Test Group Summary Report
C36 VOCs in Soil
June 2021 PT Round

Issued: October 13, 2021

PTC | Proficiency Testing Canada

Table of Contents

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 are found in the participant-specific PTC Proficiency Testing Report. These reports do not contain any confidential information and are made available on the PTC web site.

2.0   Definitions

The participant-specific PTC Proficiency Testing Report contains some terms that new participants may not be familiar with.

Code: The registration code that is unique to each analyte that a participant is registered for.

App: If a participant is accredited by CALA, this three-digit number is the appendix number that the accredited method is assigned to.

N: The number of participants results that were used to calculate the summary statistics. This excludes qualified data (e.g., <) and any results that were flagged as outliers.

Assigned: The Assigned Value is the robust mean of the reported results, outliers excluded. This is often referred to as the "target" value.

±u: The uncertainty of the assigned value.

Reported: The result reported by the participant.

s: The Standard Deviation of Proficiency Assessment (SDPA). This value is used to determine the acceptance limits for the PT evaluation.

z-Score: A value assigned to each reported result that is a measure of the degree to which it deviates from the Assigned Value.

Score: The composite score of the four results reported for each analyte. It is normalized to a score out of 100.

Bias: A flag assigned if bias is detected using the re-scaled *z*-score procedure.

3.0   Scoring System

Participant performance is evaluated for each proficiency testing sample by a quantitative method that is consistent with ISO/IEC 17043:2010 *Conformity assessment — General requirements for proficiency testing*, 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;
$\bar{X}$ = 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 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

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.

1,1,1-TRICHLOROETHANE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	22.8	57.8	102	151
Robust Mean	23.2	58.8	103	152
U	0.596	1.44	2.58	4.06
Robust Standard Deviation	2.98	7.18	12.9	20.3
Regression Standard Deviation	5.22	13.2	23.1	34.3
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	5.22	13.2	23.1	34.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	14	14	14	14
P/T-GCMS	20	20	20	20
GC/MSE	5	5	5	5

All summary stats and the plots below are based on the data excluding any flagged outliers
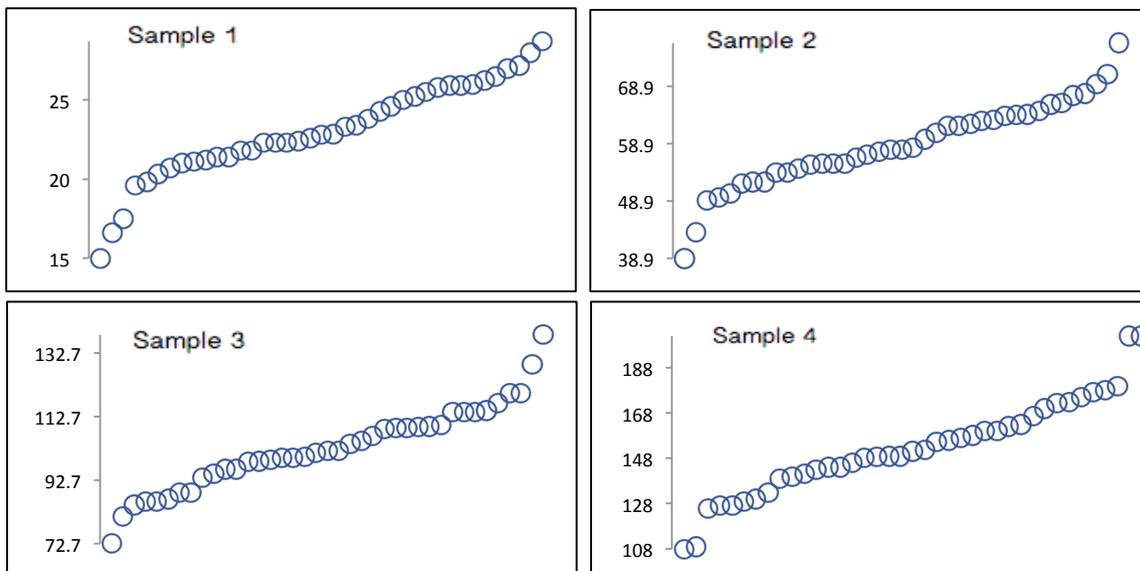
1,1,1-TRICHLOROETHANE
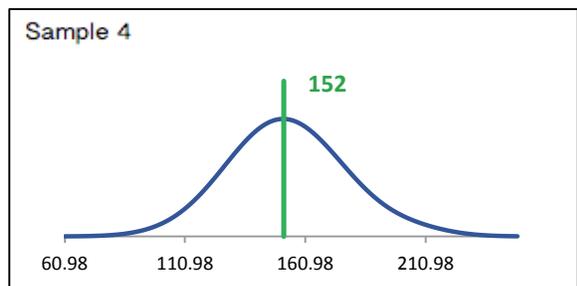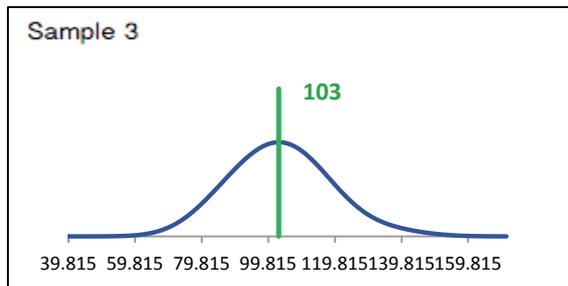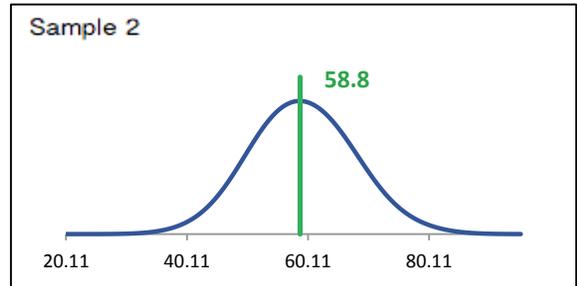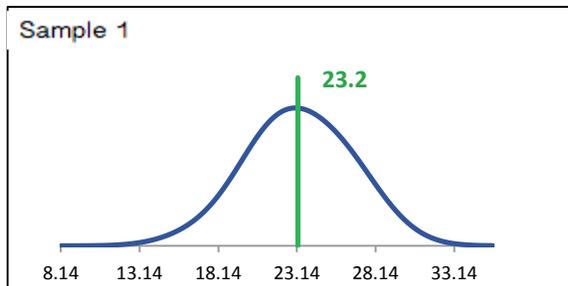
z-Score Plots

Kernel Density Plots

1,1,1-TRICHLOROETHANE
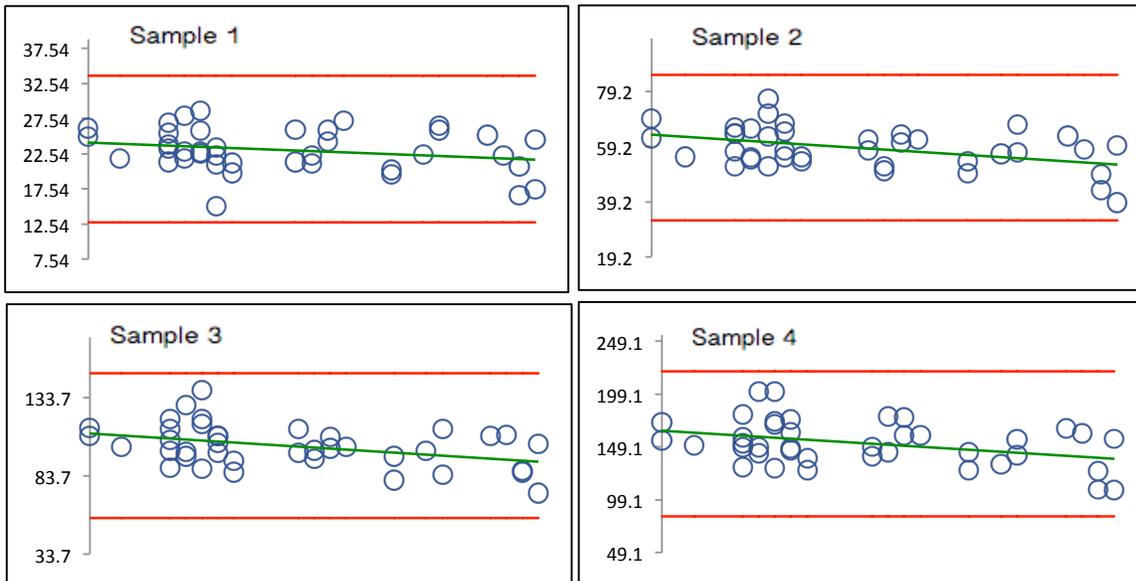
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
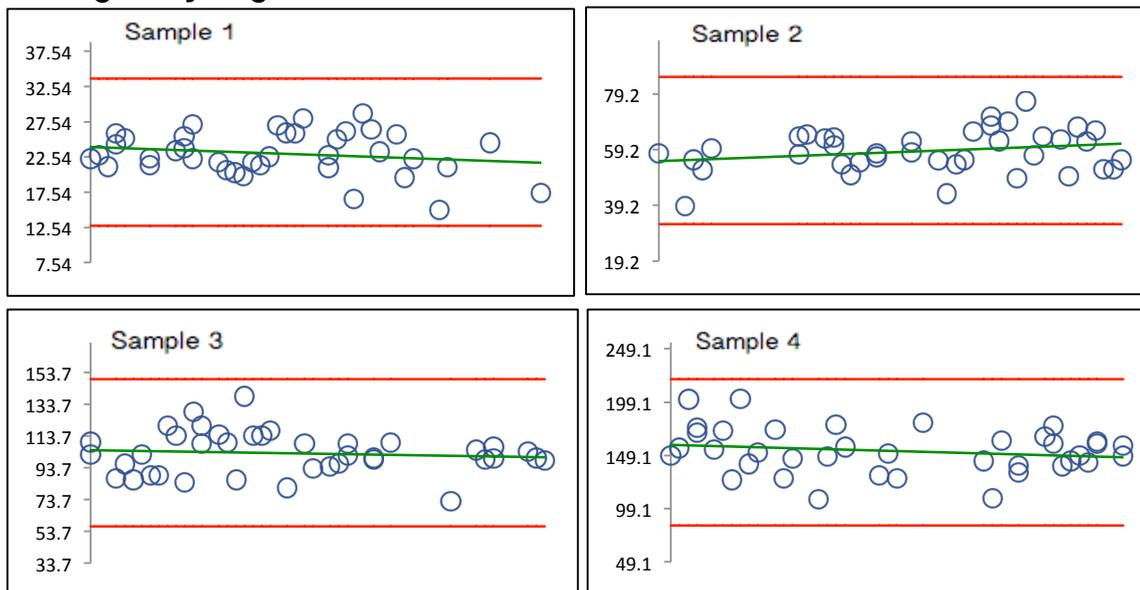
Reported results (Y-axis) plotted against bottling order (X-axis).

1,1,2,2-TETRACHLOROETHANE
Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	37	37	37	37
Median	22.5	55.9	98.8	152
Robust Mean	22.9	56.4	101	152
U	0.438	1.30	2.86	4.23
Robust Standard Deviation	2.13	6.32	13.9	20.6
Regression Standard Deviation	4.00	9.86	17.7	26.6
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.00	9.86	17.7	26.6
Outliers	0	0	0	0
|z|>3.0	1	1	1	1
2<|z|<3	1	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	11	11	11	11
GC/MSE	6	6	6	6

All summary stats and the plots below are based on the data excluding any flagged outliers
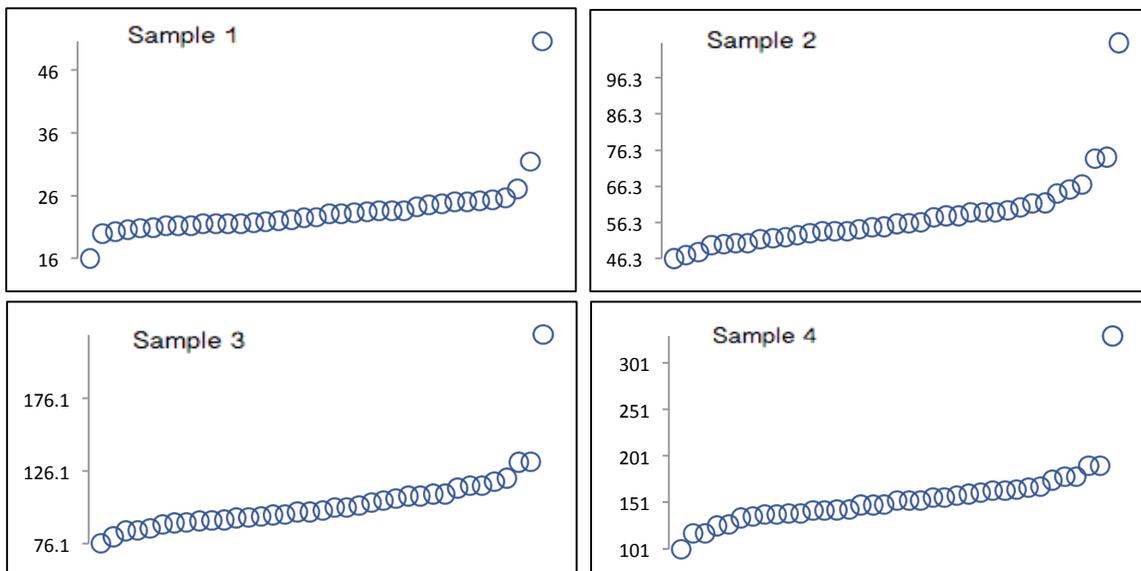
1,1,2,2-TETRACHLOROETHANE

z-Score Plots
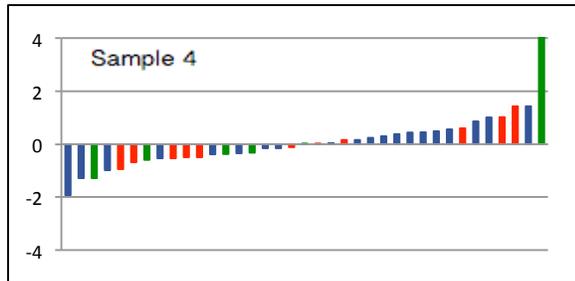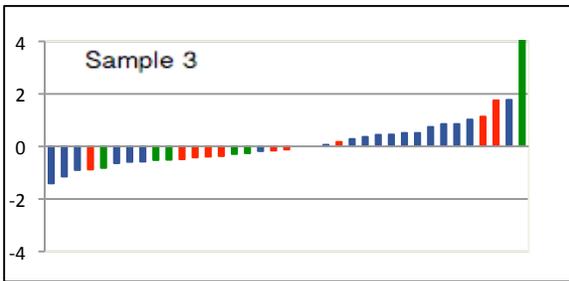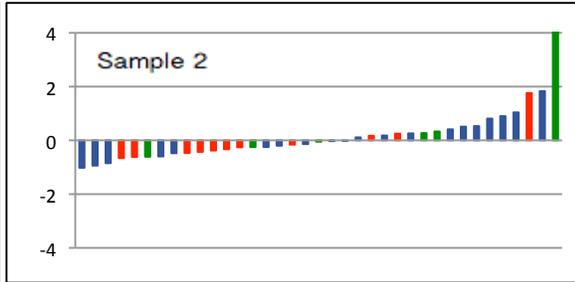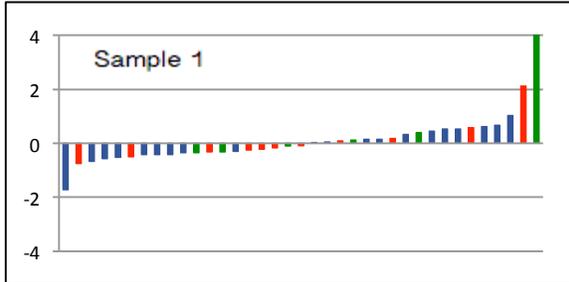
## Kernel Density Plots
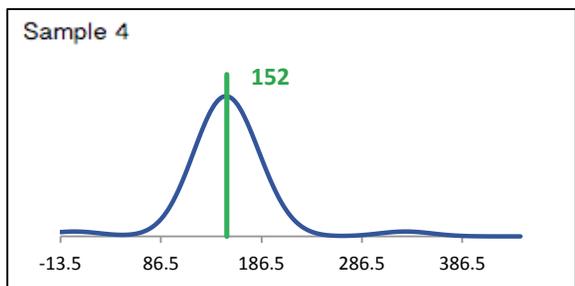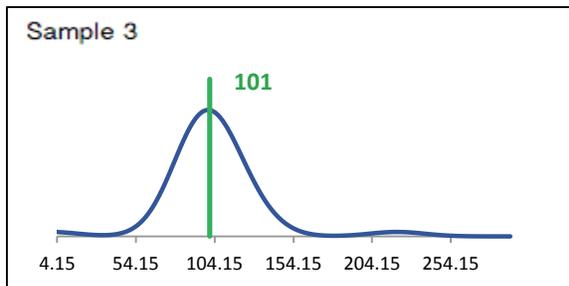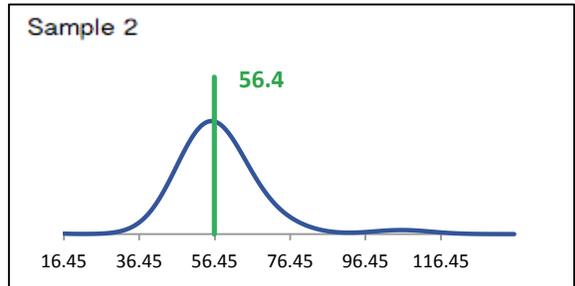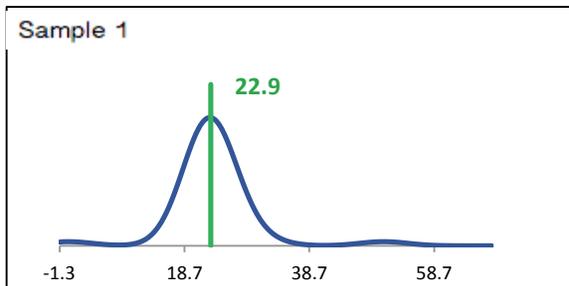
1,1,2,2-TETRACHLOROETHANE

Stability Regression
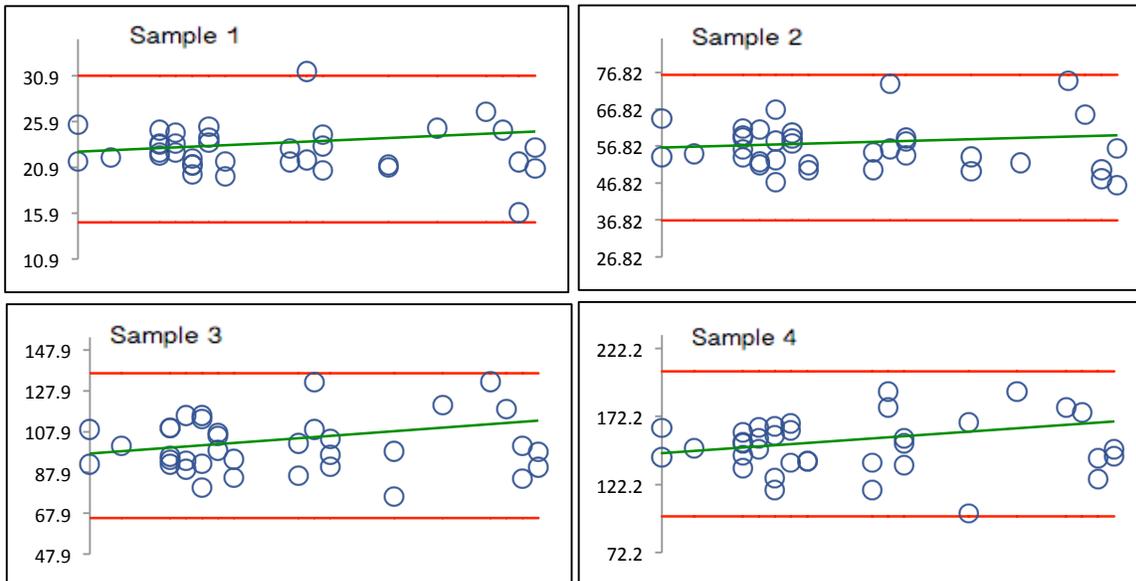
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
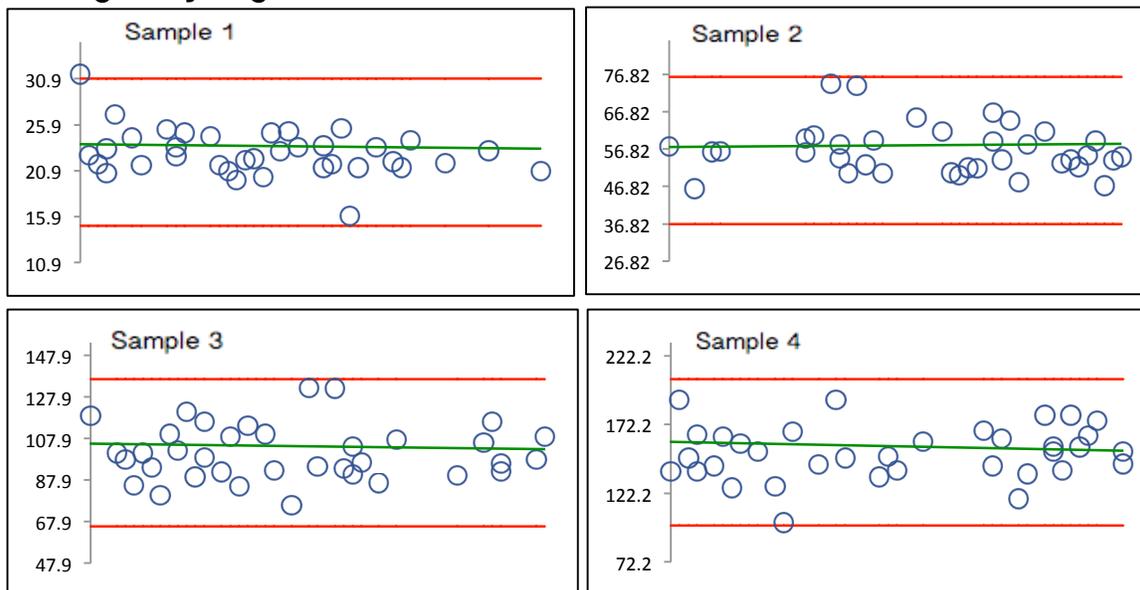
Reported results (Y-axis) plotted against bottling order (X-axis).

1,1,2-TRICHLOROETHANE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	23.1	56.5	101	151
Robust Mean	23.3	56.7	101	155
U	0.274	0.93	2.14	3.24
Robust Standard Deviation	1.37	4.66	10.7	16.2
Regression Standard Deviation	4.08	9.93	17.7	27.1
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.08	9.93	17.7	27.1
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	1	0	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	13	13	13	13
GC/MSE	6	6	6	6

All summary stats and the plots below are based on the data excluding any flagged outliers
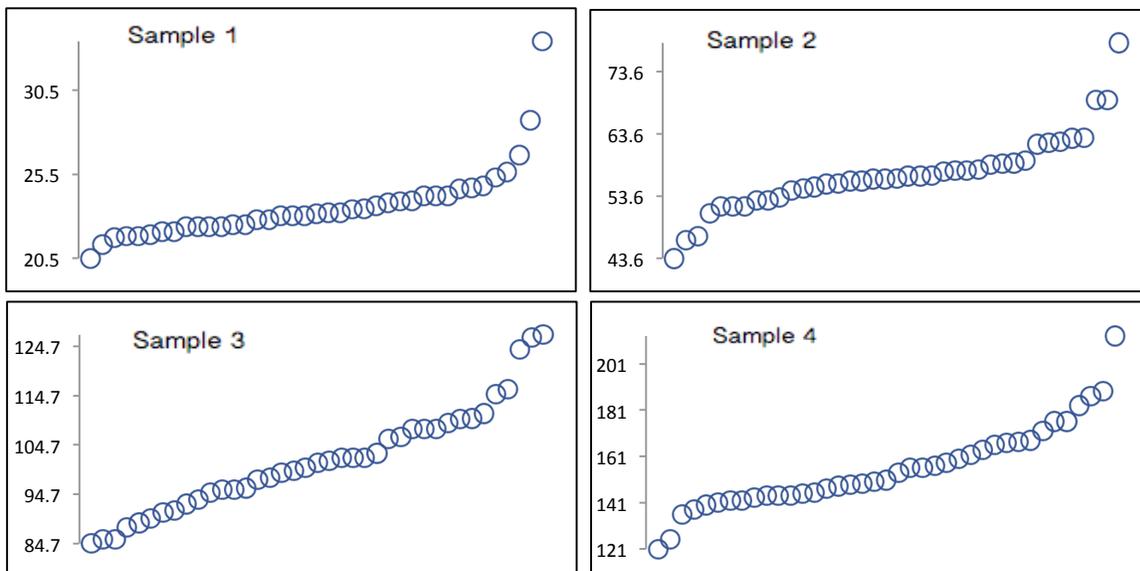
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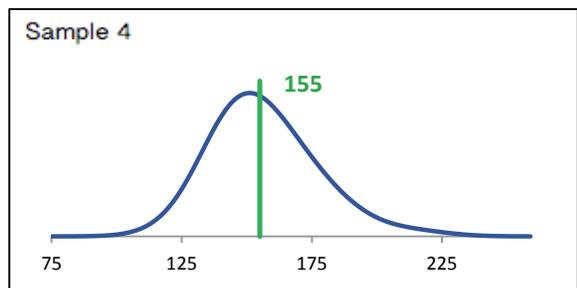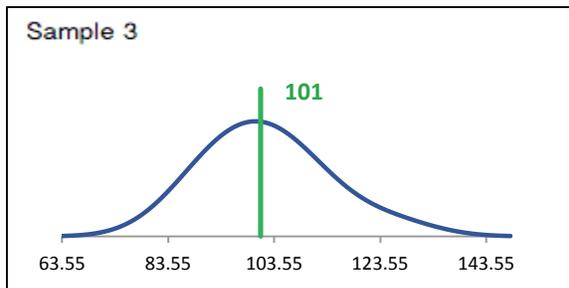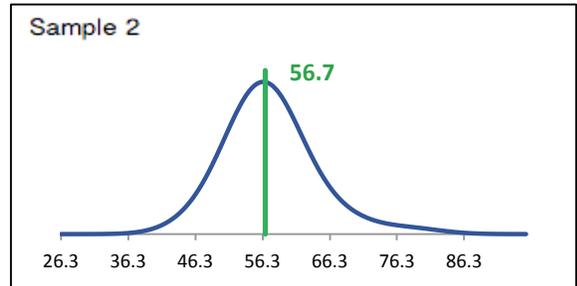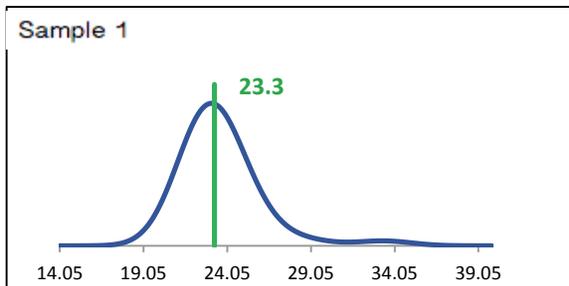
z-Score Plots

## Kernel Density Plots

1,1,2-TRICHLOROETHANE
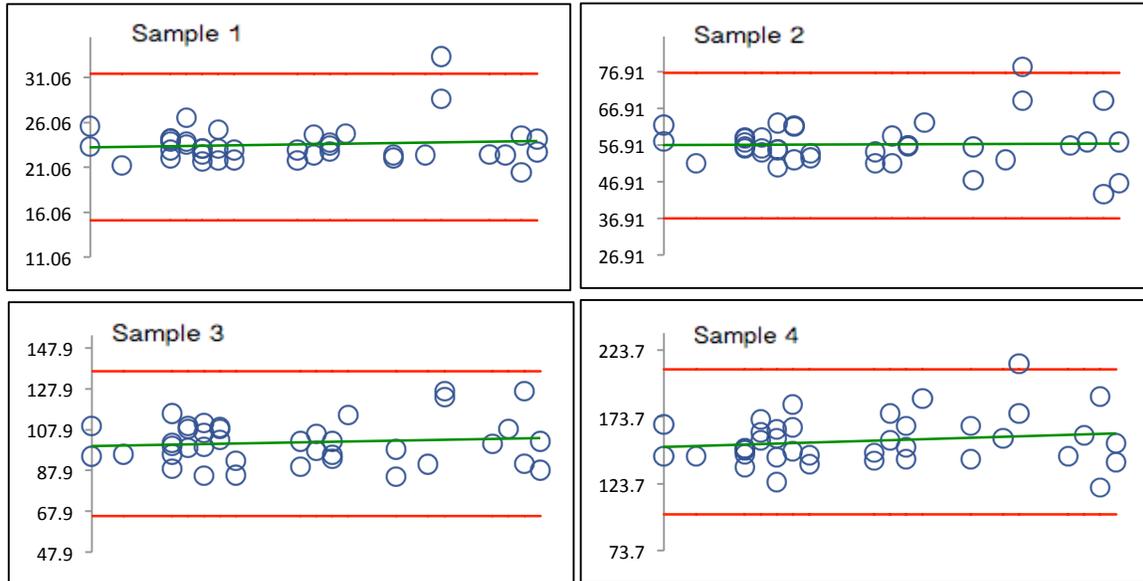
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
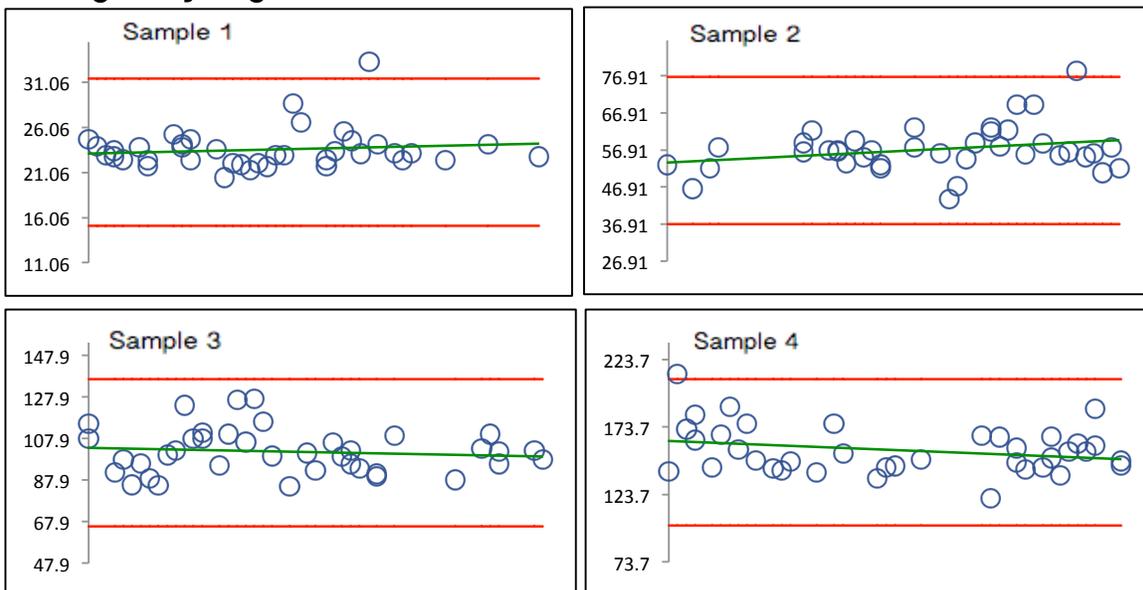
Reported results (Y-axis) plotted against bottling order (X-axis).

1,1-DICHLOROETHANE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	15.8	37.6	65.9	102
Robust Mean	15.9	38.2	66.8	101
U	0.352	0.87	1.38	2.60
Robust Standard Deviation	1.76	4.35	6.88	13.0
Regression Standard Deviation	3.18	7.64	13.4	20.3
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	3.18	7.64	13.4	20.3
Outliers	0	0	0	0
|z|>3.0	0	1	1	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	13	13	13	13
GC/MSE	6	6	6	6

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

Sample 1

Sample 2

Sample 3

Sample 4
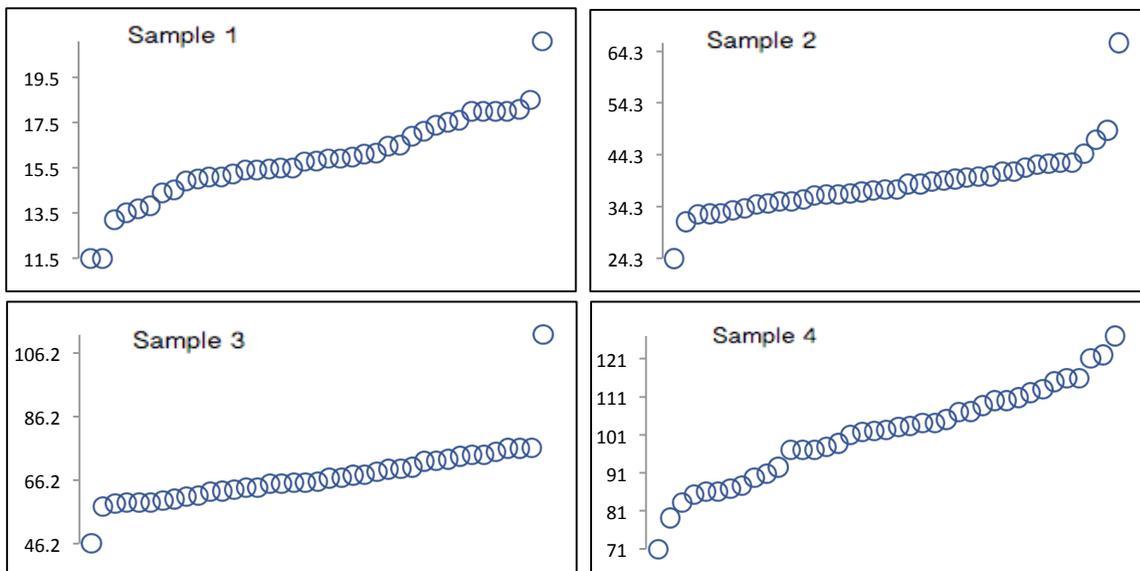
1,1-DICHLOROETHANE

z-Score Plots

Kernel Density Plots

1,1-DICHLOROETHANE

Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression

Reported results (Y-axis) plotted against bottling order (X-axis).

1,1-DICHLOROETHYLENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	40	40	40	40
Median	24.1	54.1	96.2	160
Robust Mean	24.3	56.6	99.4	162
U	0.656	1.56	3.34	5.53
Robust Standard Deviation	3.32	7.87	16.9	28.0
Regression Standard Deviation	4.86	11.3	19.9	32.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.86	11.3	19.9	32.5
Outliers	0	0	0	0
|z|>3.0	1	2	2	2
2<|z|<3	1	1	1	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	14	14	14	14
P/T-GCMS	20	20	20	20
GC/MSE	6	6	6	6

All summary stats and the plots below are based on the data excluding any flagged outliers
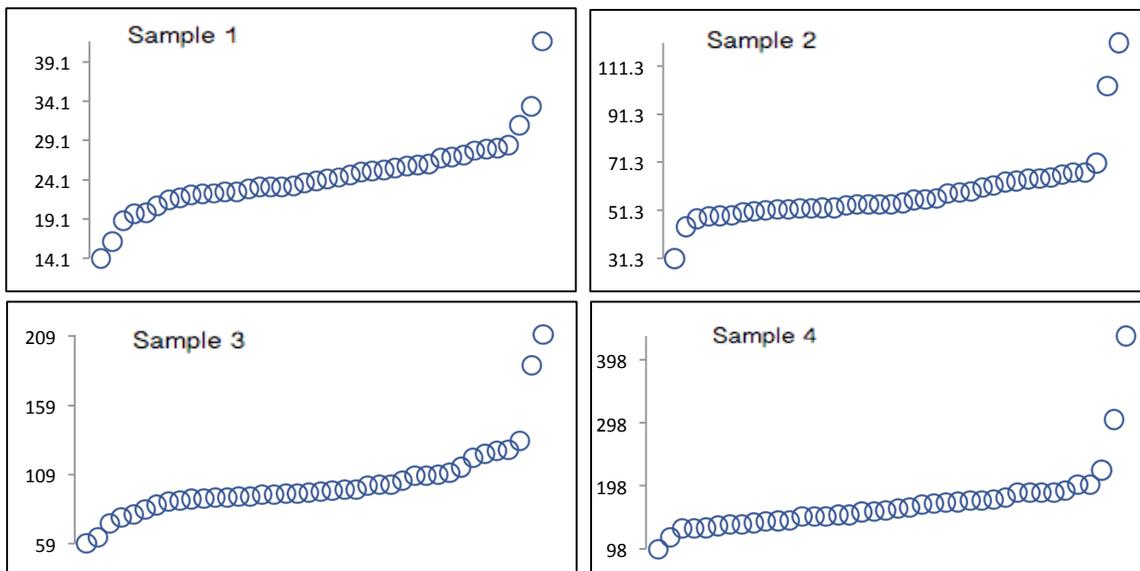
1,1-DICHLOROETHYLENE
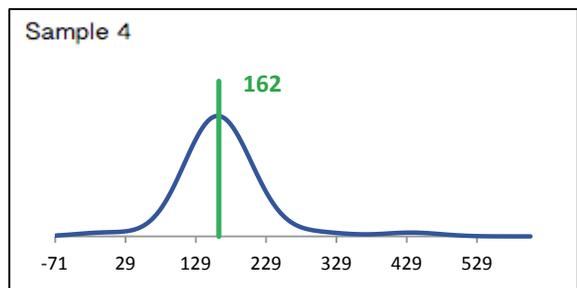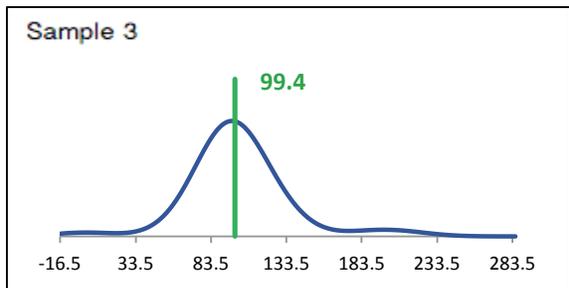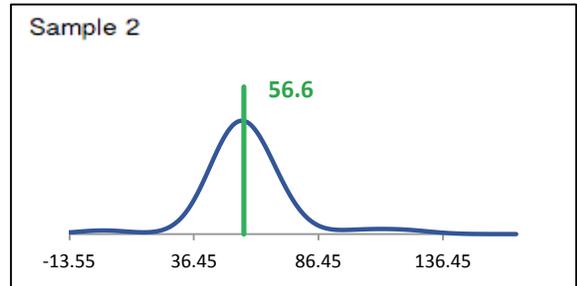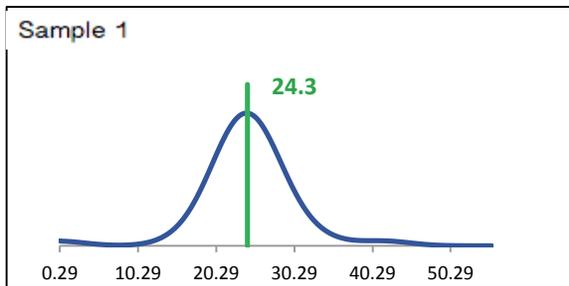
z-Score Plots


Kernel Density Plots

1,1-DICHLOROETHYLENE
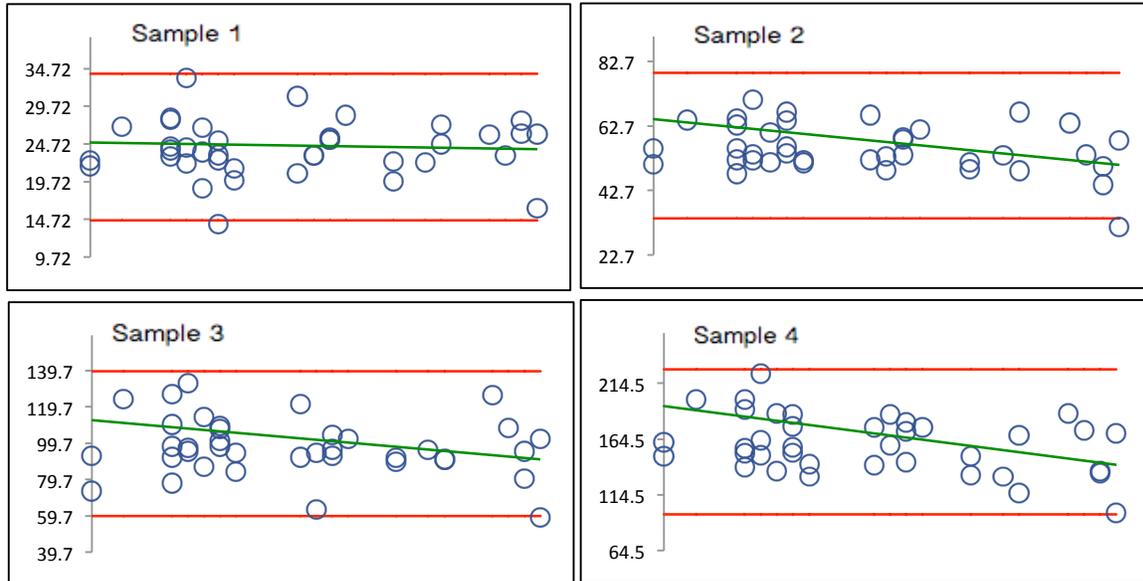
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
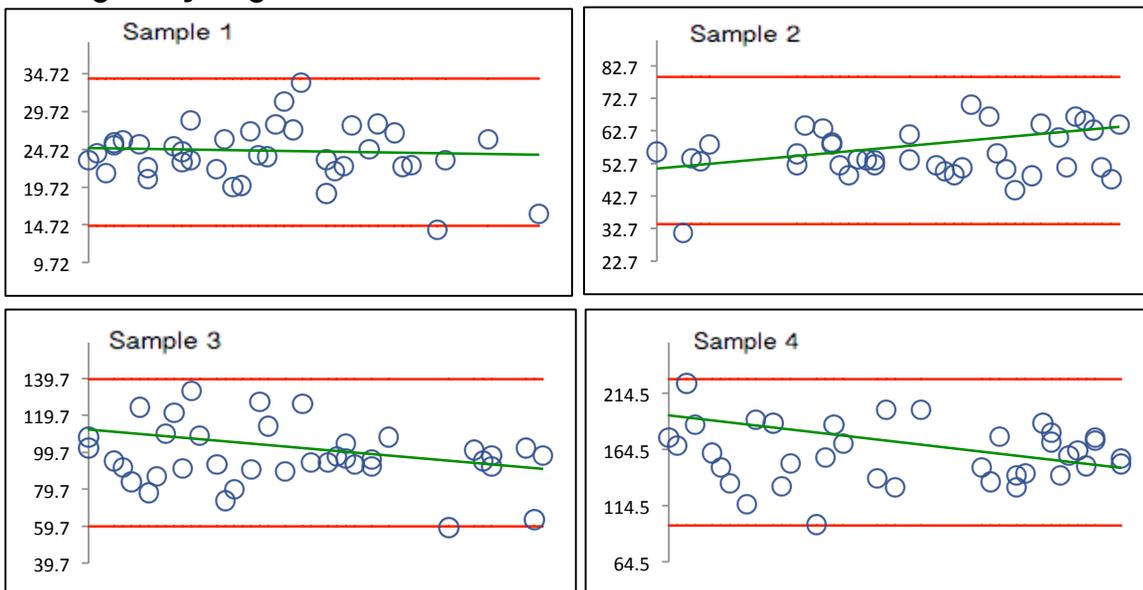
Reported results (Y-axis) plotted against bottling order (X-axis).

