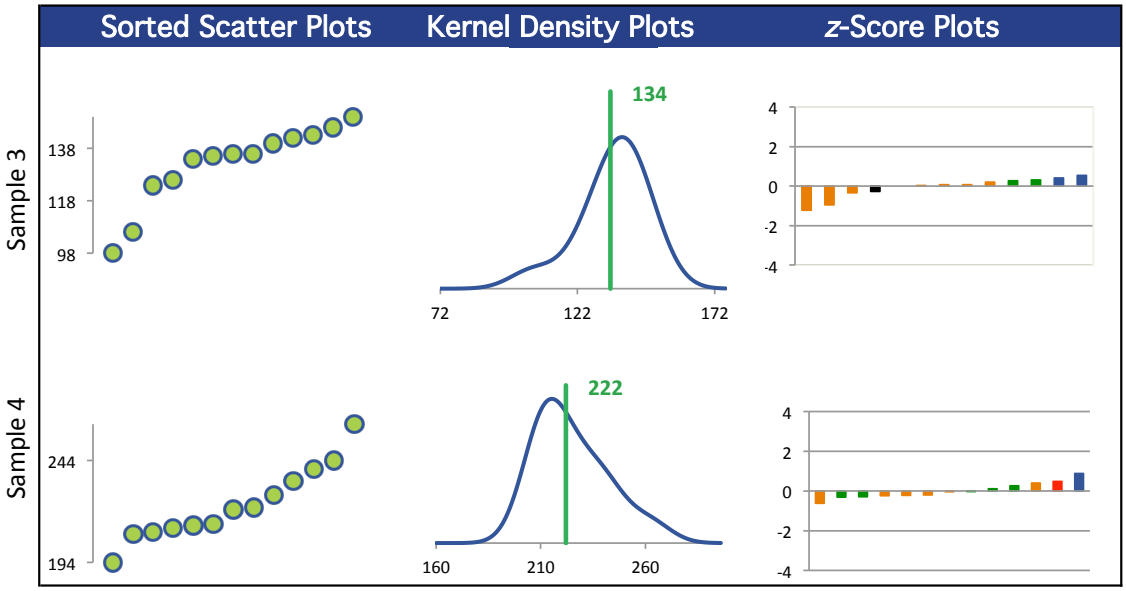
Methods Used

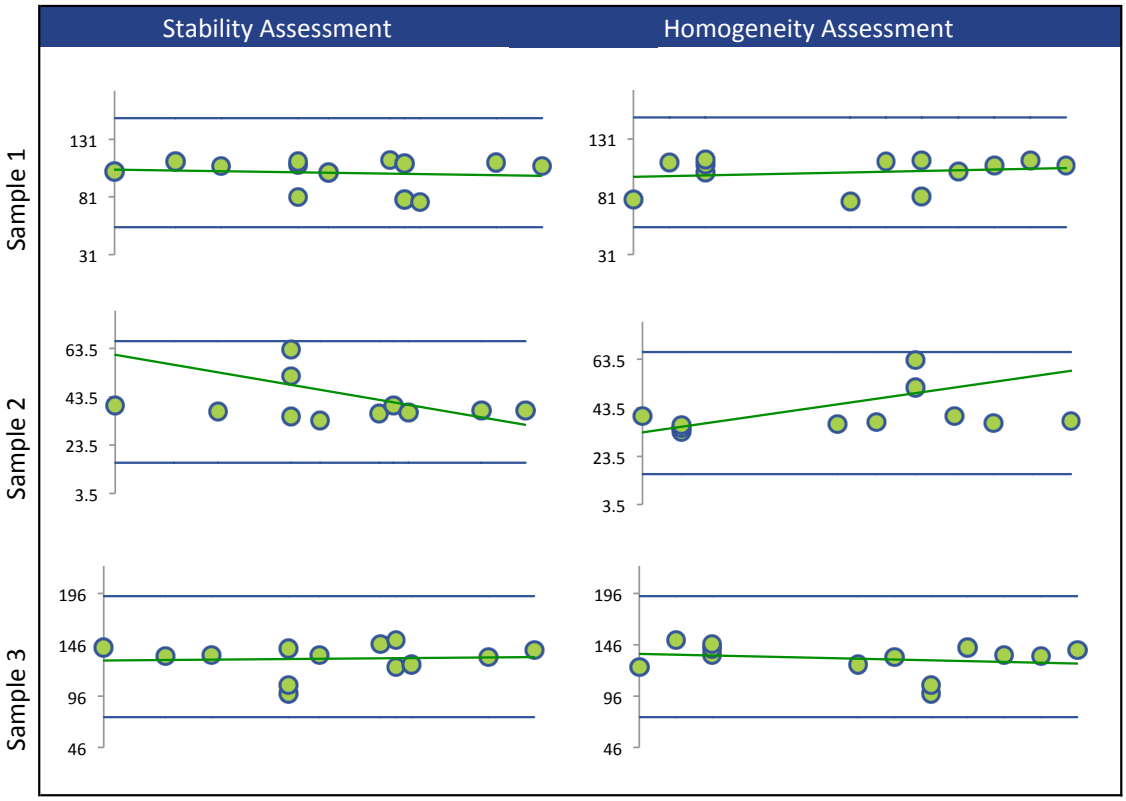
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - SHAKE EXTRACTION (Blue)	1	1	1	1
GC/MS - EXTRACTION (Red)	3	2	3	3
GC/MS/MS (Green)	2	2	2	2
GC/ECD - EXTRACTION (Orange)	6	6	6	6
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



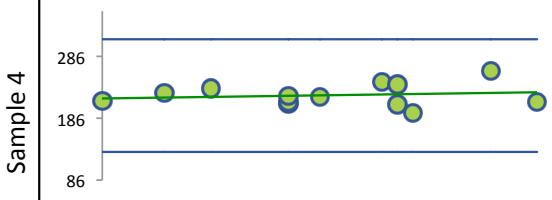
ENDOSULFAN I (A-ENDOSULFAN)



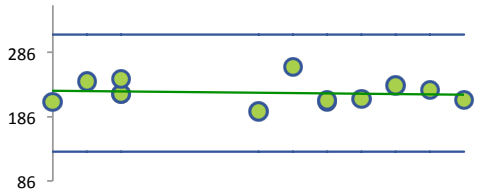


ENDOSULFAN I (A-ENDOSULFAN)

Stability Assessment



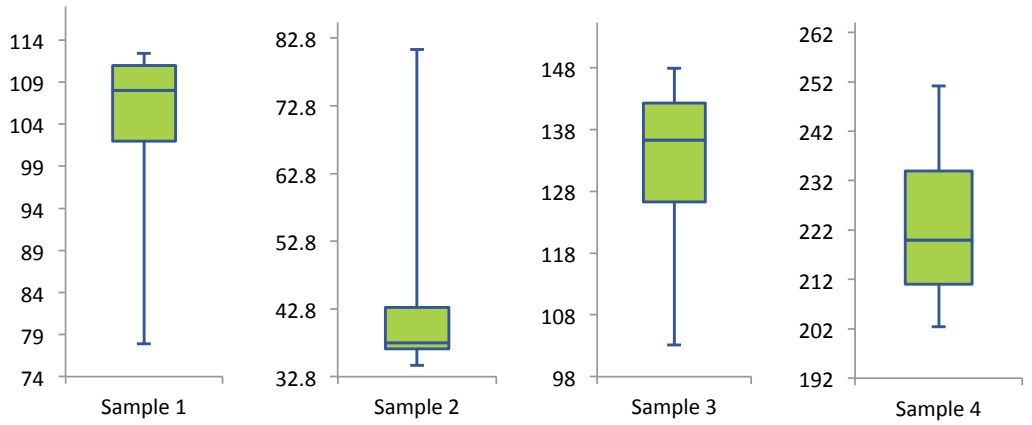
Homogeneity Assessment



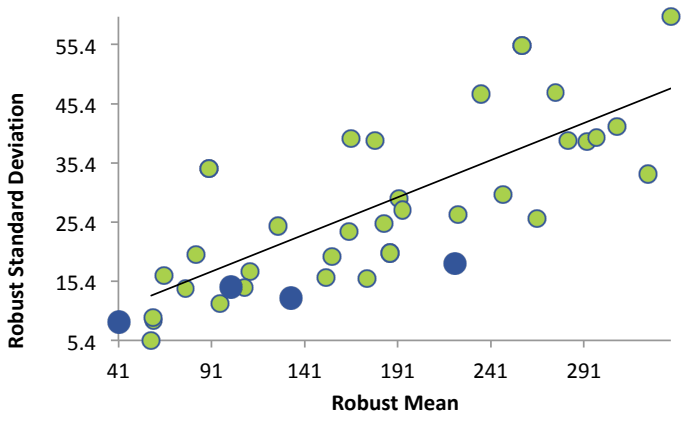
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ENDOSULFAN II (B-ENDOSULFAN)

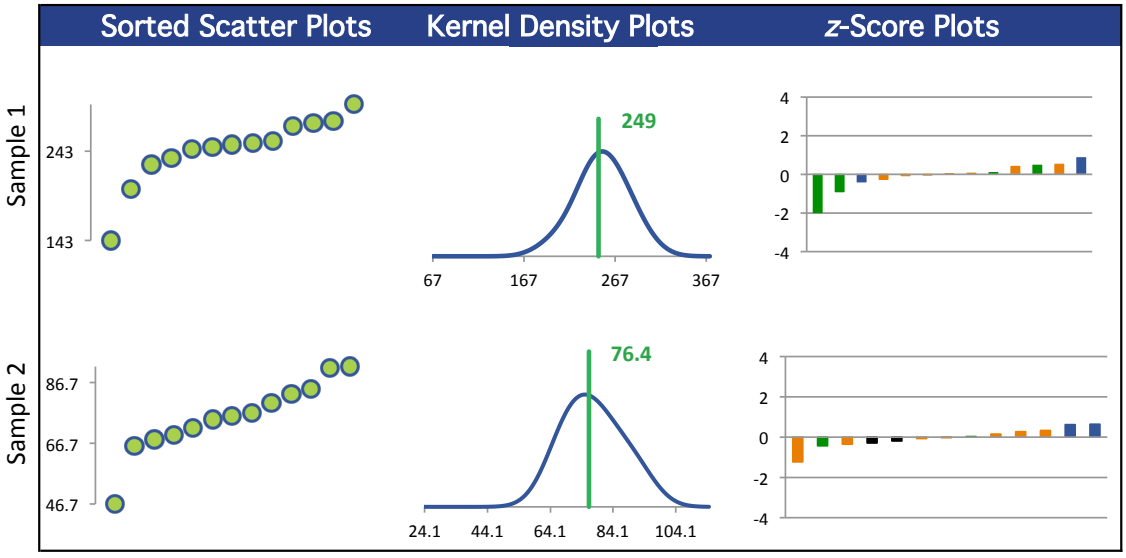
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	250	75.9	193	100
Robust Mean µg/kg	249	76.4	187	98.0
U µg/kg	10.9	3.78	6.55	6.21
Robust Standard Deviation µg/kg	31.5	10.9	18.9	17.9
Regression Standard Deviation µg/kg	53.6	18.7	41.1	23.1
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	53.6	24.2	41.1	23.1
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