1,2-DICHLOROBENZENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	38	39	39	39
Median	23.1	54.0	99.5	161
Robust Mean	23.2	54.9	99.5	161
U	0.519	1.27	2.58	4.44
Robust Standard Deviation	2.56	6.35	12.9	22.2
Regression Standard Deviation	4.05	9.6	17.4	28.1
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.05	9.60	17.4	28.1
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	1	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	20	20	20
GC/MSE	6	6	6	6
HS-GCMS	13	13	13	13

All summary stats and the plots below are based on the data excluding any flagged outliers
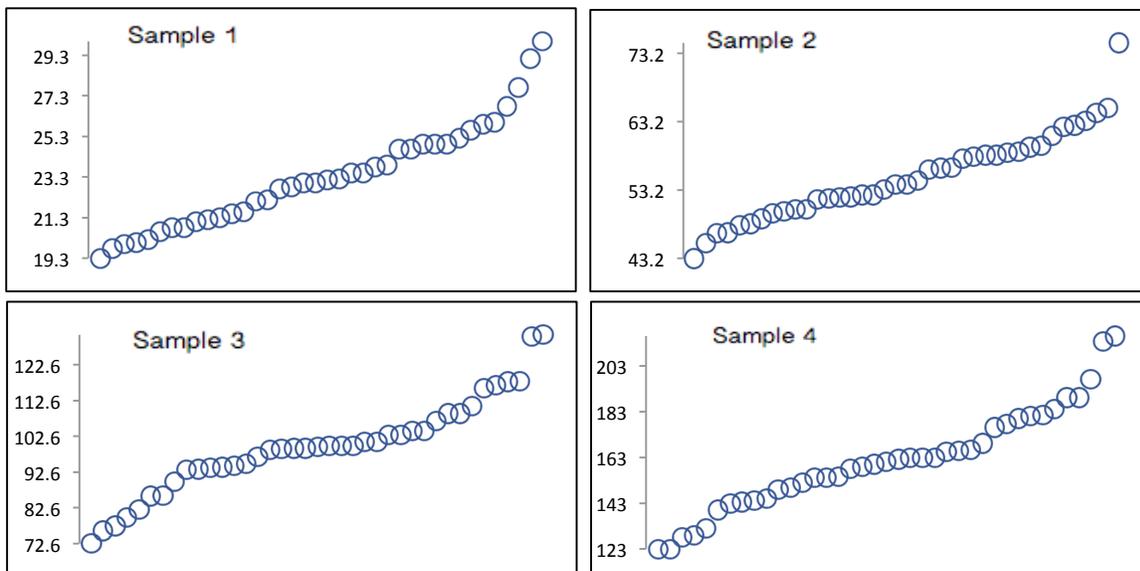
1,2-DICHLOROBENZENE
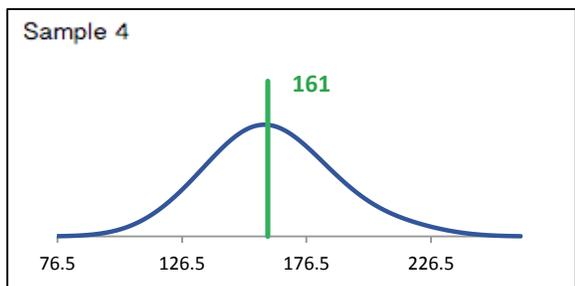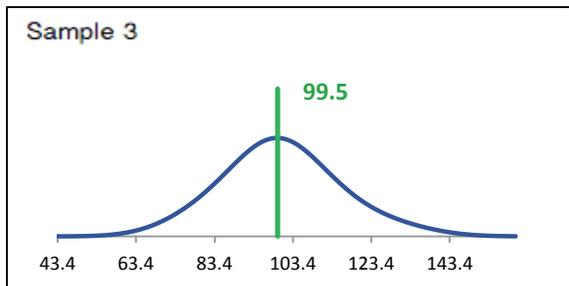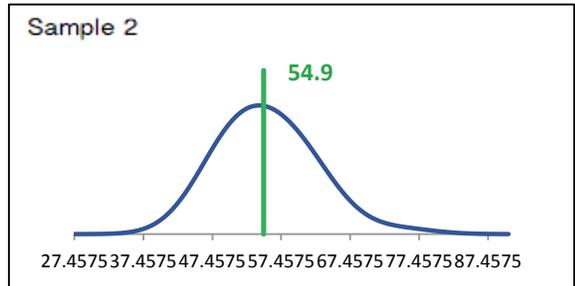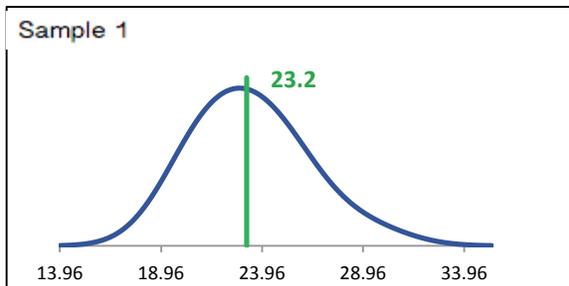
z-Score Plots

Kernel Density Plots

1,2-DICHLOROBENZENE
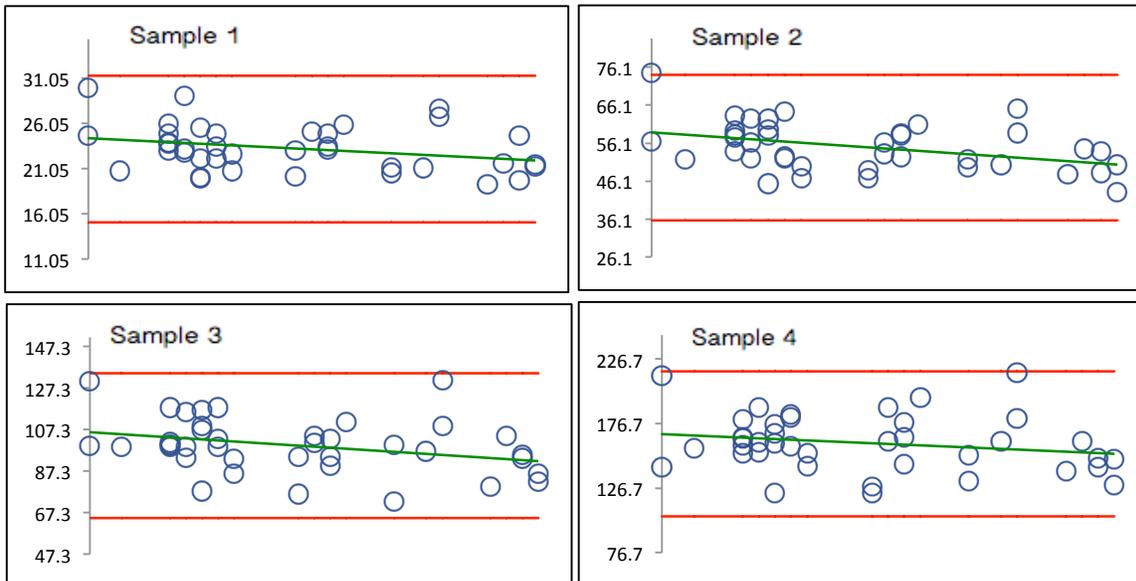
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
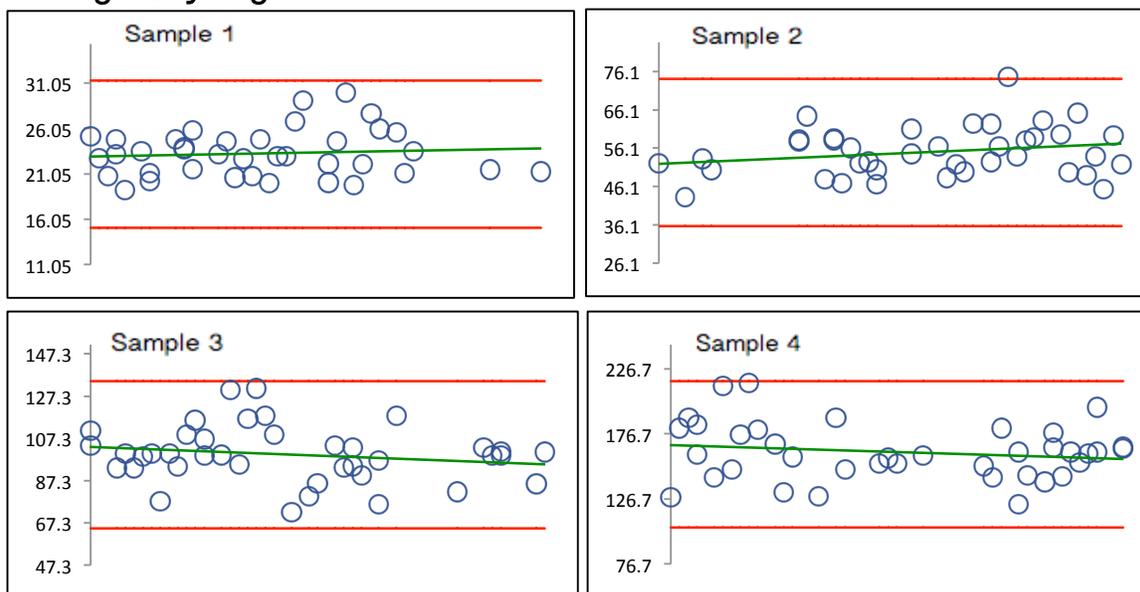
Reported results (Y-axis) plotted against bottling order (X-axis).

1,2-DICHLOROETHANE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	23.9	56.6	101	156
Robust Mean	23.8	56.6	100	157
U	0.420	1.20	2.32	3.72
Robust Standard Deviation	2.10	5.98	11.6	18.6
Regression Standard Deviation	4.17	9.91	17.5	27.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.17	9.91	17.5	27.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	14	14	14	14
P/T-GCMS	20	20	20	20
GC/MSE	5	5	5	5

All summary stats and the plots below are based on the data excluding any flagged outliers
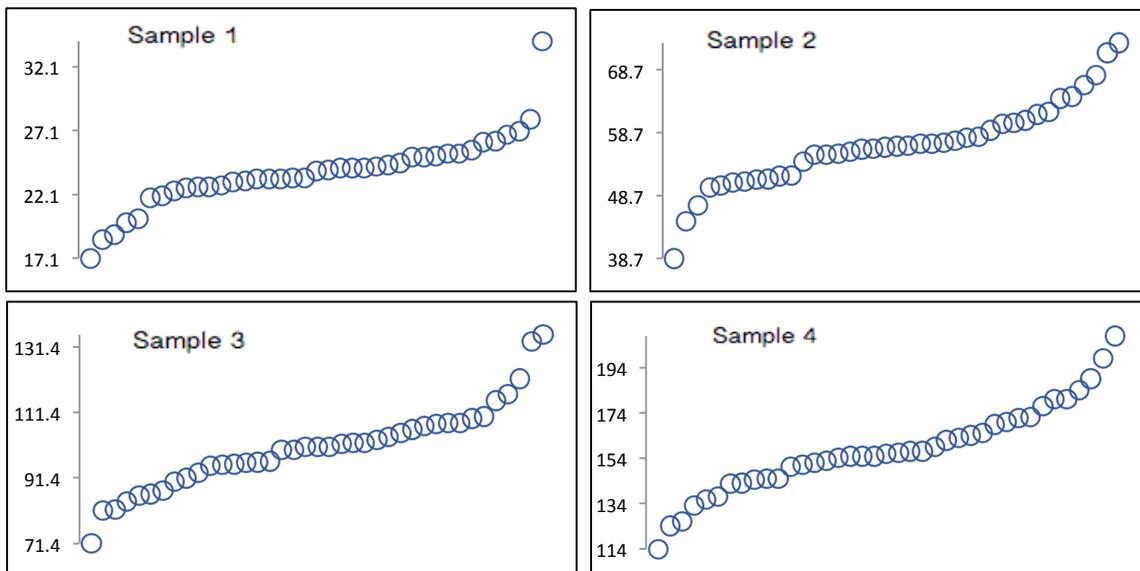
1,2-DICHLOROETHANE

z-Score Plots

Kernel Density Plots

1,2-DICHLOROETHANE
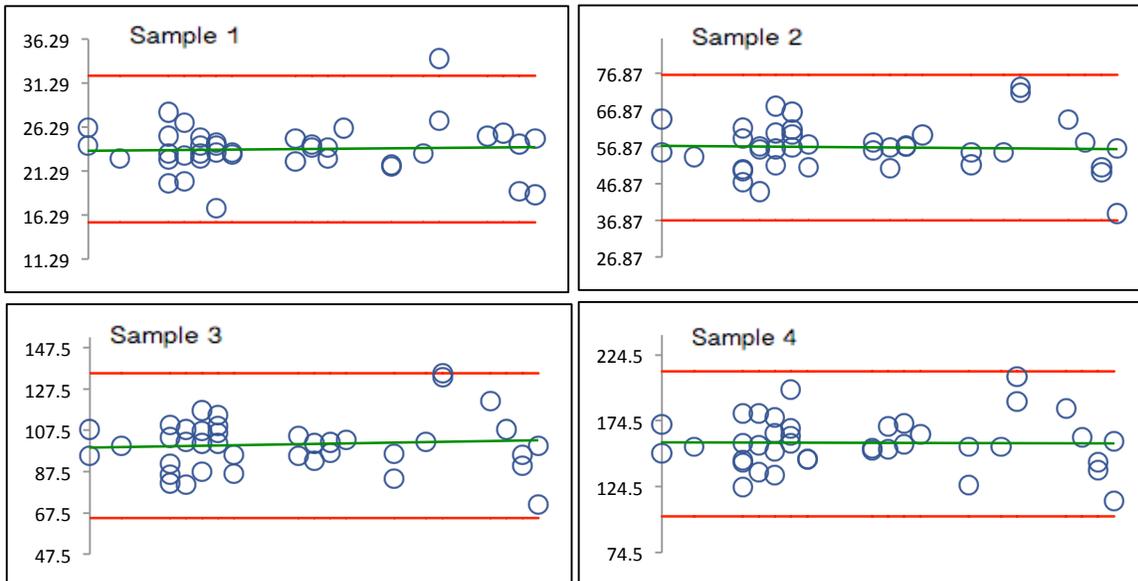
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
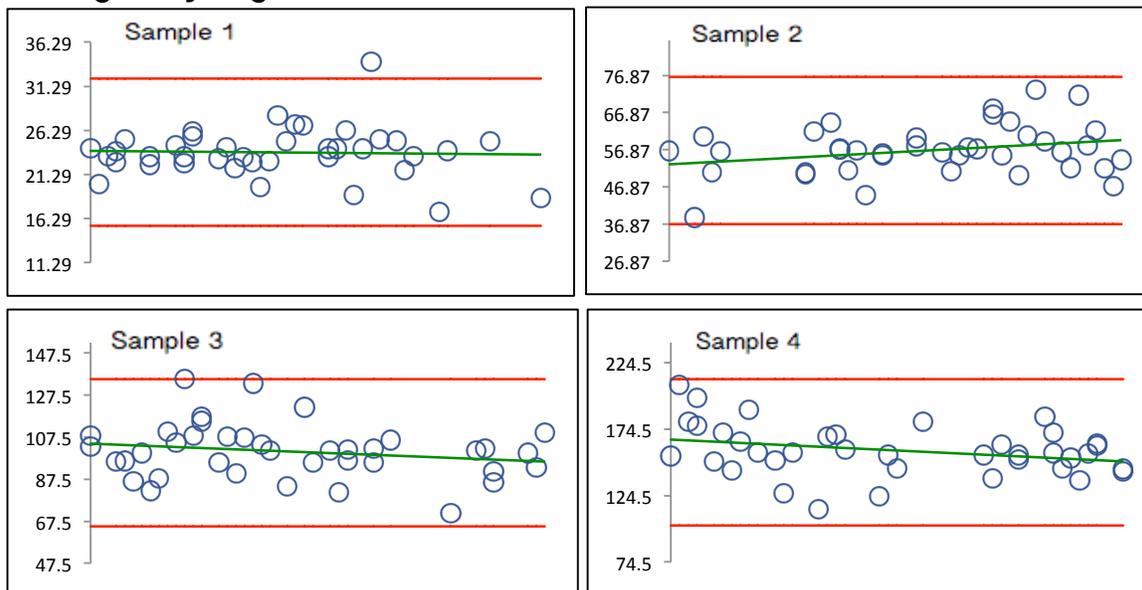
Reported results (Y-axis) plotted against bottling order (X-axis).

1,2-DICHLOROPROPANE
Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	38	38	38	38
Median	23.9	60.0	106	155
Robust Mean	23.7	59.4	104	155
U	0.434	1.06	2.05	3.91
Robust Standard Deviation	2.14	5.23	10.1	19.3
Regression Standard Deviation	4.15	10.4	18.2	27.1
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.15	10.4	18.2	27.1
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	1	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	12	12	12	12
GC/MSE	6	6	6	6

All summary stats and the plots below are based on the data excluding any flagged outliers
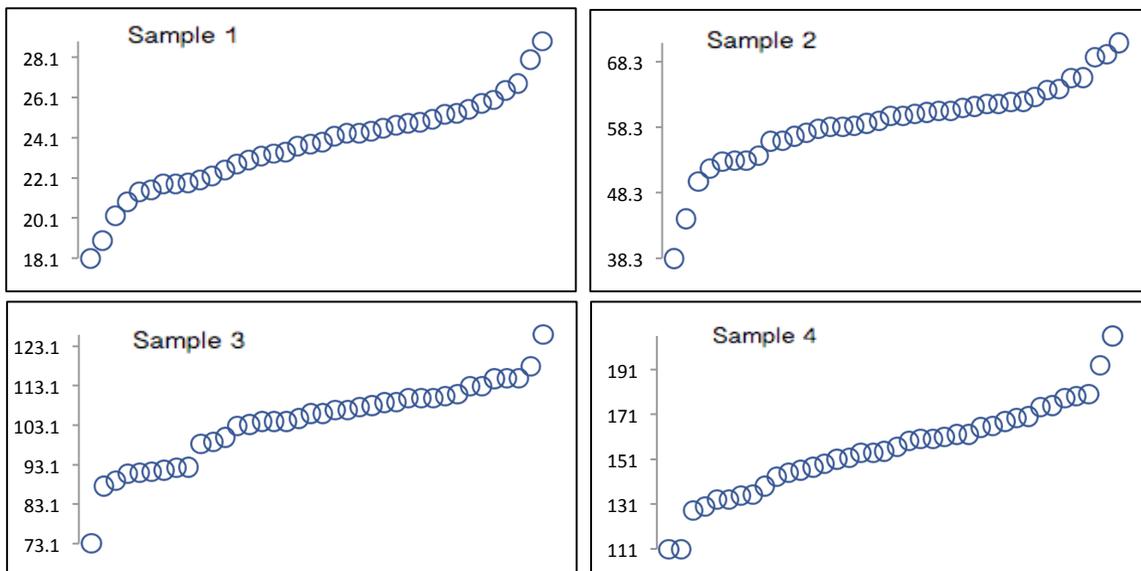
1,2-DICHLOROPROPANE

z-Score Plots
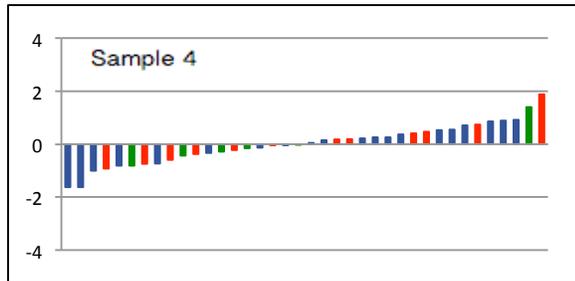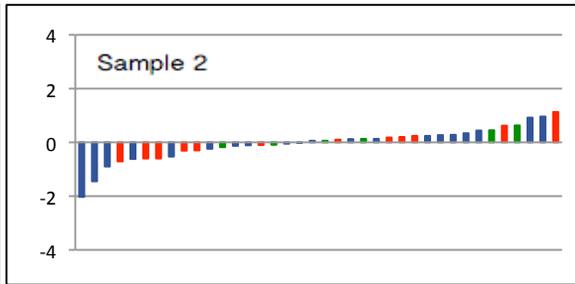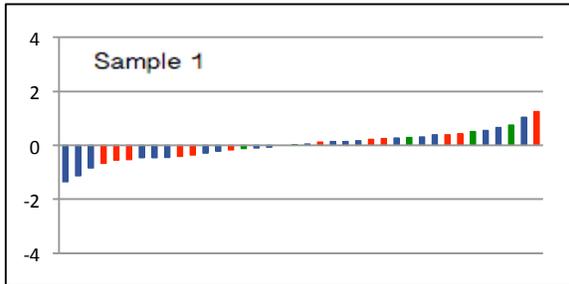
## Kernel Density Plots
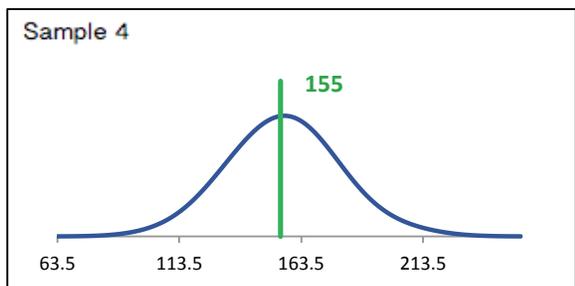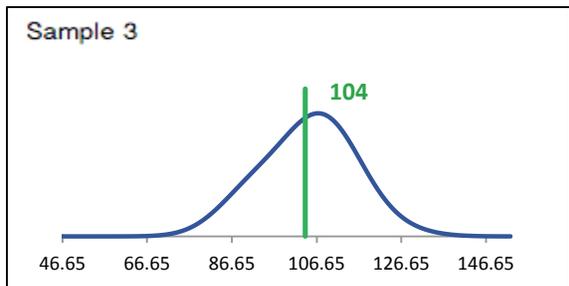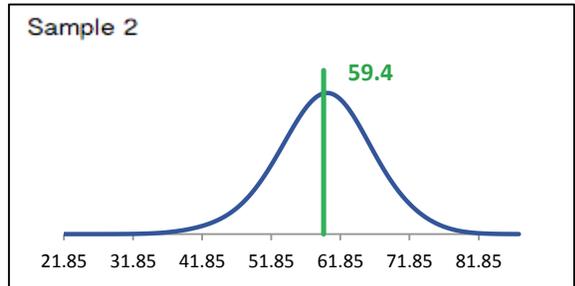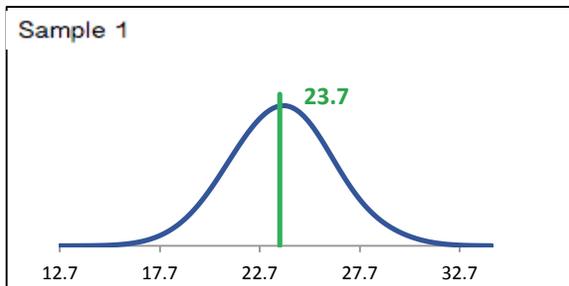
1,2-DICHLOROPROPANE

Stability Regression
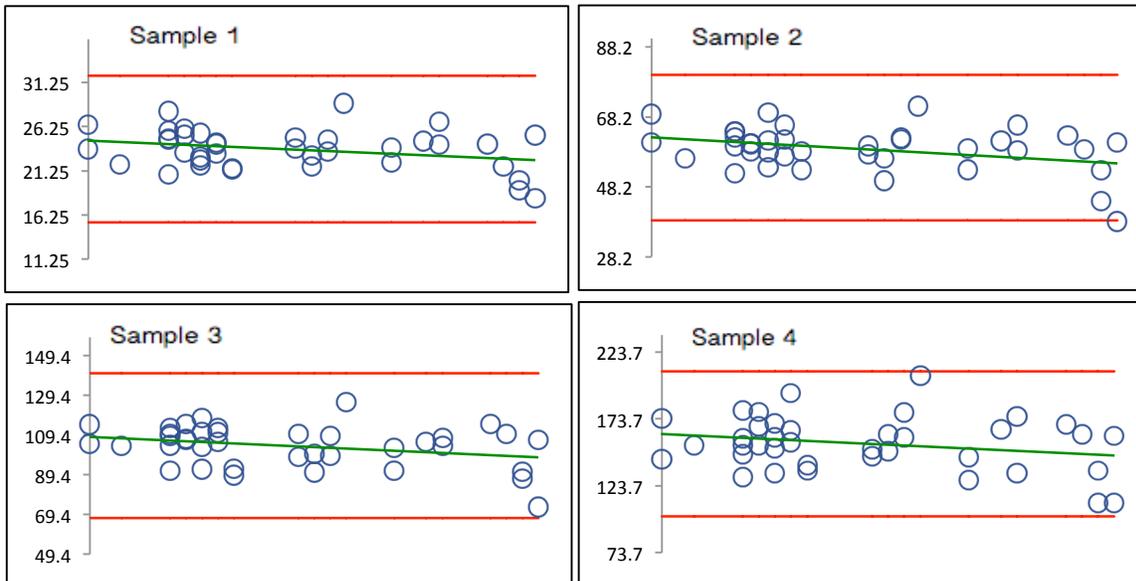
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
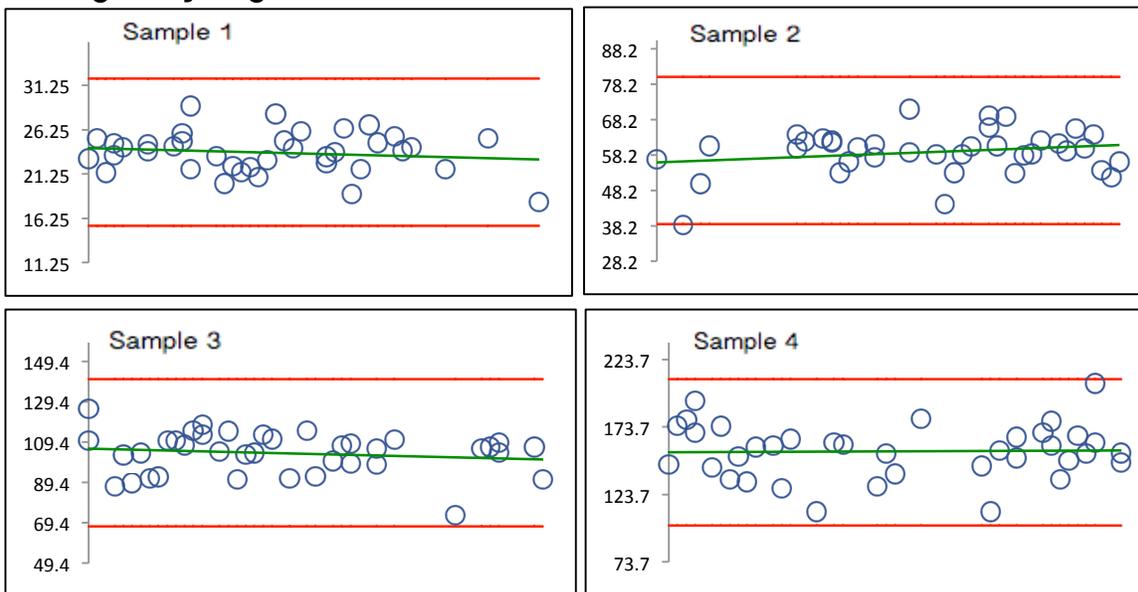
Reported results (Y-axis) plotted against bottling order (X-axis).

1,3-DICHLOROBENZENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	23.1	54.5	98.7	144
Robust Mean	22.5	55.0	98.3	147
U	0.590	1.54	2.98	4.48
Robust Standard Deviation	2.95	7.69	14.9	22.4
Regression Standard Deviation	3.94	9.63	17.2	25.7
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	3.94	9.63	17.2	25.7
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	1	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	13	13	13	13
P/T-GCMS	20	20	20	20
GC/MSE	6	6	6	6

All summary stats and the plots below are based on the data excluding any flagged outliers
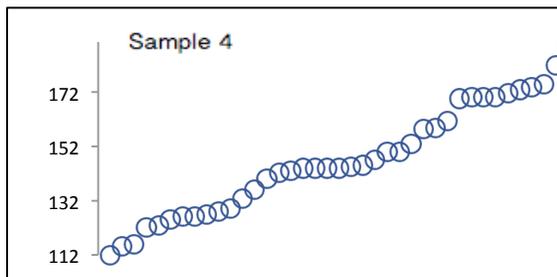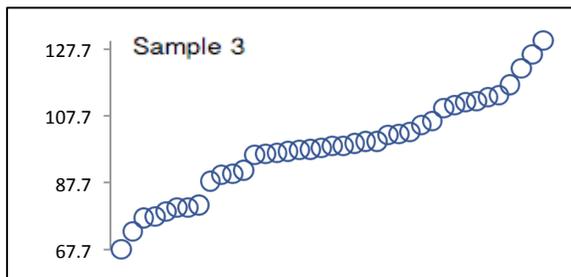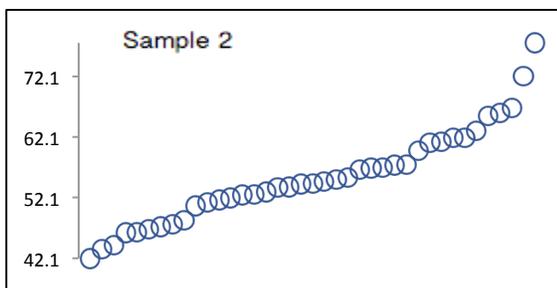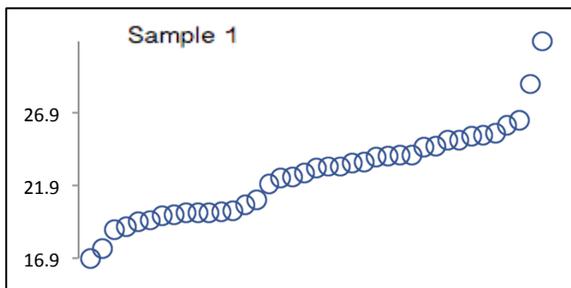
1,3-DICHLOROBENZENE
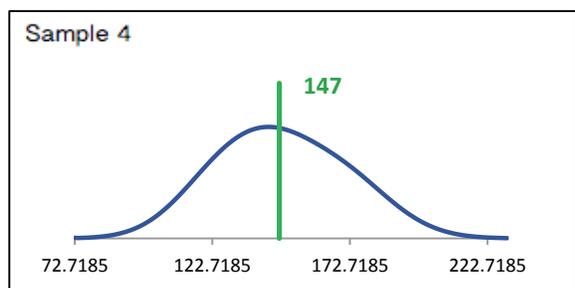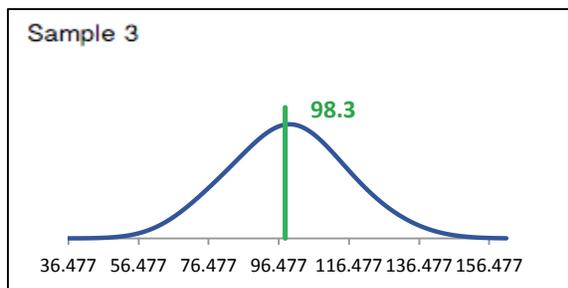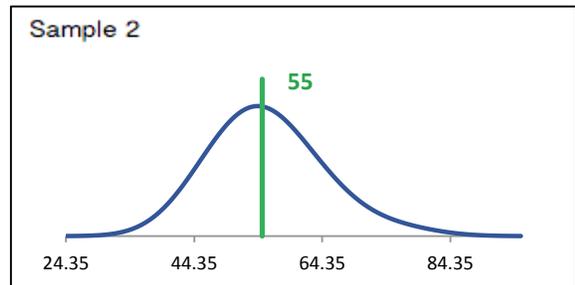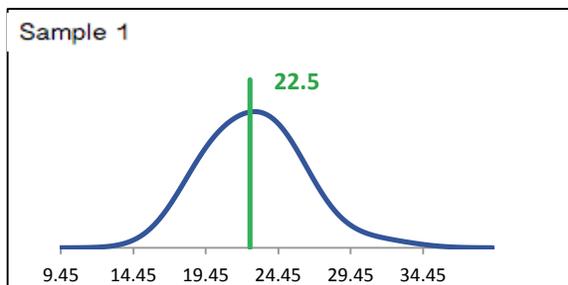
z-Score Plots

## Kernel Density Plots

1,3-DICHLOROBENZENE
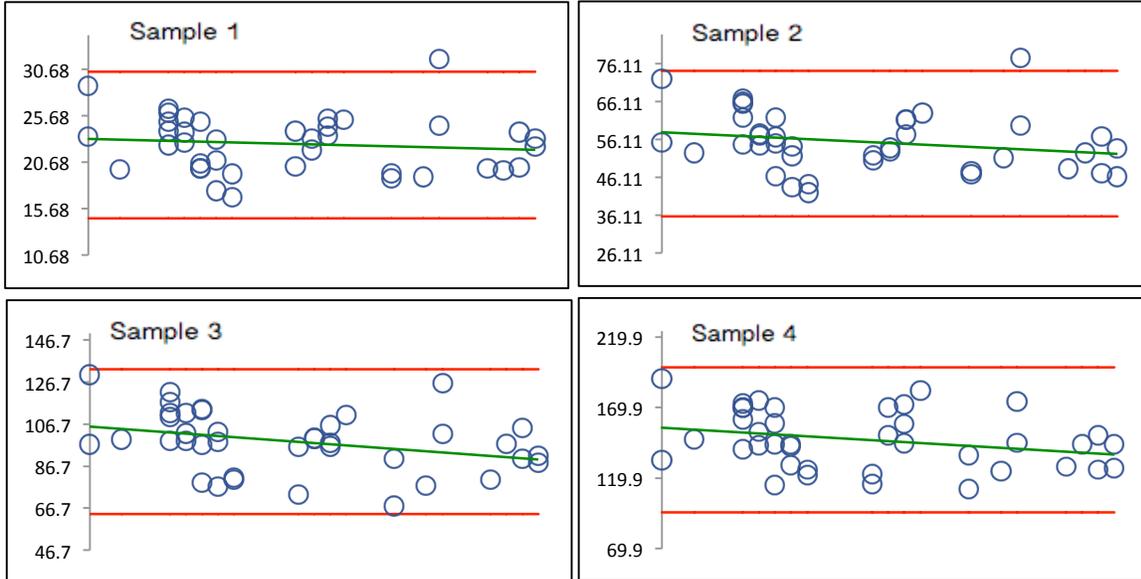
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
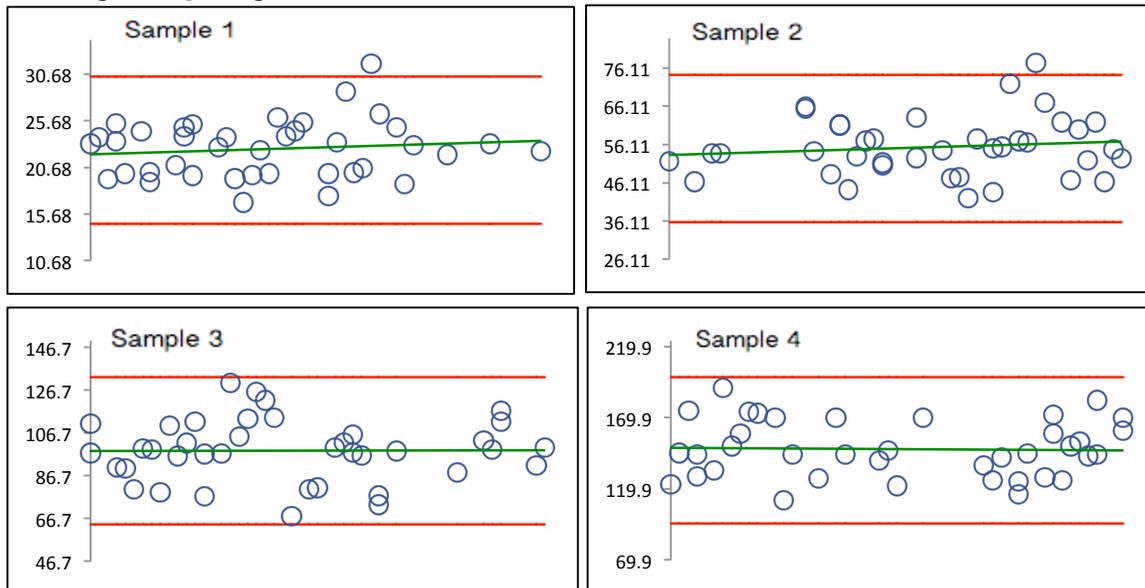
Reported results (Y-axis) plotted against bottling order (X-axis).

1,4-DICHLOROBENZENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	38	39	39	39
Median	24.2	57.1	103	153
Robust Mean	24.3	56.9	104	157
U	0.580	1.39	2.56	4.28
Robust Standard Deviation	2.86	6.96	12.8	21.4
Regression Standard Deviation	4.25	9.96	18.2	27.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.25	9.96	18.2	27.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	1	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	13	13	13	13
P/T-GCMS	19	20	20	20
GC/MSE	6	6	6	6

All summary stats and the plots below are based on the data excluding any flagged outliers
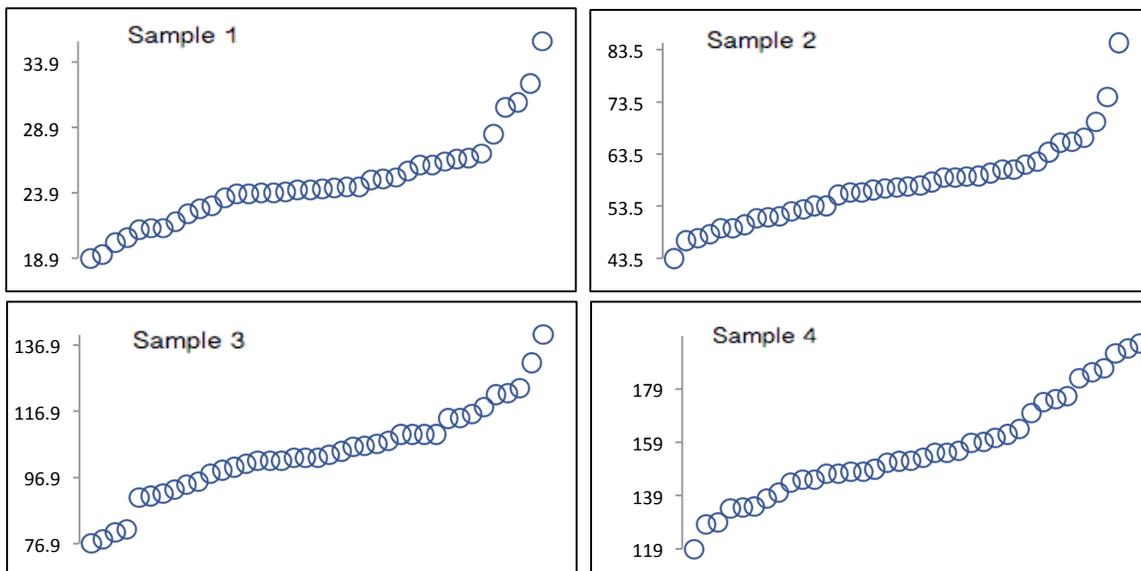
1,4-DICHLOROBENZENE
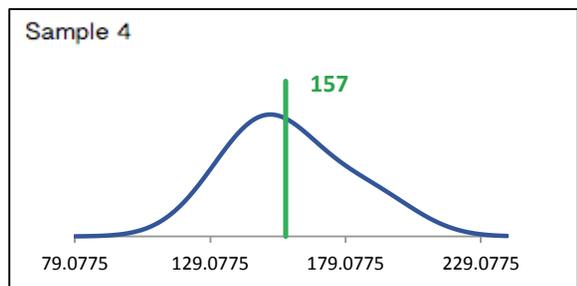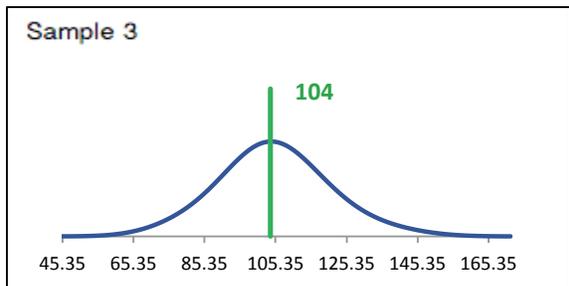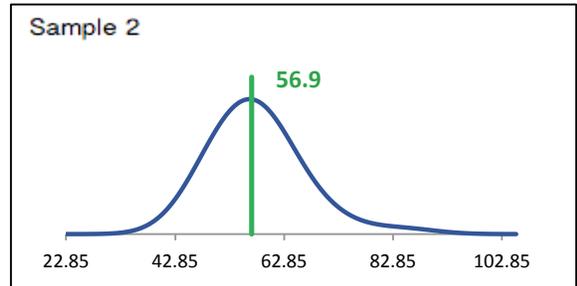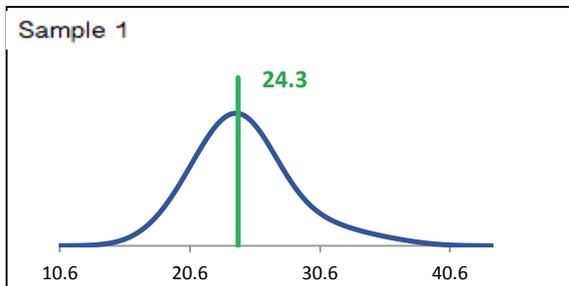
z-Score Plots

Kernel Density Plots

1,4-DICHLOROBENZENE
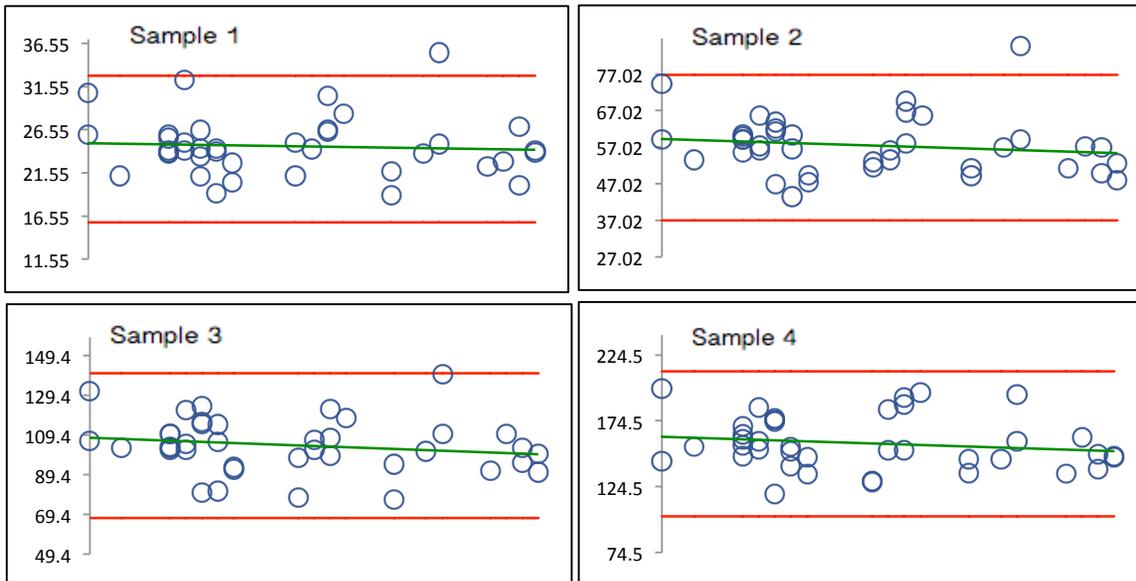
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
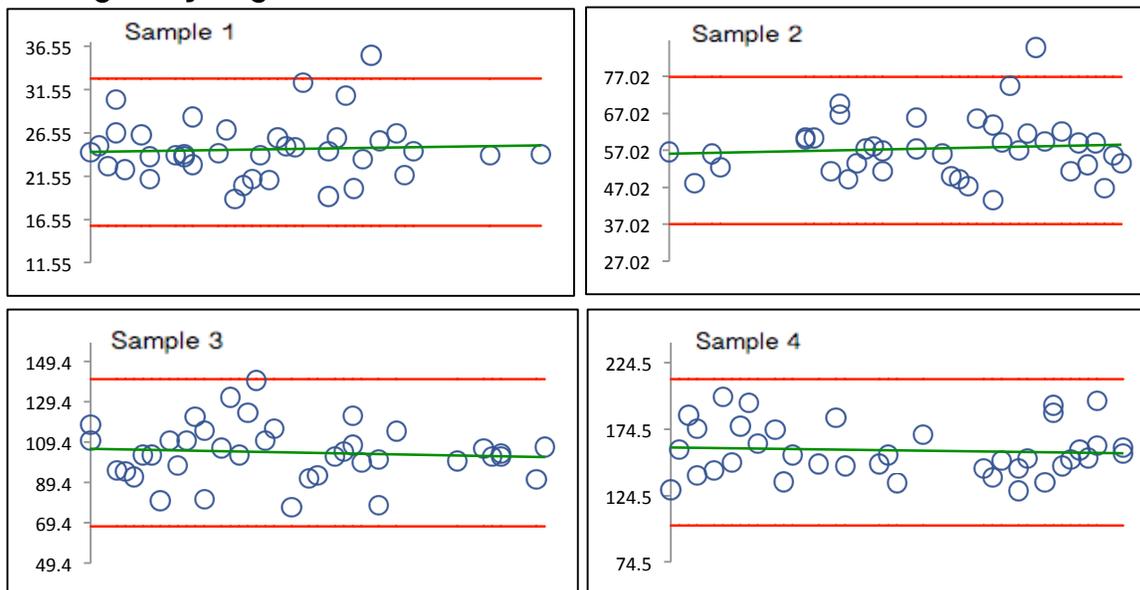
Reported results (Y-axis) plotted against bottling order (X-axis).

## ACETONE (2-PROPANONE)

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	30	30	30	30
Median	25.3	57.4	102	148
Robust Mean	25.8	58.3	104	152
U	1.020	2.44	4.15	6.48
Robust Standard Deviation	4.49	10.7	18.2	28.4
Regression Standard Deviation	6.47	13.1	22.4	32.2
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	6.47	13.1	22.4	32.2
Outliers	0	0	0	0
|z|>3.0	0	1	0	0
2<|z|<3	2	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	17	17	17	17
GC/MSE	3	3	3	3
HS-GCMS	10	10	10	10

All summary stats and the plots below are based on the data excluding any flagged outliers
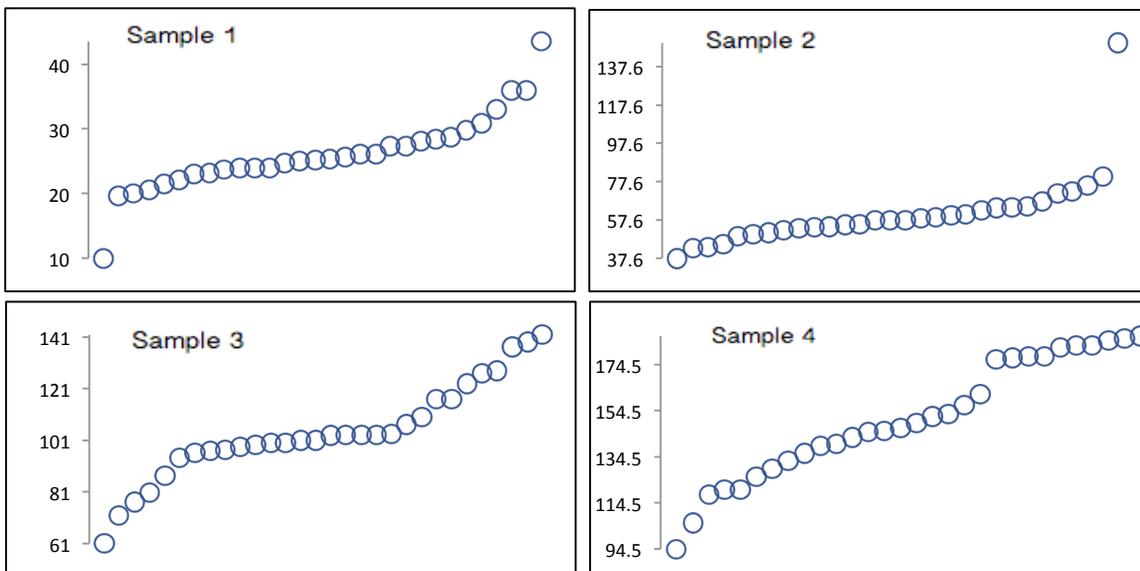
ACETONE (2-PROPANONE)

z-Score Plots
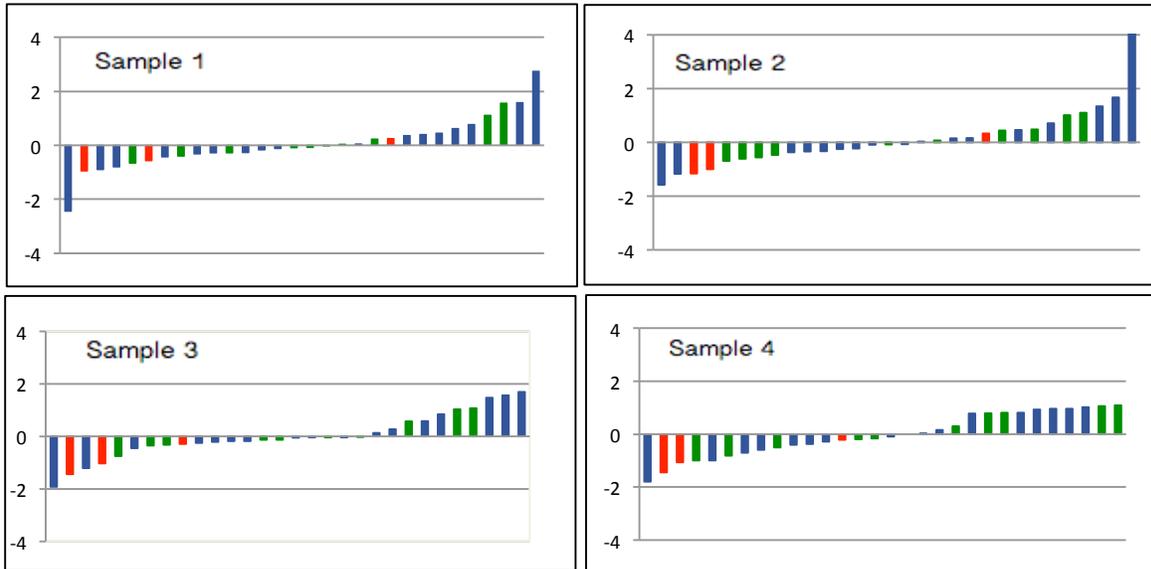

Kernel Density Plots
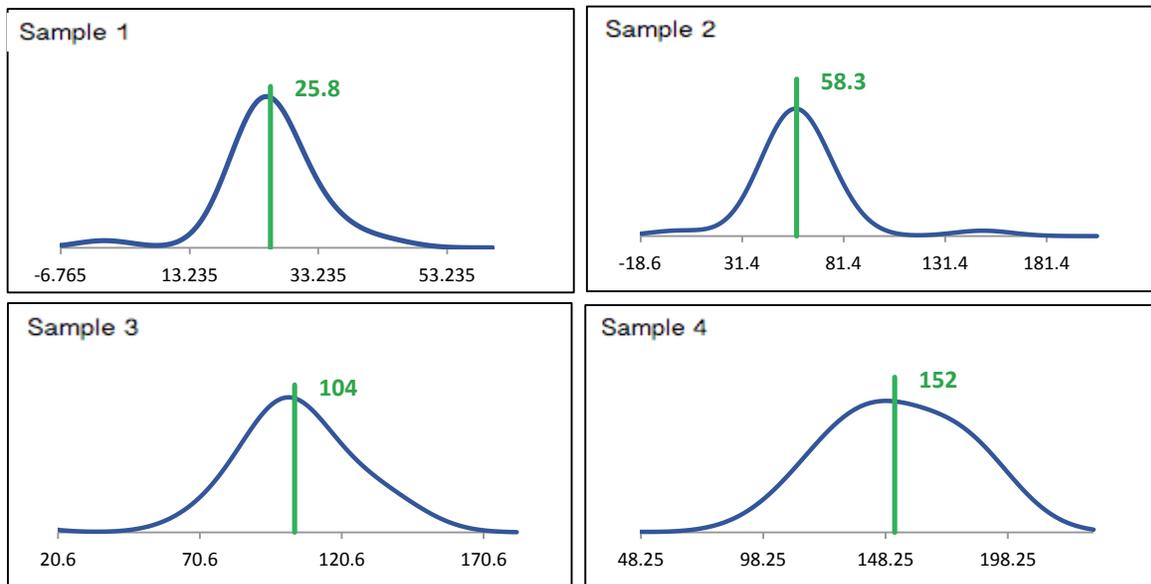
ACETONE (2-PROPANONE)

Stability Regression
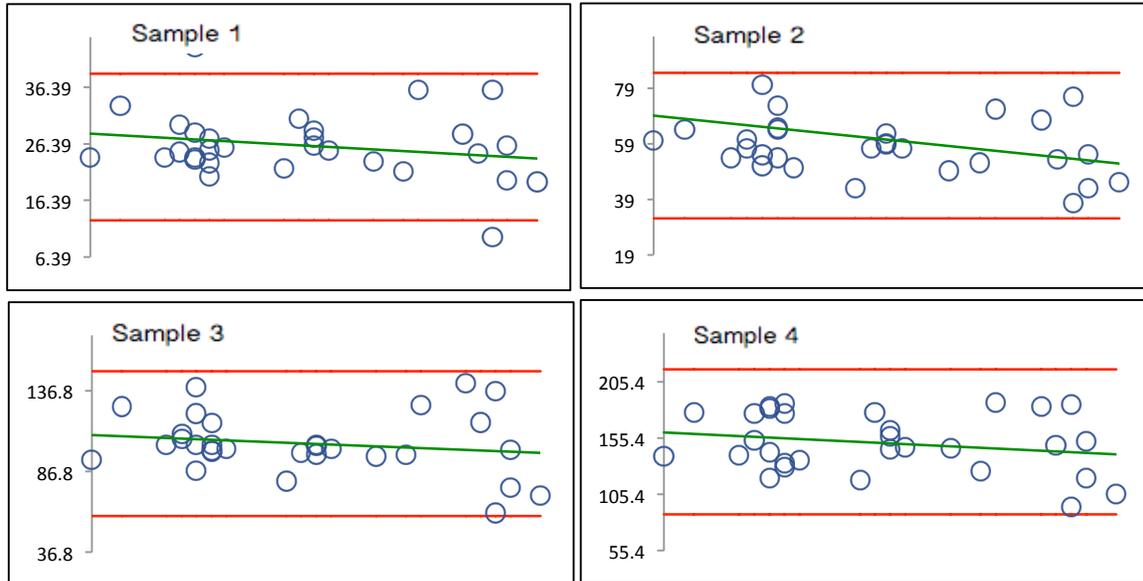
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
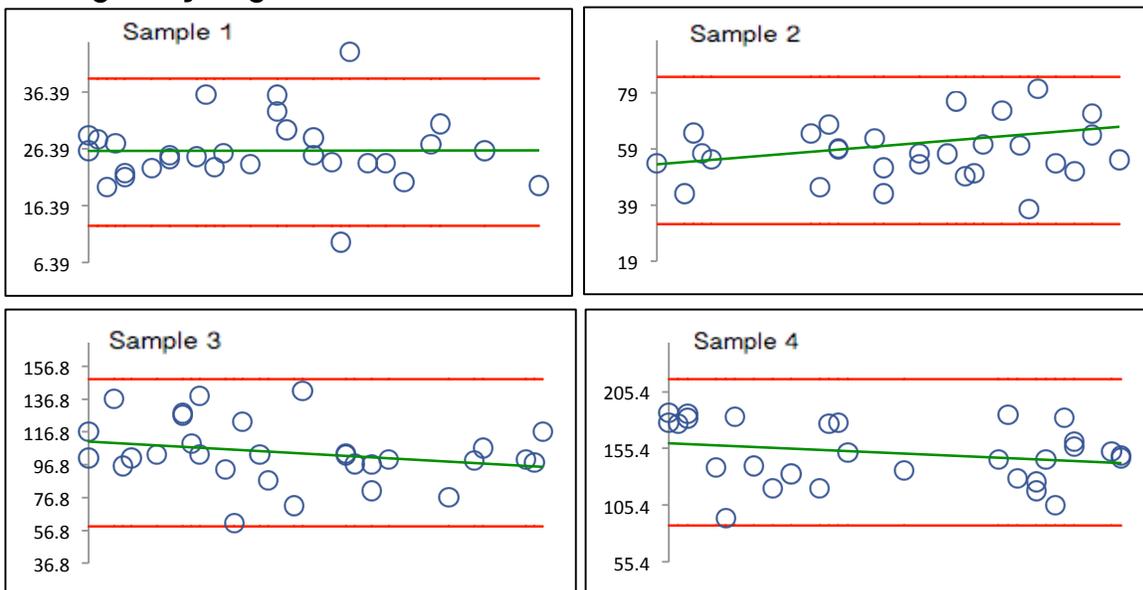
Reported results (Y-axis) plotted against bottling order (X-axis).

BENZENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	36	36	36	36
Median	24.3	56.5	99.4	155
Robust Mean	24.1	57.1	101	156
U	0.542	1.35	2.38	4.38
Robust Standard Deviation	2.60	6.49	11.4	21.0
Regression Standard Deviation	4.22	10.0	17.6	27.3
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.22	10.8	17.6	27.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	12	12	12	12
P/T-GCMS	17	17	17	17
GC/MSE	6	6	6	6
GC/MSF/HS	1	1	1	1

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

BENZENE

z-Score Plots
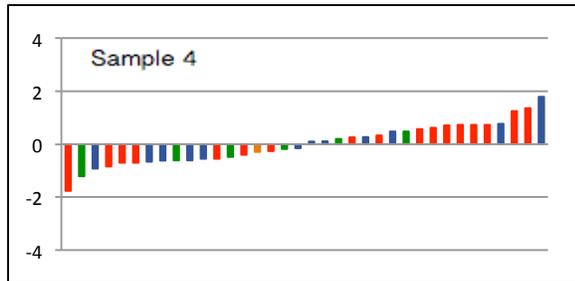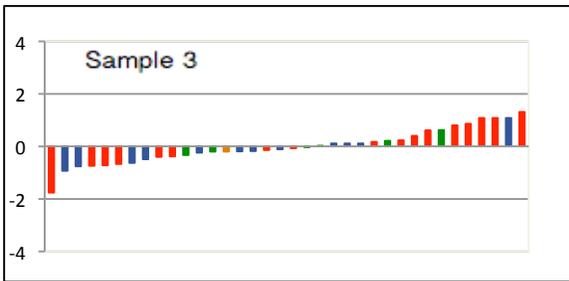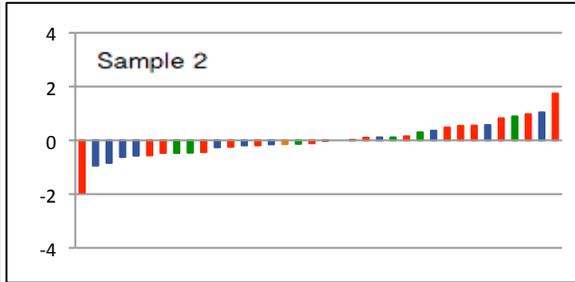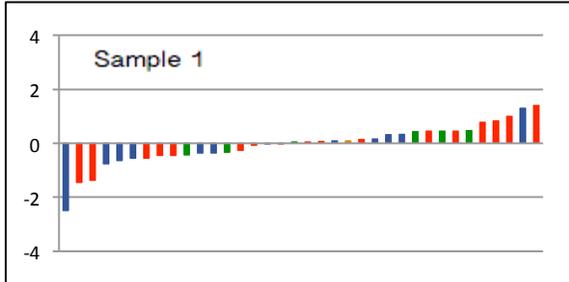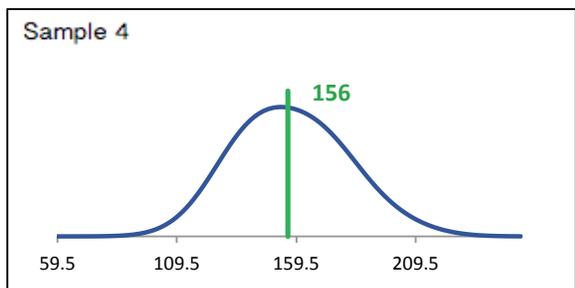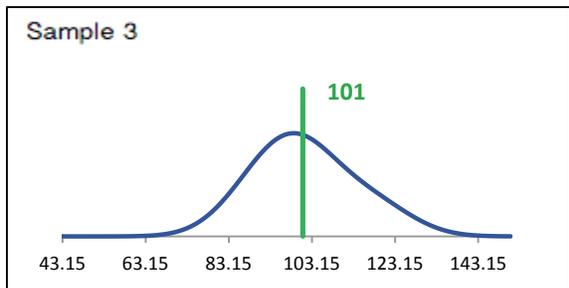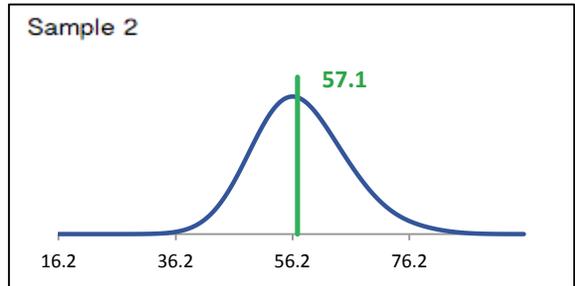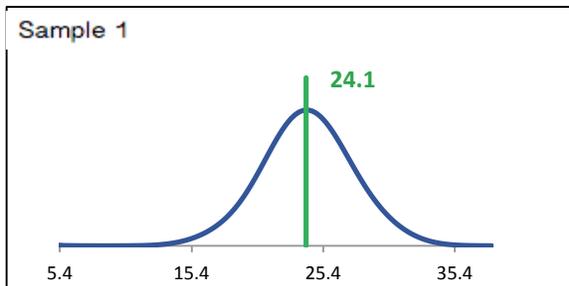
## Kernel Density Plots

BENZENE

Stability Regression
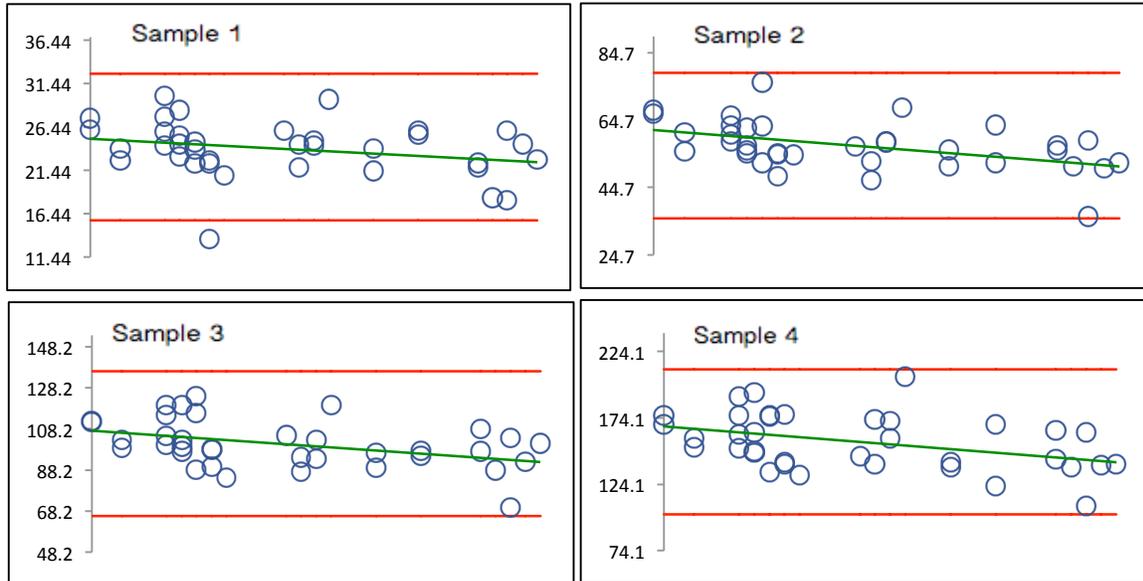
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
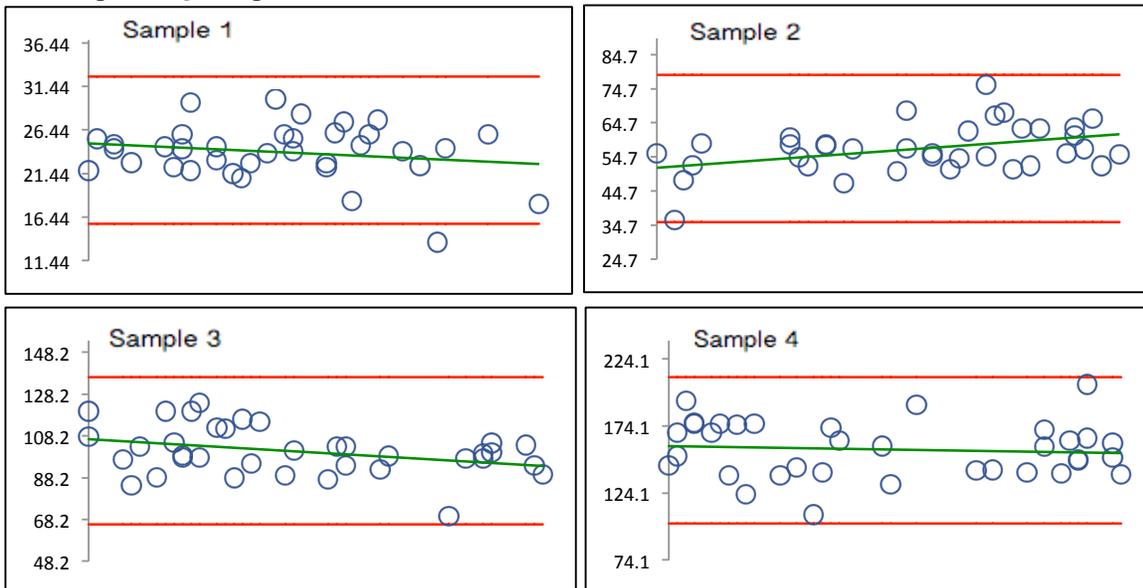
Reported results (Y-axis) plotted against bottling order (X-axis).

BROMODICHLOROMETHANE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	37	37	37	37
Median	22.9	55.3	99.0	152
Robust Mean	23.4	55.2	99	156
U	0.450	1.32	2.10	3.76
Robust Standard Deviation	2.19	6.42	10.2	18.3
Regression Standard Deviation	4.10	9.670	17.3	27.2
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.10	9.67	17.3	27.2
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	13	13	13	13
P/T-GCMS	19	19	19	19
GC/MSE	5	5	5	5

All summary stats and the plots below are based on the data excluding any flagged outliers
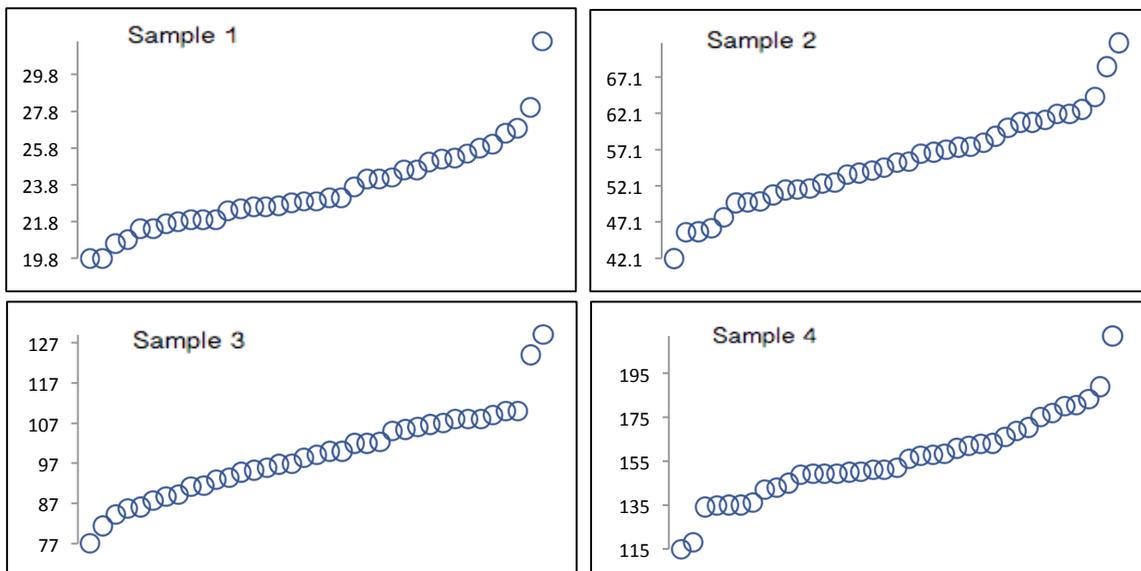
BROMODICHLOROMETHANE
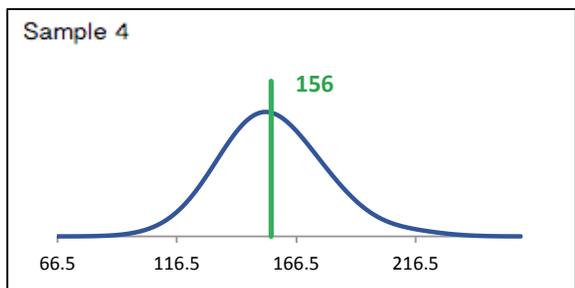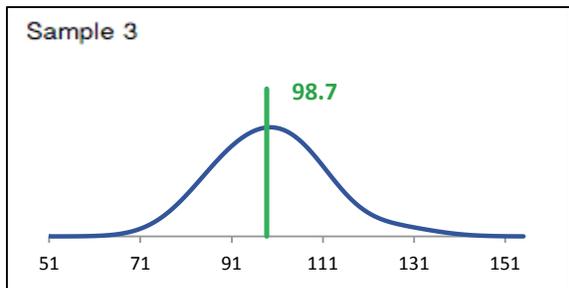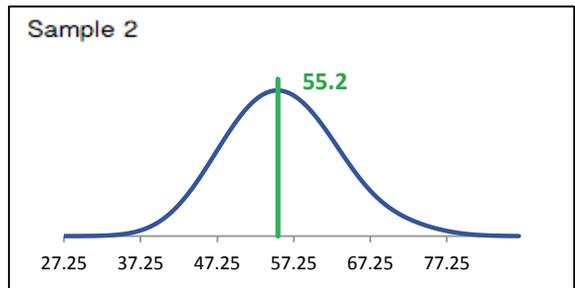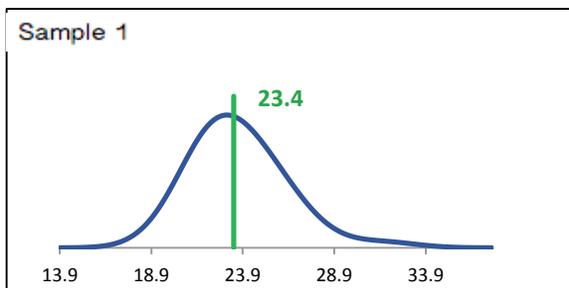
z-Score Plots


Kernel Density Plots

BROMODICHLOROMETHANE
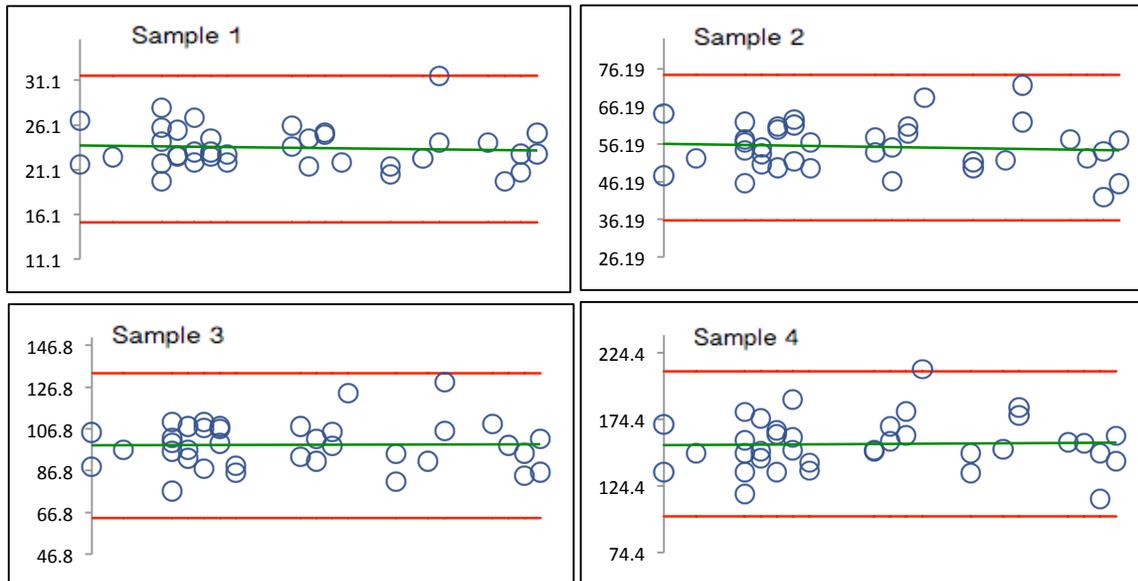
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
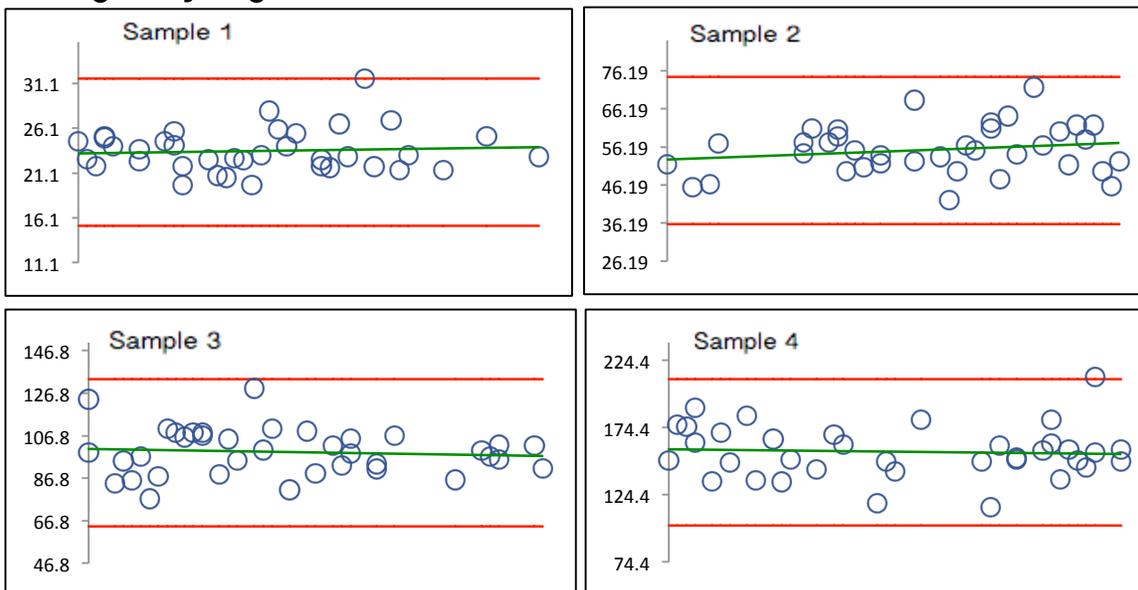
Reported results (Y-axis) plotted against bottling order (X-axis).

BROMOFORM

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	36	36	36	36
Median	23.5	54.2	98.9	160
Robust Mean	23.7	55.2	101	160
U	0.646	1.76	2.81	4.29
Robust Standard Deviation	3.10	8.44	13.5	20.6
Regression Standard Deviation	4.14	9.66	17.6	28.1
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.14	9.66	17.6	28.1
Outliers	0	0	0	0
$|z|>3.0$	1	1	1	1
$2<|z|<3$	0	1	1	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	13	13	13	13
GC/MSE	4	4	4	4

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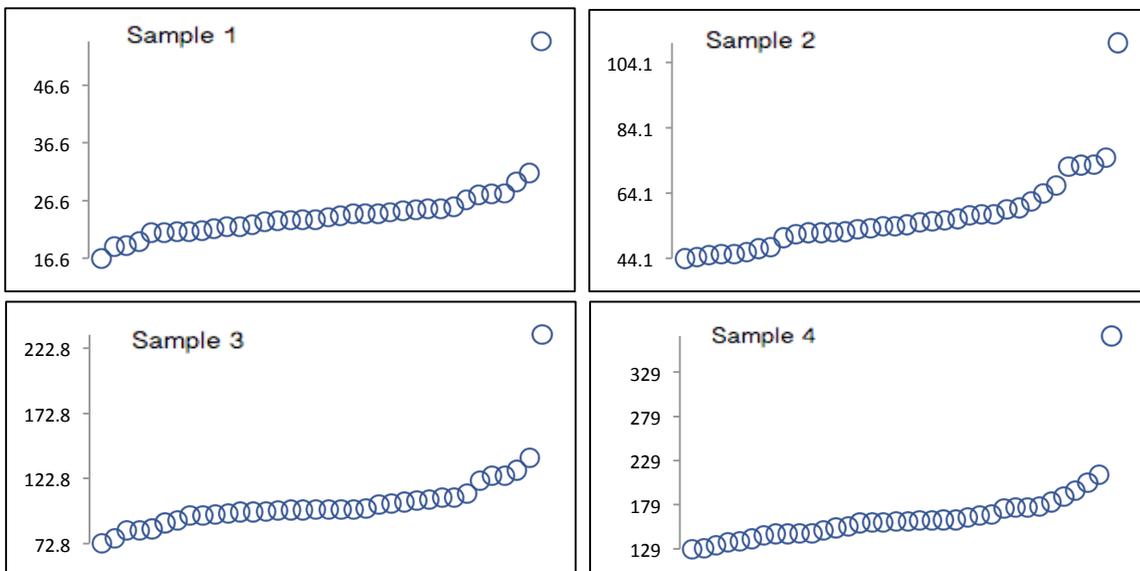
BROMOFORM

z-Score Plots
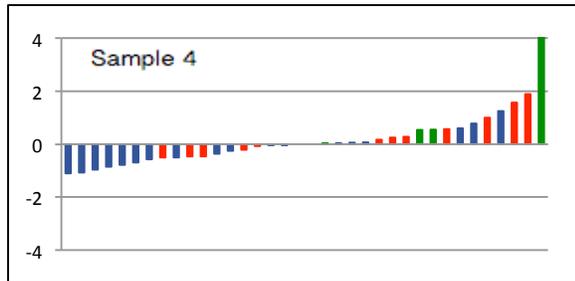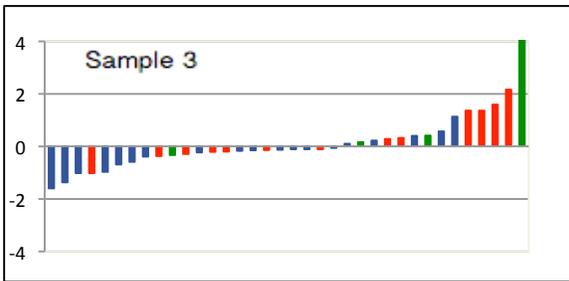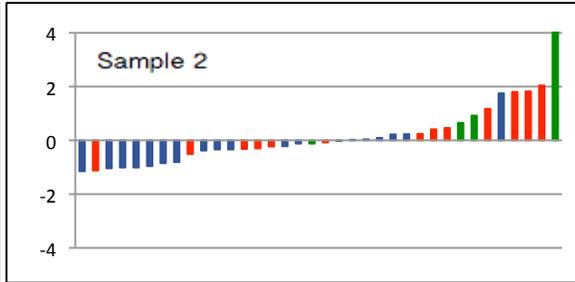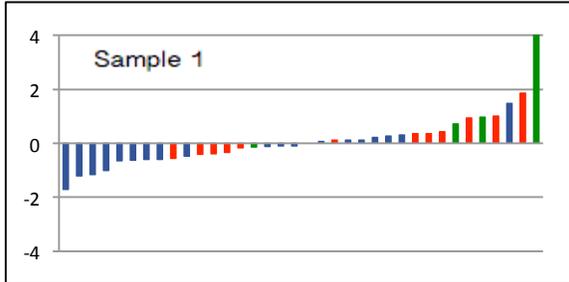
Kernel Density Plots
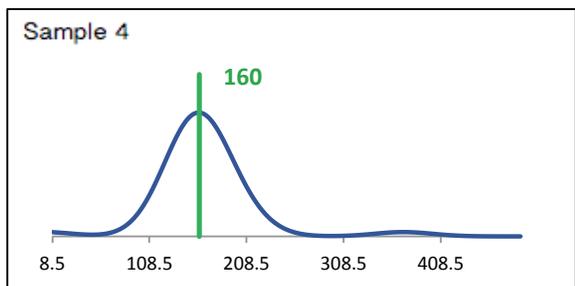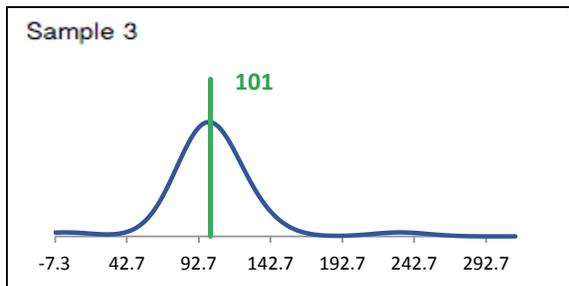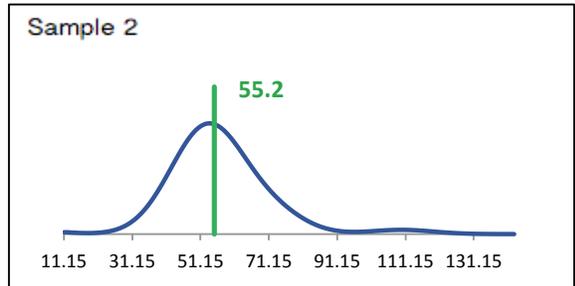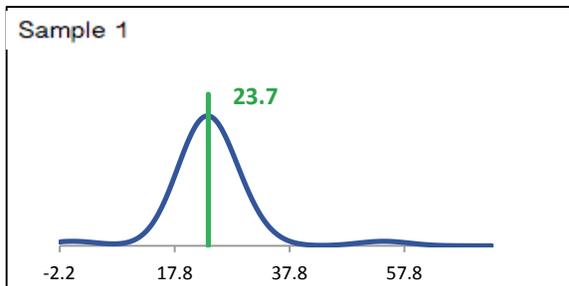
BROMOFORM

Stability Regression
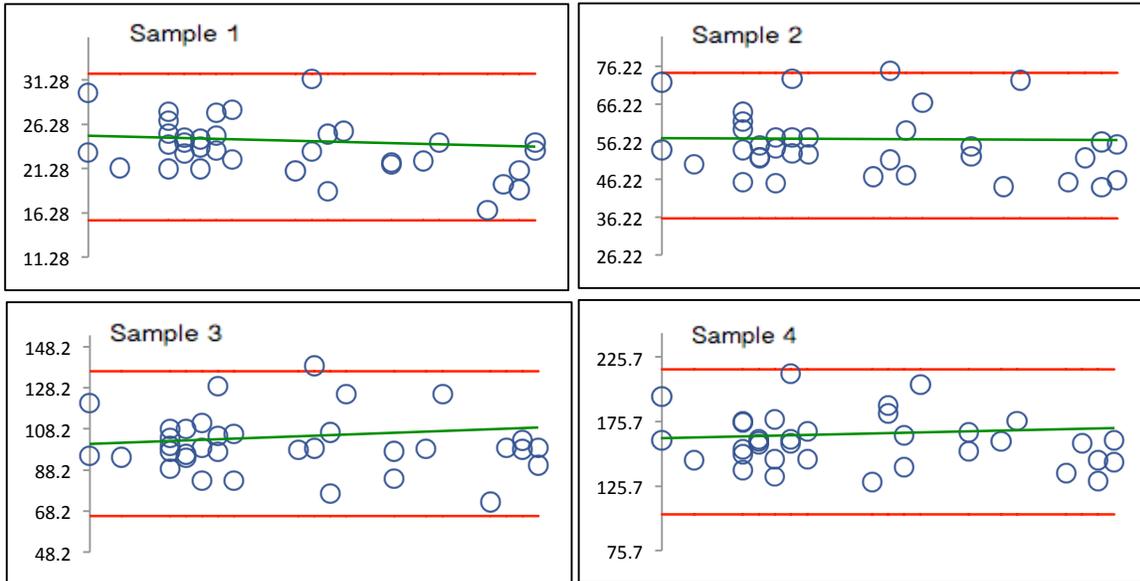
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
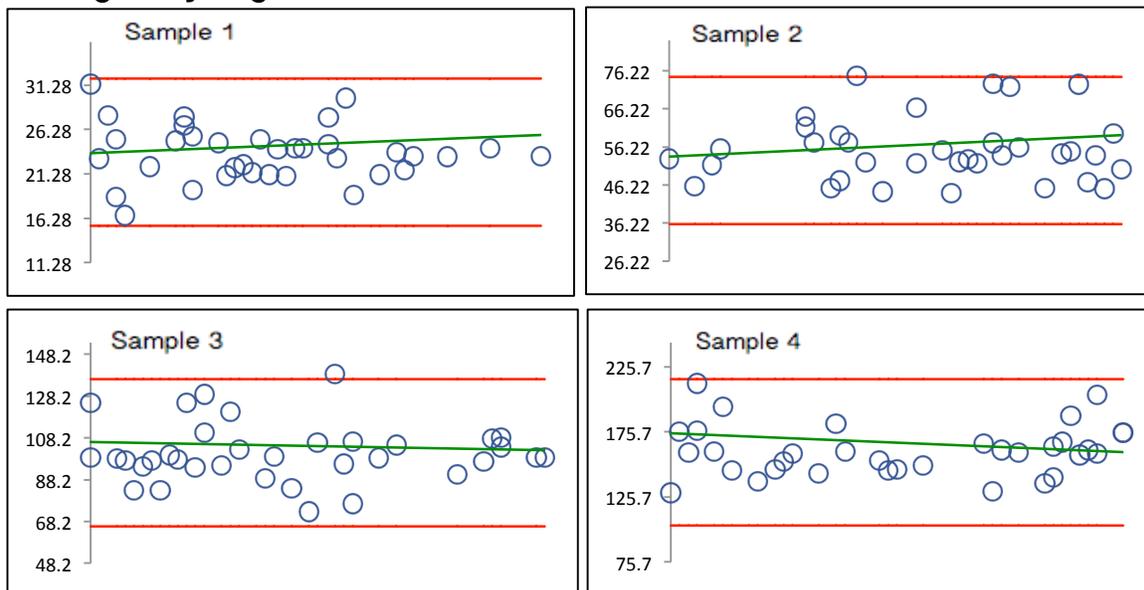
Reported results (Y-axis) plotted against bottling order (X-axis).