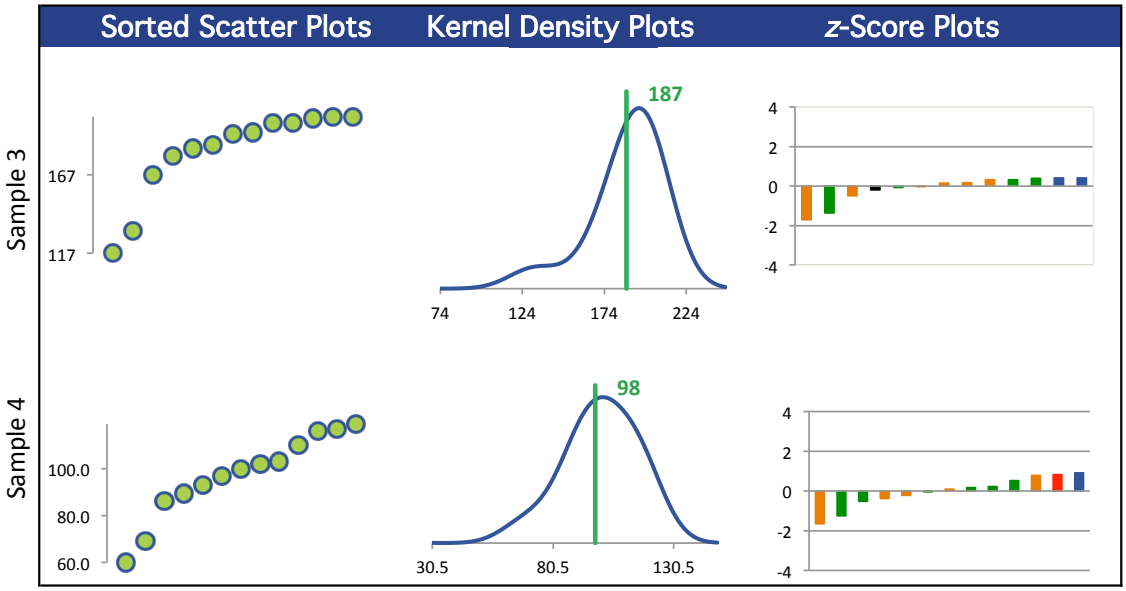
Methods Used

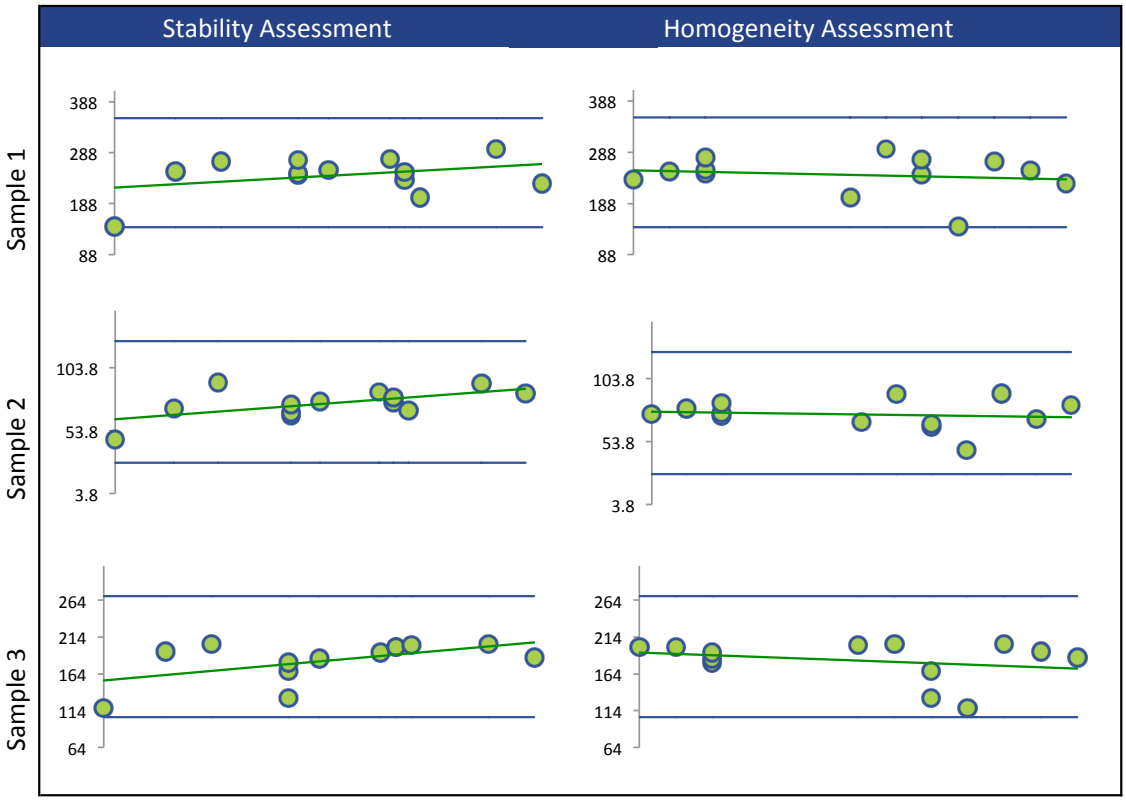
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	6	6	6	6
GC/ECD - SHAKE EXTRACTION (Red)	1	1	1	1
GC/MS - EXTRACTION (Green)	3	3	3	3
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



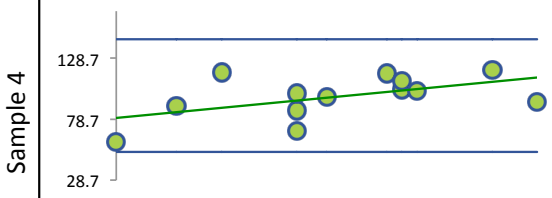
ENDOSULFAN II (B-ENDOSULFAN)



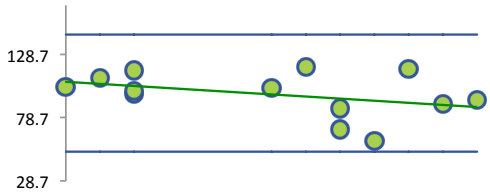


ENDOSULFAN II (B-ENDOSULFAN)

Stability Assessment



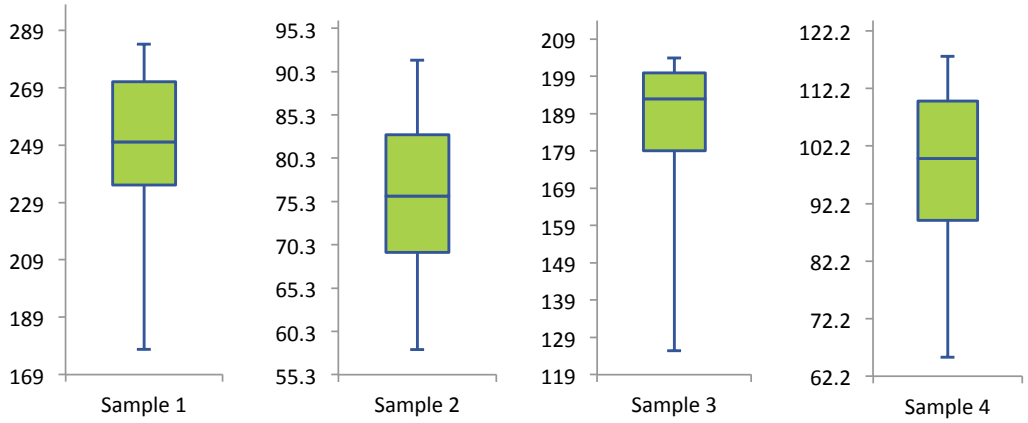
Homogeneity Assessment



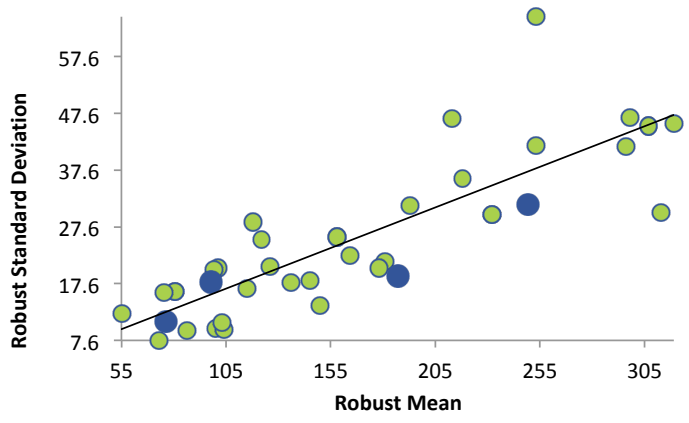
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



ENDRIN

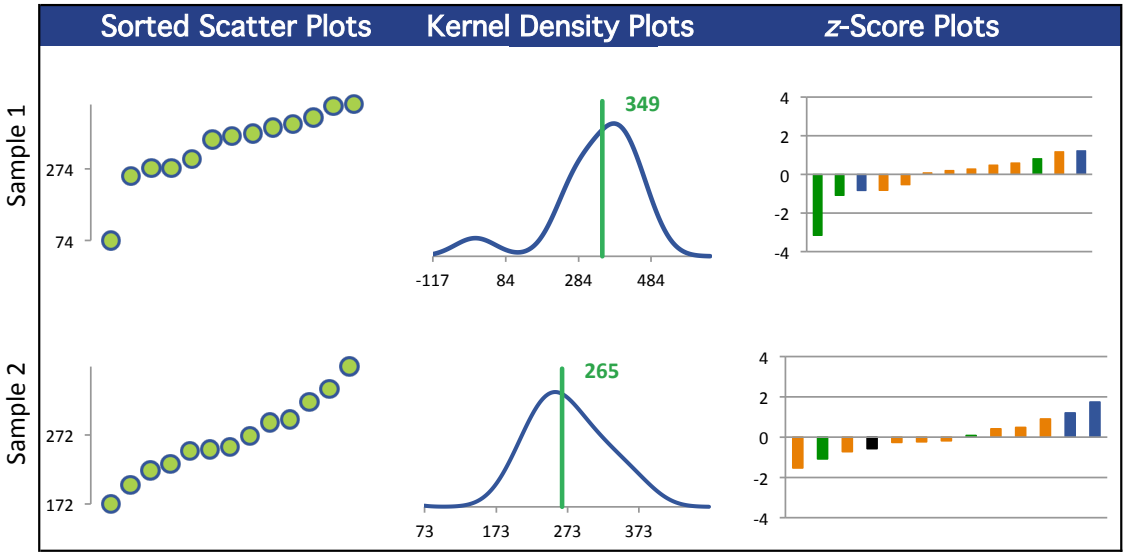
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	366	254	123	157
Robust Mean µg/kg	349	265	116	156
U µg/kg	30.1	21.1	10.4	14.0
Robust Standard Deviation µg/kg	86.9	60.9	29.9	40.4
Regression Standard Deviation µg/kg	57.3	45.2	23.9	29.6
Stability Flag				
Homogeneity Flag			Homogeneity	Homogeneity
Standard Deviation Used (SDPA) µg/kg	86.9	60.9	46.3	69.2
Outliers	0	0	0	0
|z|>3.0	1	0	0	0
2<|z|<3	0	0	0	0

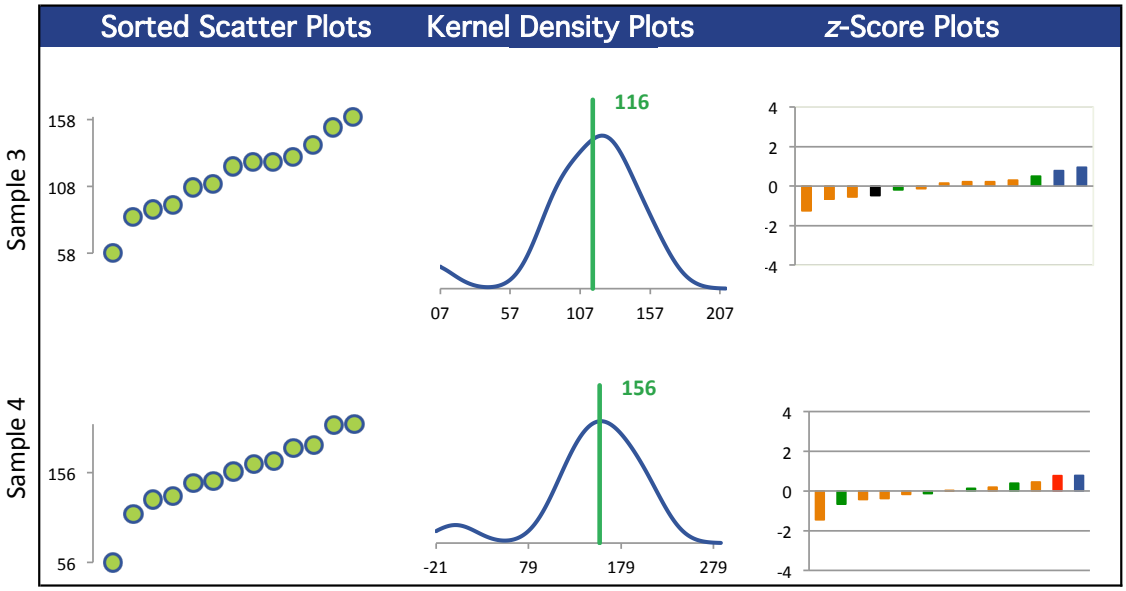
Methods Used

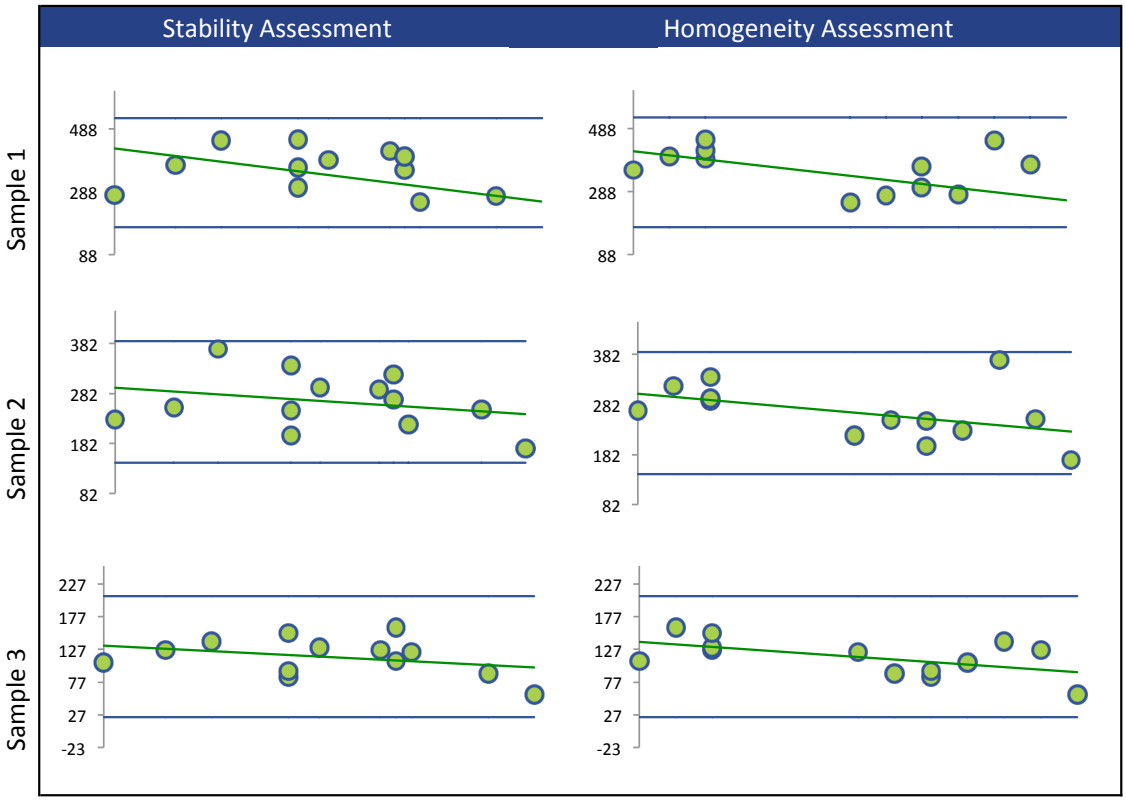
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	6	6	6	6
GC/ECD - SHAKE EXTRACTION (Red)	1	1	1	1
GC/MS - EXTRACTION (Green)	3	3	3	3
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



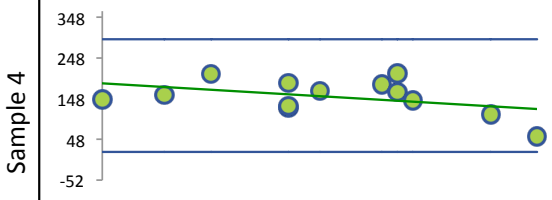
ENDRIN


Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
158
108
58
116
07
57
107
157
207
4
2
0
-2
-4
Sample 4
156
56
156
-21
79
179
279
4
2
0
-2
-4

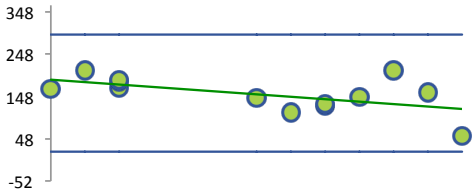

Stability Assessment
Homogeneity Assessment
Sample 1
488
288
88
488
288
88
Sample 2
382
282
182
82
382
282
182
82
Sample 3
227
177
127
77
27
-23
227
177
127
77
27
-23

ENDRIN

Stability Assessment



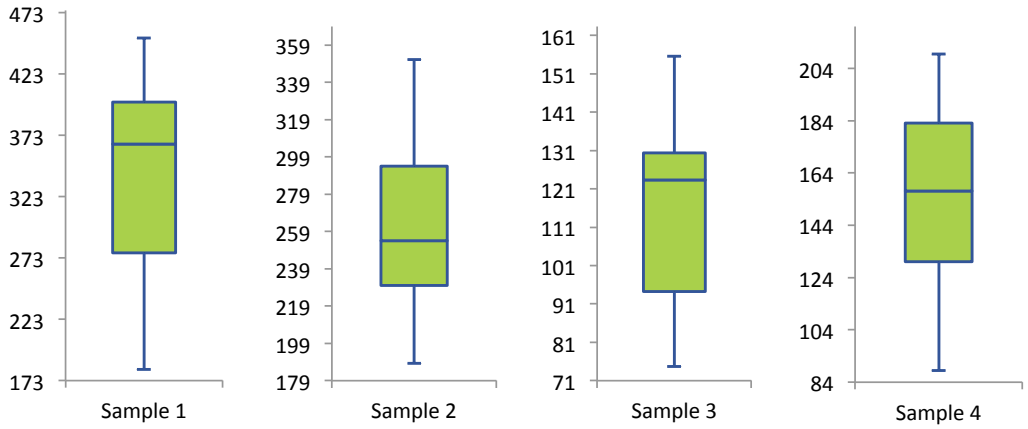
Homogeneity Assessment



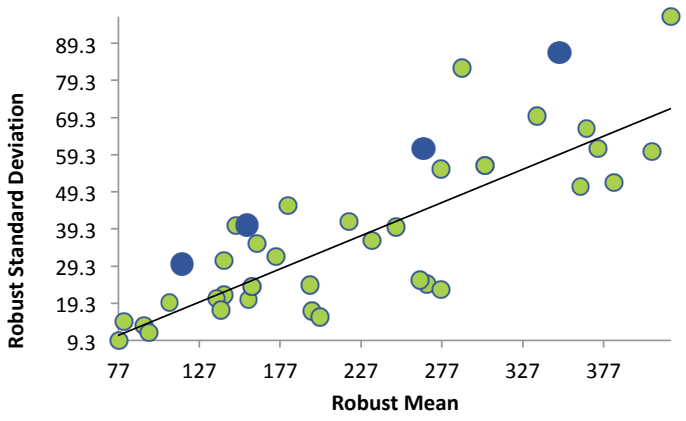
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



LINDANE (GAMMA-BHC)