CARBON TETRACHLORIDE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	40	40	40	40
Median	24.0	56.6	98.9	150
Robust Mean	23.9	56.1	100	152
U	0.609	1.40	2.55	4.17
Robust Standard Deviation	3.08	7.10	12.9	21.1
Regression Standard Deviation	4.19	9.82	17.4	26.6
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.19	9.82	17.4	26.6
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	14	14	14	14
P/T-GCMS	20	20	20	20
GC/MSE	6	6	6	6

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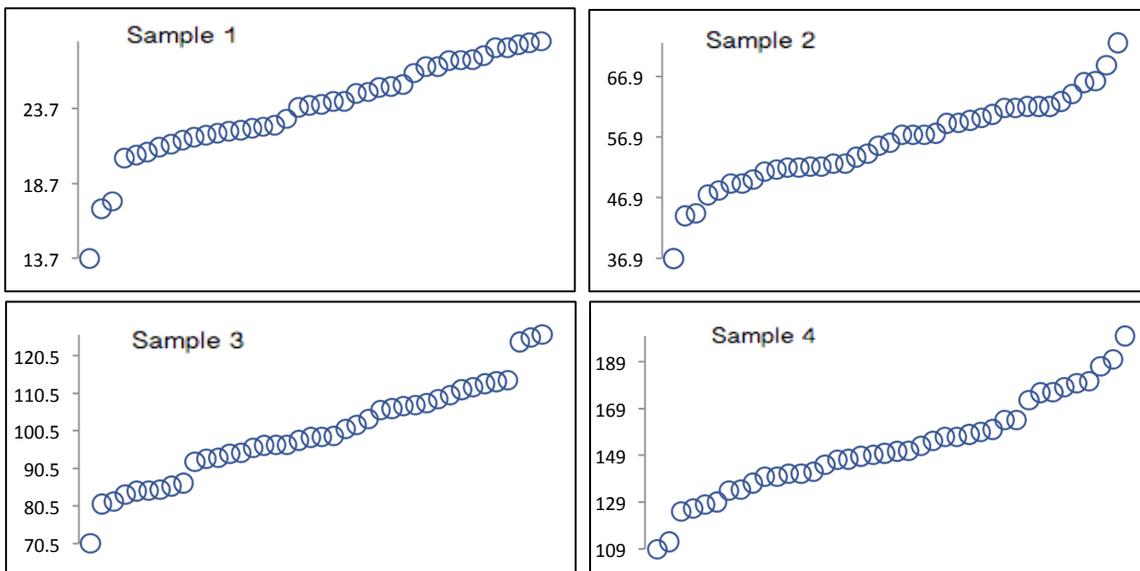
CARBON TETRACHLORIDE

z-Score Plots
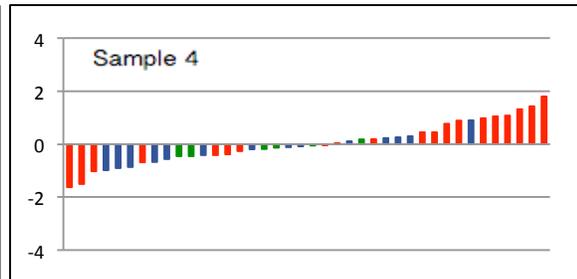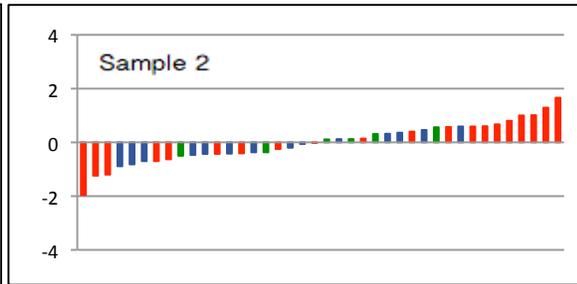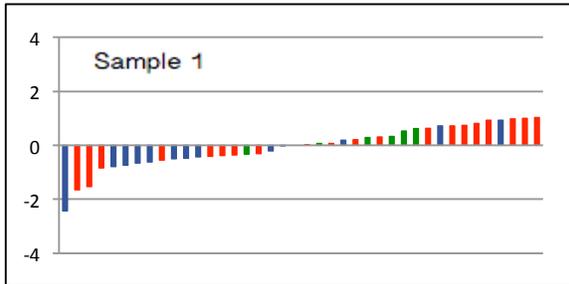
## Kernel Density Plots
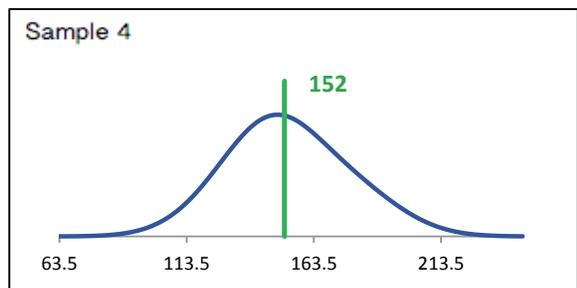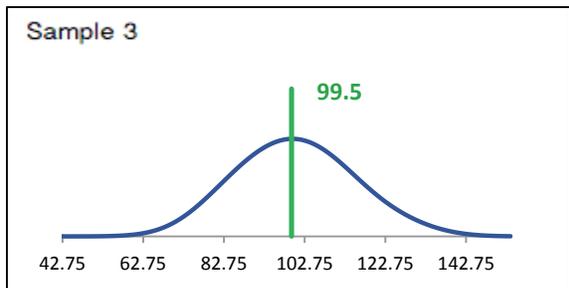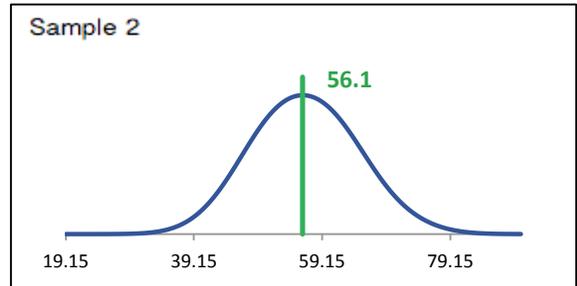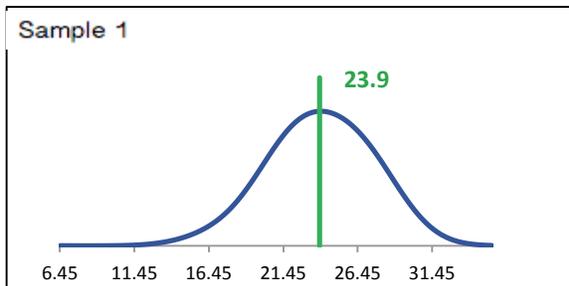
CARBON TETRACHLORIDE

Stability Regression
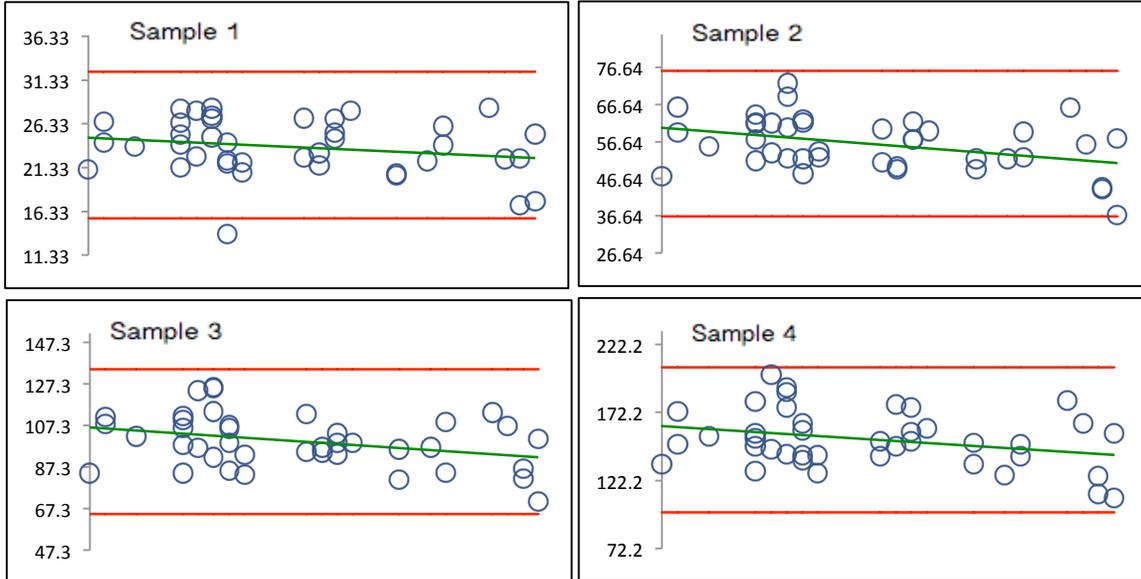
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
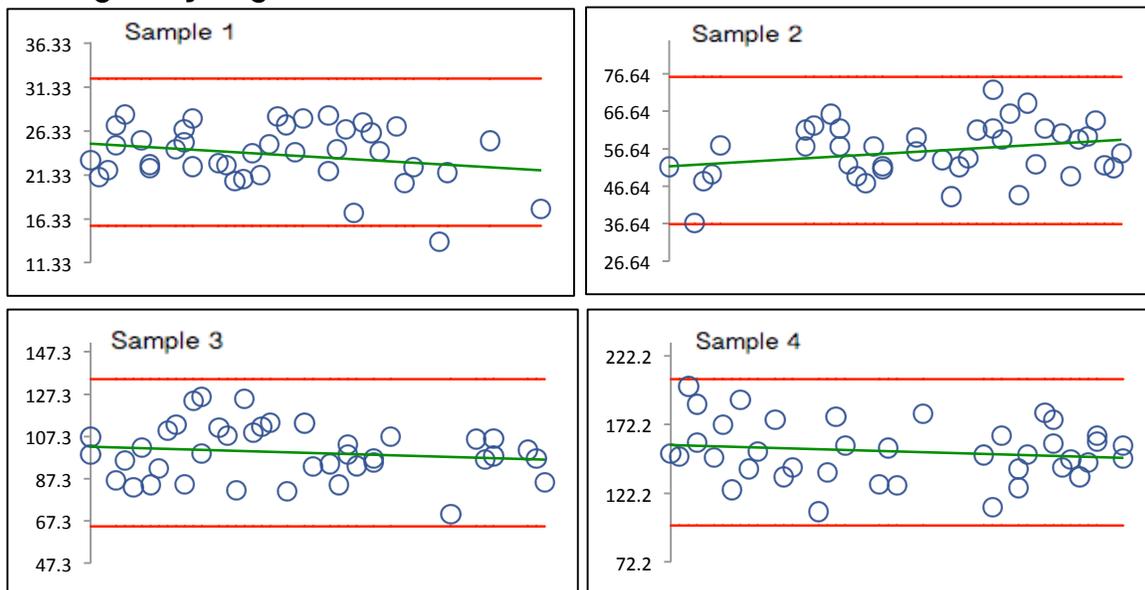
Reported results (Y-axis) plotted against bottling order (X-axis).

CHLOROBENZENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	40	40	40	40
Median	24.6	55.7	102	161
Robust Mean	24.3	56.8	102	163
U	0.518	1.00	1.81	3.91
Robust Standard Deviation	2.62	5.07	9.15	19.8
Regression Standard Deviation	4.26	9.95	17.8	28.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.26	9.95	17.8	28.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	14	14	14	14
GC/MSE	6	6	6	6

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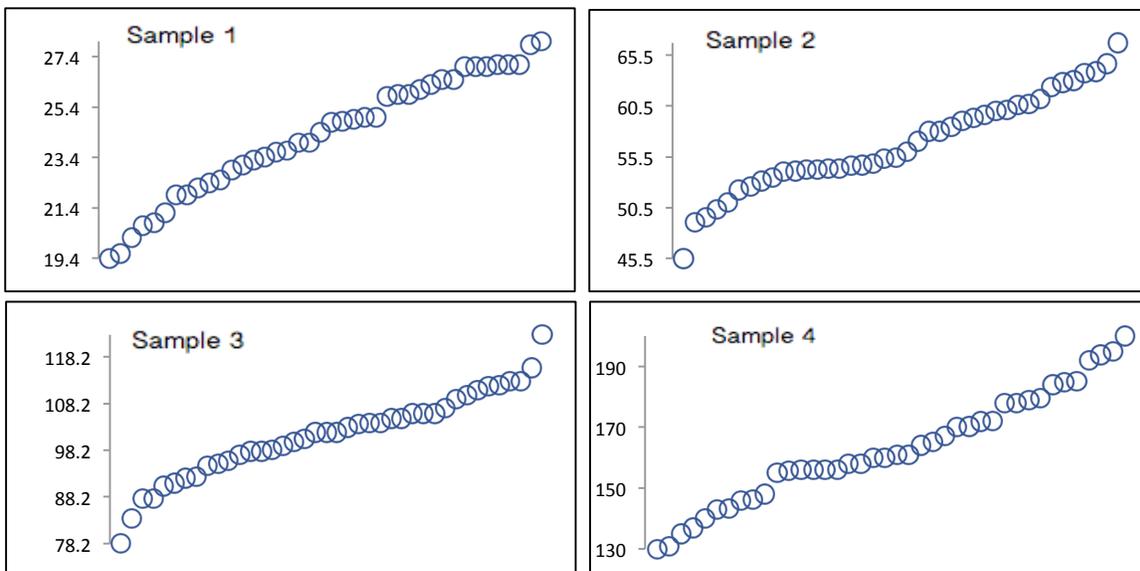
CHLOROBENZENE

### z-Score Plots
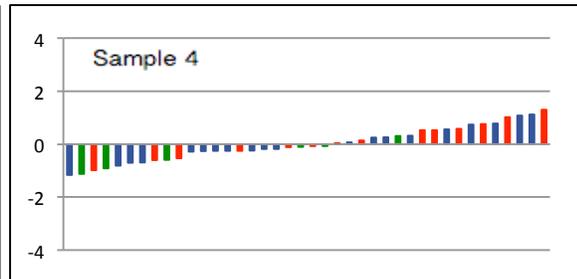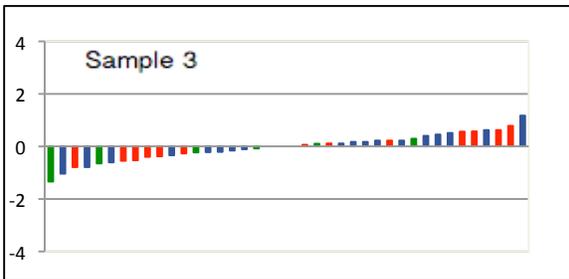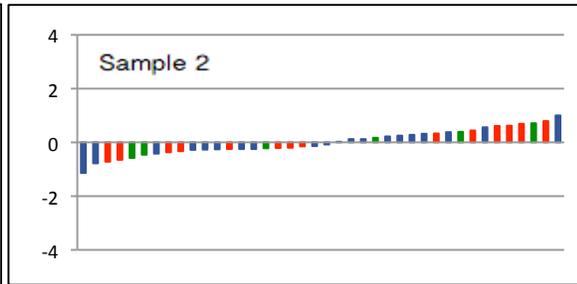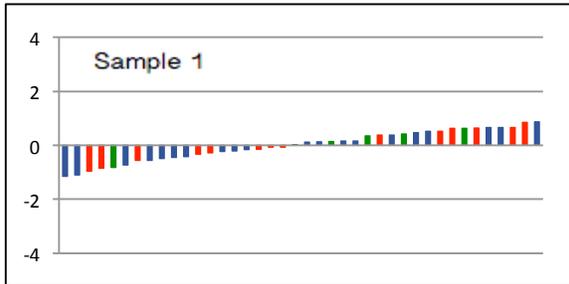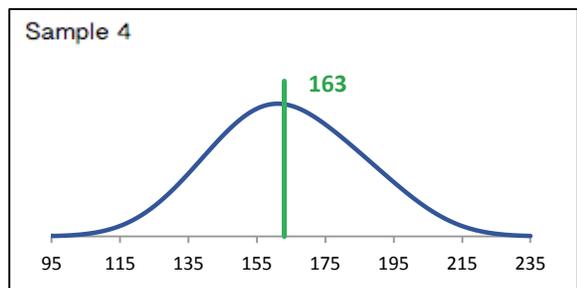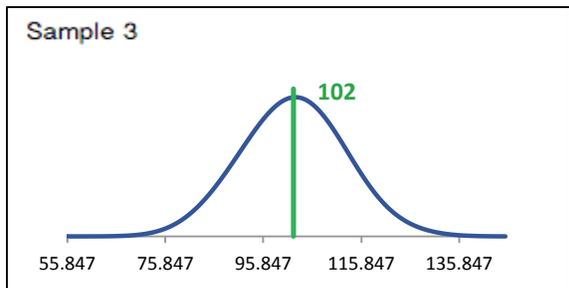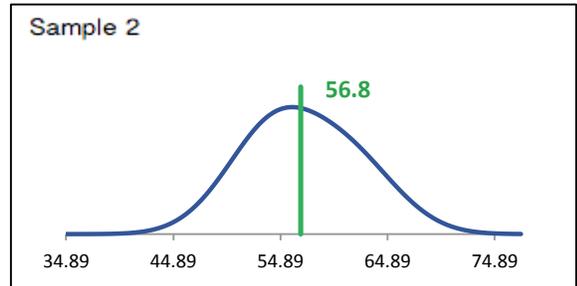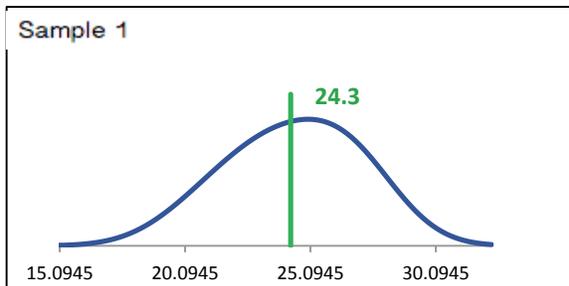
Kernel Density Plots

CHLOROBENZENE

Stability Regression
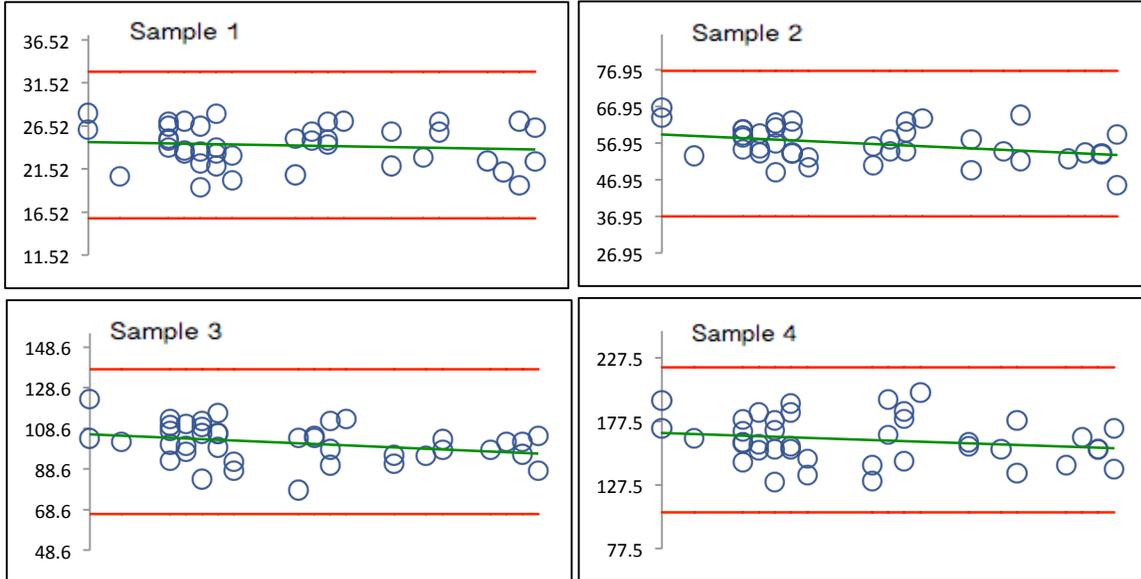
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
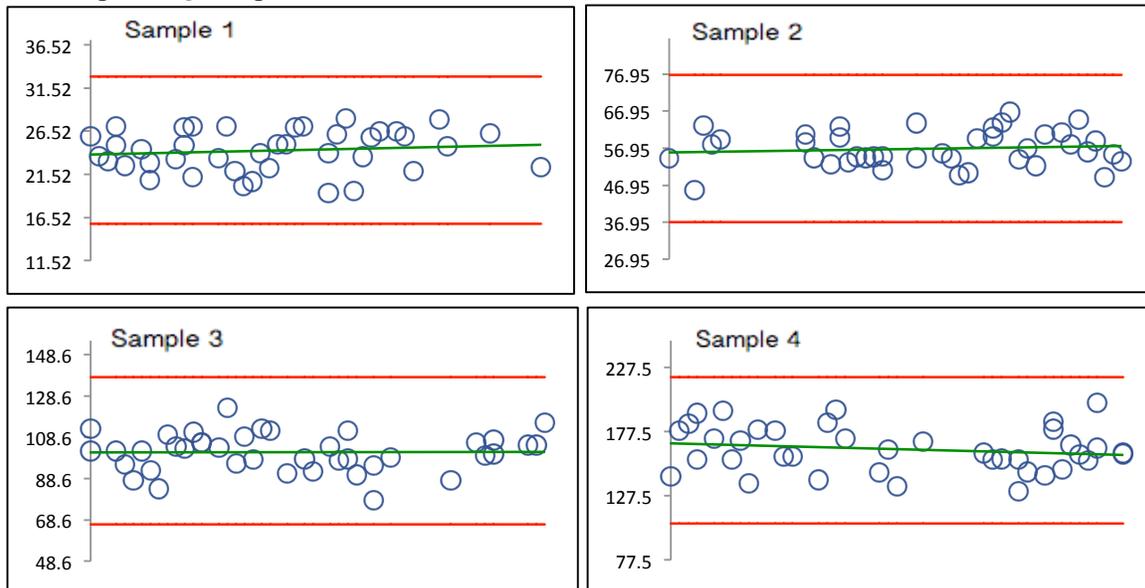
Reported results (Y-axis) plotted against bottling order (X-axis).

CHLORODIBROMOMETHANE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	37	37	37	37
Median	23.0	54.8	99.3	153
Robust Mean	23.5	54.8	98.4	156
U	0.557	1.13	2.32	3.93
Robust Standard Deviation	2.71	5.48	11.3	19.1
Regression Standard Deviation	4.11	9.59	17.2	27.3
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.11	9.59	17.2	27.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	0	2	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	13	13	13	13
GC/MSE	5	5	5	5

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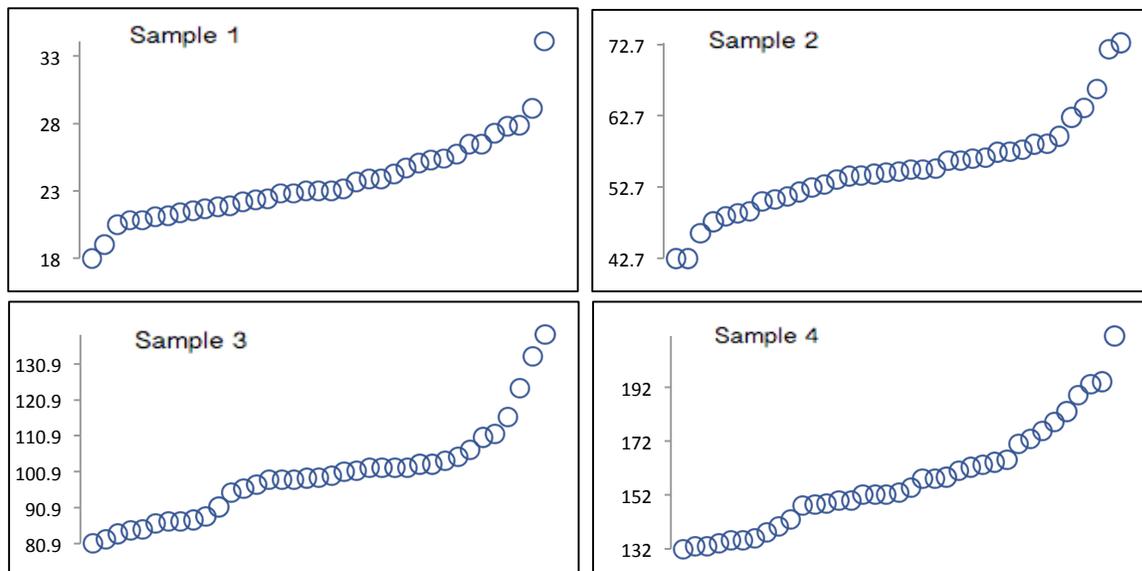
CHLORODIBROMOMETHANE

z-Score Plots
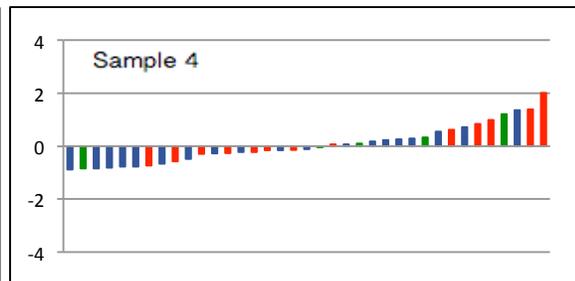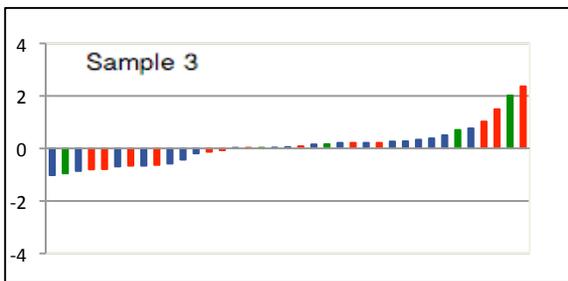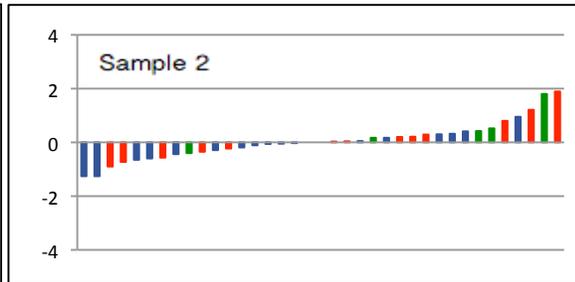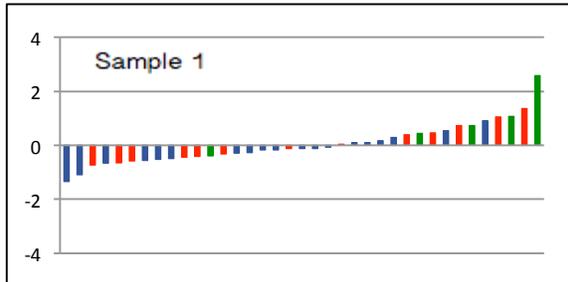

Kernel Density Plots
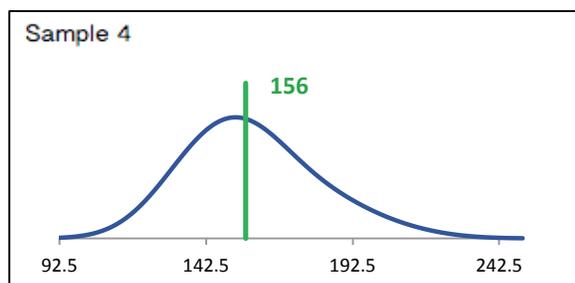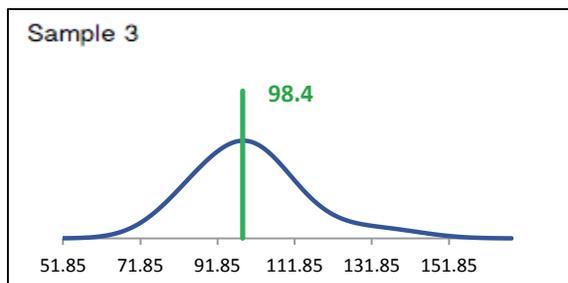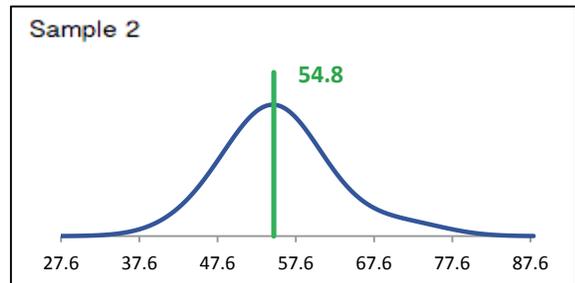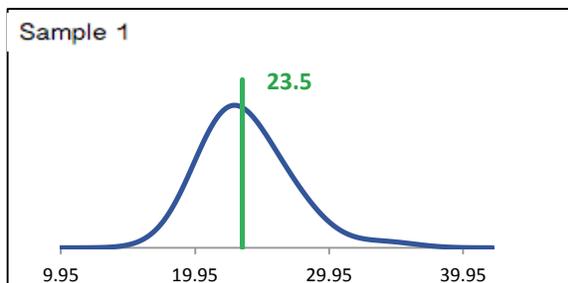
CHLORODIBROMOMETHANE

Stability Regression
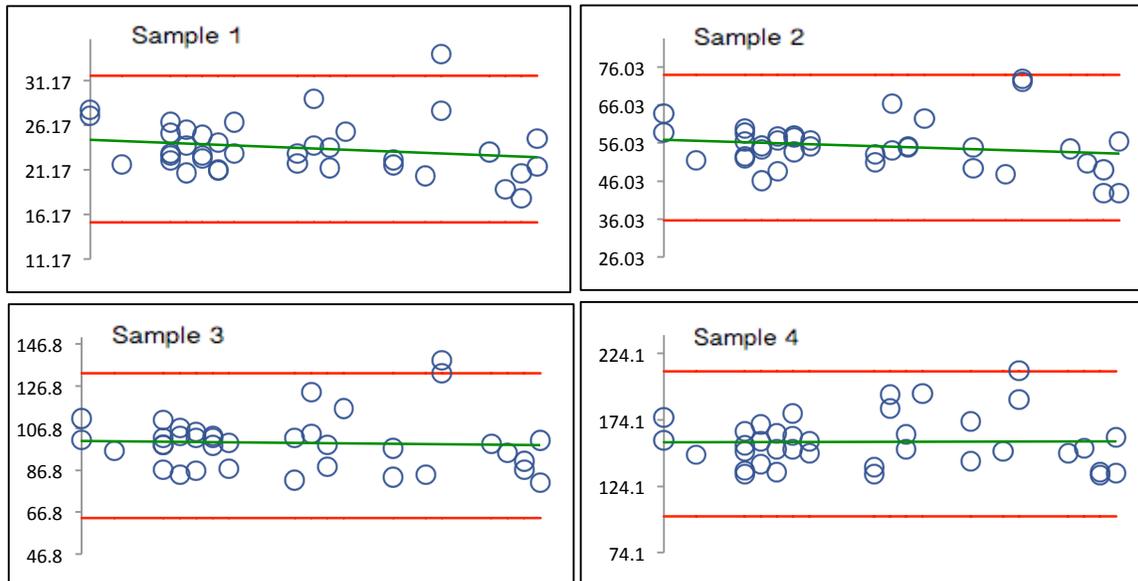
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
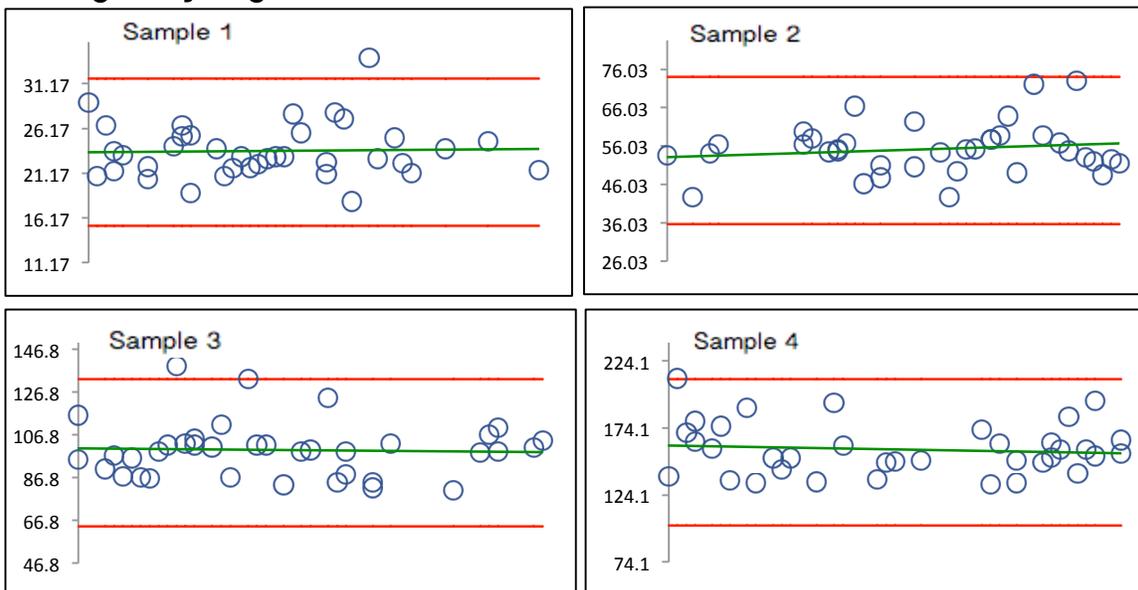
Reported results (Y-axis) plotted against bottling order (X-axis).

CHLOROFORM

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	24.5	56.8	100	155
Robust Mean	24.2	56.0	99.6	156
U	0.558	1.19	2.44	4.20
Robust Standard Deviation	2.79	5.97	12.2	21.0
Regression Standard Deviation	4.24	9.80	17.4	27.2
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.24	9.80	17.4	27.2
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	1	1	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	14	14	14	14
GC/MSE	6	6	6	6

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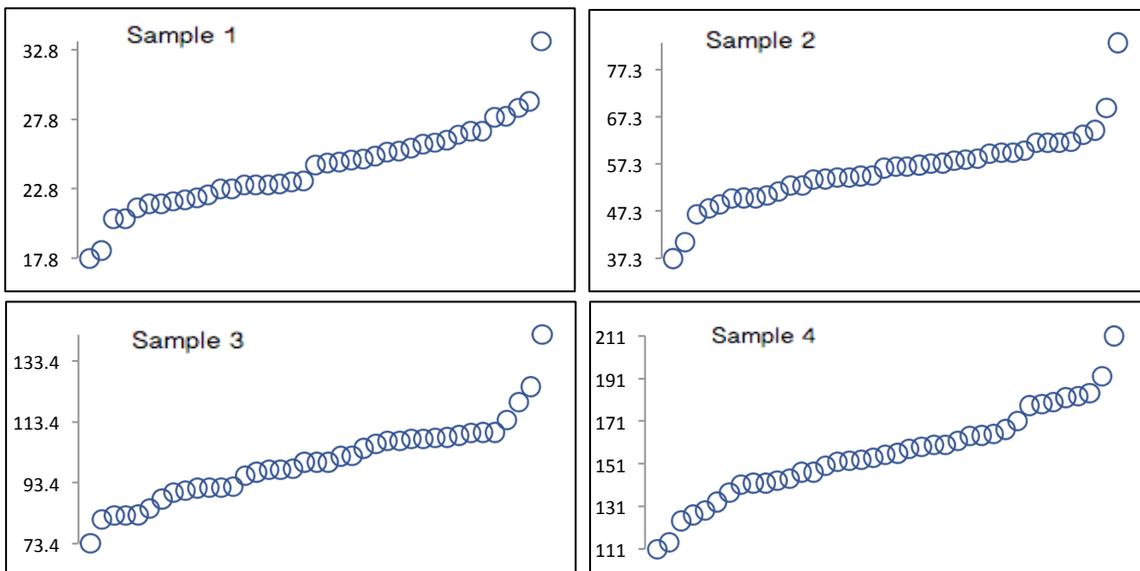
CHLOROFORM

z-Score Plots
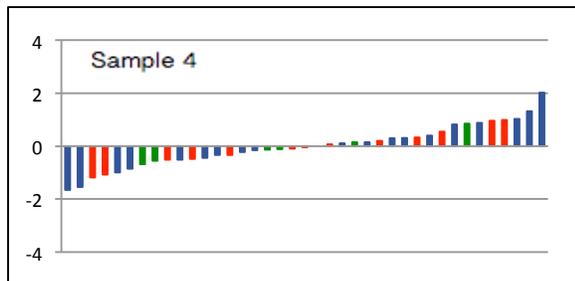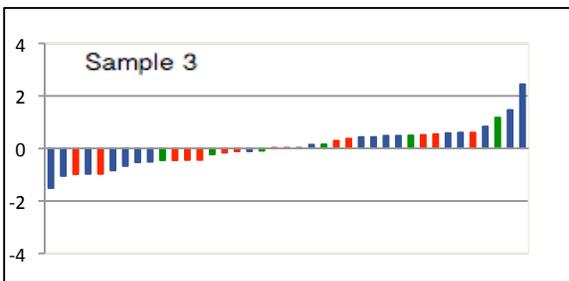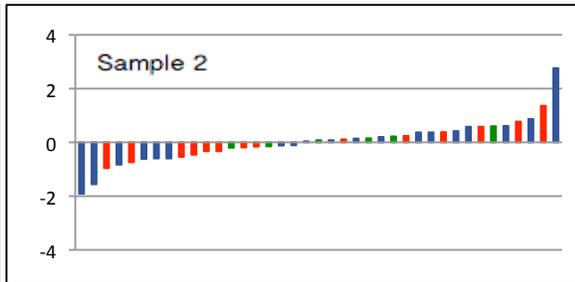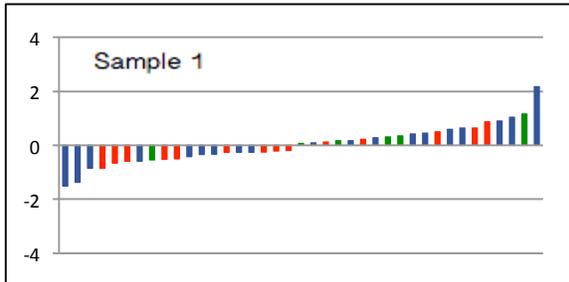
Kernel Density Plots
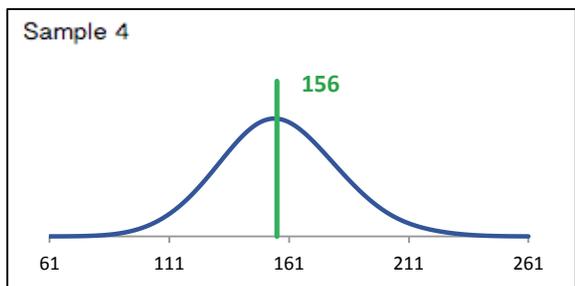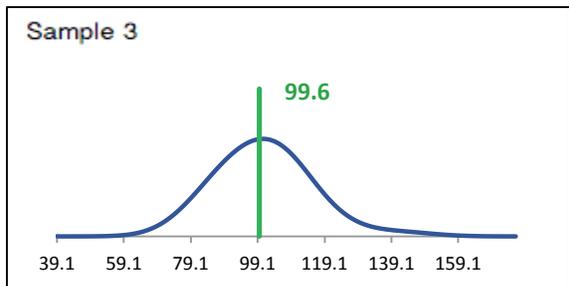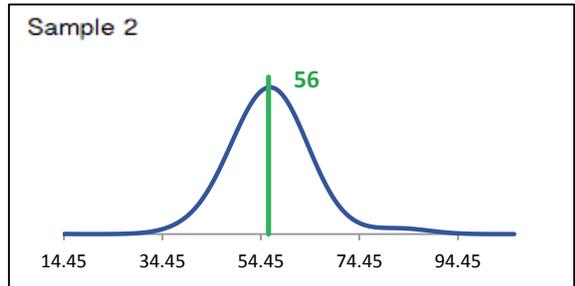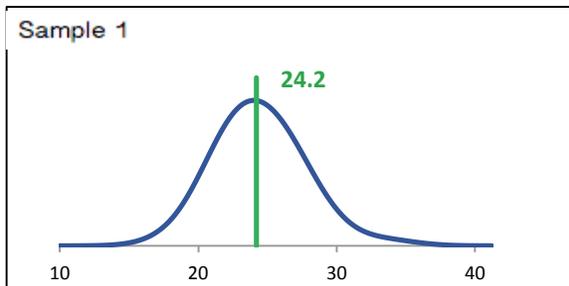
CHLOROFORM

Stability Regression
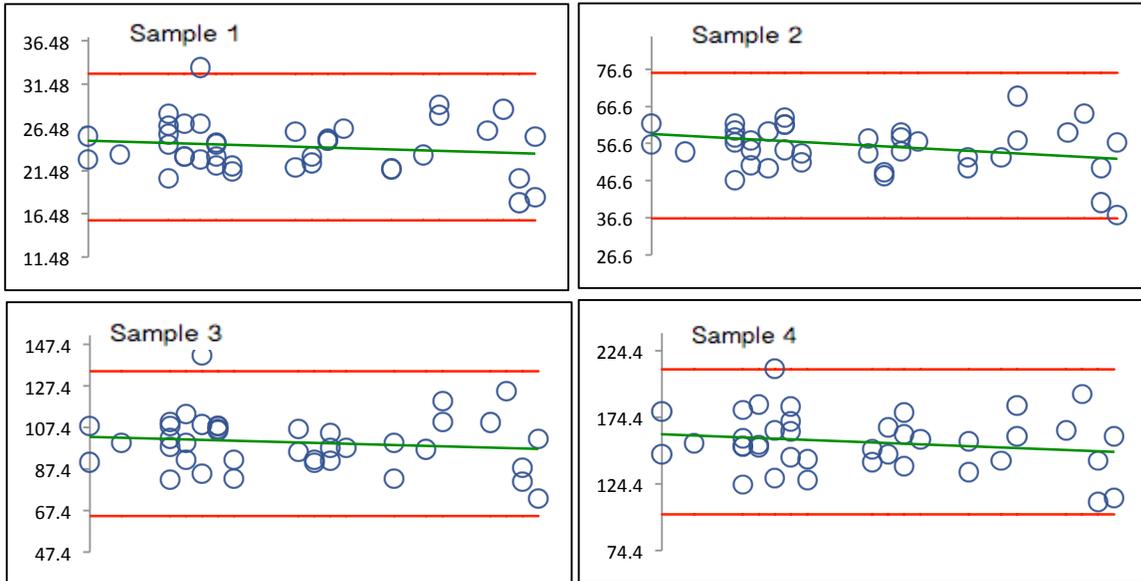
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
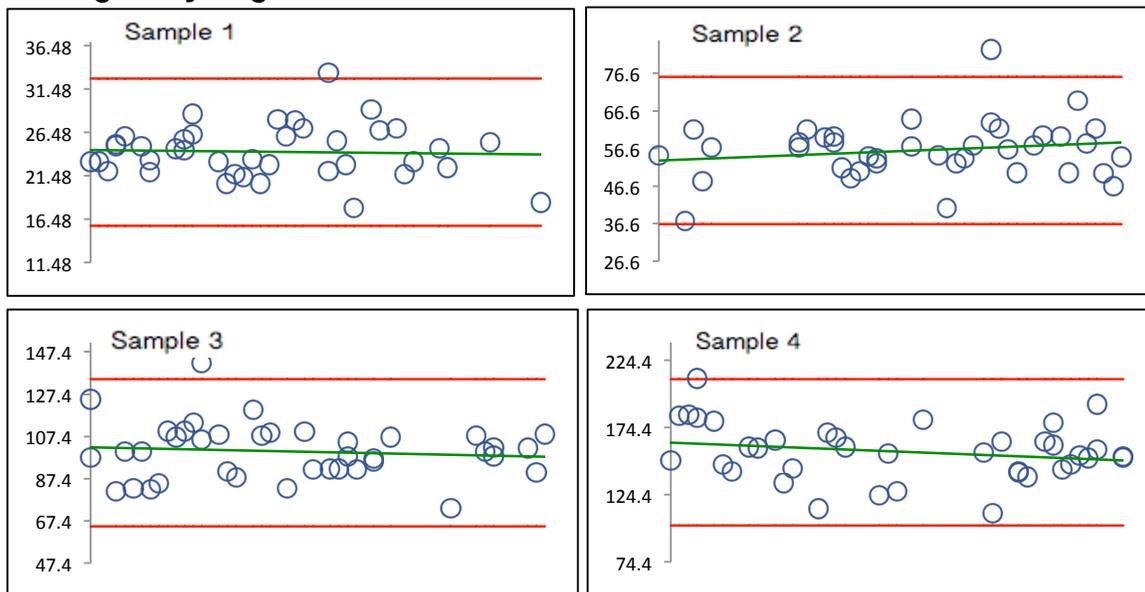
Reported results (Y-axis) plotted against bottling order (X-axis).