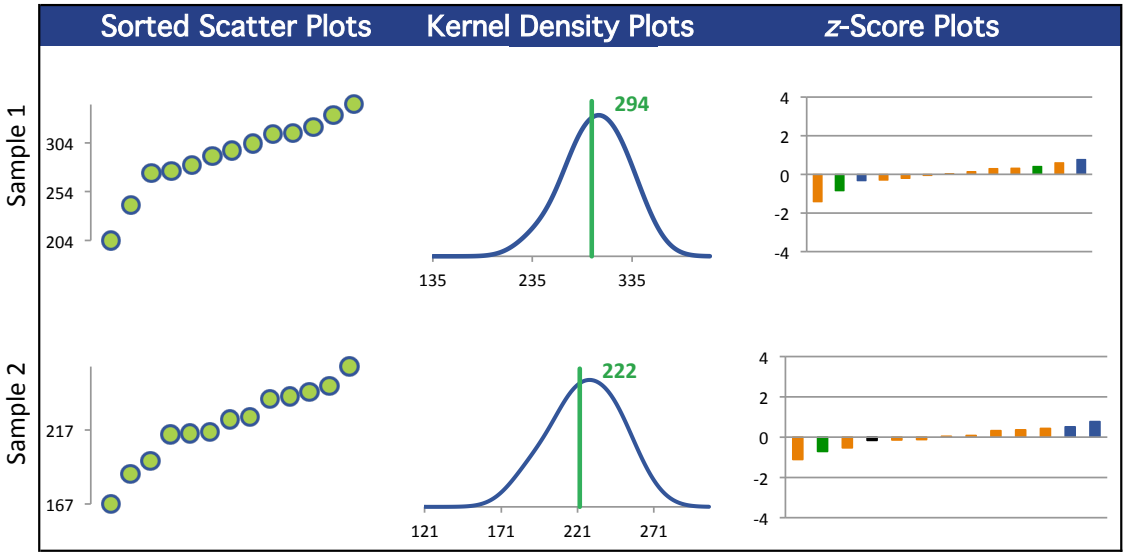
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	296	224	342	80.8
Robust Mean µg/kg	294	222	340	82.0
U µg/kg	12.6	9.36	10.4	4.23
Robust Standard Deviation µg/kg	36.2	27.0	30.0	12.2
Regression Standard Deviation µg/kg	63.4	49.4	72.4	22.0
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	63.4	49.4	72.4	22.0
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

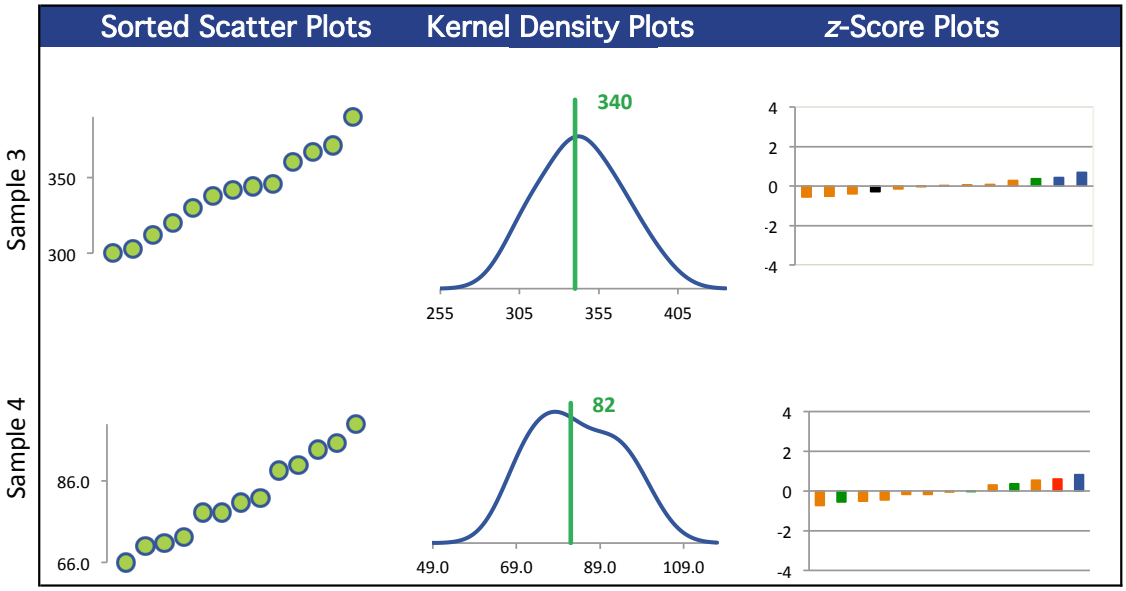
Methods Used

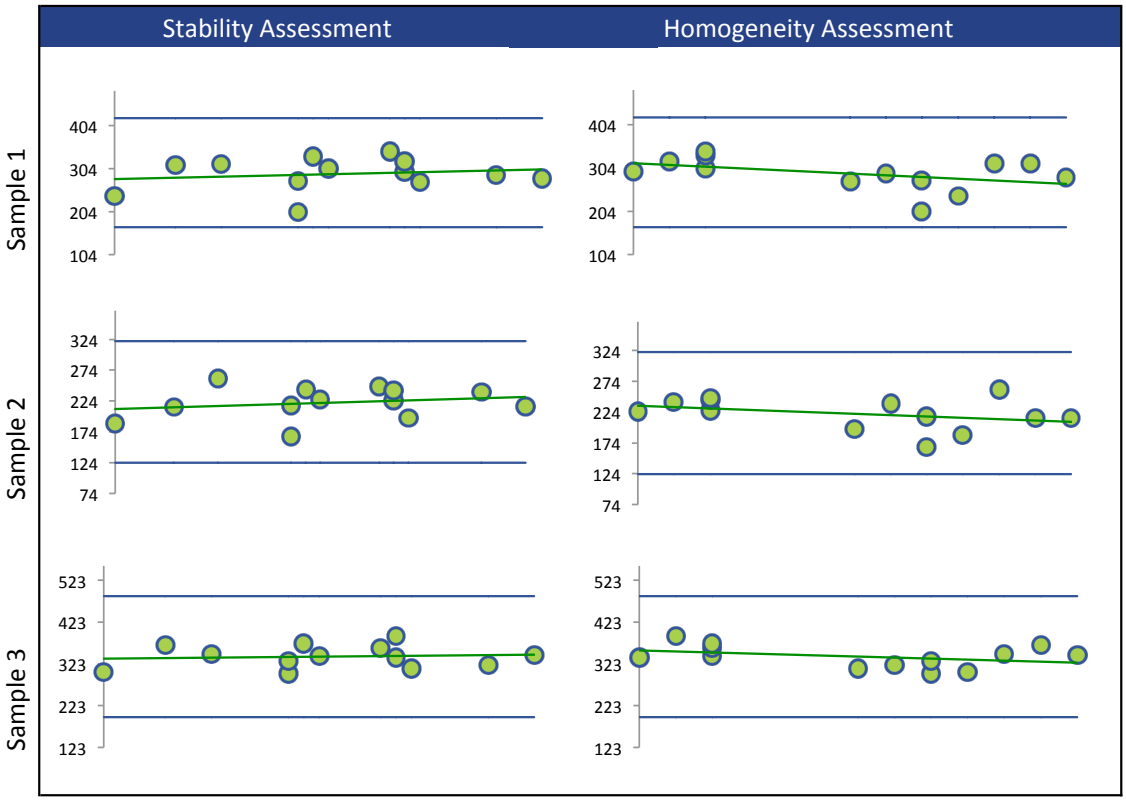
Method	C77-1	C77-2	C77-3	C77-4
GC/MS/MS (Blue)	2	2	2	2
GC/ECD - EXTRACTION (Red)	5	5	5	5
GC/ECD - SHAKE EXTRACTION (Green)	1	1	1	1
GC/MS - EXTRACTION (Orange)	4	4	4	4
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



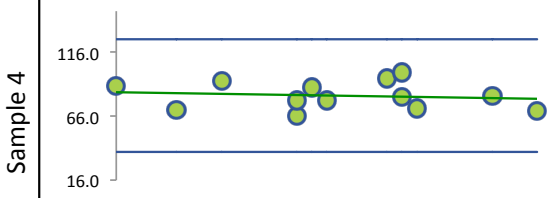
LINDANE (GAMMA-BHC)



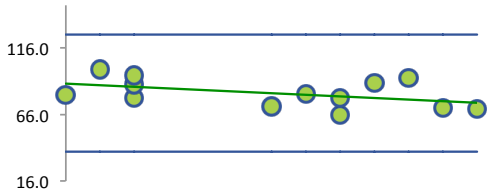


LINDANE (GAMMA-BHC)

Stability Assessment



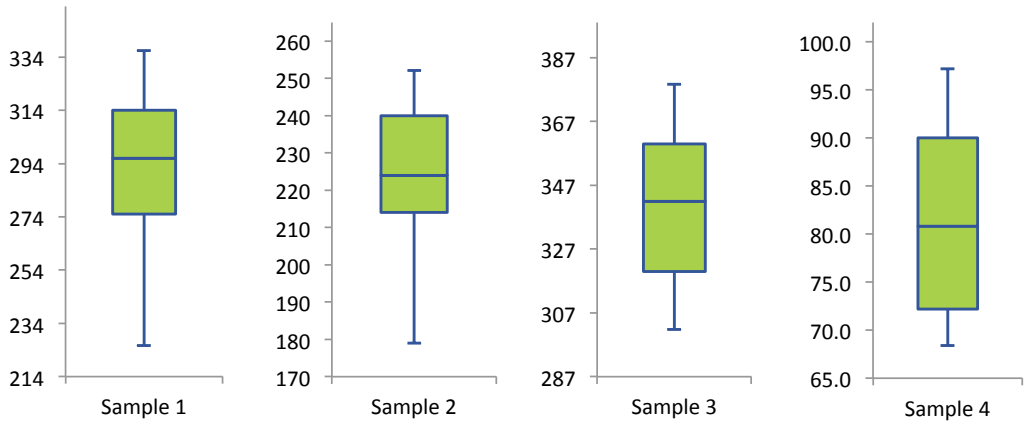
Homogeneity Assessment



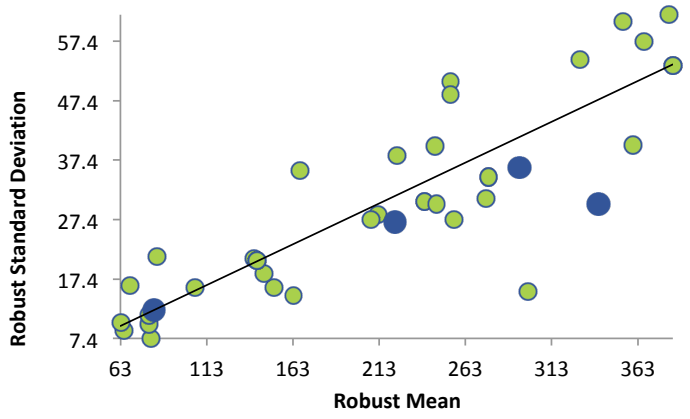
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



GAMMA-CHLORDANE

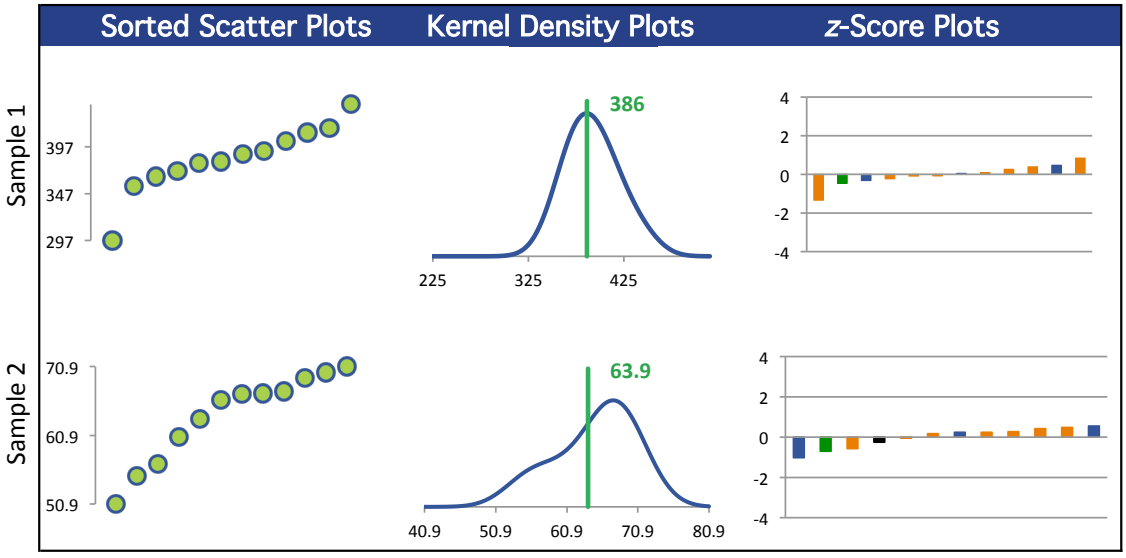
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	12	12	12	12
Median µg/kg	385	66.5	168	309
Robust Mean µg/kg	386	63.9	166	307
U µg/kg	10.8	2.45	6.71	13.8
Robust Standard Deviation µg/kg	30.0	6.79	18.6	38.3
Regression Standard Deviation µg/kg	66.4	12.7	29.7	53.2
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	66.4	12.7	29.7	53.2
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

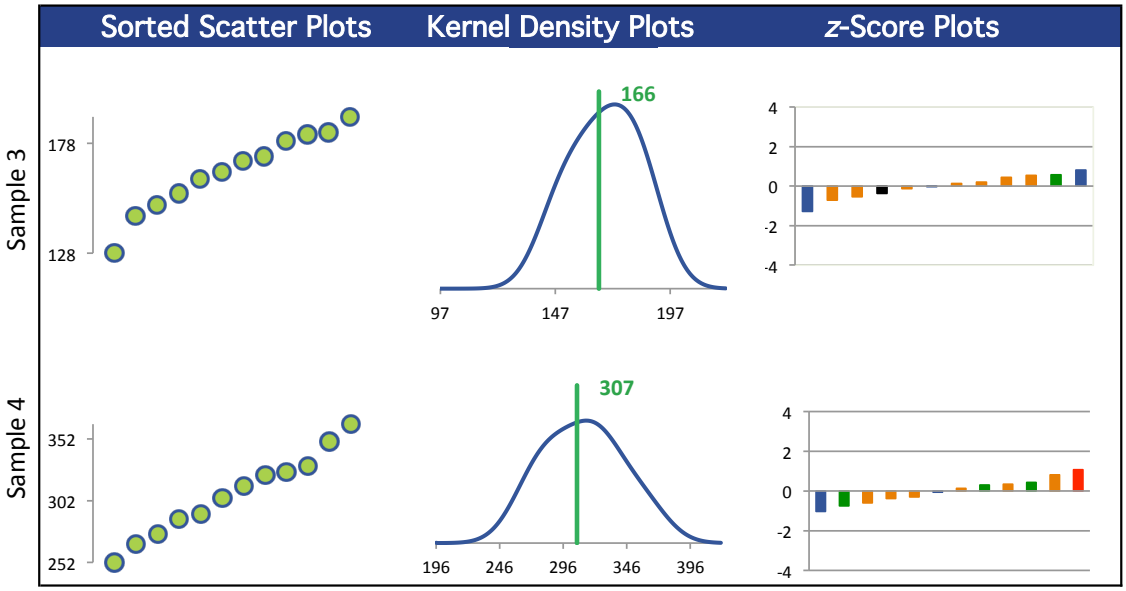
Methods Used

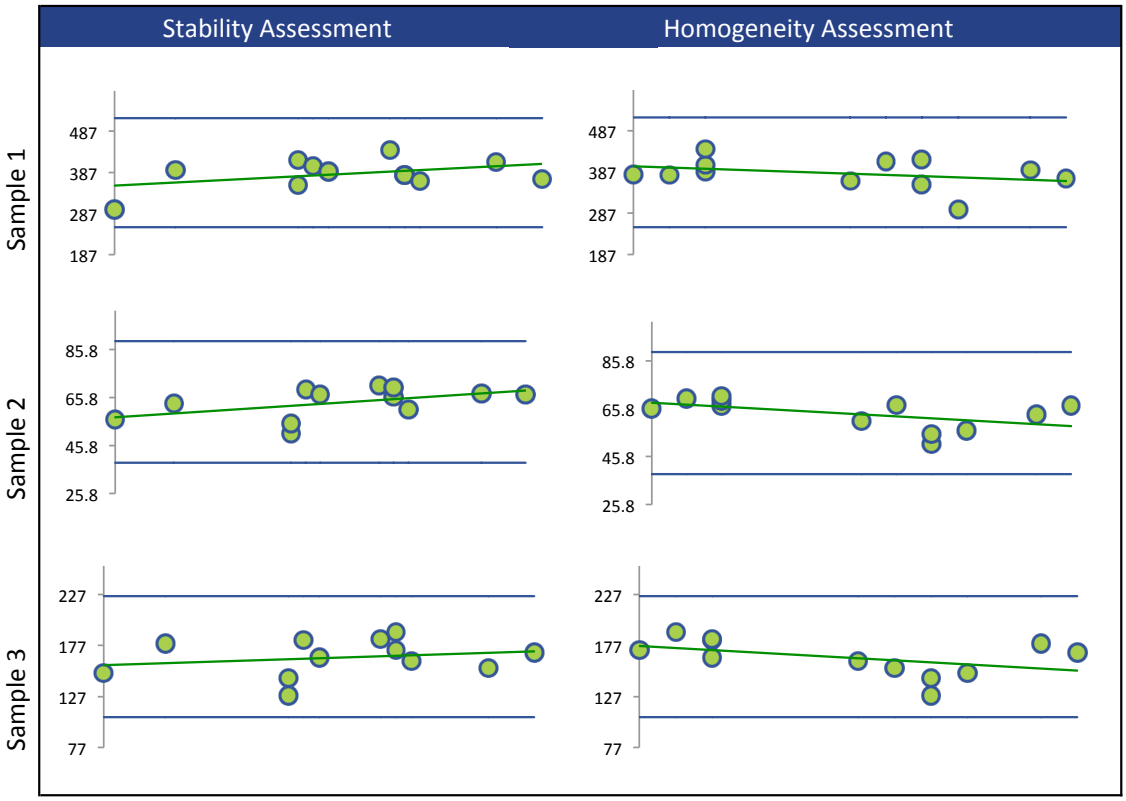
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	4	4	4	4
GC/MS - EXTRACTION (Red)	4	4	4	4
GC/ECD - SHAKE EXTRACTION (Green)	1	1	1	1
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



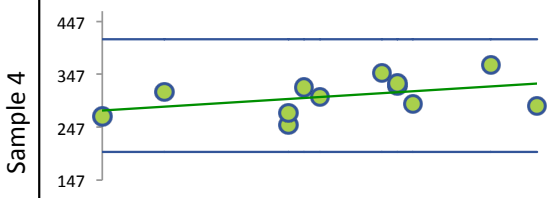
GAMMA-CHLORDANE



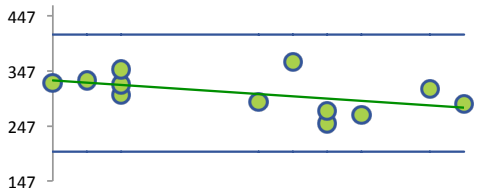


GAMMA-CHLORDANE

Stability Assessment



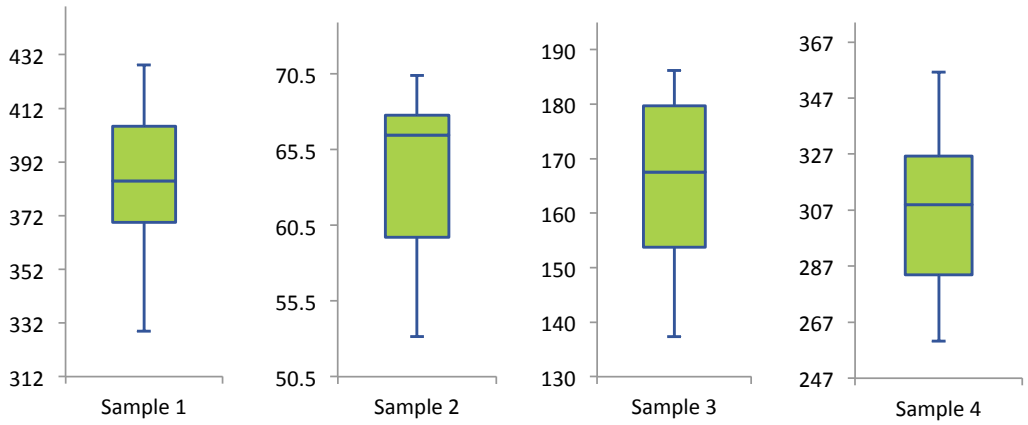
Homogeneity Assessment



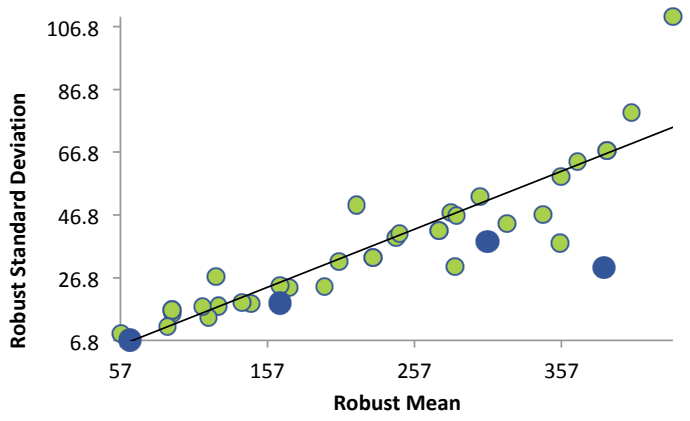
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