CIS-1,2-DICHLOROETHYLENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	37	37	37	37
Median	23.1	58.2	102	149
Robust Mean	23.3	58.0	102	151
U	0.528	1.27	2.00	4.25
Robust Standard Deviation	2.57	6.19	9.74	20.7
Regression Standard Deviation	4.08	10.1	17.8	26.5
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.08	10.1	17.8	26.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	1	1	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	13	13	13	13
GC/MSE	5	5	5	5

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

Sample 1

Sample 2

Sample 3

Sample 4
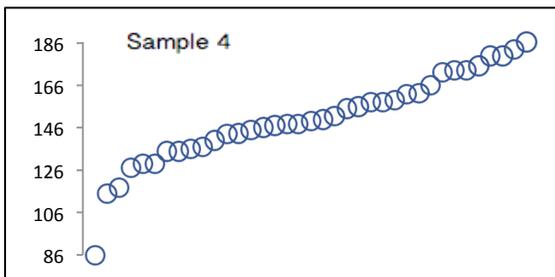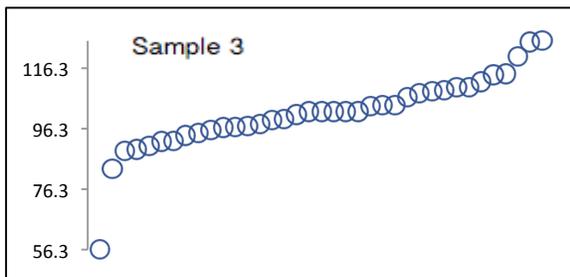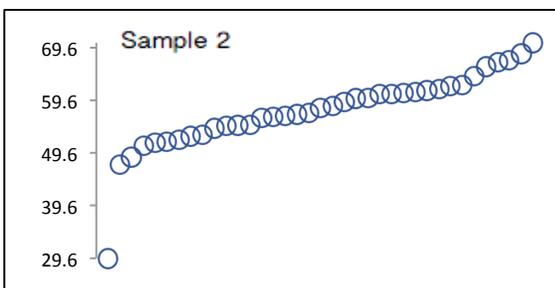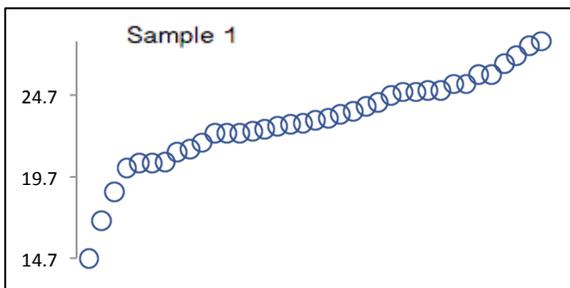
CIS-1,2-DICHLOROETHYLENE

## z-Score Plots

Kernel Density Plots

CIS-1,2-DICHLOROETHYLENE
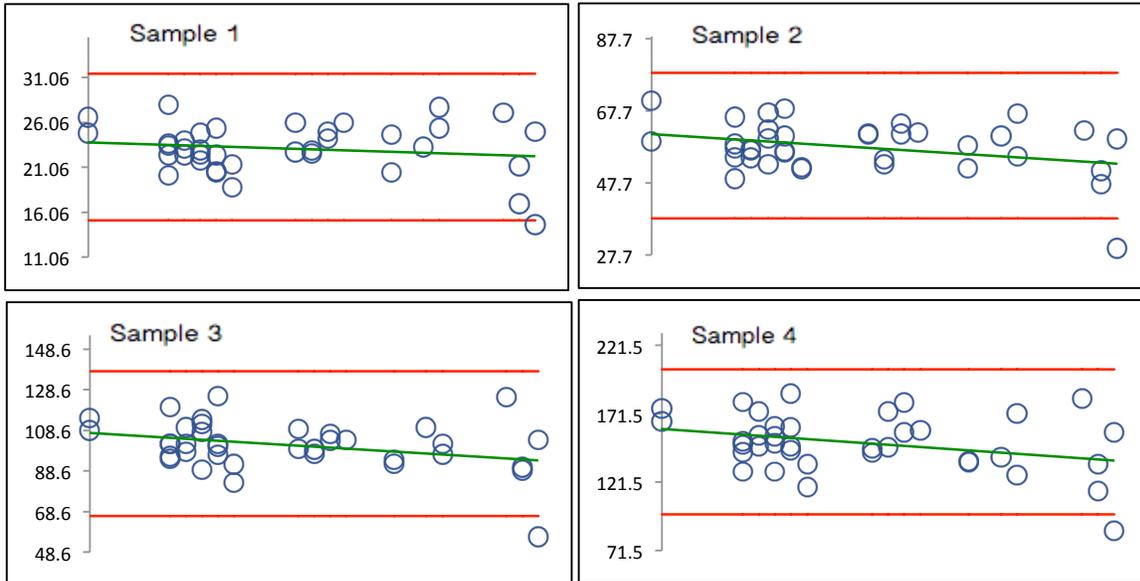
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
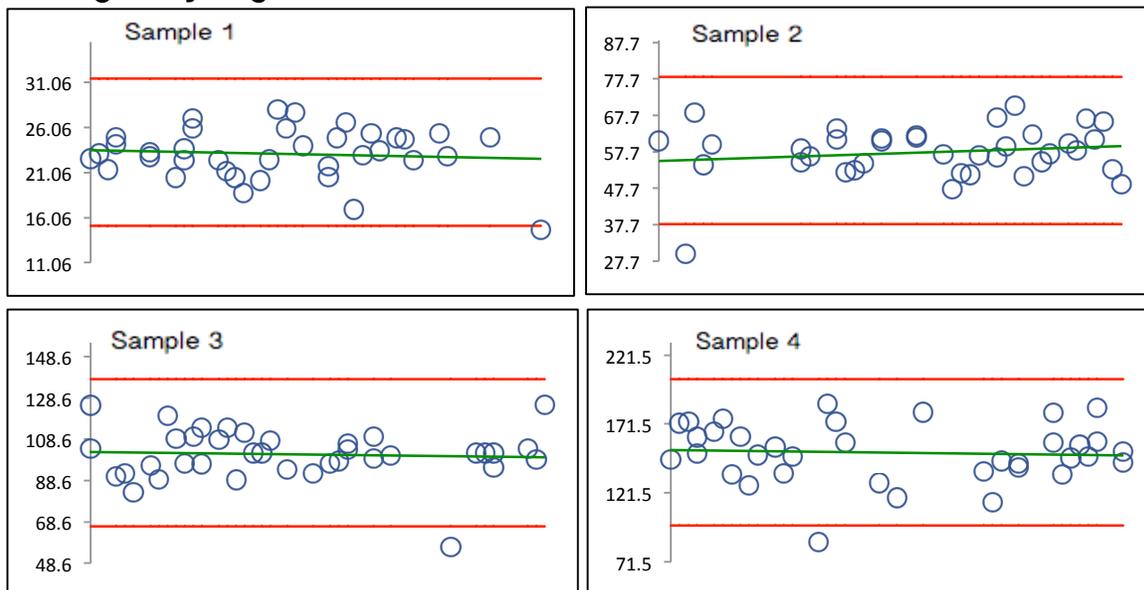
Reported results (Y-axis) plotted against bottling order (X-axis).

CIS-1,3-DICHLOROPROPENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	37	37	37	37
Median	22.8	54.6	97.8	148
Robust Mean	22.5	54.8	97.3	145
U	0.483	1.09	2.24	4.05
Robust Standard Deviation	2.35	5.32	10.9	19.7
Regression Standard Deviation	3.93	9.58	17.0	25.4
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	3.93	9.58	17.0	25.4
Outliers	0	0	0	0
$|z|>3.0$	0	0	0	0
$2<|z|<3$	0	0	0	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	13	13	13	13
GC/MSE	5	5	5	5

All summary stats and the plots below are based on the data excluding any flagged outliers
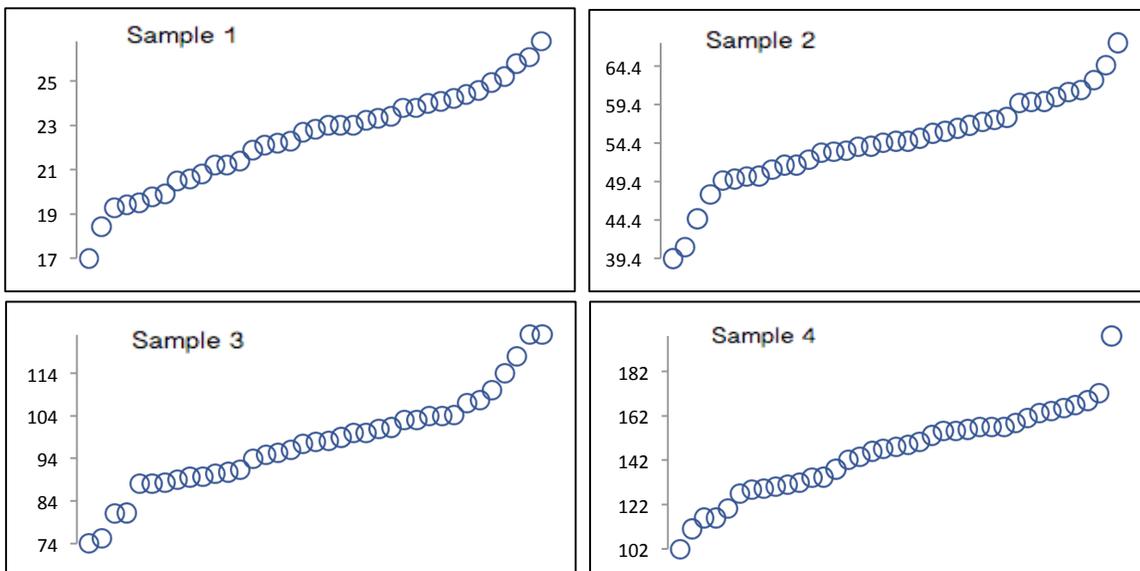
CIS-1,3-DICHLOROPROPENE
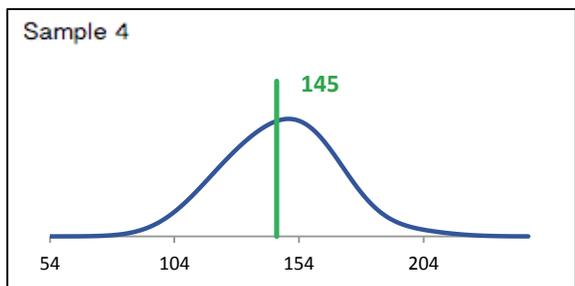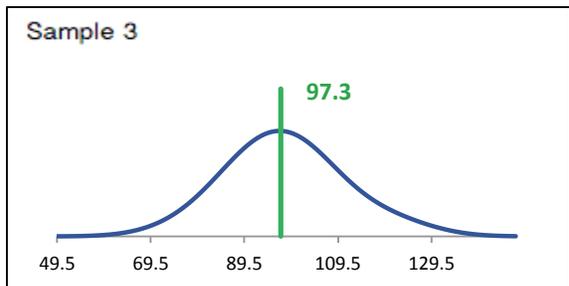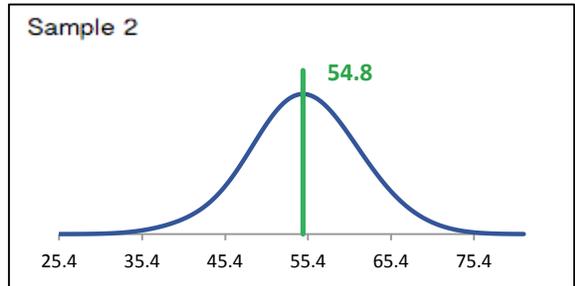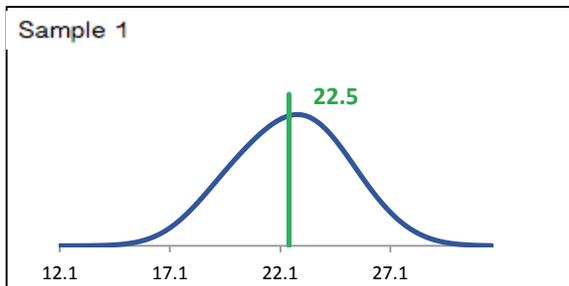
z-Score Plots

Kernel Density Plots

CIS-1,3-DICHLOROPROPENE
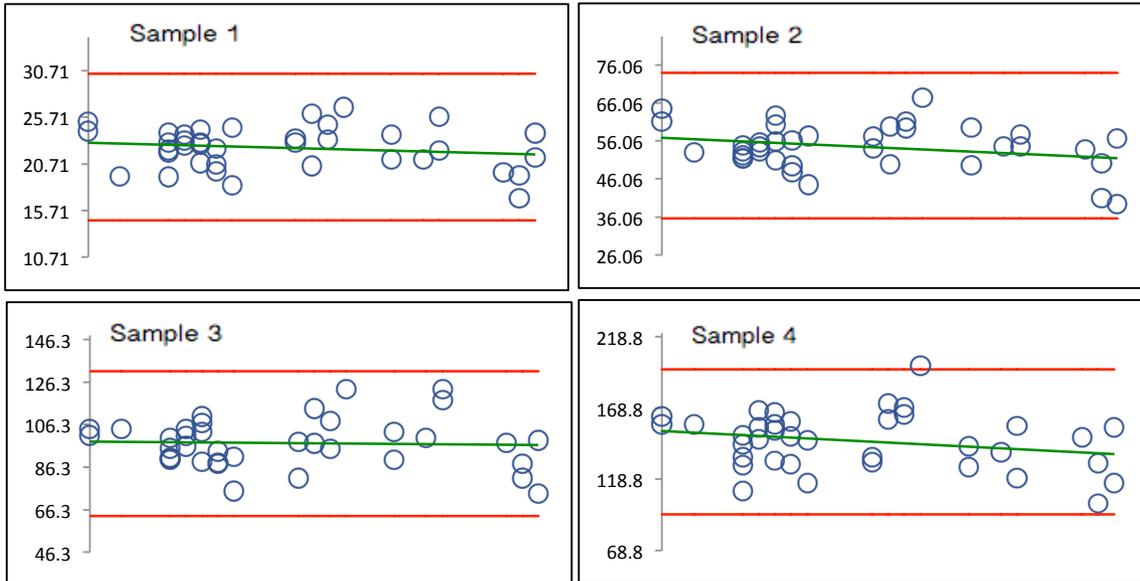
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
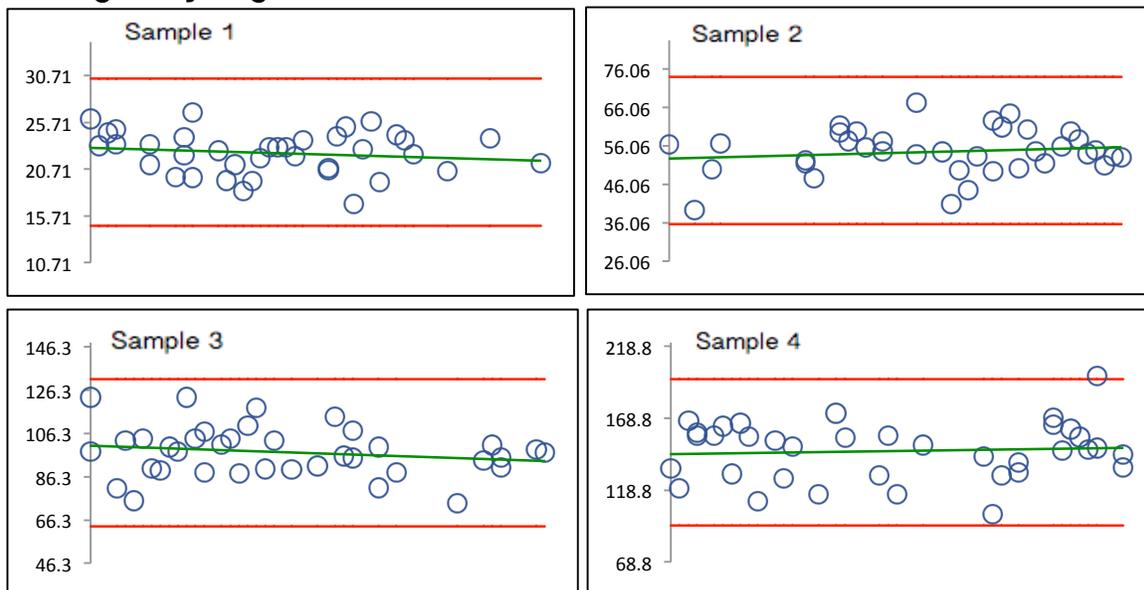
Reported results (Y-axis) plotted against bottling order (X-axis).

DICHLOROMETHANE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	24.0	56.4	99.1	135
Robust Mean	24.1	57.9	102	135
U	0.699	1.78	2.84	3.98
Robust Standard Deviation	3.49	8.87	14.2	19.9
Regression Standard Deviation	4.81	11.6	20.3	27.0
Stability Flag				
Homogeneity Flag		Homogeneity		
Standard Deviation Used (SDPA)	4.81	13.1	20.3	27.0
Outliers	0	0	0	0
|z|>3.0	0	1	1	0
2<|z|<3	1	1	1	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	15	15	15	15
GC/MSE	5	5	5	5

All summary stats and the plots below are based on the data excluding any flagged outliers
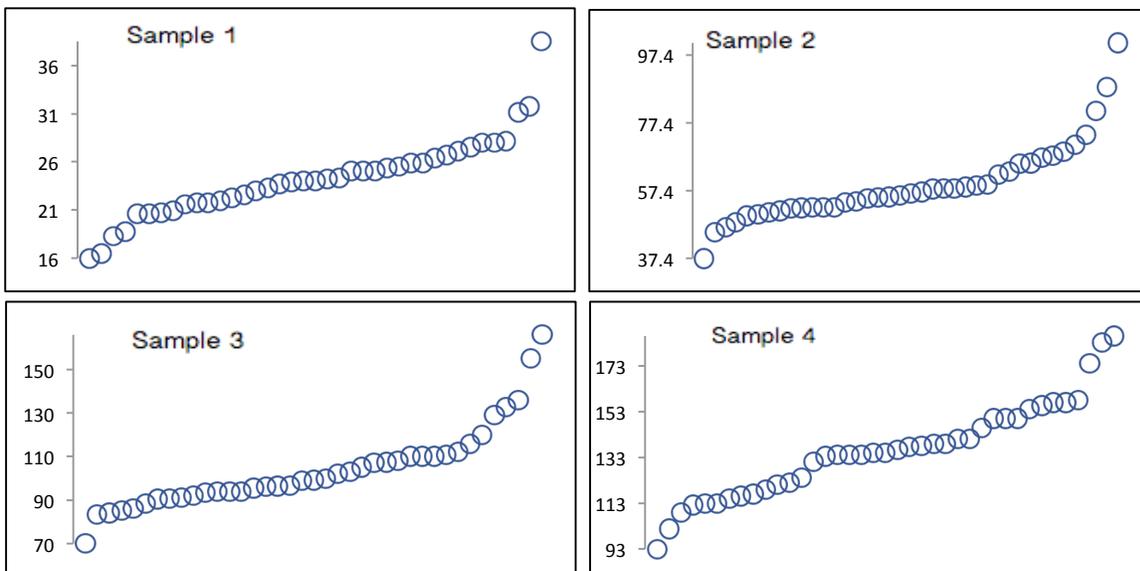
DICHLOROMETHANE
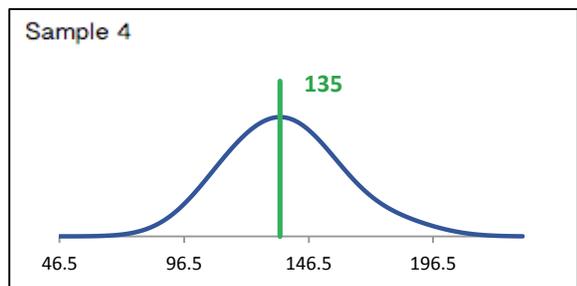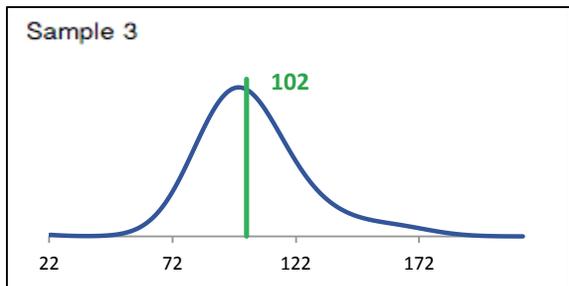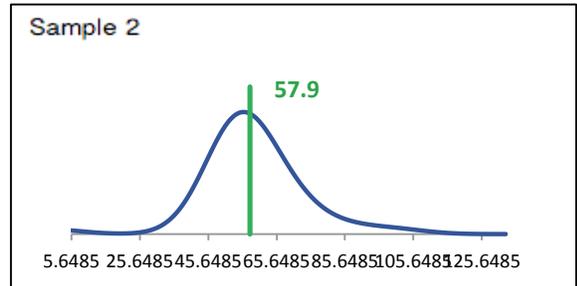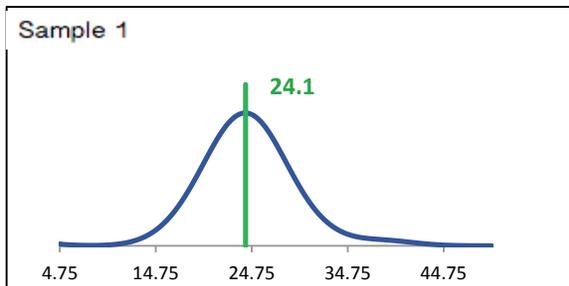
### z-Score Plots

Kernel Density Plots

DICHLOROMETHANE
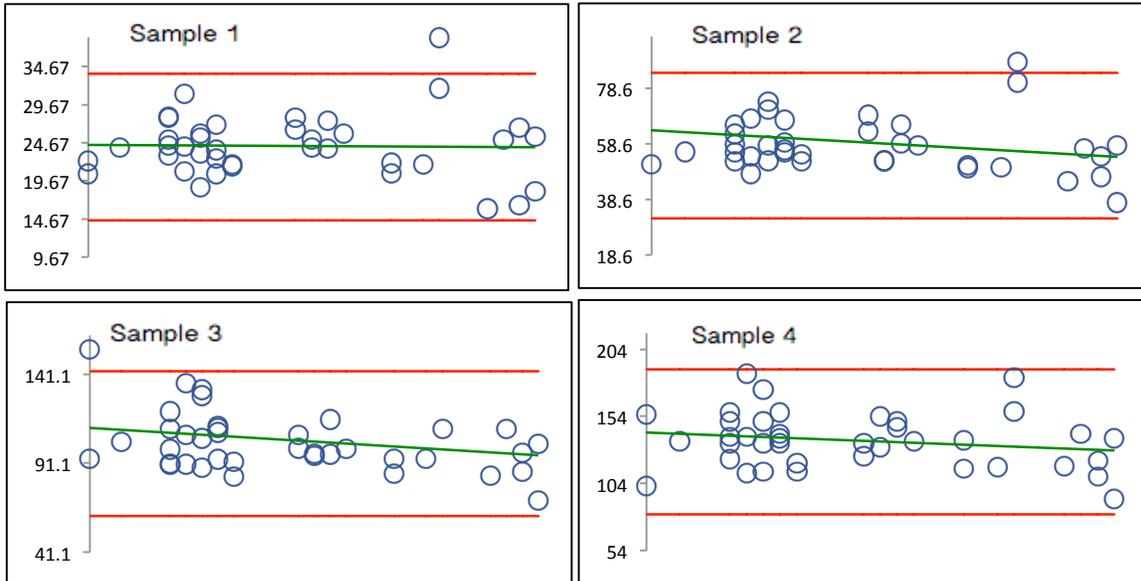
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
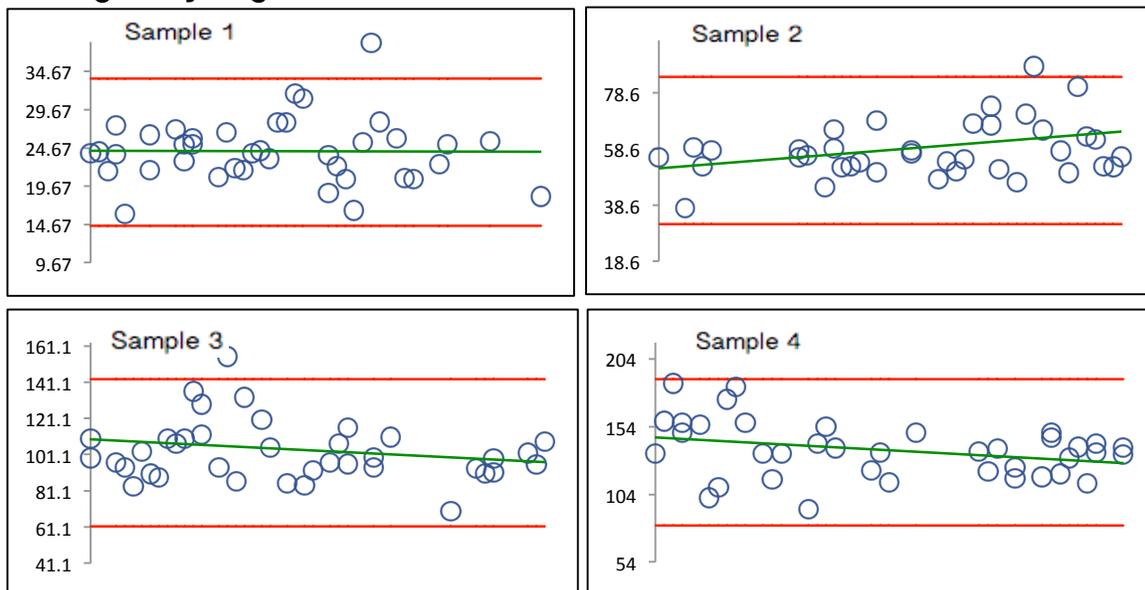
Reported results (Y-axis) plotted against bottling order (X-axis).

ETHYLBENZENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	36	36	36	36
Median	24.0	56.0	102	159
Robust Mean	23.8	56.4	102	160
U	0.581	1.60	2.52	5.60
Robust Standard Deviation	2.79	7.68	12.1	26.9
Regression Standard Deviation	4.16	9.86	17.8	27.9
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.16	12.8	17.8	27.9
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	17	17	17	17
HS-GCMS	12	12	12	12
GC/MSE	6	6	6	6
GC/MSF/HS	1	1	1	1

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

ETHYLBENZENE

z-Score Plots
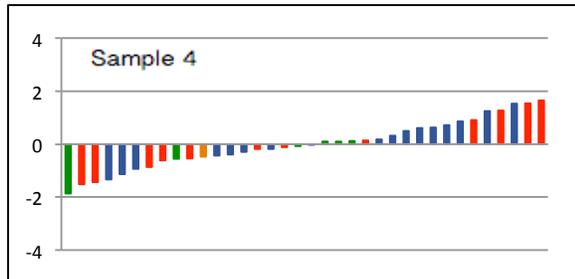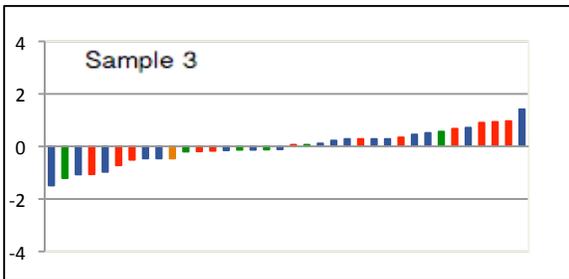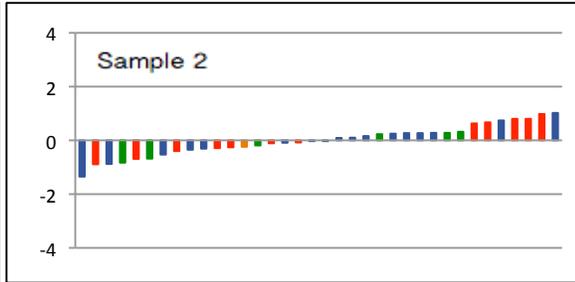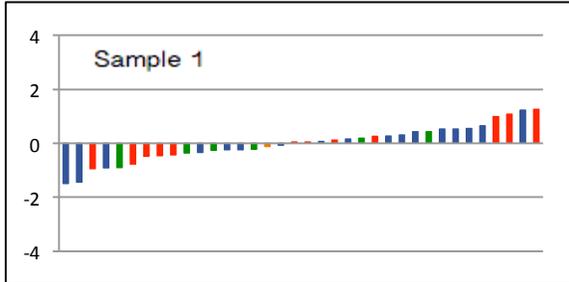

Kernel Density Plots
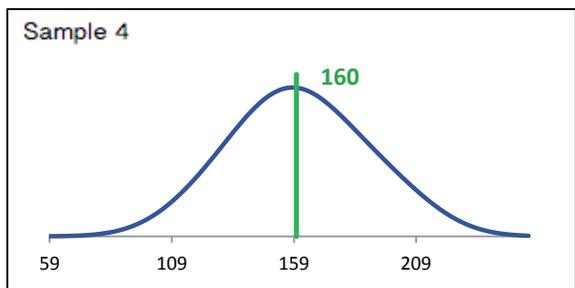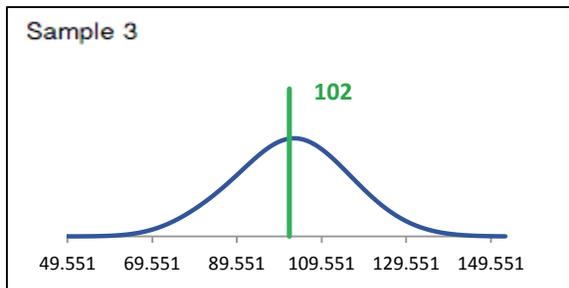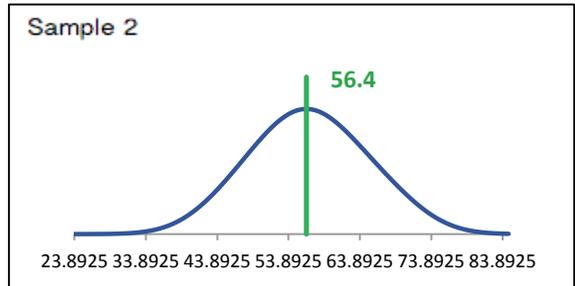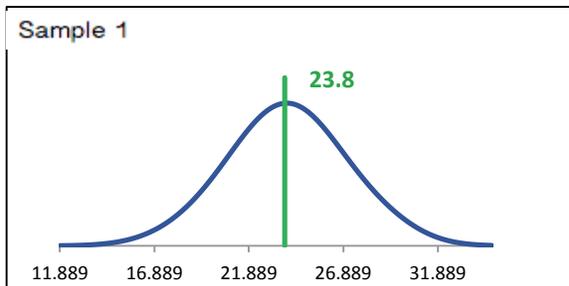
ETHYLBENZENE

Stability Regression
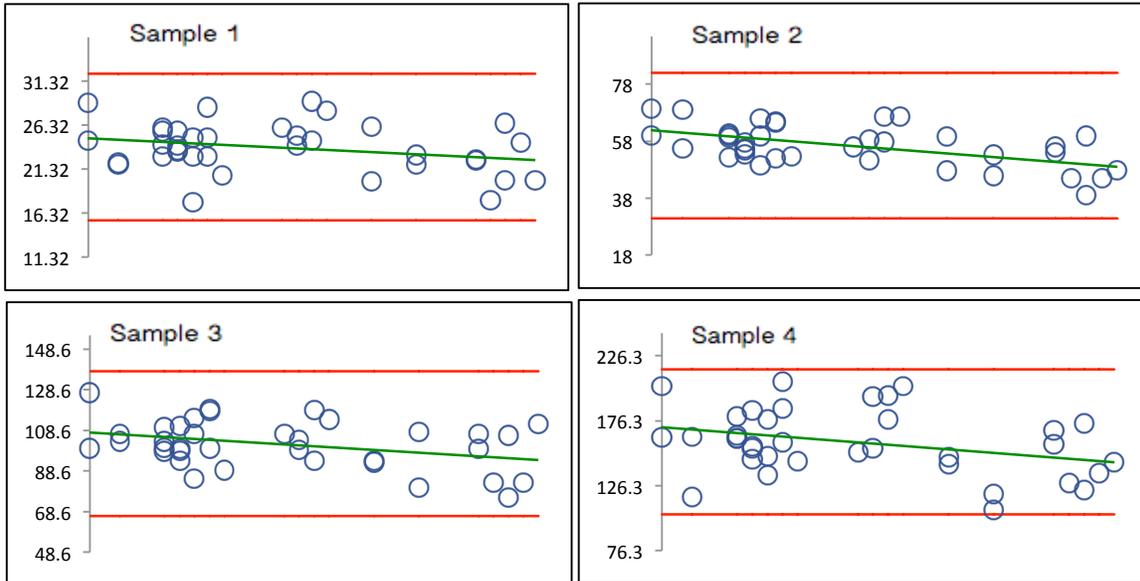
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
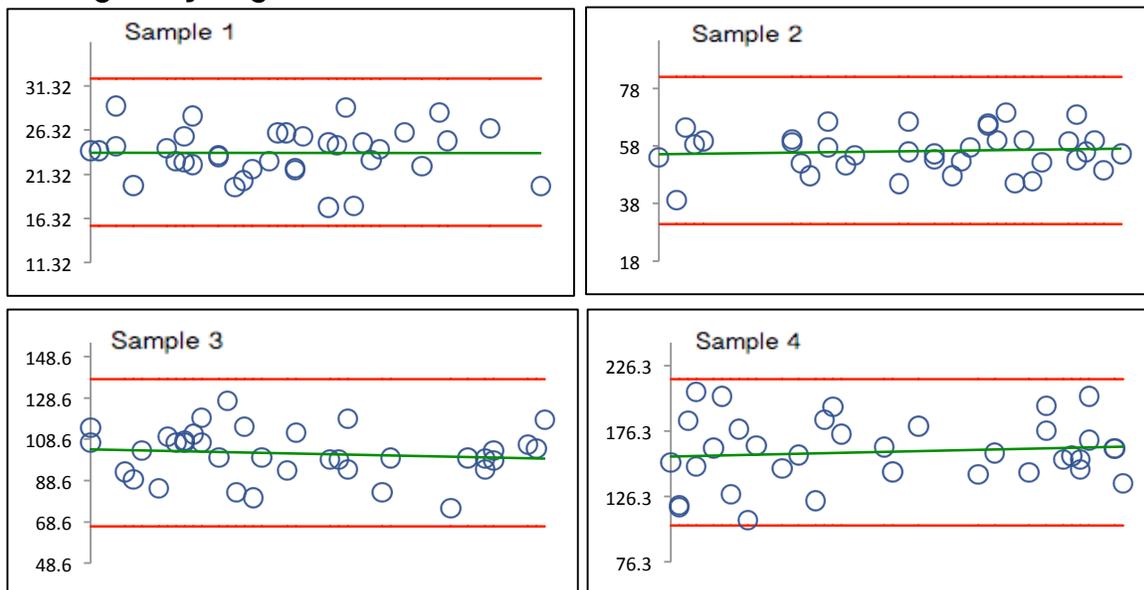
Reported results (Y-axis) plotted against bottling order (X-axis).

ETHYLENE DIBROMIDE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	35	35	35	35
Median	23.0	55.0	100	154
Robust Mean	23.0	55.8	101	153
U	0.401	0.97	2.00	3.66
Robust Standard Deviation	1.90	4.58	9.45	17.3
Regression Standard Deviation	4.02	9.76	17.6	26.8
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.02	9.76	17.6	26.8
Outliers	0	0	0	0
$|z|>3.0$	1	0	0	0
$2<|z|<3$	0	1	1	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
GC/MSE	4	4	4	4
P/T-GCMS	19	19	19	19
HS-GCMS	12	12	12	12

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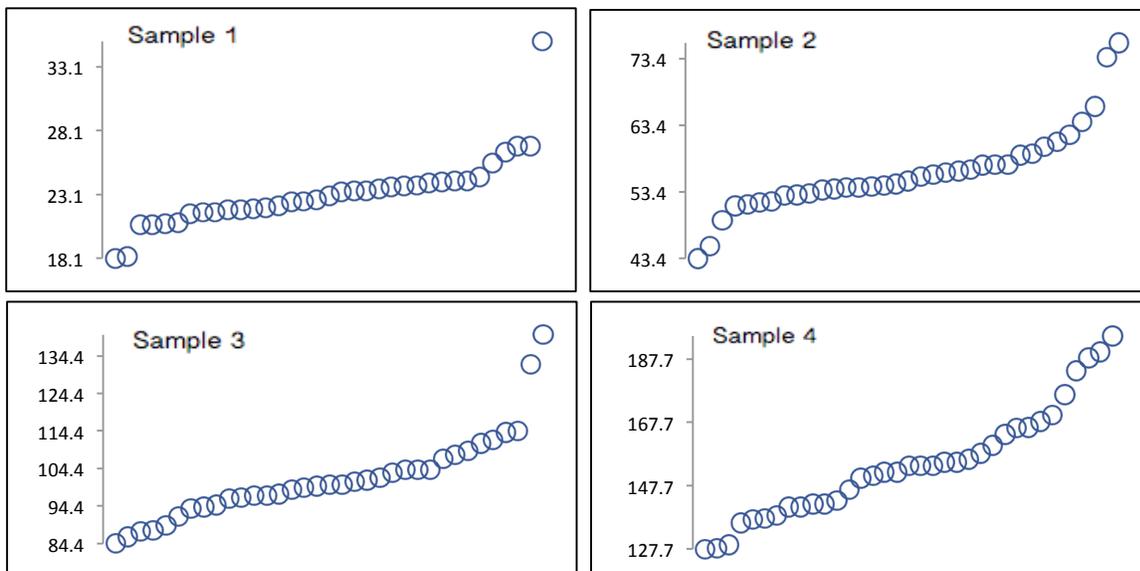
ETHYLENE DIBROMIDE

z-Score Plots
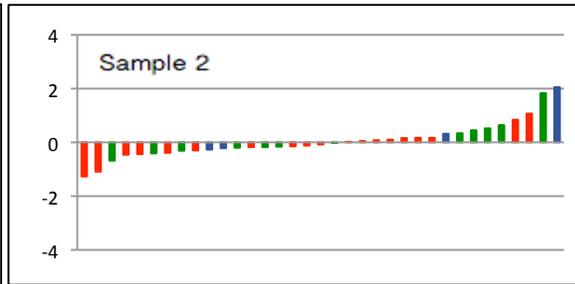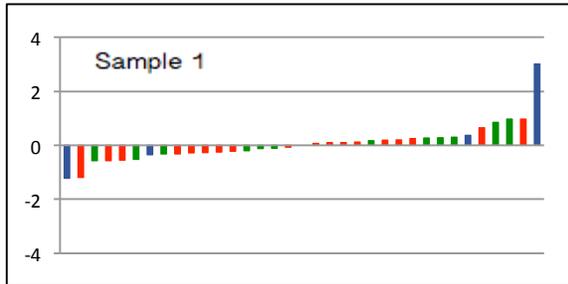
Kernel Density Plots
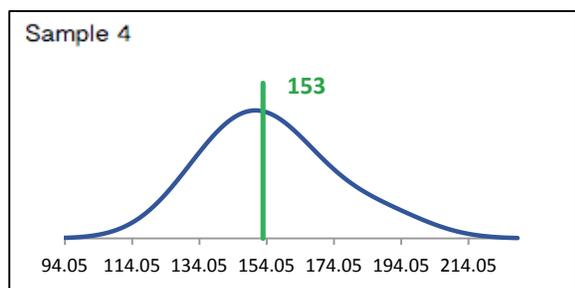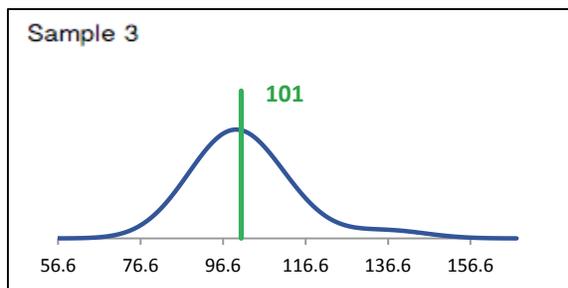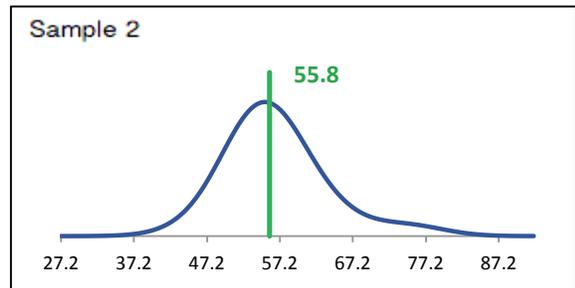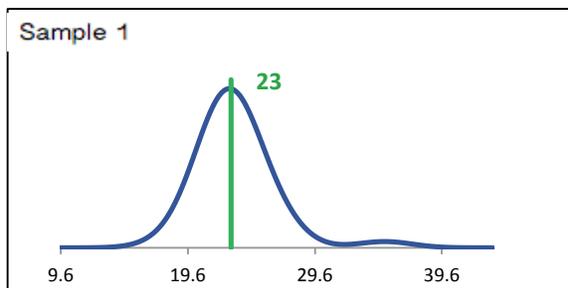
ETHYLENE DIBROMIDE

Stability Regression
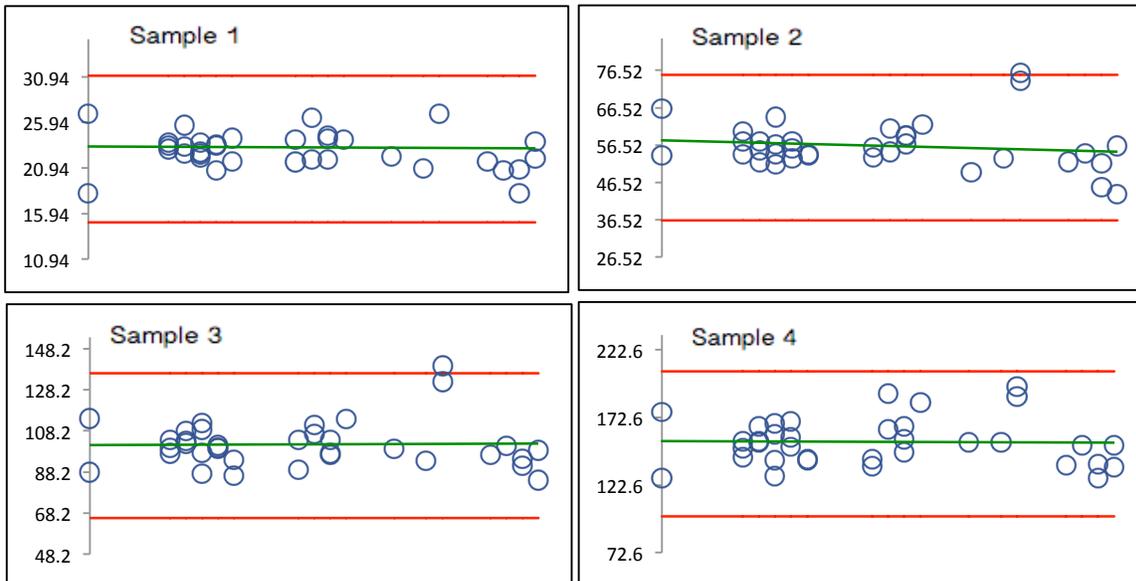
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
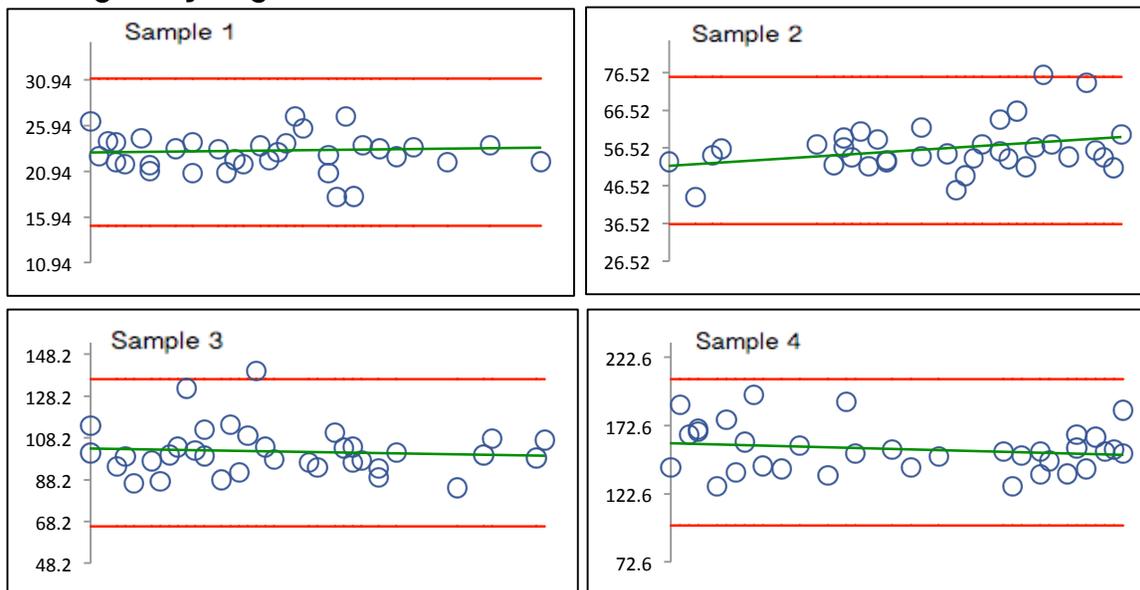
Reported results (Y-axis) plotted against bottling order (X-axis).

M,P-XYLENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	36	36	36	36
Median	22.6	53.9	96.1	151
Robust Mean	22.9	54.2	97.1	154
U	0.650	1.79	2.79	5.63
Robust Standard Deviation	3.12	8.61	13.40	27.0
Regression Standard Deviation	4.57	10.80	19.4	30.8
Stability Flag		Stability	Stability	Stability
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.57	14.3	21.6	33.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	2	1	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
GC/MSE	6	6	6	6
HS-GCMS	12	12	12	12
P/T-GCMS	17	17	17	17
GC/MSF/HS	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers
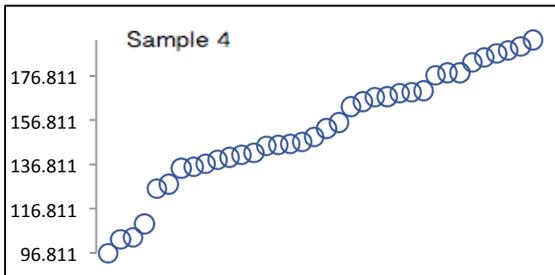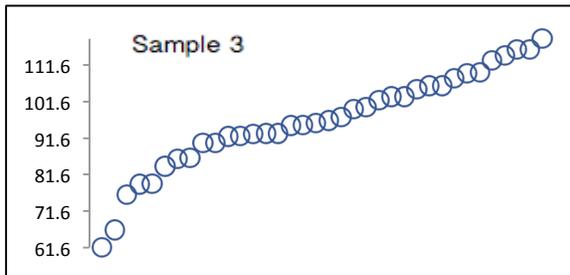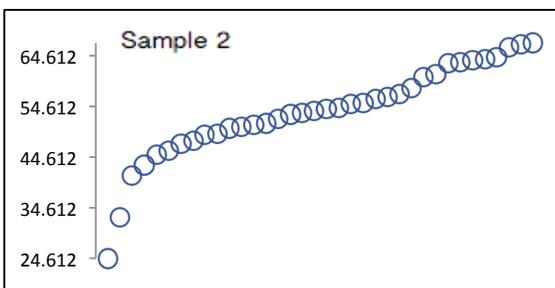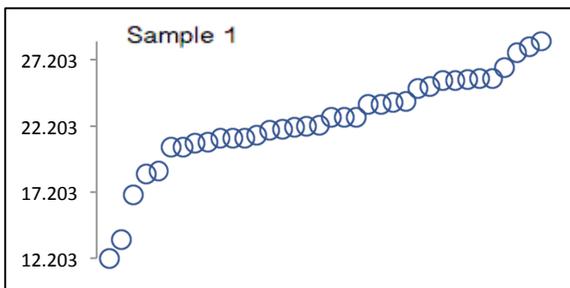
M,P-XYLENE

z-Score Plots
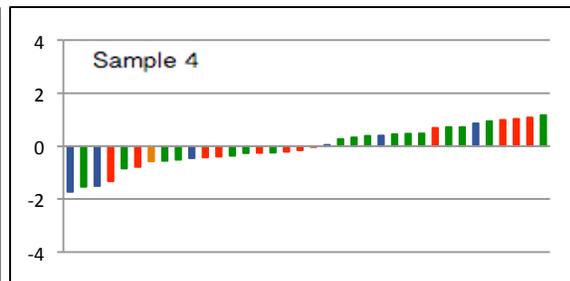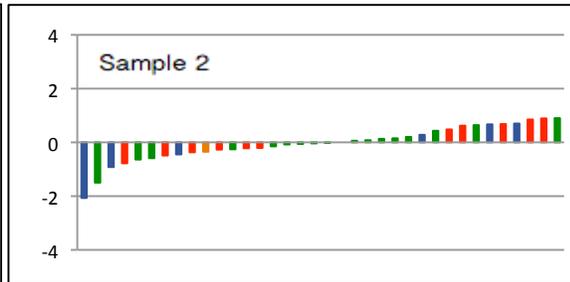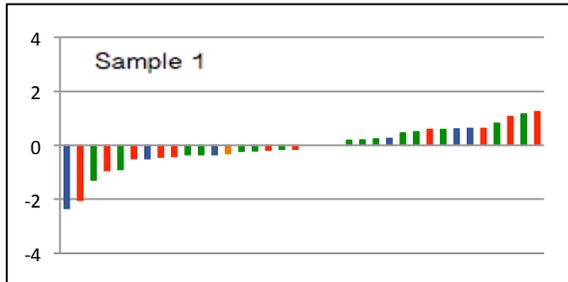
Kernel Density Plots
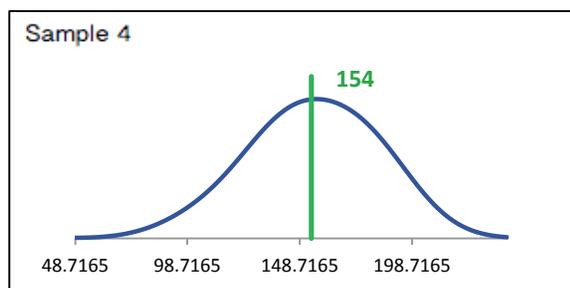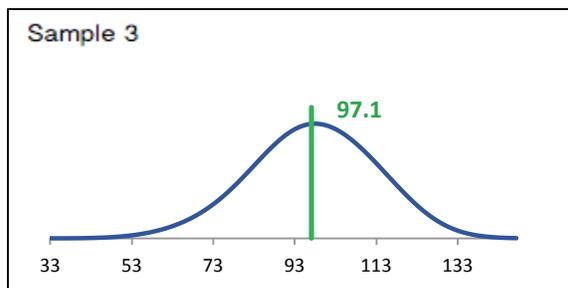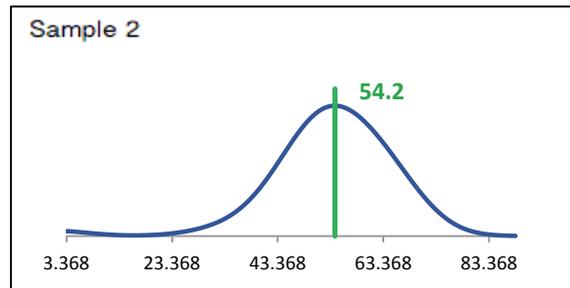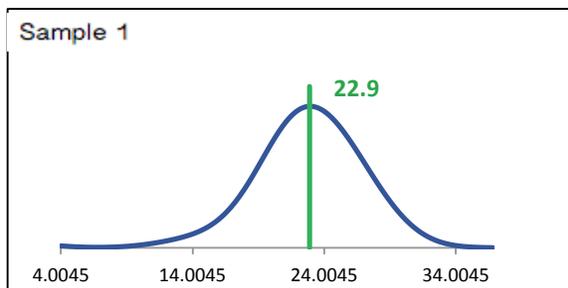
M,P-XYLENE

Stability Regression
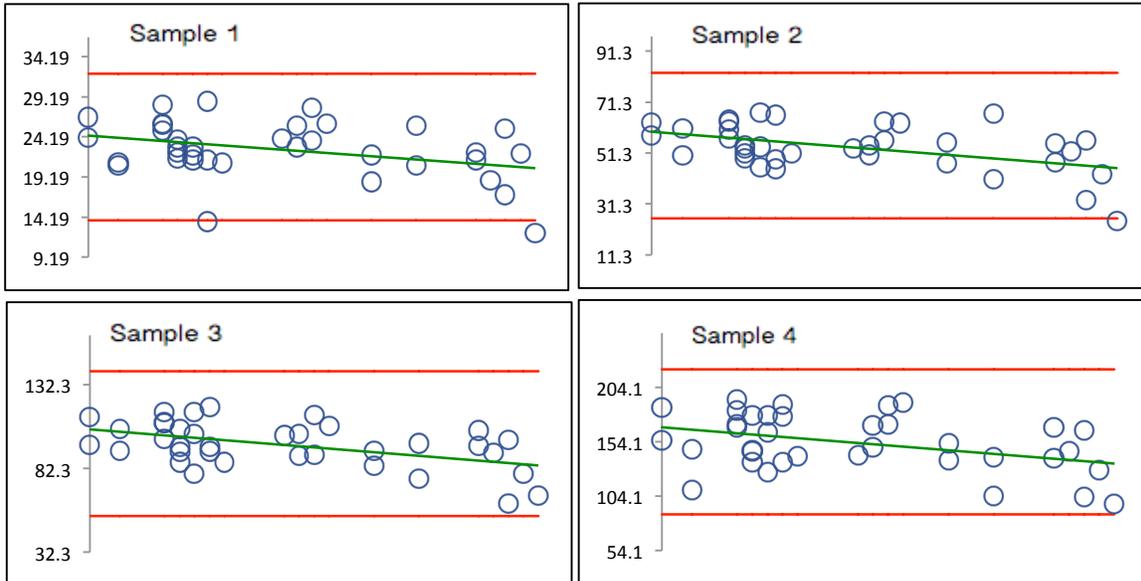
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
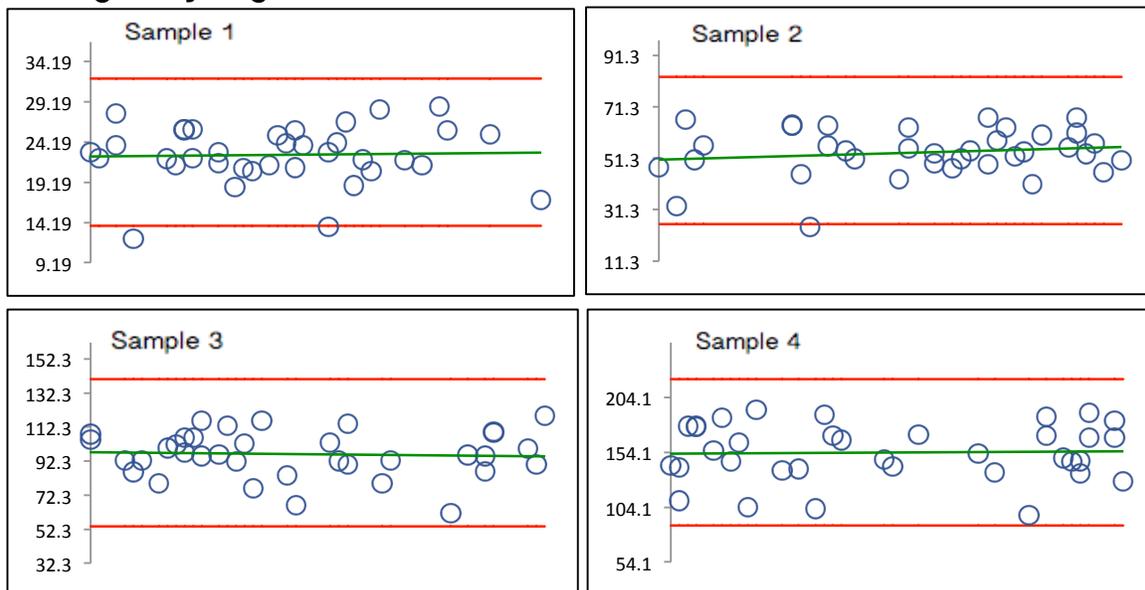
Reported results (Y-axis) plotted against bottling order (X-axis).

METHYL ETHYL KETONE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	30	30	30	30
Median	36.7	67.2	107	161
Robust Mean	36.2	67.0	109	158
U	1.890	2.18	3.74	5.48
Robust Standard Deviation	8.26	9.55	16.4	24.0
Regression Standard Deviation	9.96	18.4	29.9	43.3
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	9.96	18.4	29.9	43.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	1	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	17	17	17	17
HS-GCMS	10	10	10	10
GC/MSE	3	3	3	3

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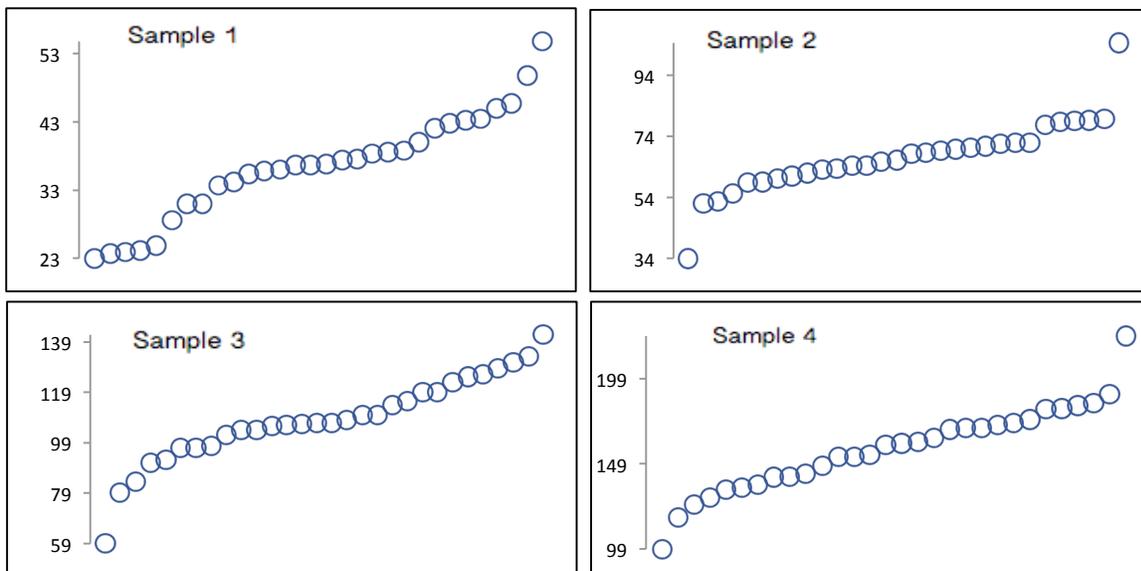
METHYL ETHYL KETONE

z-Score Plots
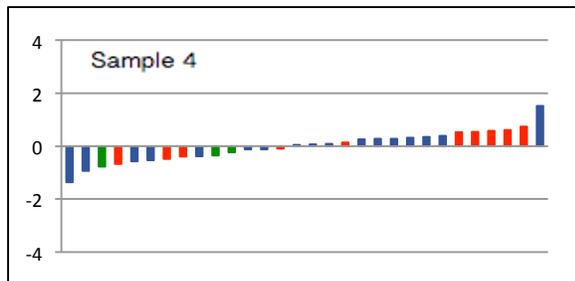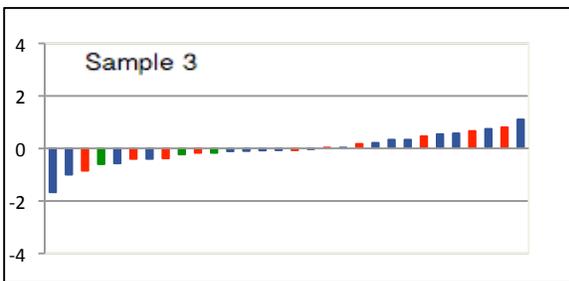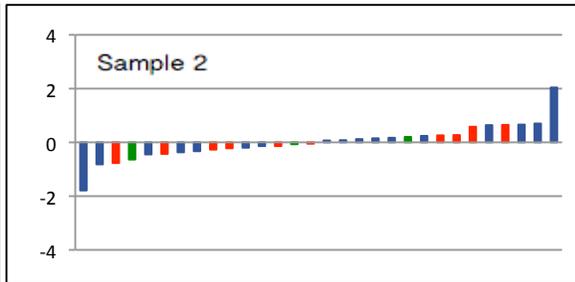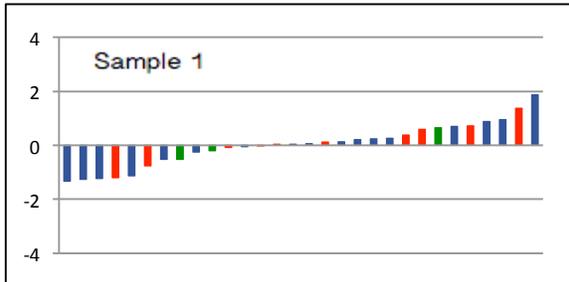
Kernel Density Plots
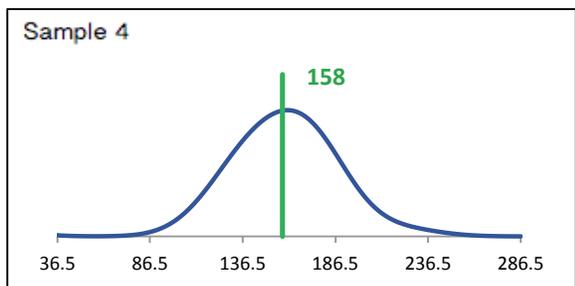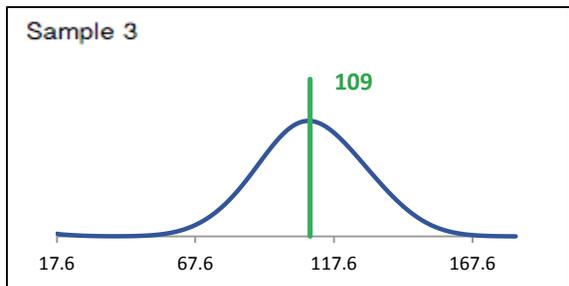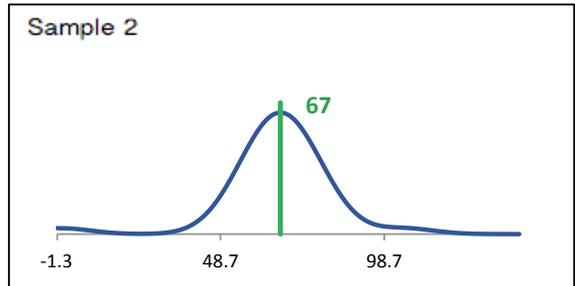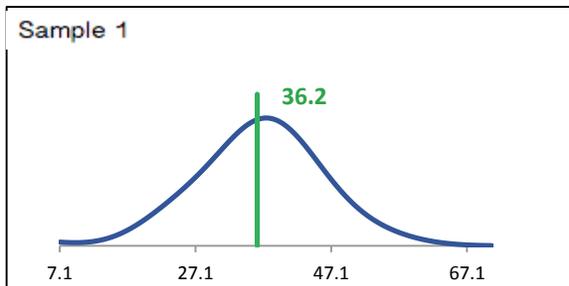
METHYL ETHYL KETONE

Stability Regression
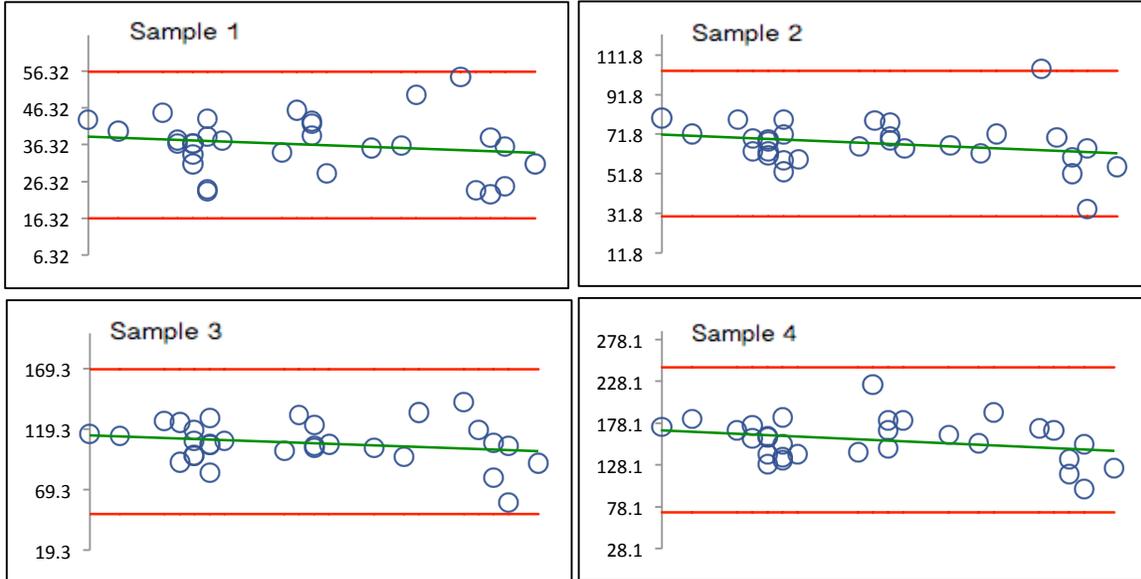
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
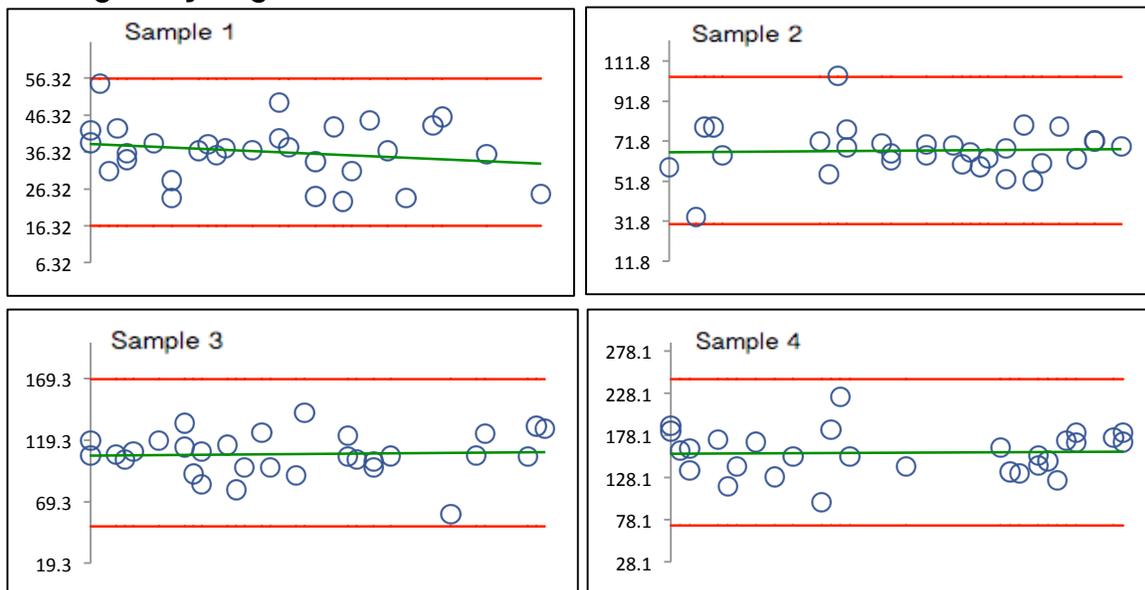
Reported results (Y-axis) plotted against bottling order (X-axis).

METHYL ISOBUTYL KETONE (MIBK)

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	28	28	28	28
Median	22.5	54.5	100	150
Robust Mean	22.1	54.3	100	151
U	0.562	1.58	2.74	5.29
Robust Standard Deviation	2.38	6.67	11.6	22.4
Regression Standard Deviation	4.98	12.2	22.6	34.0
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.98	12.2	22.6	34.0
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	1	1	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	18	18	18	18
HS-GCMS	9	9	9	9
GC/MSE	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers
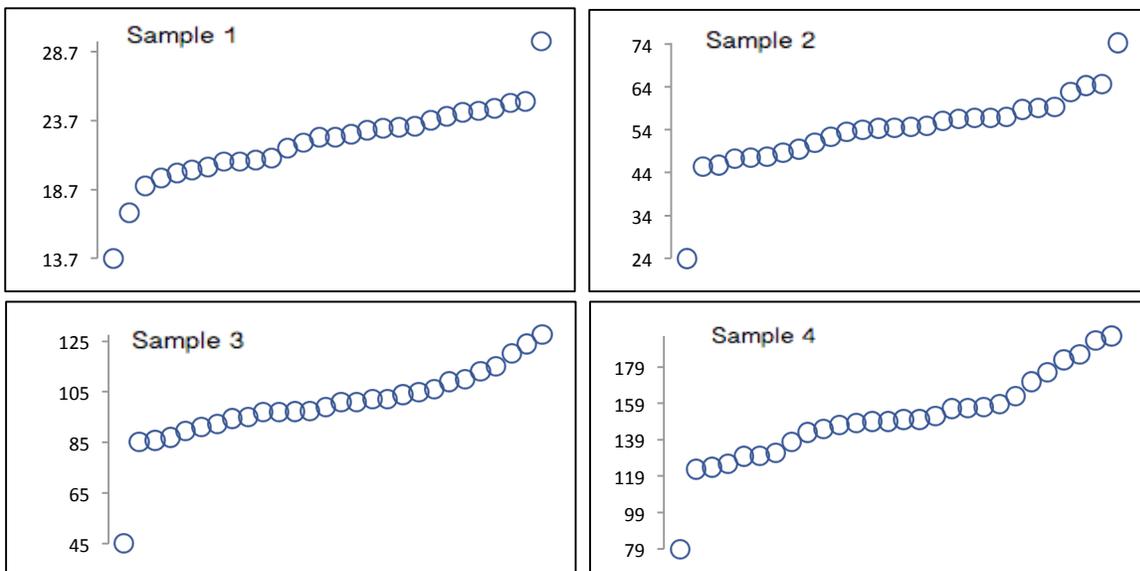
# METHYL ISOBUTYL KETONE (MIBK)

z-Score Plots
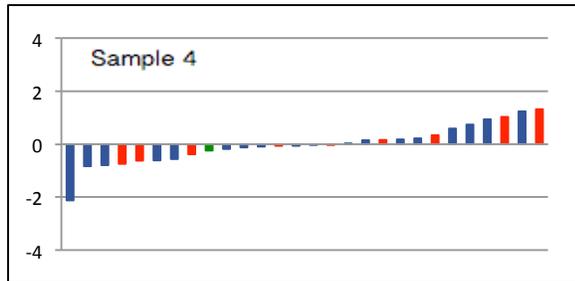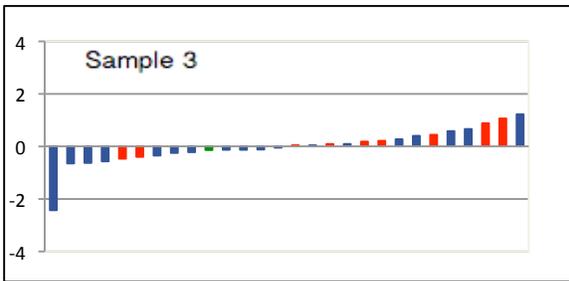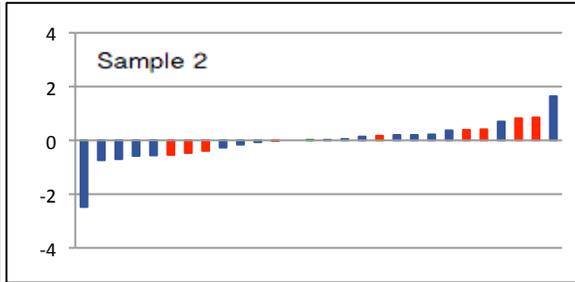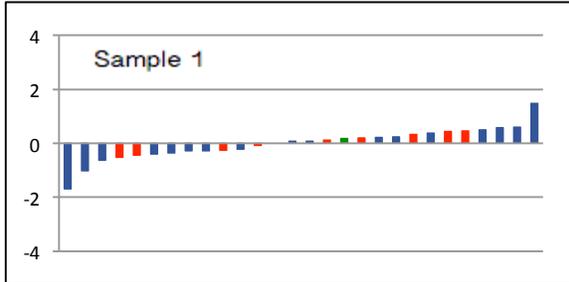
Kernel Density Plots
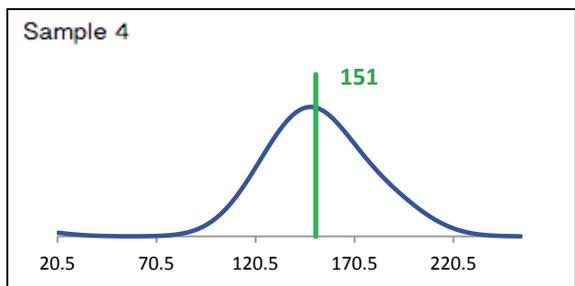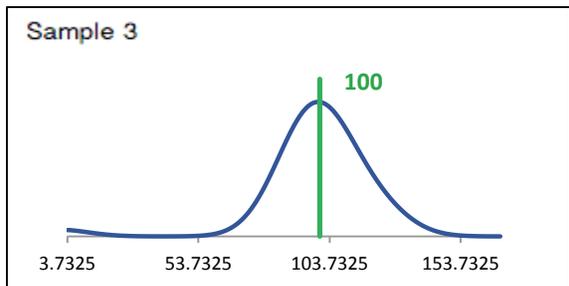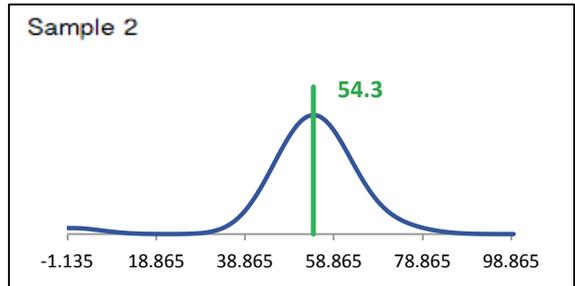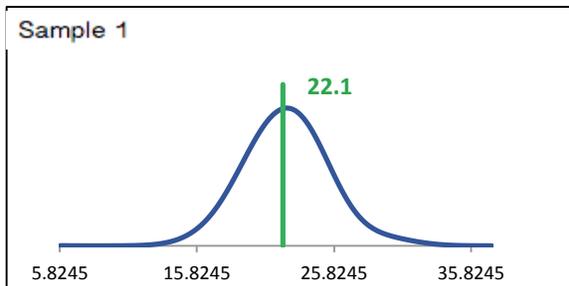
METHYL ISOBUTYL KETONE (MIBK)

Stability Regression
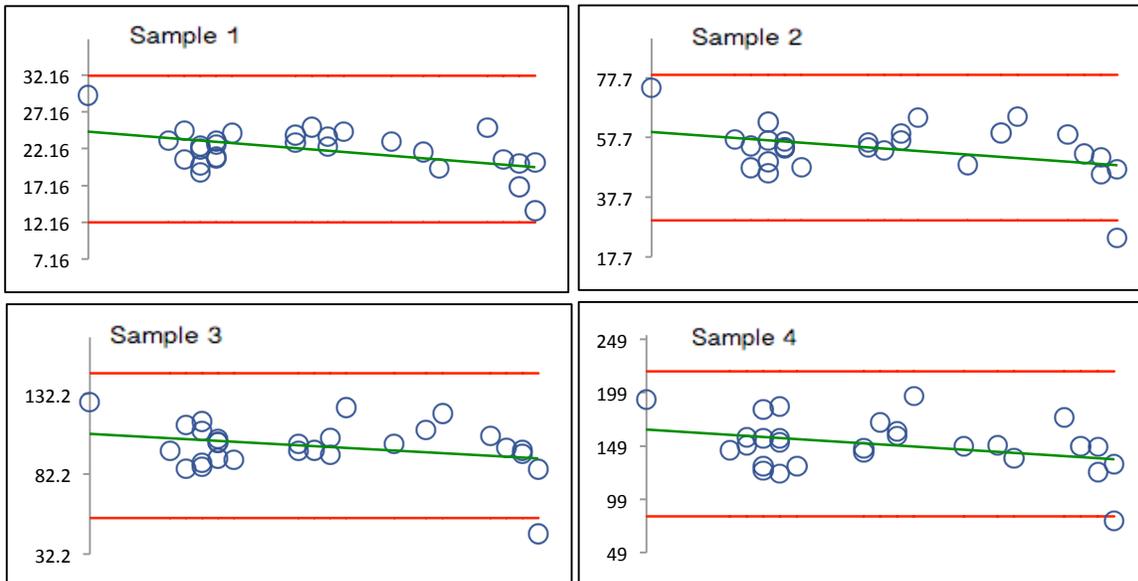
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
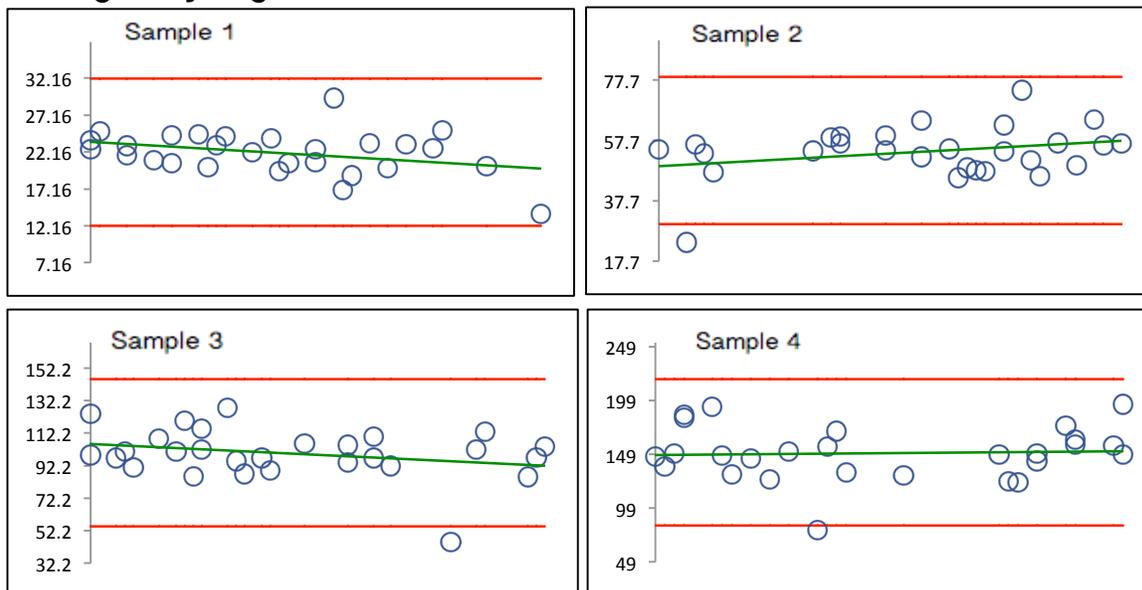
Reported results (Y-axis) plotted against bottling order (X-axis).