HEPTACHLOR

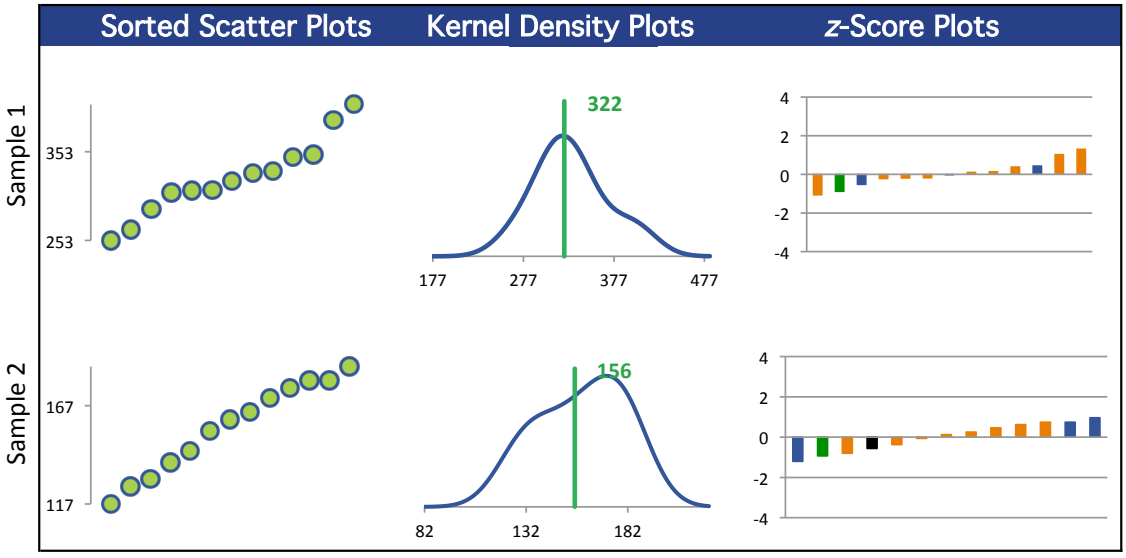
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	13	13	13	13
Median µg/kg	320	160	389	118
Robust Mean µg/kg	322	156	378	120
U µg/kg	16.3	9.08	18.2	6.83
Robust Standard Deviation µg/kg	47.0	26.2	52.6	19.7
Regression Standard Deviation µg/kg	64.2	32.4	74.8	25.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	64.2	32.4	74.8	25.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

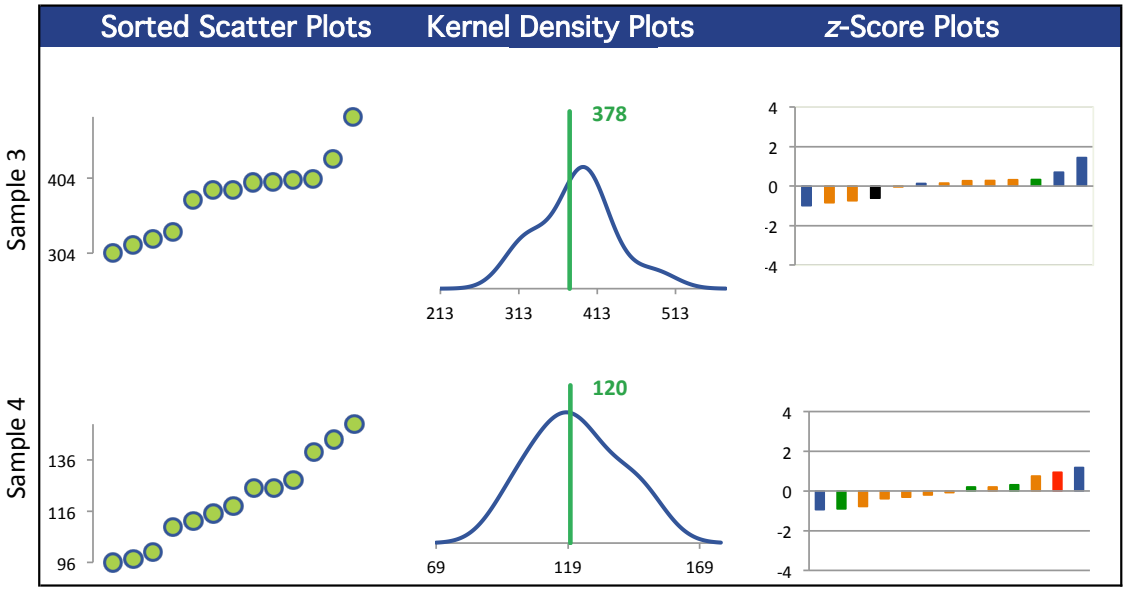
Methods Used

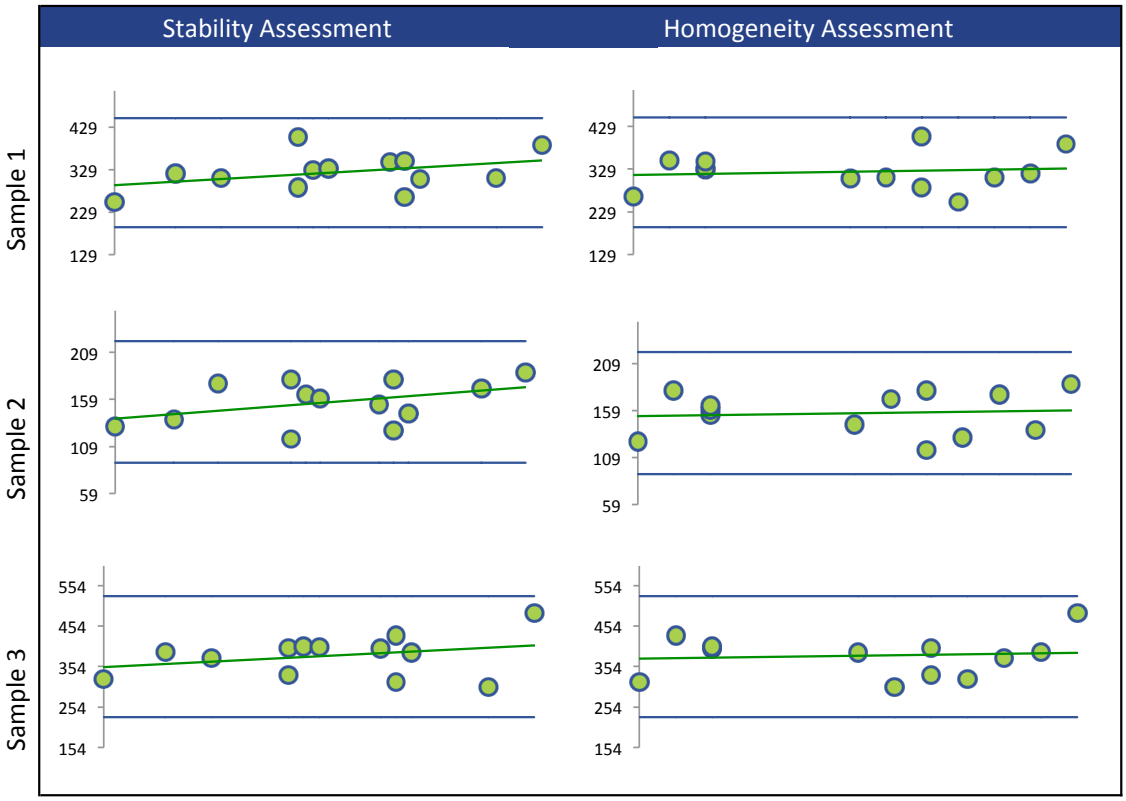
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	5	5	5	5
GC/MS - EXTRACTION (Red)	4	4	4	4
GC/ECD - SHAKE EXTRACTION (Green)	1	1	1	1
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



HEPTACHLOR

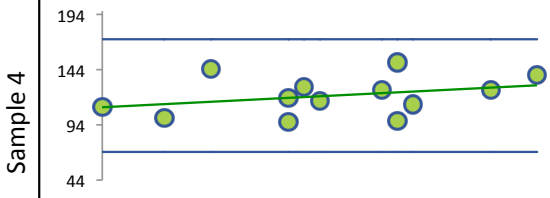

Sorted Scatter Plots
Kernel Density Plots
z-Score Plots
Sample 3
404
304
378
213
313
413
513
4
2
0
-2
-4
Sample 4
136
116
96
120
69
119
169
4
2
0
-2
-4


Stability Assessment
Homogeneity Assessment
Sample 1
429
329
229
129
Sample 2
209
159
109
59
Sample 3
554
454
354
254
154

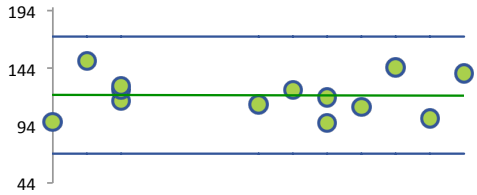
Annex A Summary by Analyte

HEPTACHLOR

Stability Assessment



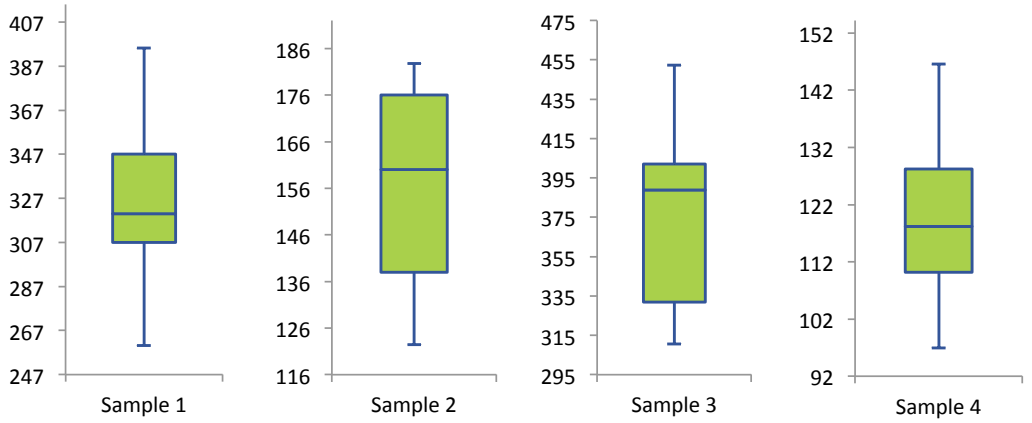
Homogeneity Assessment



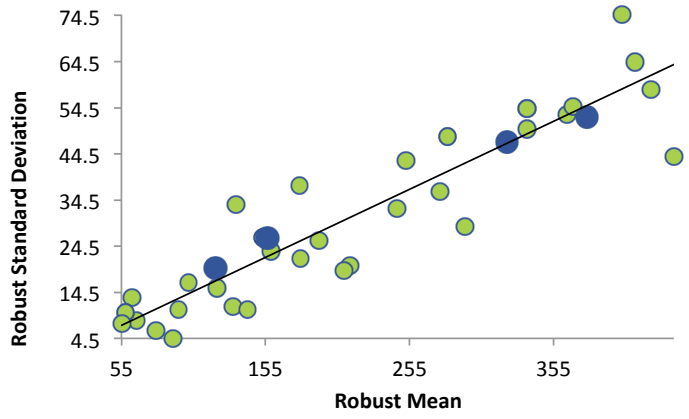
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