METHYL T-BUTYL ETHER

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	43	43	43	43
Median	23.1	57.0	101	148
Robust Mean	23.6	56.8	101	152
U	0.484	1.03	1.94	3.45
Robust Standard Deviation	2.54	5.41	10.2	18.1
Regression Standard Deviation	4.71	11.4	20.3	30.3
Stability Flag		Stability	Stability	Stability
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.71	14.5	21.0	41.3
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	3	2	4	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	17	17	17	17
GC/MSE	6	6	6	6
GC/MSF/HS	1	1	1	1

All summary stats and the plots below are based on the data excluding any flagged outliers
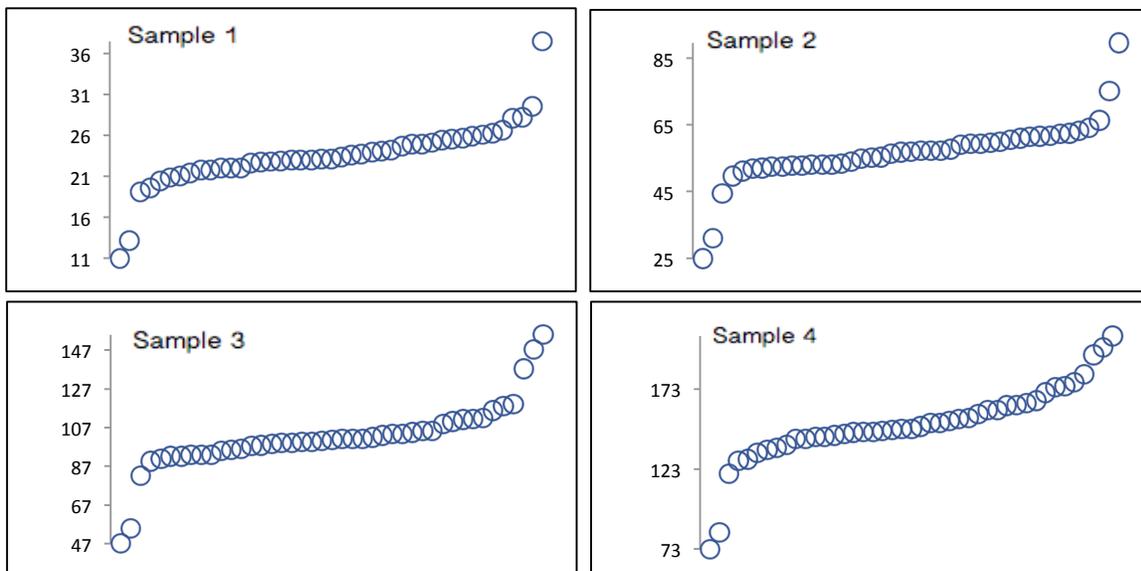
# METHYL T-BUTYL ETHER

## z-Score Plots
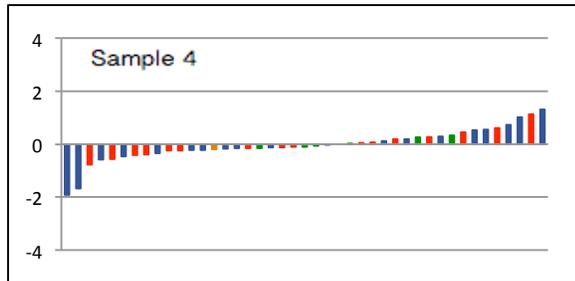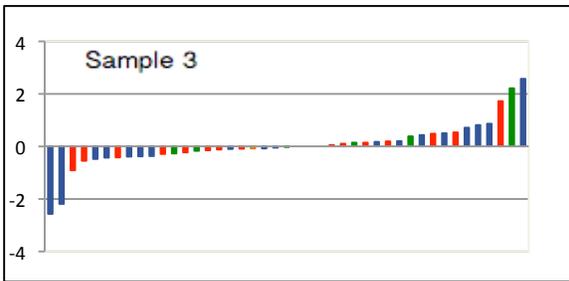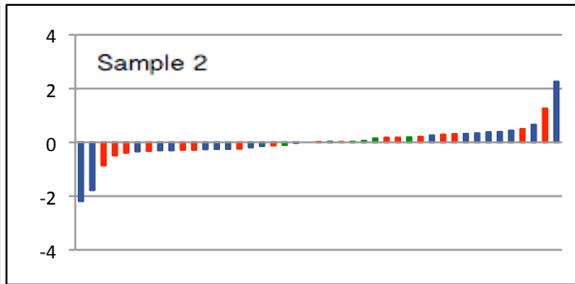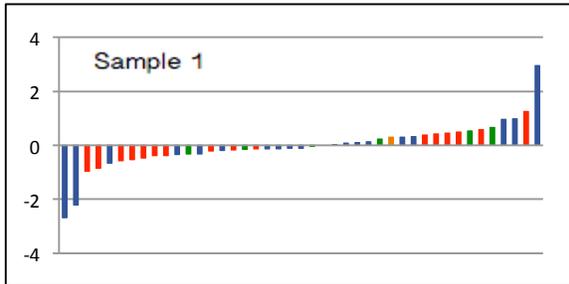
Kernel Density Plots
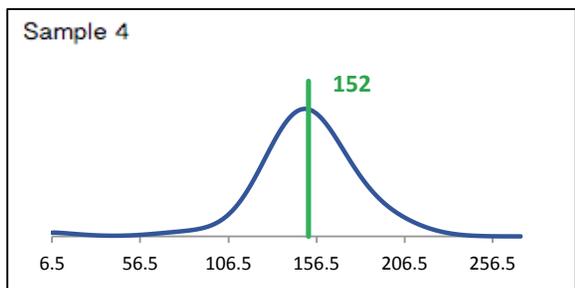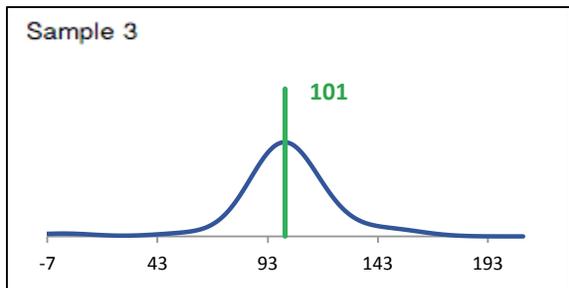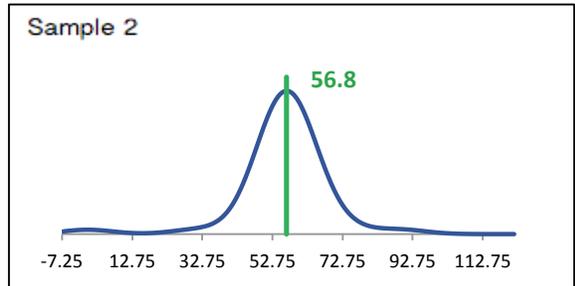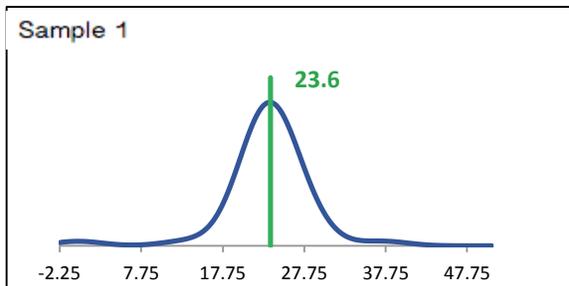
METHYL T-BUTYL ETHER

Stability Regression
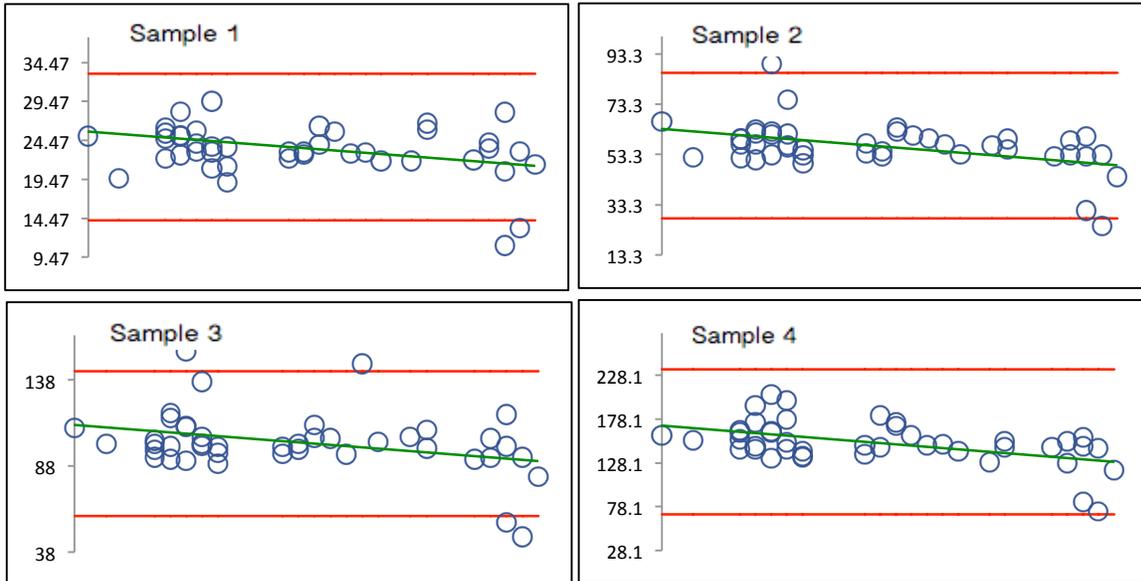
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
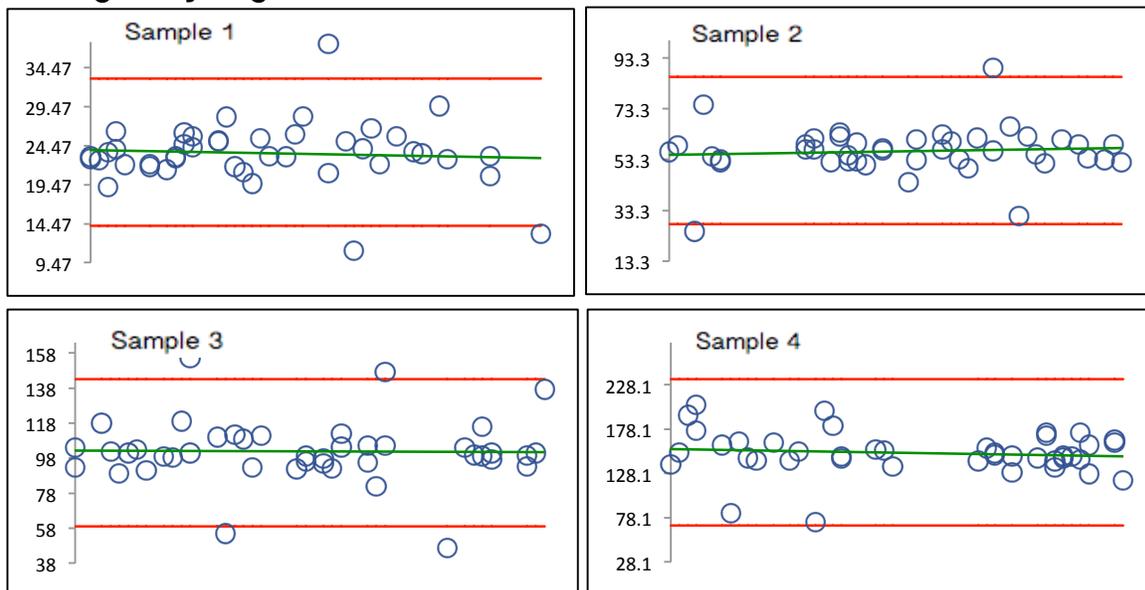
Reported results (Y-axis) plotted against bottling order (X-axis).

O-XYLENE

Summary Statistics

Statistic	C36-1	C36-2	C36-3	C36-4
N	36	36	36	36
Median	24.1	56.8	106	161
Robust Mean	24.2	57.5	105	162
U	0.563	1.38	2.83	5.19
Robust Standard Deviation	2.70	6.62	13.6	24.9
Regression Standard Deviation	4.23	10.1	18.4	28.4
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.23	10.1	18.4	28.4
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	1	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	12	12	12	12
GC/MSE	6	6	6	6
P/T-GCMS	17	17	17	17
GC/MSF/HS	1	1	1	1

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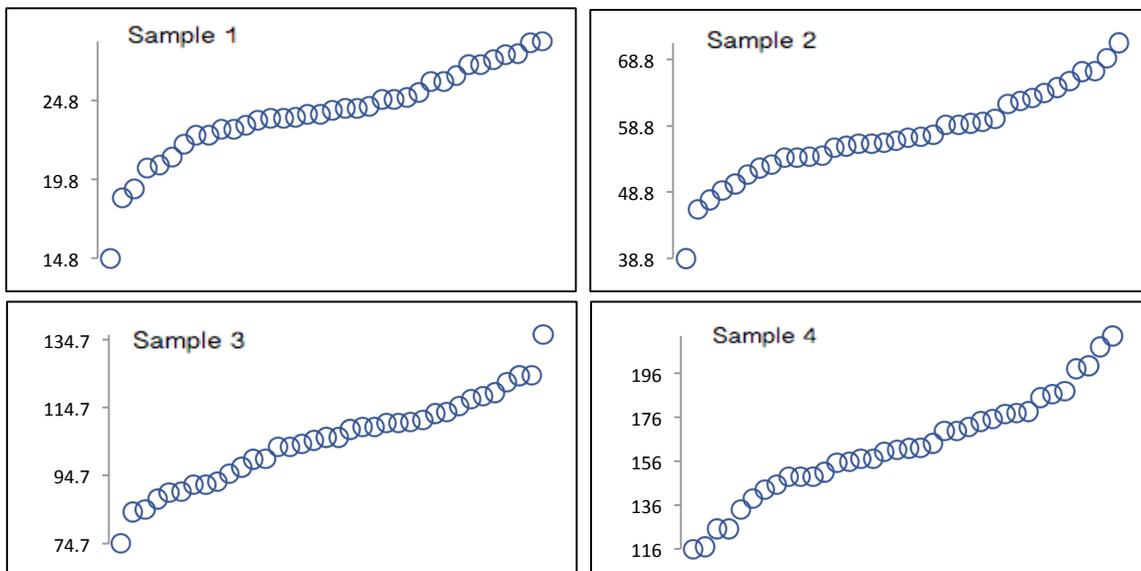
O-XYLENE

## z-Score Plots
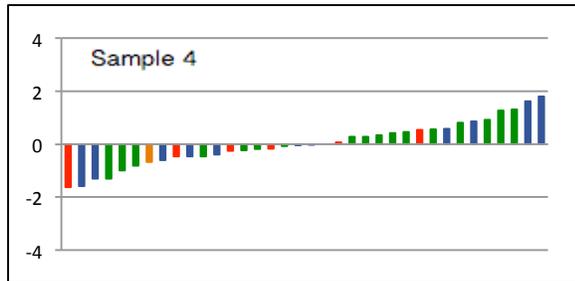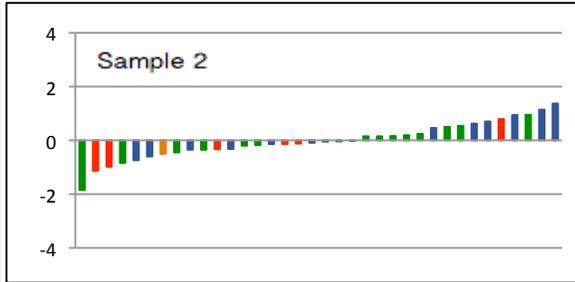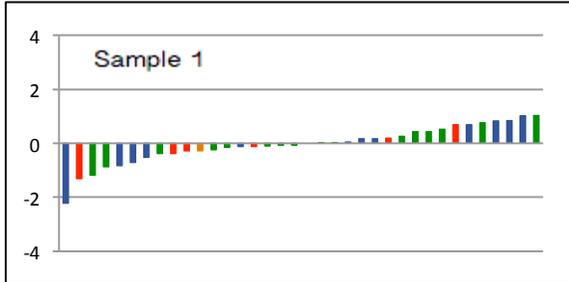
Kernel Density Plots
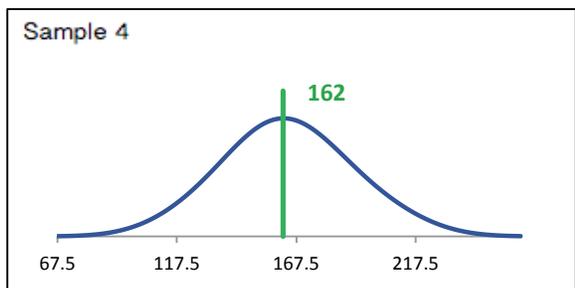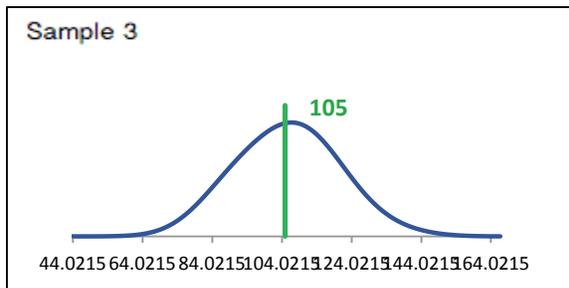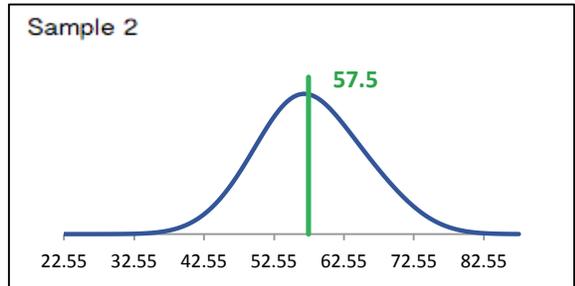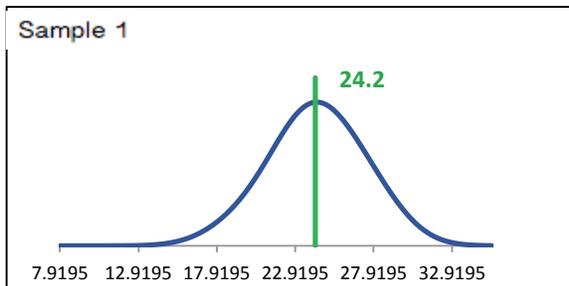
O-XYLENE

Stability Regression
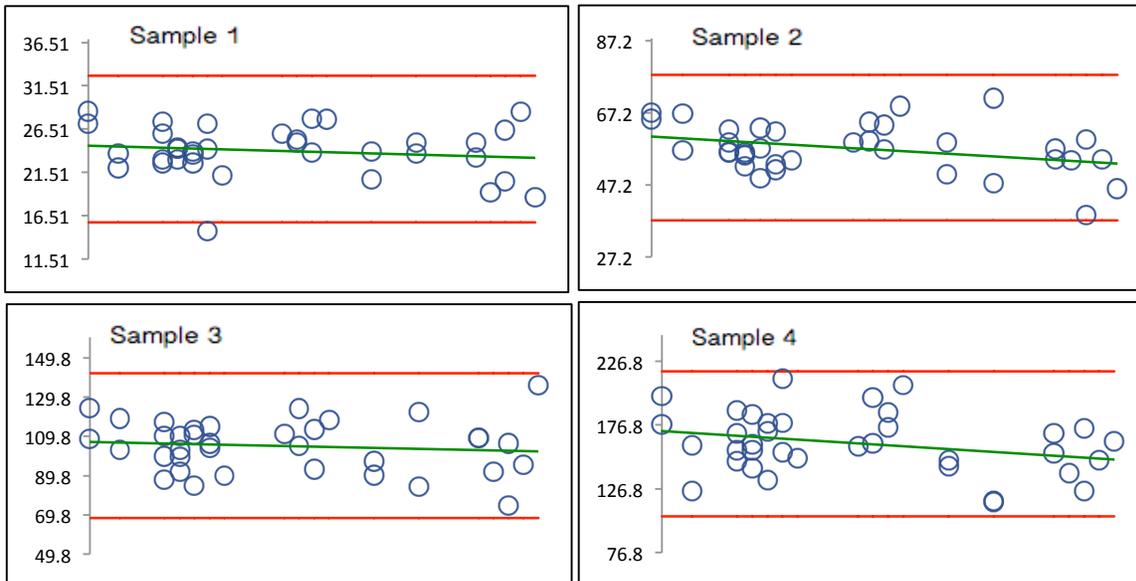
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
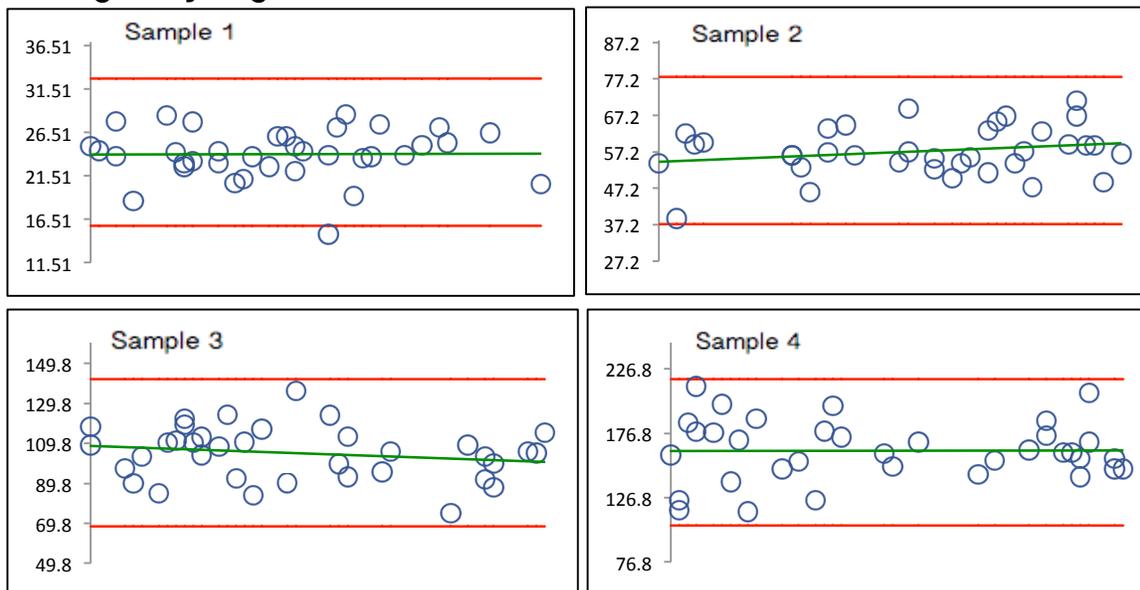
Reported results (Y-axis) plotted against bottling order (X-axis).

STYRENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	44	44	44	44
Median	23.0	56.2	100	150
Robust Mean	22.5	55.9	100	150
U	0.416	1.02	2.28	4.45
Robust Standard Deviation	2.21	5.40	12.1	23.6
Regression Standard Deviation	3.94	9.79	17.5	26.3
Stability Flag	Stability	Stability	Stability	Stability
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.03	13.2	23.3	38.7
Outliers	0	0	0	0
|z|>3.0	1	0	0	0
2<|z|<3	0	1	1	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	15	15	15	15
GC/MSF	1	1	1	1
P/T-GCMS	20	20	20	20
GC/MSE	7	7	7	7
GC/MSF/HS	1	1	1	1

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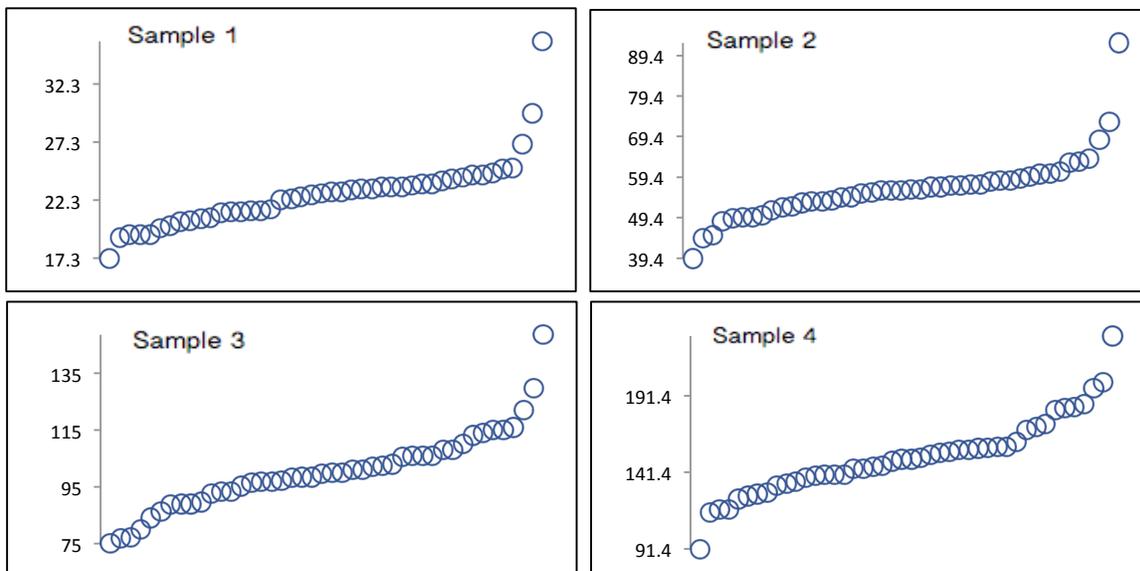
STYRENE

## z-Score Plots
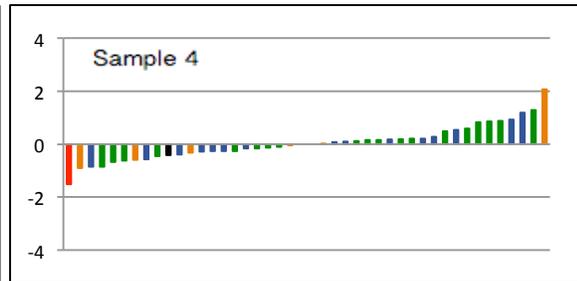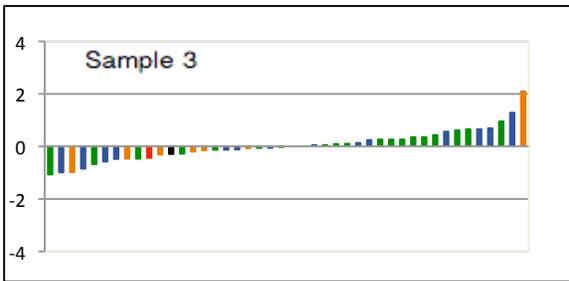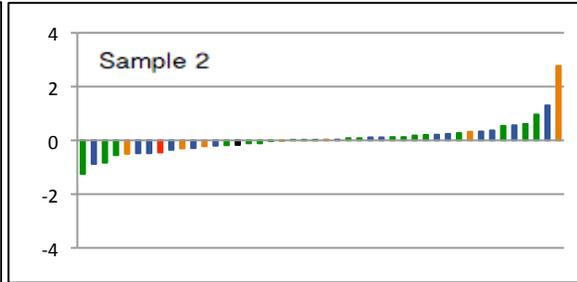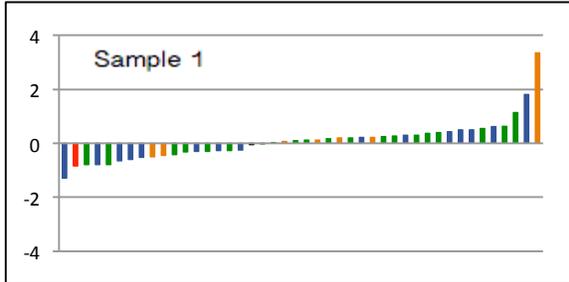
Kernel Density Plots
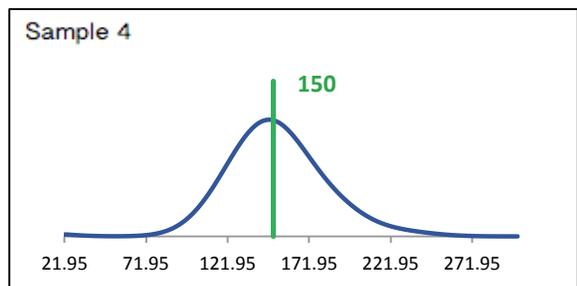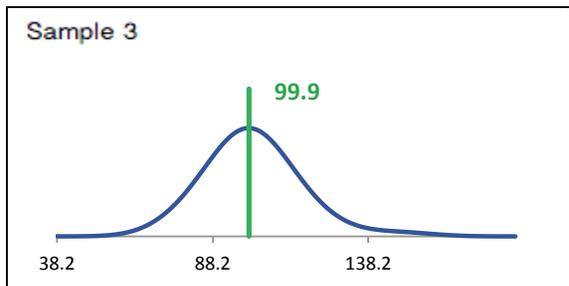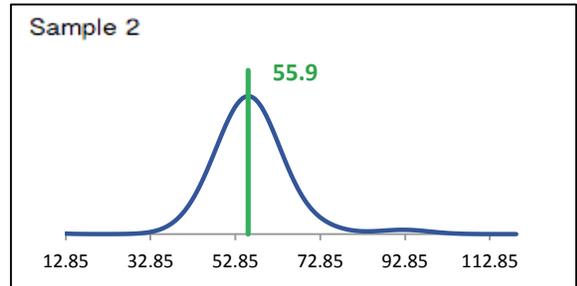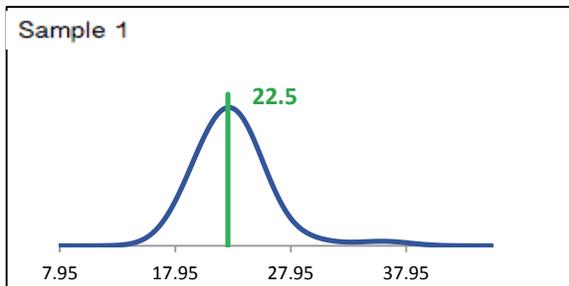
STYRENE

Stability Regression
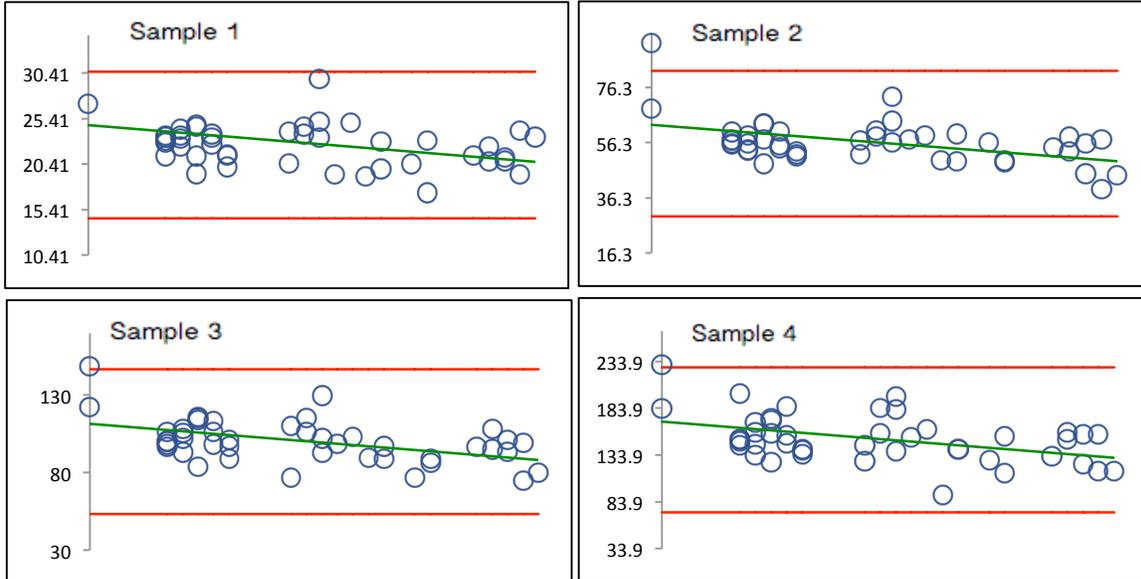
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
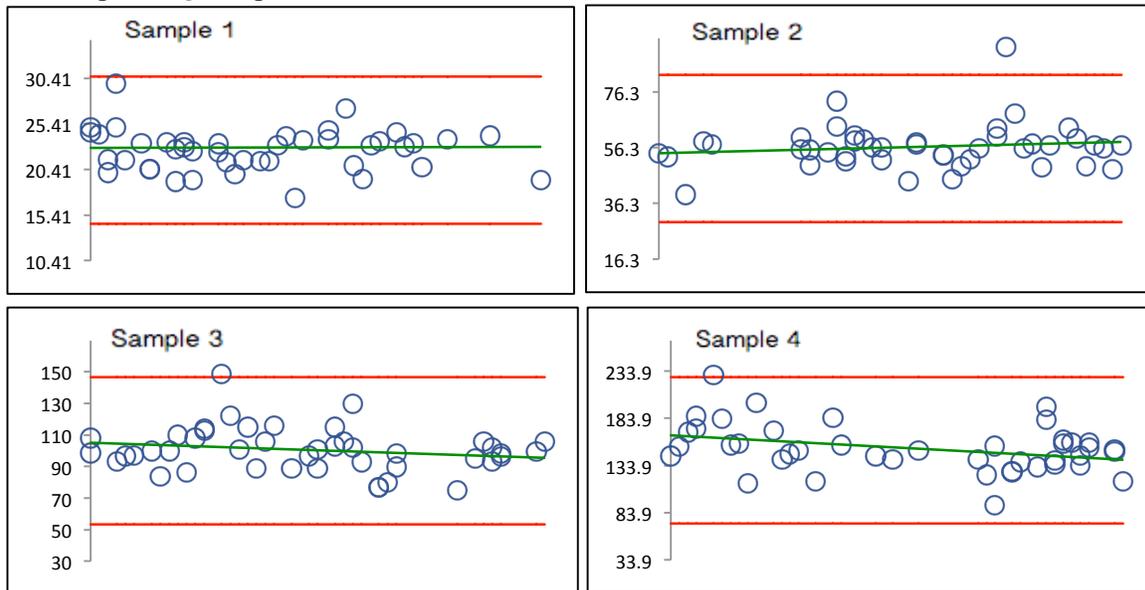
Reported results (Y-axis) plotted against bottling order (X-axis).

TETRACHLOROETHYLENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	39	39	39	39
Median	23.9	55.3	97.4	157
Robust Mean	23.9	55.0	97.5	157
U	0.618	1.34	2.36	4.54
Robust Standard Deviation	3.09	6.71	11.8	22.7
Regression Standard Deviation	5.39	12.4	21.9	35.3
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	5.39	12.4	21.9	35.3
Outliers	0	0	0	0
$|z| > 3.0$	0	0	0	0
$2 < |z| < 3$	1	0	0	1

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	13	13	13	13
GC/MSE	6	6	6	6

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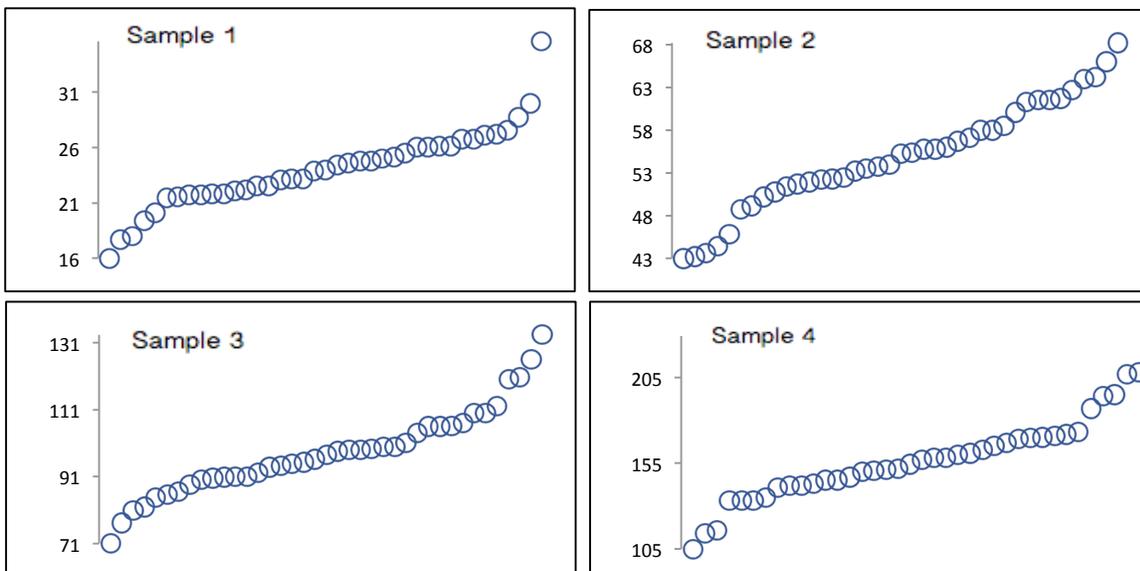
TETRACHLOROETHYLENE

z-Score Plots
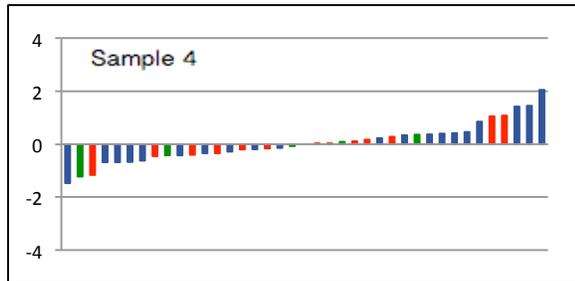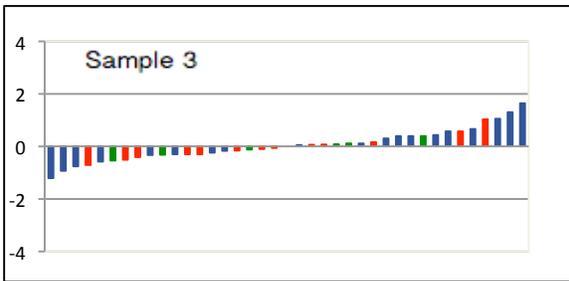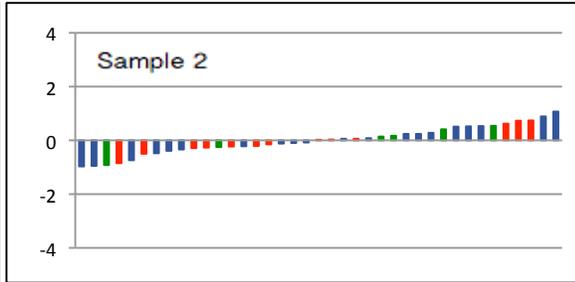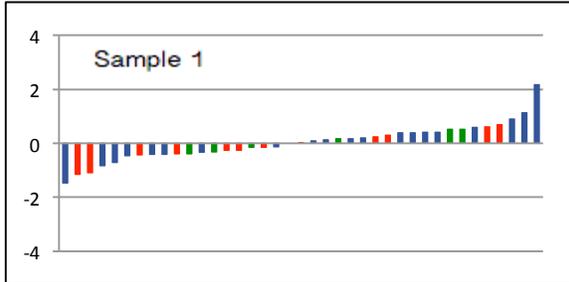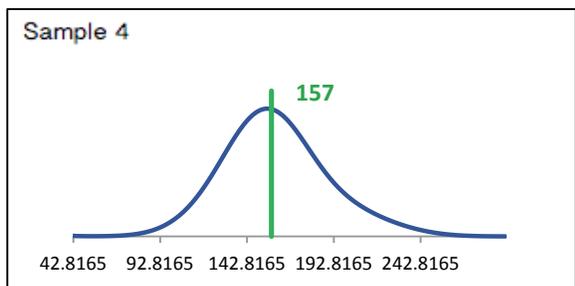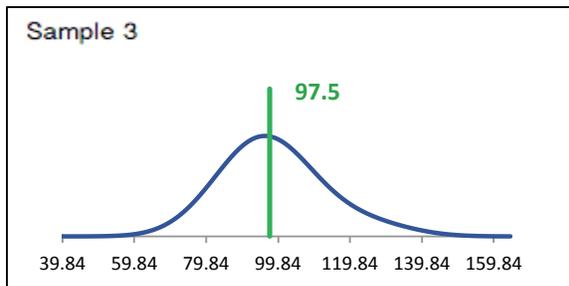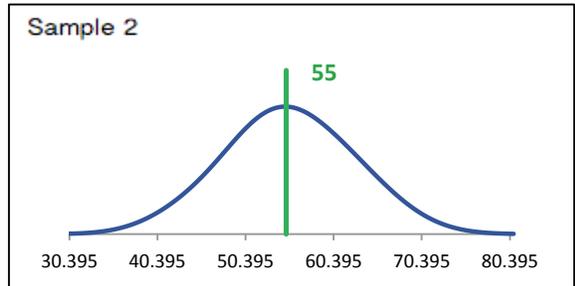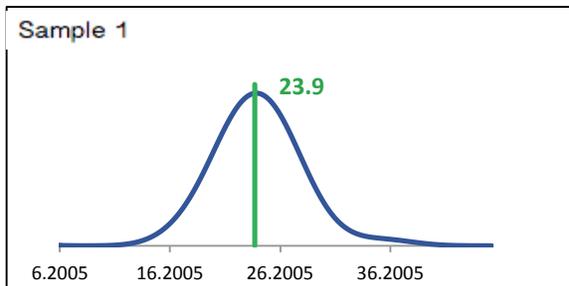

Kernel Density Plots

TETRACHLOROETHYLENE
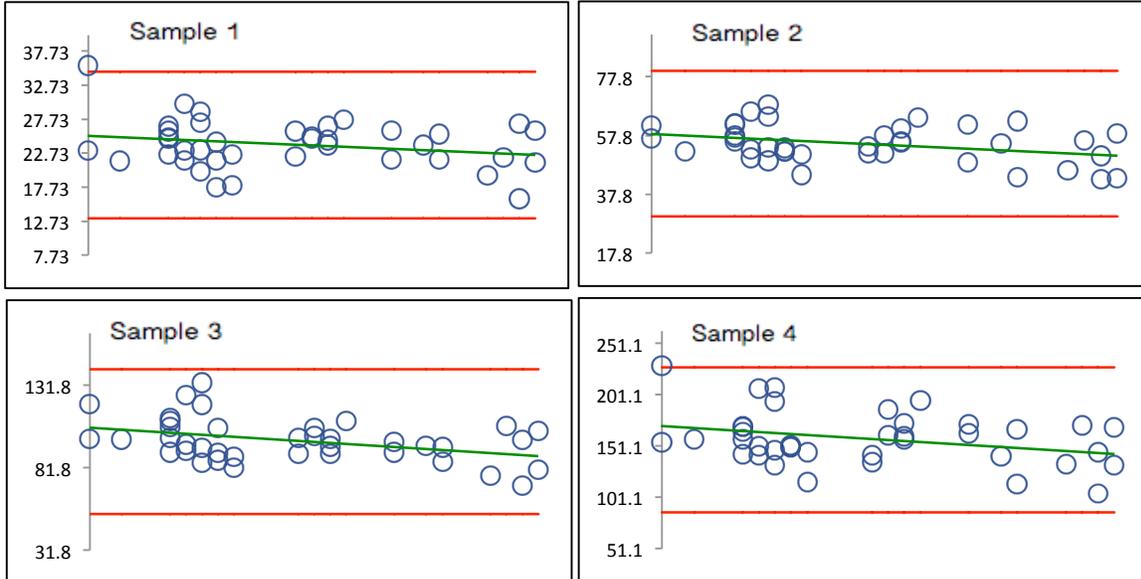
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
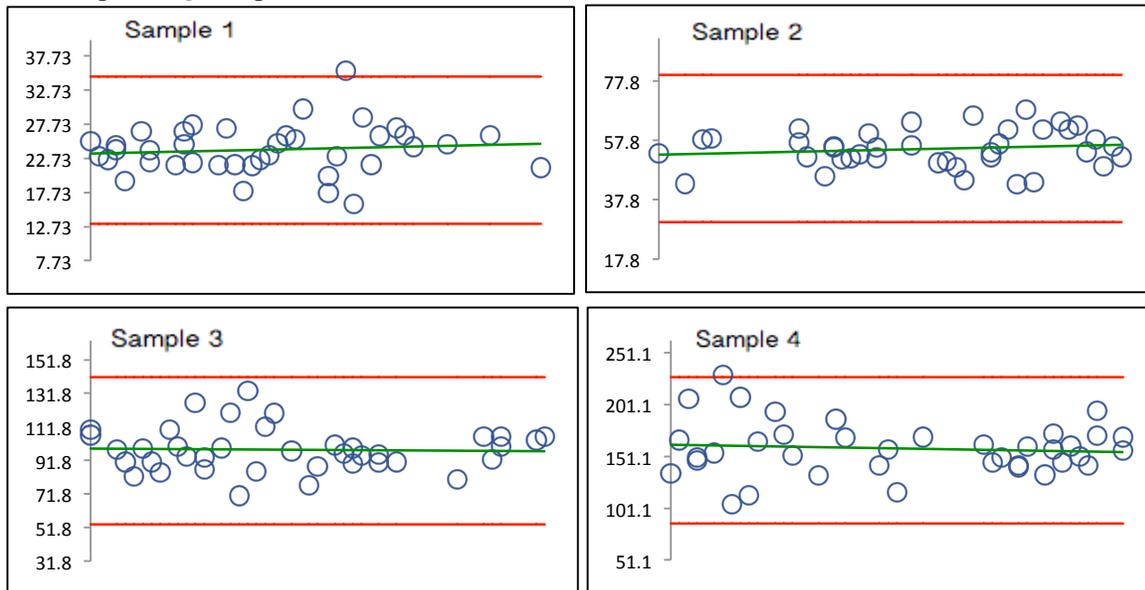
Reported results (Y-axis) plotted against bottling order (X-axis).

TOLUENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	36	36	36	36
Median	23.6	55.4	100	161
Robust Mean	23.8	56.2	101	159
U	0.538	1.33	2.52	4.50
Robust Standard Deviation	2.58	6.40	12.1	21.6
Regression Standard Deviation	4.16	9.84	17.6	27.8
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.16	10.8	17.6	27.8
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	17	17	17	17
HS-GCMS	12	12	12	12
GC/MSE	6	6	6	6
GC/MSF/HS	1	1	1	1

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

TOLUENE

## z-Score Plots
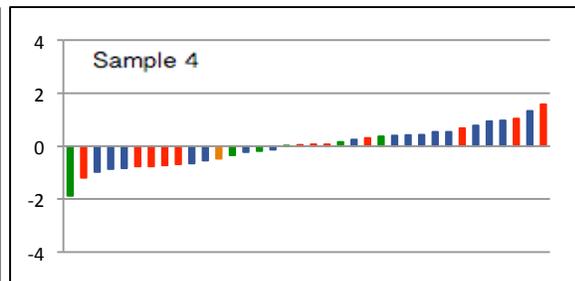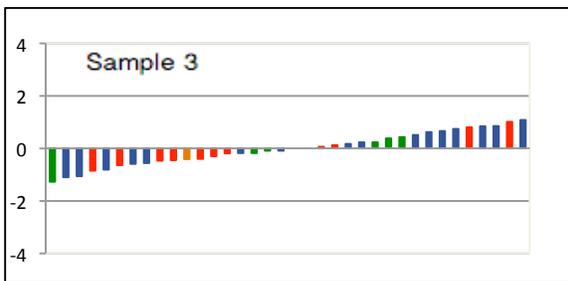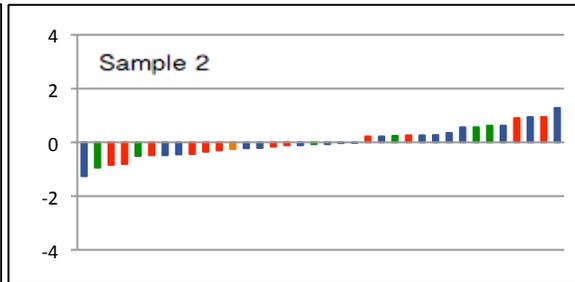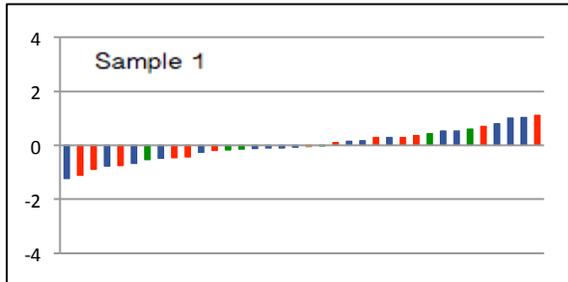
Kernel Density Plots
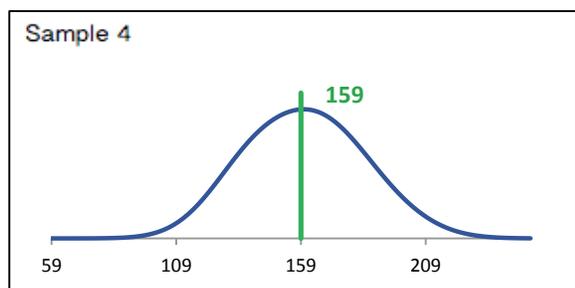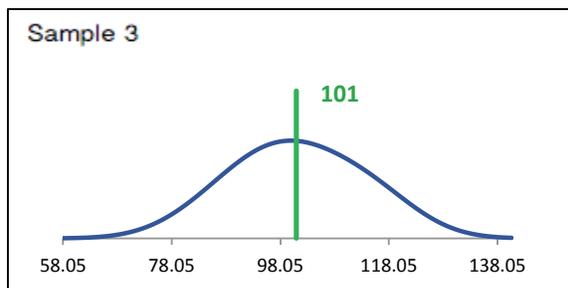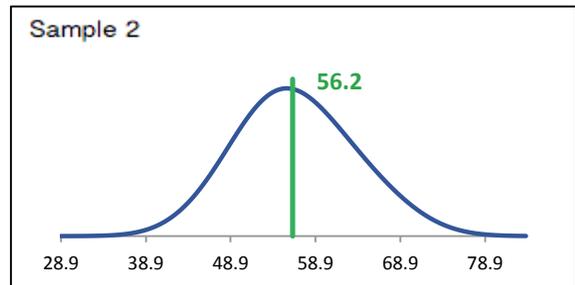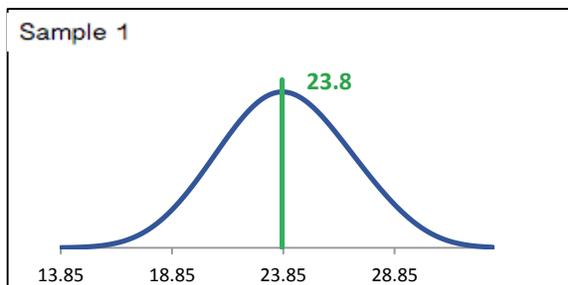
TOLUENE

Stability Regression
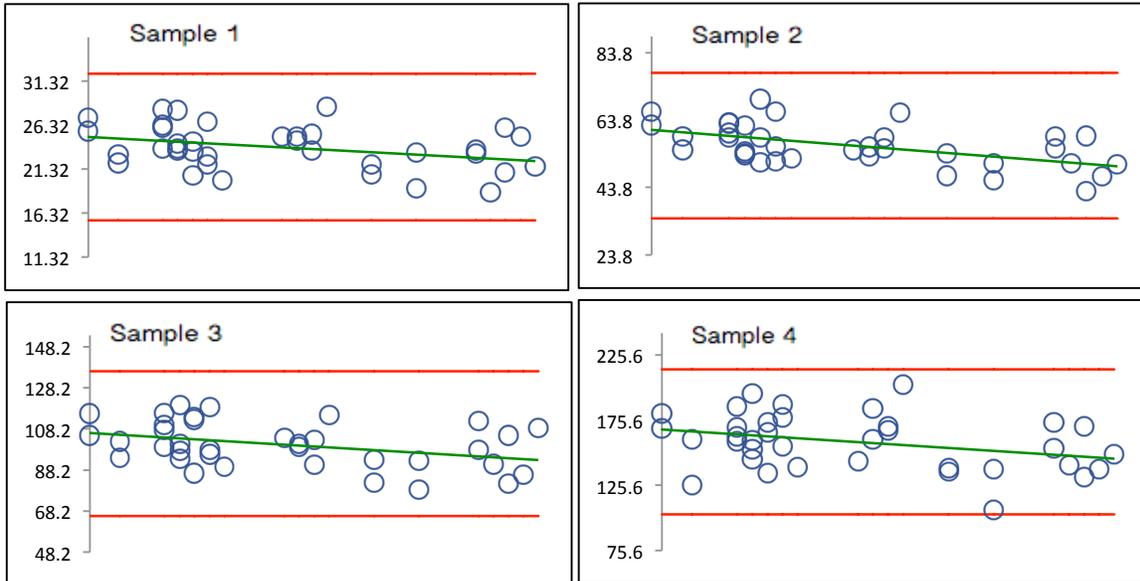
Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
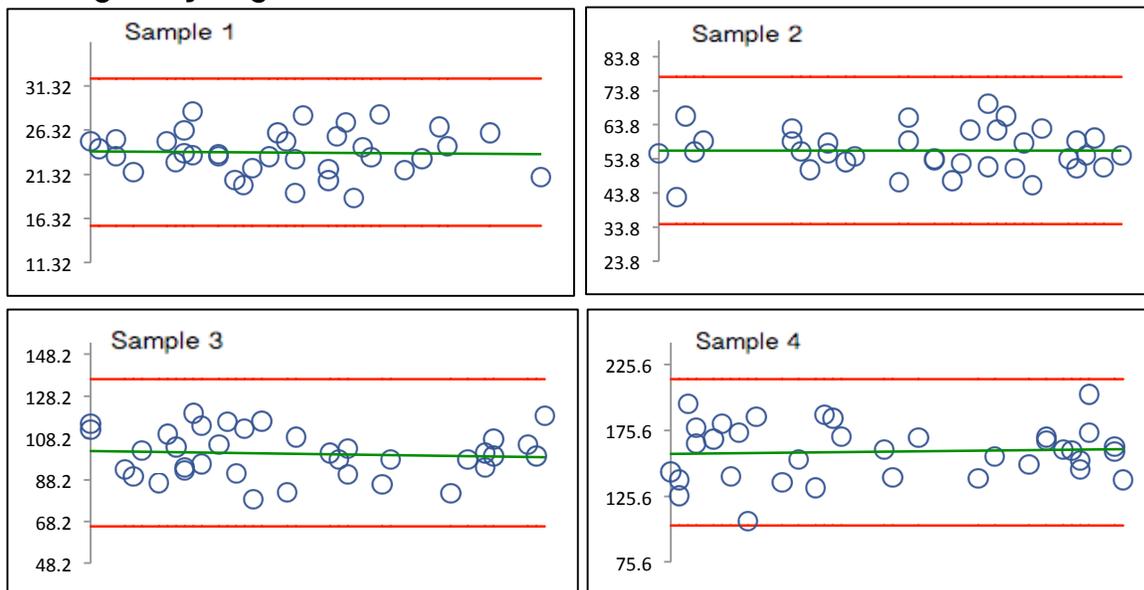
Reported results (Y-axis) plotted against bottling order (X-axis).

TRANS-1,2-DICHLOROETHYLENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	38	38	38	38
Median	23.5	60.0	106	159
Robust Mean	23.6	61.0	107	157
U	0.661	1.68	2.74	4.58
Robust Standard Deviation	3.26	8.28	13.5	22.6
Regression Standard Deviation	4.13	10.7	18.7	27.5
Stability Flag		Stability	Stability	Stability
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.13	14.2	22.9	38.2
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	1	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	14	14	14	14
GC/MSE	5	5	5	5

All summary stats and the plots below are based on the data excluding any flagged outliers
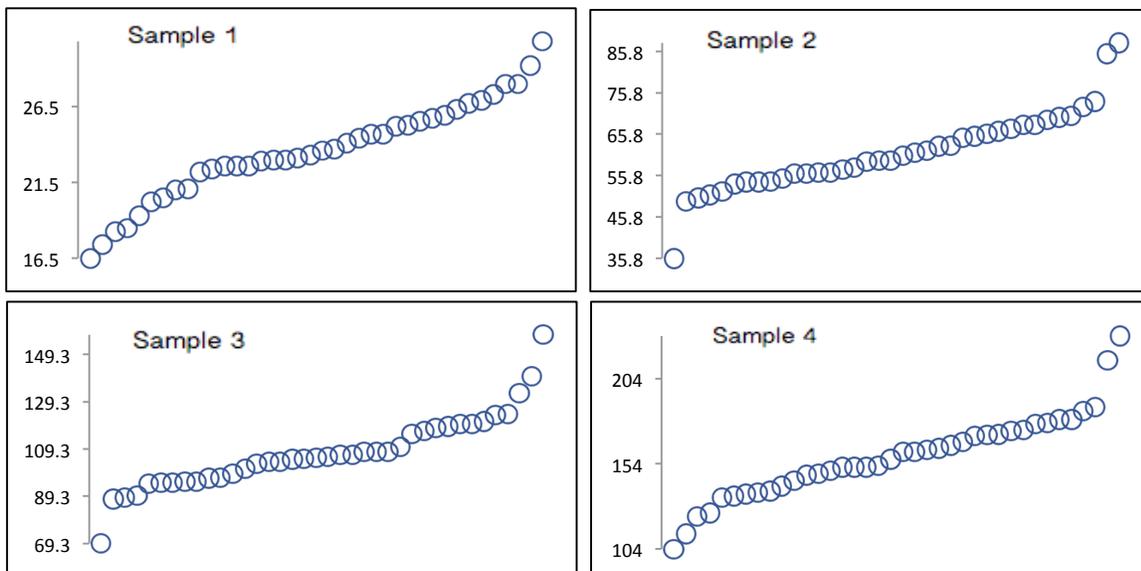
TRANS-1,2-DICHLOROETHYLENE
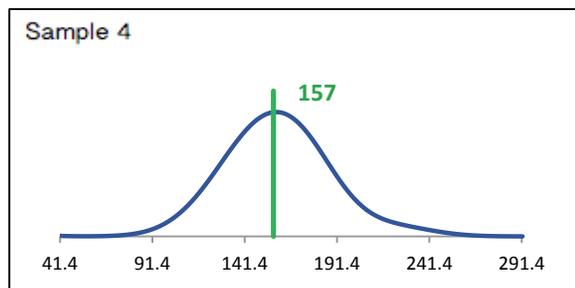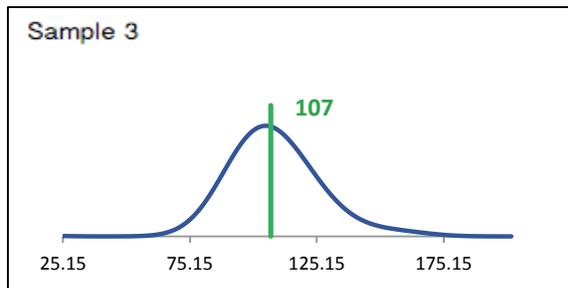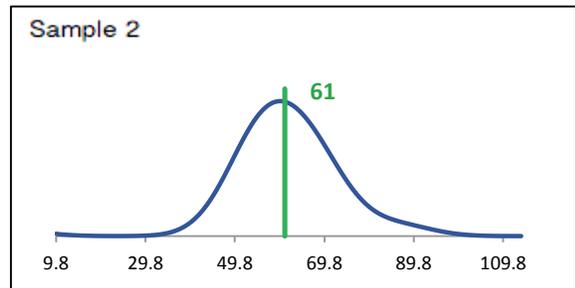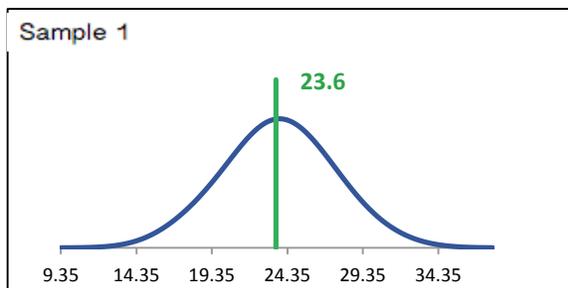
z-Score Plots


Kernel Density Plots

TRANS-1,2-DICHLOROETHYLENE
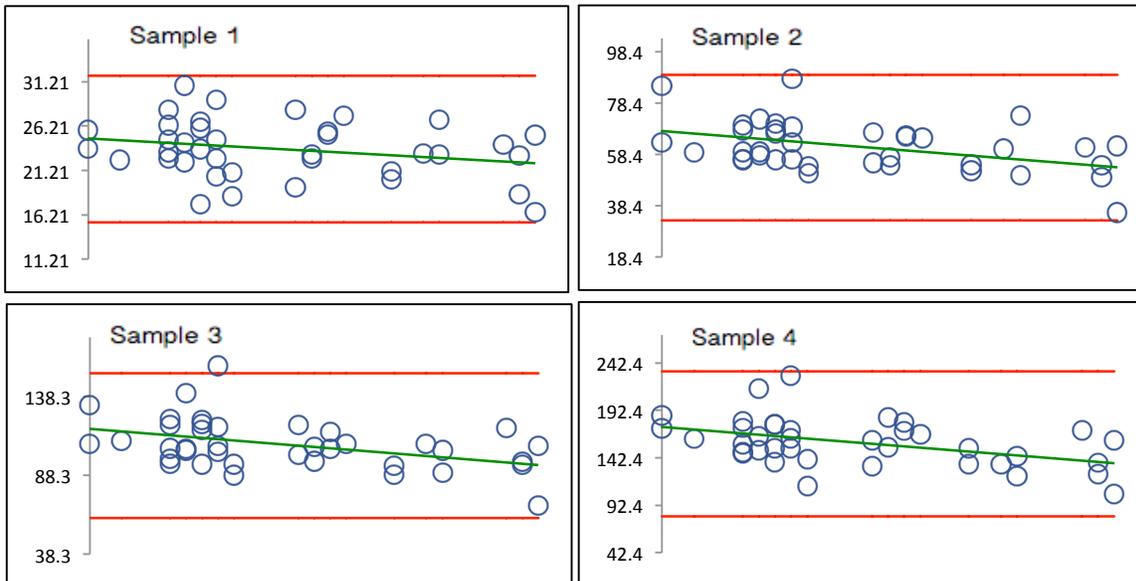
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
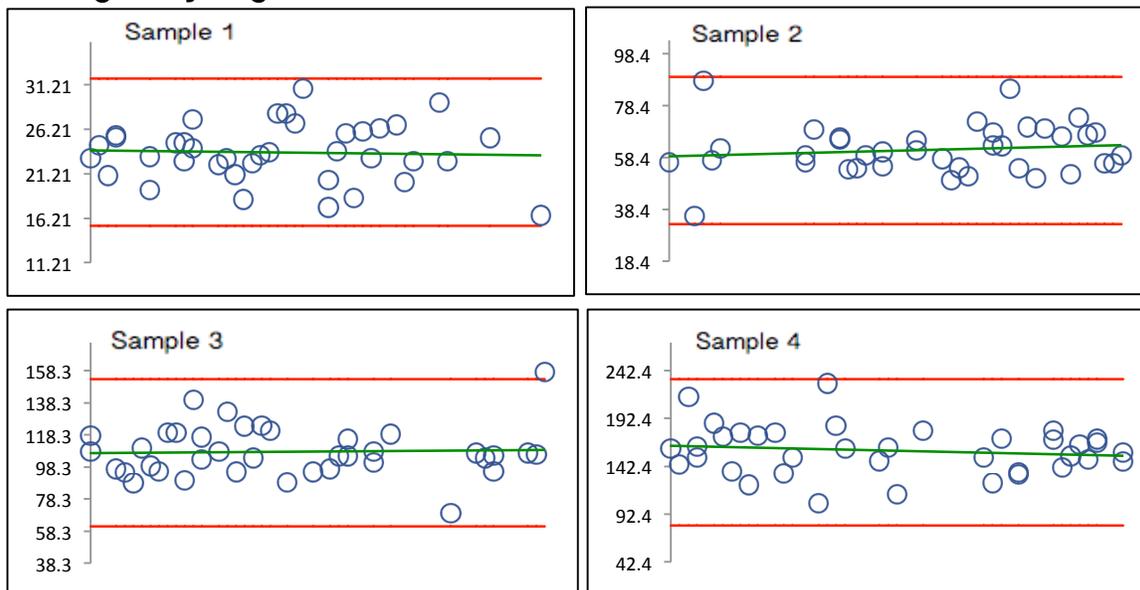
Reported results (Y-axis) plotted against bottling order (X-axis).

TRANS-1,3-DICHLOROPROPENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	34	34	34	34
Median	21.5	52.0	92.4	141
Robust Mean	21.4	51.6	93.0	140
U	0.536	1.25	2.10	3.88
Robust Standard Deviation	2.50	5.83	9.79	18.1
Regression Standard Deviation	3.74	9.03	16.3	24.5
Stability Flag		Stability		
Homogeneity Flag				
Standard Deviation Used (SDPA)	3.74	9.16	16.3	24.5
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
HS-GCMS	12	12	12	12
P/T-GCMS	18	18	18	18
GC/MSE	4	4	4	4

All summary stats and the plots below are based on the data excluding any flagged outliers
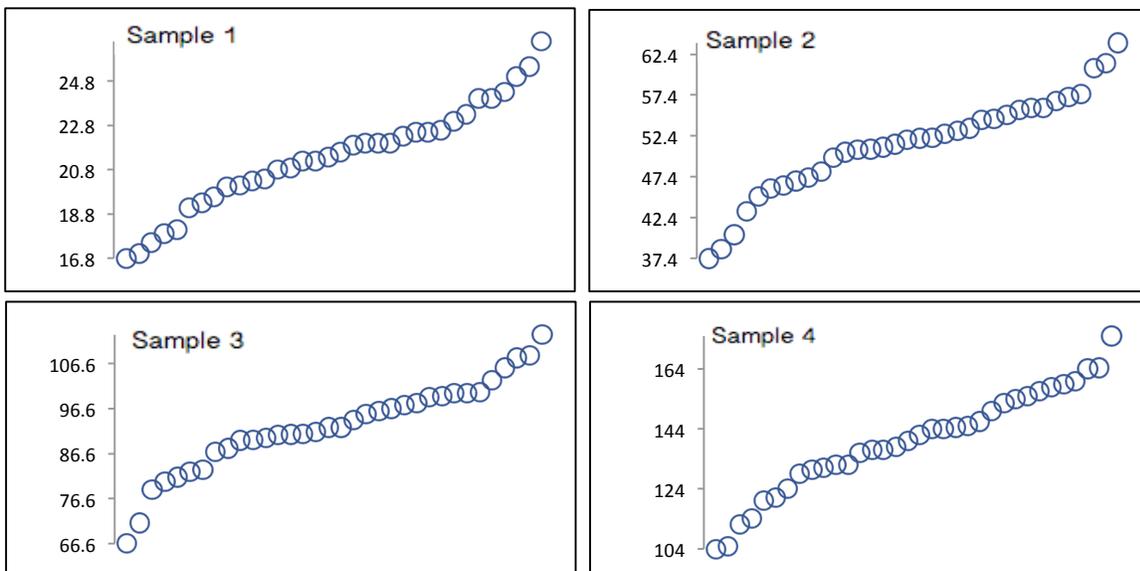
# TRANS-1,3-DICHLOROPROPENE
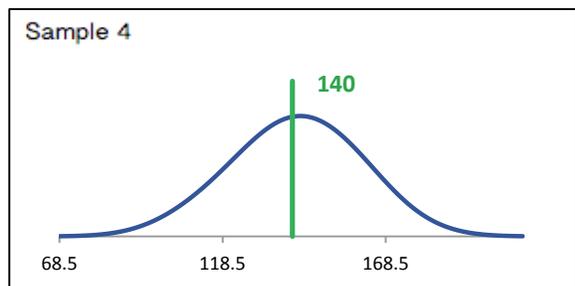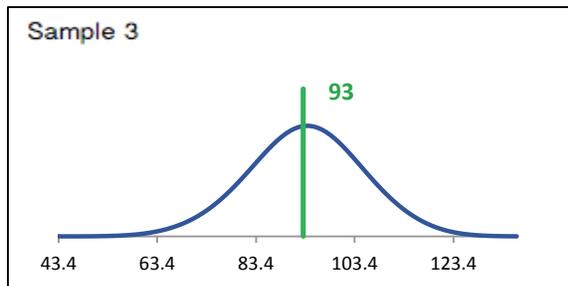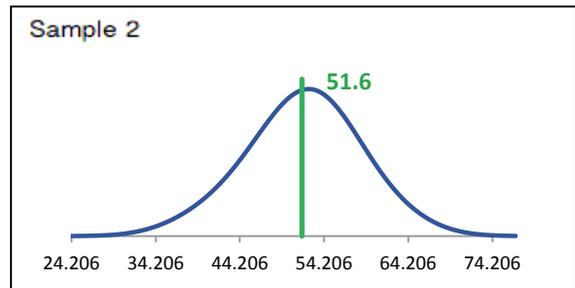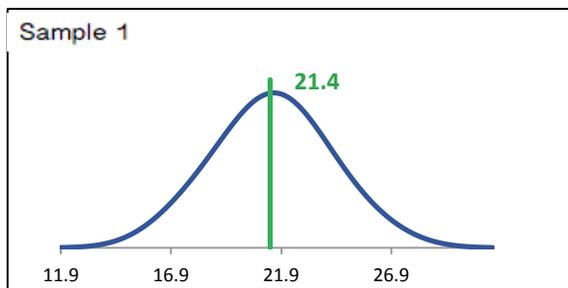
## z-Score Plots

Kernel Density Plots

TRANS-1,3-DICHLOROPROPENE
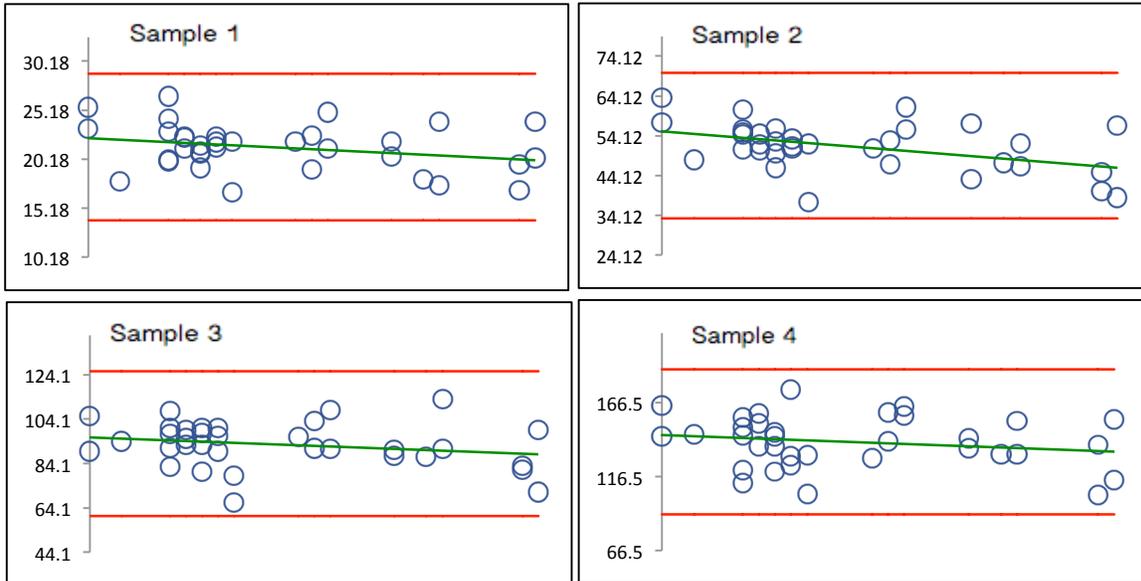
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
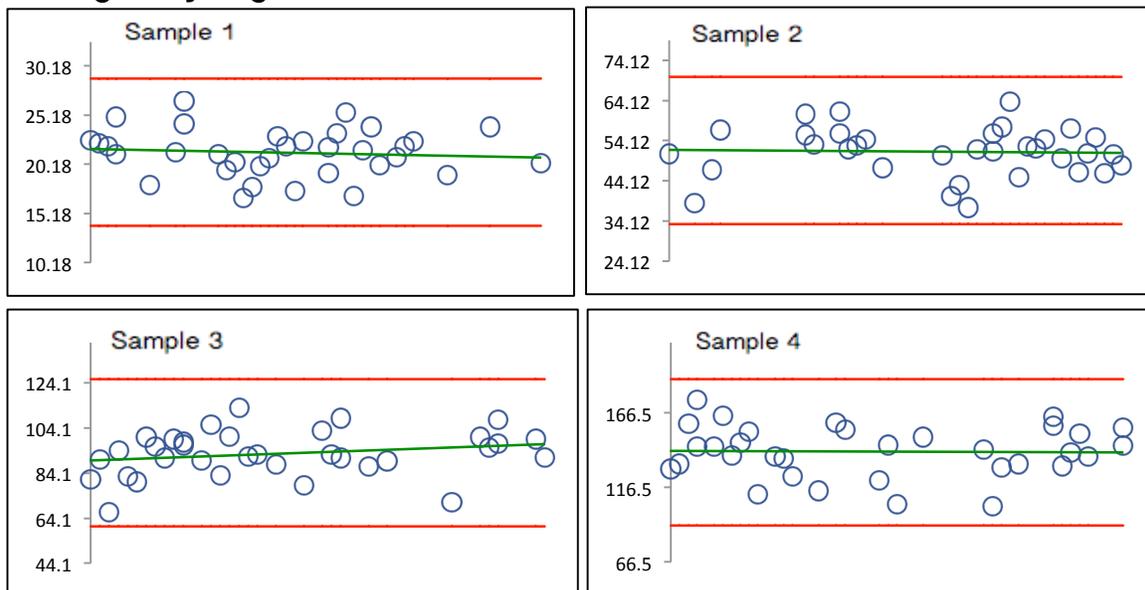
Reported results (Y-axis) plotted against bottling order (X-axis).

TRICHLOROETHYLENE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	40	40	40	40
Median	24.1	57.7	101	164
Robust Mean	24.1	56.7	101	161
U	0.553	1.26	2.02	3.79
Robust Standard Deviation	2.80	6.40	10.2	19.2
Regression Standard Deviation	4.83	11.3	20.3	32.2
Stability Flag				
Homogeneity Flag				
Standard Deviation Used (SDPA)	4.83	11.3	20.3	32.2
Outliers	0	0	0	0
|z|>3.0	0	0	0	0
2<|z|<3	0	0	0	0

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	20	20	20	20
HS-GCMS	14	14	14	14
GC/MSE	6	6	6	6

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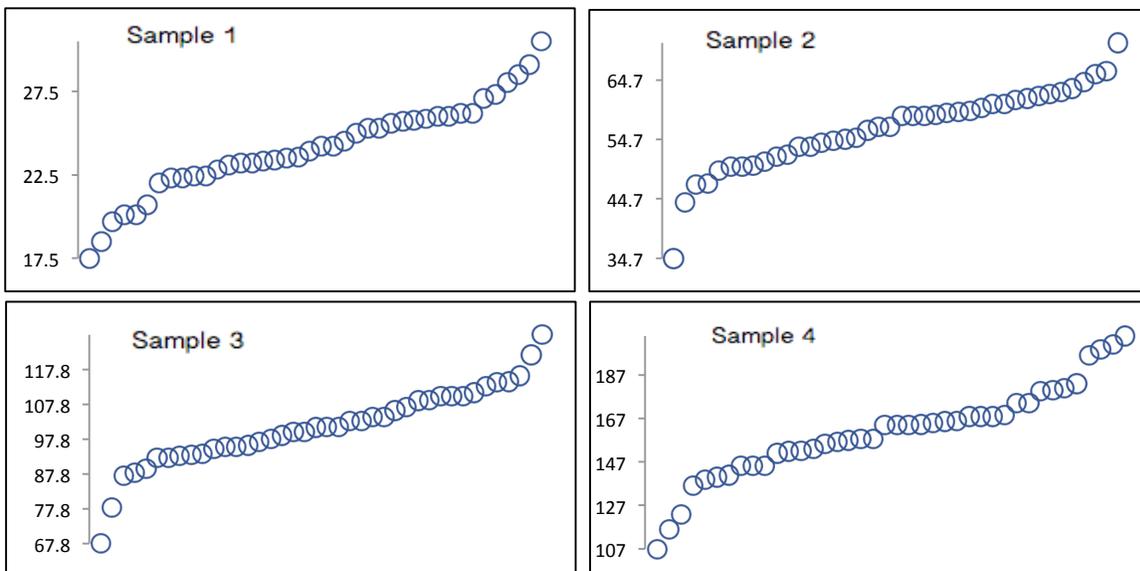
TRICHLOROETHYLENE

## z-Score Plots

Kernel Density Plots

TRICHLOROETHYLENE
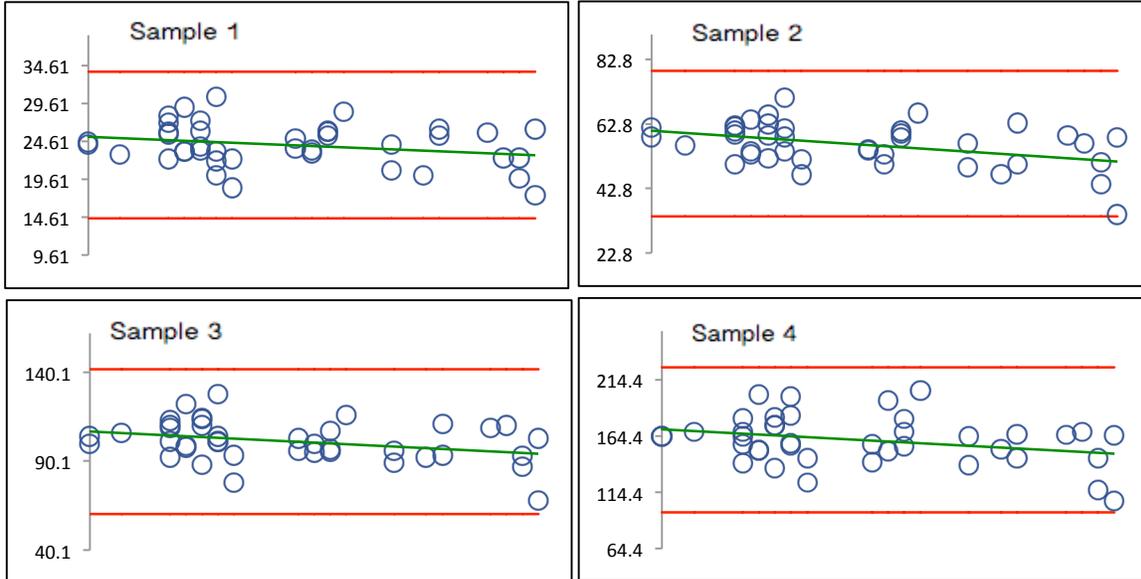
Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression
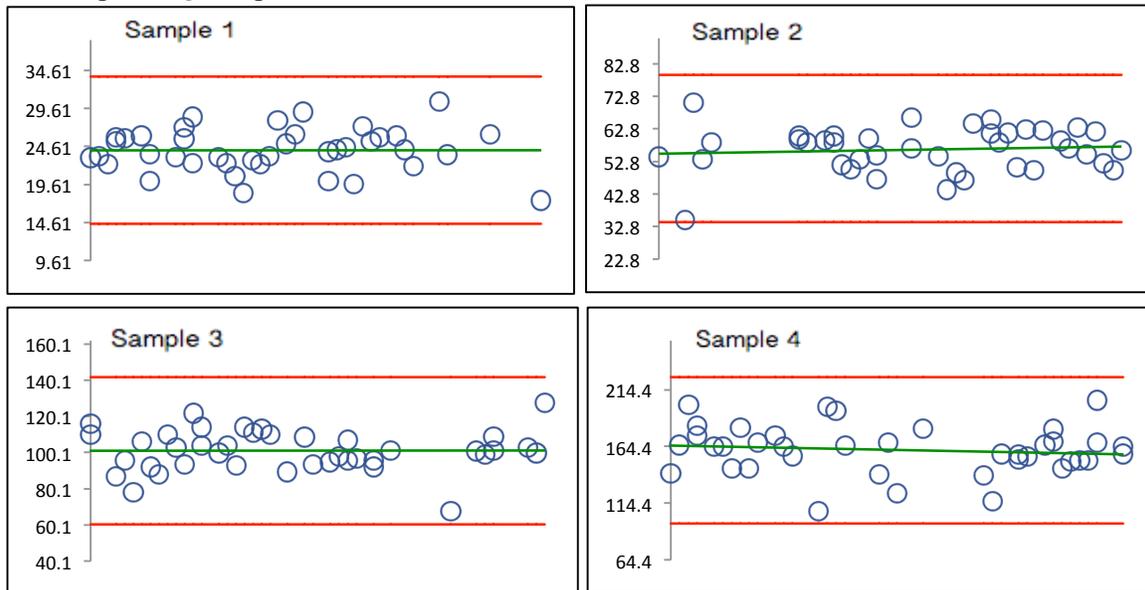
Reported results (Y-axis) plotted against bottling order (X-axis).

TRICHLOROFLUOROMETHANE

Summary Statistics

| Statistic	C36-1	C36-2	C36-3	C36-4
N	37	37	37	37
Median	22.8	55.1	96.7	147
Robust Mean	23.3	57.8	101	154
U	0.857	2.24	3.84	6.16
Robust Standard Deviation	4.17	10.9	18.7	30.0
Regression Standard Deviation	5.82	14.4	25.2	38.6
Stability Flag		Stability		
Homogeneity Flag				Homogeneity
Standard Deviation Used (SDPA)	5.82	14.7	25.2	41.7
Outliers	1	1	1	1
|z|>3.0	0	0	0	0
2<|z|<3	0	1	3	2

Methods Used

Method	C36-1	C36-2	C36-3	C36-4
P/T-GCMS	19	19	19	19
HS-GCMS	13	13	13	13
GC/MSE	5	5	5	5

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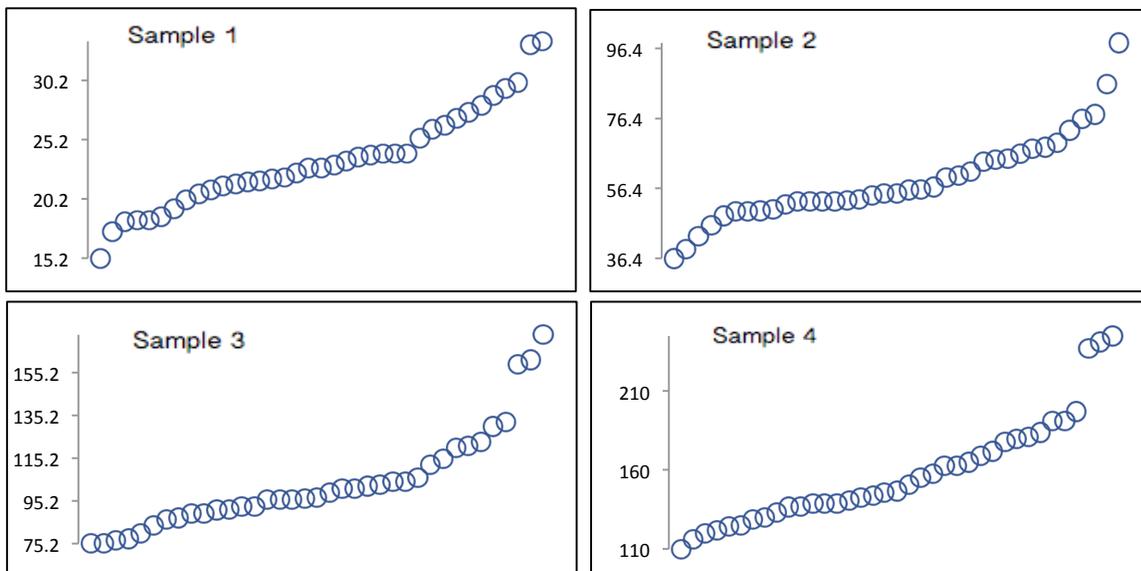
TRICHLOROFLUOROMETHANE

z-Score Plots
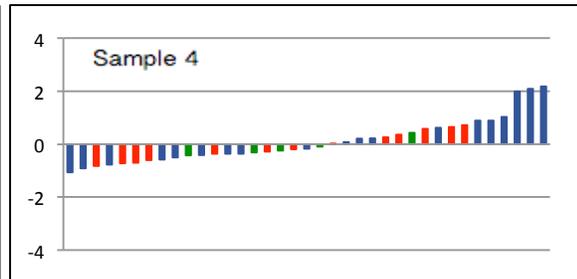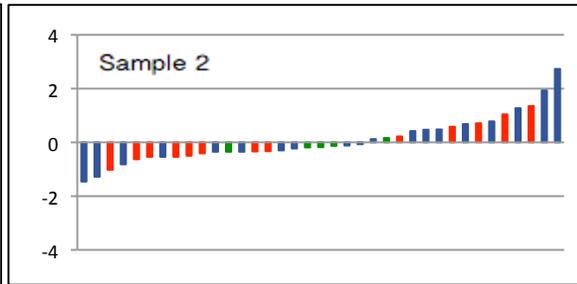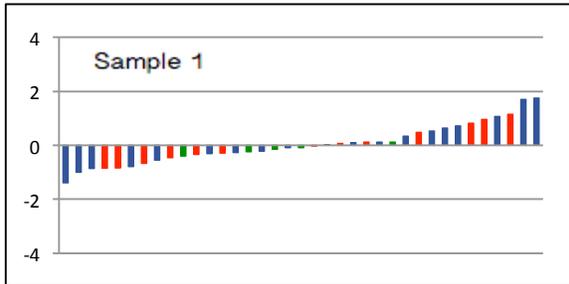
Kernel Density Plots

TRICHLOROFLUOROMETHANE

Stability Regression

Reported results (Y-axis) plotted against reported analysis date (X-axis)

Homogeneity Regression

Reported results (Y-axis) plotted against bottling order (X-axis).