HEPTACHLOR EPOXIDE

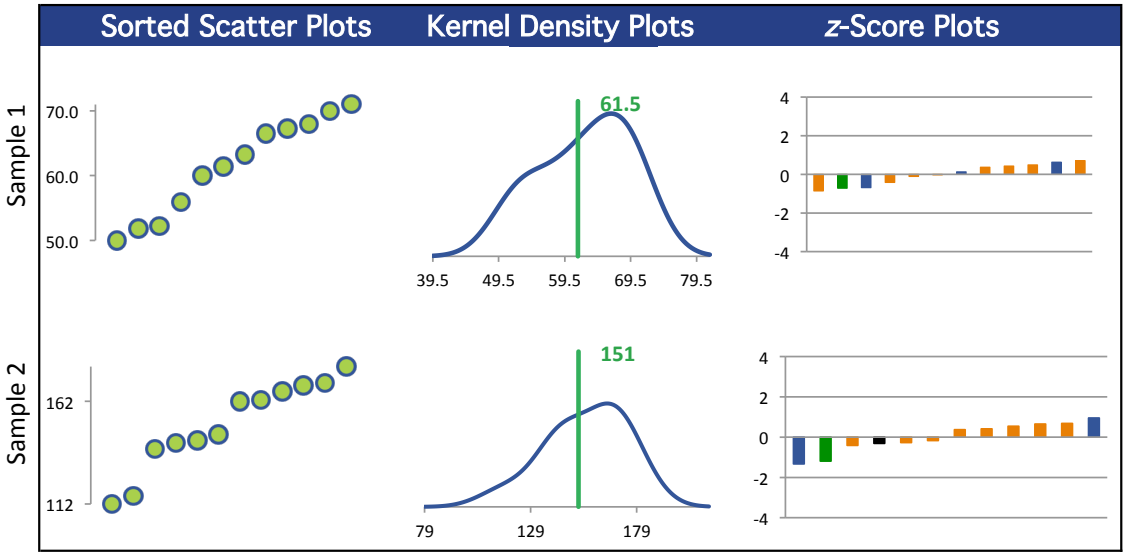
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	12	12	12	12
Median µg/kg	62.4	154	383	333
Robust Mean µg/kg	61.5	151	379	327
U µg/kg	3.05	8.62	16.3	15.3
Robust Standard Deviation µg/kg	8.45	23.9	45.2	42.4
Regression Standard Deviation µg/kg	13.4	29.4	70.1	60.8
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	13.4	29.4	70.1	60.8
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

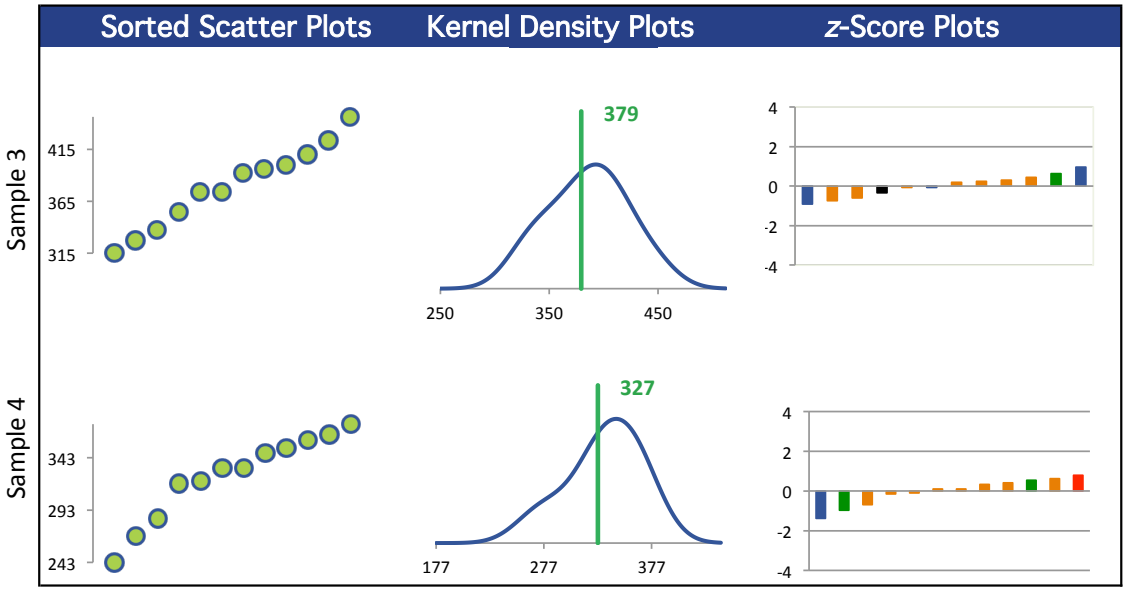
Methods Used

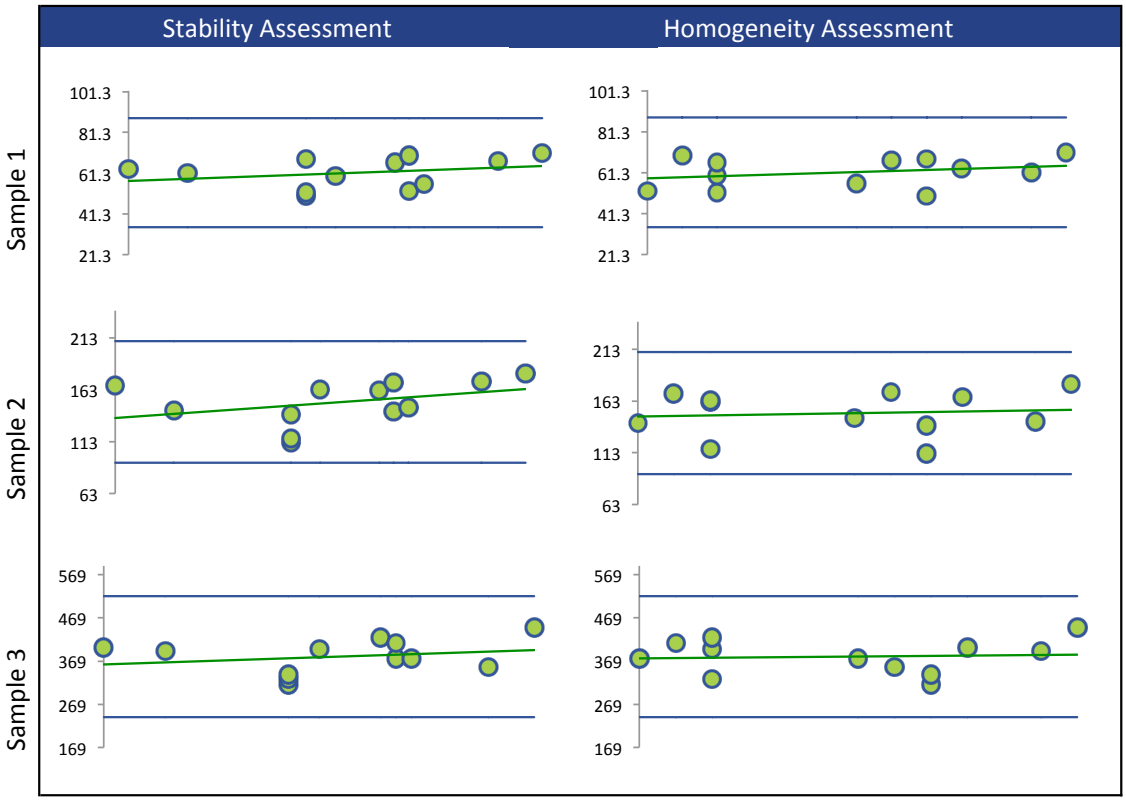
Method	C77-1	C77-2	C77-3	C77-4
GC/MS - EXTRACTION (Blue)	3	3	3	3
GC/ECD - EXTRACTION (Red)	5	5	5	5
GC/ECD - SHAKE EXTRACTION (Green)	1	1	1	1
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



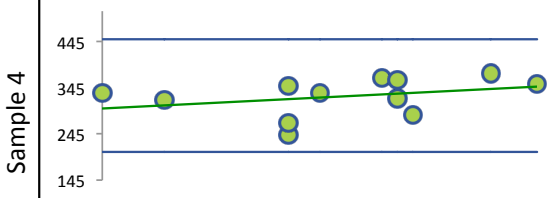
HEPTACHLOR EPOXIDE



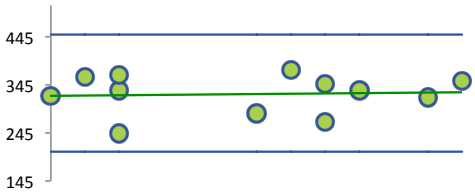


HEPTACHLOR EPOXIDE

Stability Assessment



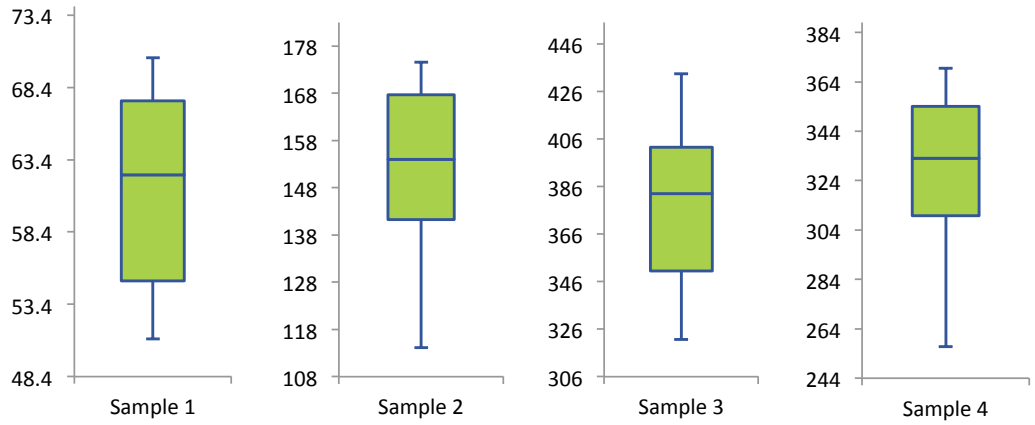
Homogeneity Assessment



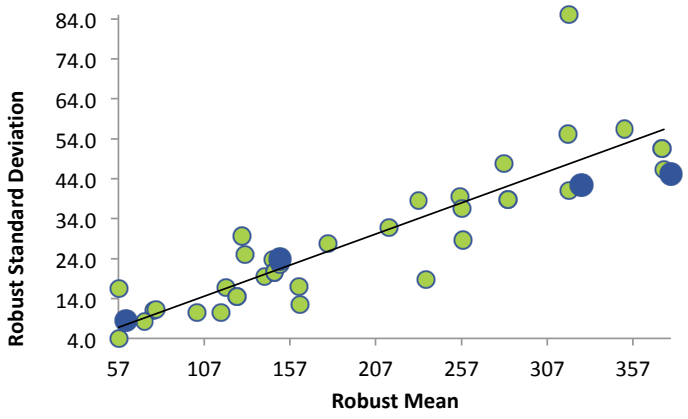
Stability assessments are regression analysis of reported result against date of analysis.

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

Box and Whisker Plots



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



4,4'-METHOXYCHLOR (P,P'-METHOXYCHLOR)

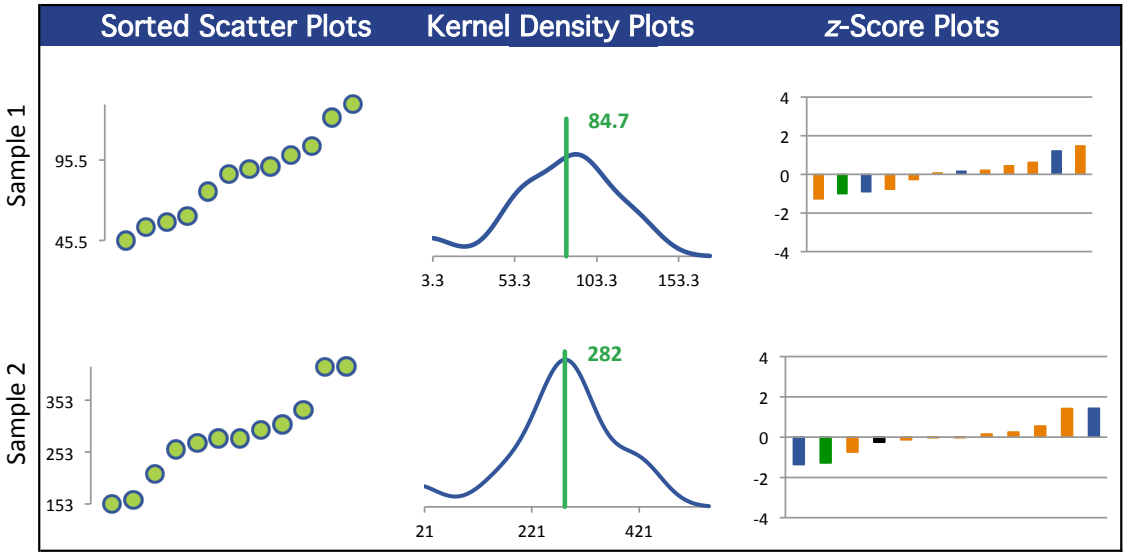
Summary Statistics

Statistic	C77-1	C77-2	C77-3	C77-4
N	12	12	12	12
Median µg/kg	88.5	280	390	157
Robust Mean µg/kg	84.7	282	371	152
U µg/kg	11.0	34.3	48.7	11.9
Robust Standard Deviation µg/kg	30.6	95.1	135	33.1
Regression Standard Deviation µg/kg	28.9	82.1	106	47.1
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA) µg/kg	30.6	95.1	135	47.1
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

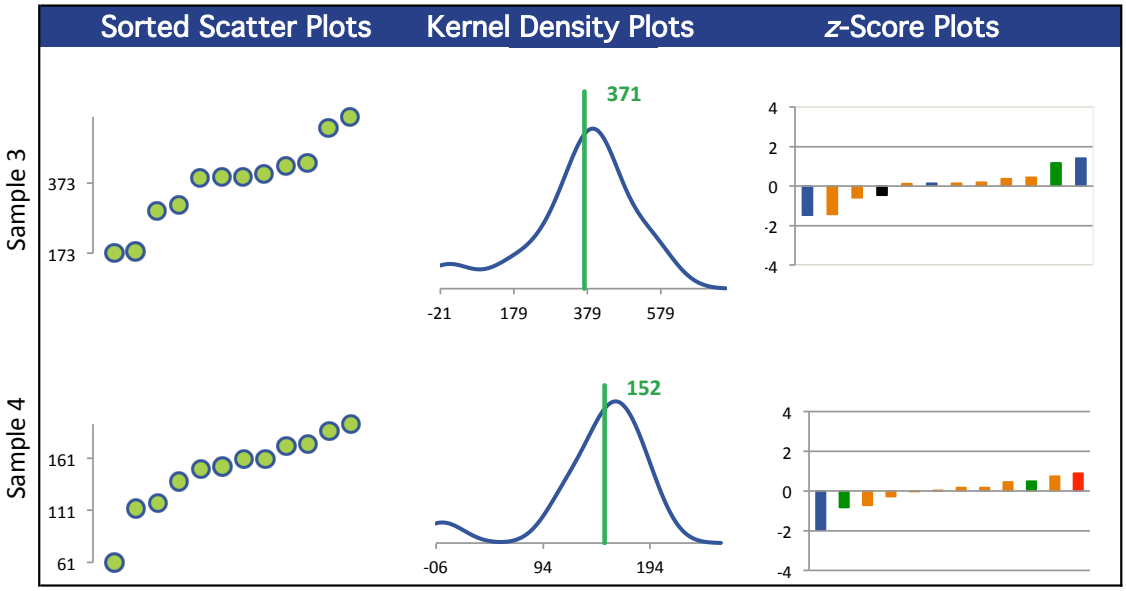
Methods Used

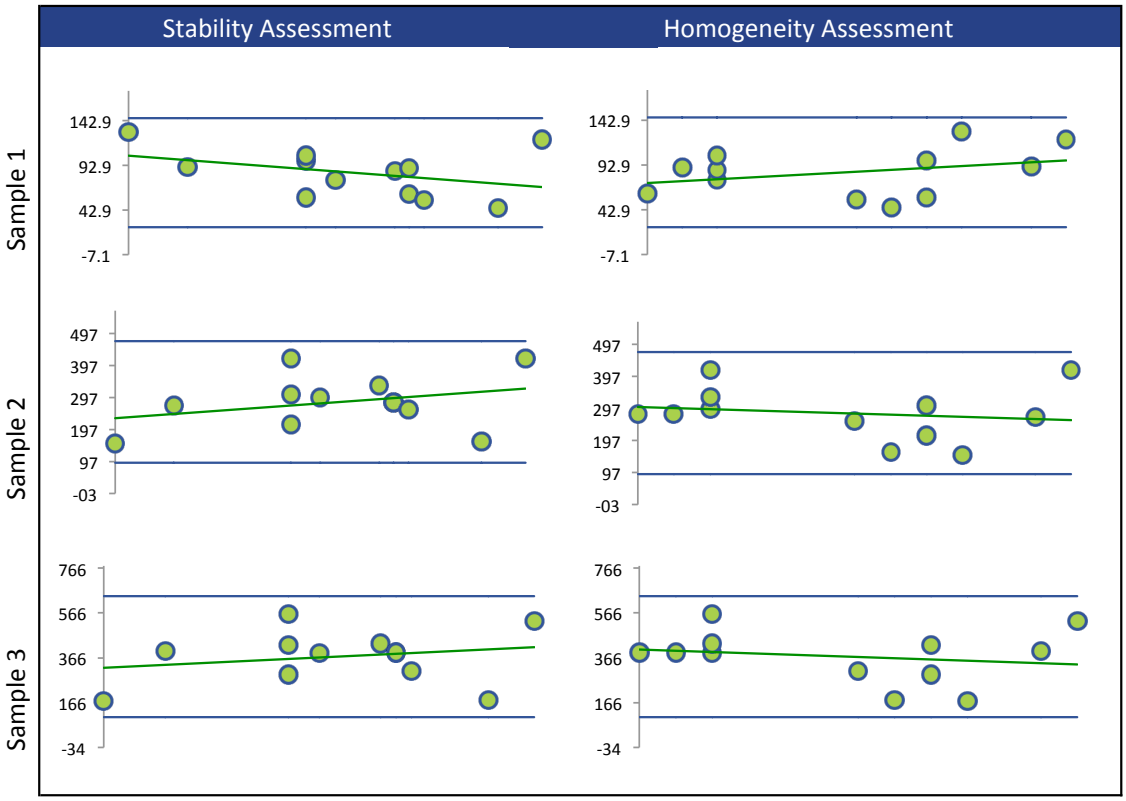
Method	C77-1	C77-2	C77-3	C77-4
GC/ECD - EXTRACTION (Blue)	5	5	5	5
GC/ECD - SHAKE EXTRACTION (Red)	1	1	1	1
GC/MS - EXTRACTION (Green)	3	3	3	3
GC/MS/MS (Orange)	2	2	2	2
HI RESOLUTION GC/MS (Black)	1	1	1	1

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



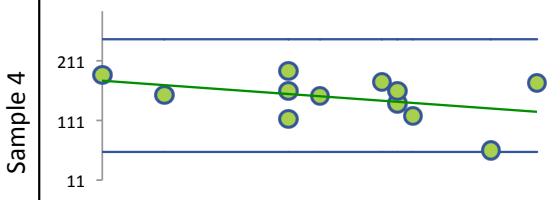
4,4'-METHOXYCHLOR (P,P'-METHOXYCHLOR)



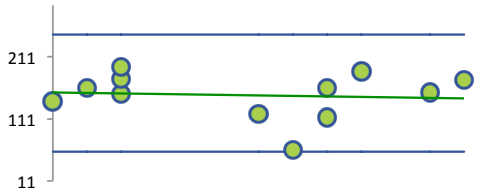


4,4'-METHOXYCHLOR (P,P'-METHOXYCHLOR)

Stability Assessment



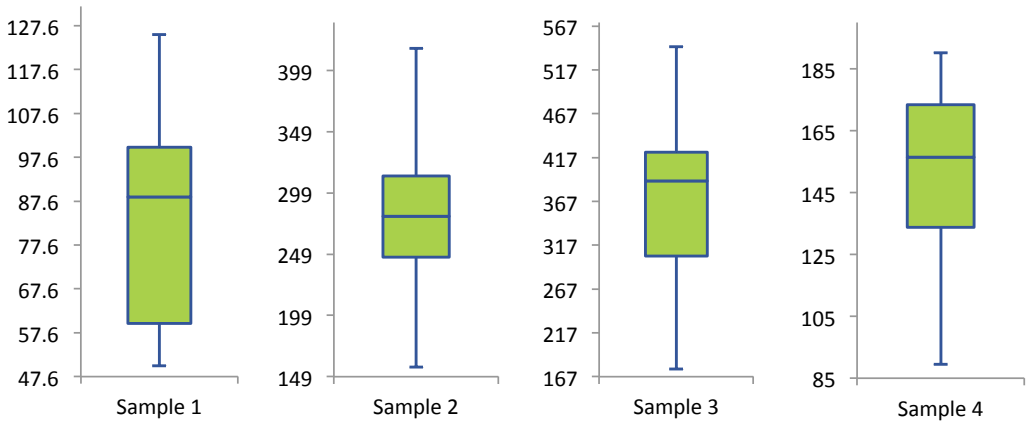
Homogeneity Assessment



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)