

MW-112 PCE											
General Statistics											
Total Number of Observations				6	Number of Distinct Observations					6	
Number of Detects				3	Number of Non-Detects					3	
Number of Distinct Detects				3	Number of Distinct Non-Detects					3	
Minimum Detect				0.32	Minimum Non-Detect					0.2	
Maximum Detect				1.2	Maximum Non-Detect					0.47	
Variance Detects				0.202	Percent Non-Detects					50%	
Mean Detects				0.813	SD Detects					0.45	
Median Detects				0.92	CV Detects					0.553	
Skewness Detects				-1.008	Kurtosis Detects					N/A	
Mean of Logged Detects				-0.347	SD of Logged Detects					0.699	
Warning: Data set has only 3 Detected Values.											
This is not enough to compute meaningful or reliable statistics and estimates.											
Note: Sample size is small (e.g., <10), if data are collected using incremental sampling methodology (ISM) approach,											
refer also to ITRC Tech Reg Guide on ISM (ITRC 2020 and ITRC 2012) for additional guidance,											
but note that ITRC may recommend the t-UCL or the Chebyshev UCL for small sample sizes (n < 7).											
The Chebyshev UCL often results in gross overestimates of the mean.											
Refer to the ProUCL 5.2 Technical Guide for a discussion of the Chebyshev UCL.											
Normal GOF Test on Detects Only											
Shapiro Wilk Test Statistic					0.958	Shapiro Wilk GOF Test					
1% Shapiro Wilk Critical Value					0.753	Detected Data appear Normal at 1% Significance Level					
Lilliefors Test Statistic					0.26	Lilliefors GOF Test					
1% Lilliefors Critical Value					0.429	Detected Data appear Normal at 1% Significance Level					
Detected Data appear Normal at 1% Significance Level											
Note GOF tests may be unreliable for small sample sizes											
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
KM Mean					0.513	KM Standard Error of Mean					0.199
90KM SD					0.398	95% KM (BCA) UCL					N/A
95% KM (t) UCL					0.915	95% KM (Percentile Bootstrap) UCL					N/A
95% KM (z) UCL					0.841	95% KM Bootstrap t UCL					N/A
90% KM Chebyshev UCL					1.111	95% KM Chebyshev UCL					1.382
97.5% KM Chebyshev UCL					1.758	99% KM Chebyshev UCL					2.496
Gamma GOF Tests on Detected Observations Only											

A-D Test Statistic				0.367	Anderson-Darling GOF Test					
5% A-D Critical Value				0.636	Detected data appear Gamma Distributed at 5% Significance Level					
K-S Test Statistic				0.328	Kolmogorov-Smirnov GOF					
5% K-S Critical Value				0.434	Detected data appear Gamma Distributed at 5% Significance Level					
Detected Data Not Gamma Distributed at 5% Significance Level										
Gamma Statistics on Detected Data Only										
k hat (MLE)				3.724	k star (bias corrected MLE)				N/A	
Theta hat (MLE)				0.218	Theta star (bias corrected MLE)				N/A	
nu hat (MLE)				22.35	nu star (bias corrected)				N/A	
Mean (detects)				0.813						
Gamma ROS Statistics using Imputed Non-Detects										
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs										
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)										
For such situations, GROS method may yield incorrect values of UCLs and BTVs										
This is especially true when the sample size is small.										
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates										
Minimum				0.01	Mean				0.412	
Maximum				1.2	Median				0.165	
SD				0.524	CV				1.273	
k hat (MLE)				0.412	k star (bias corrected MLE)				0.317	
Theta hat (MLE)				0.999	Theta star (bias corrected MLE)				1.298	
nu hat (MLE)				4.947	nu star (bias corrected)				3.807	
Adjusted Level of Significance (β)				0.0122						
Approximate Chi Square Value (3.81, α)				0.647	Adjusted Chi Square Value (3.81, β)				0.309	
95% Gamma Approximate UCL				2.423	95% Gamma Adjusted UCL				N/A	
Estimates of Gamma Parameters using KM Estimates										
Mean (KM)				0.513	SD (KM)				0.398	
Variance (KM)				0.158	SE of Mean (KM)				0.199	
k hat (KM)				1.667	k star (KM)				0.945	
nu hat (KM)				20	nu star (KM)				11.33	
theta hat (KM)				0.308	theta star (KM)				0.543	
80% gamma percentile (KM)				0.83	90% gamma percentile (KM)				1.199	
95% gamma percentile (KM)				1.569	99% gamma percentile (KM)				2.433	
Gamma Kaplan-Meier (KM) Statistics										
Approximate Chi Square Value (11.33, α)				4.792	Adjusted Chi Square Value (11.33, β)				3.38	
95% KM Approximate Gamma UCL				1.214	95% KM Adjusted Gamma UCL				1.721	

Lognormal GOF Test on Detected Observations Only											
Shapiro Wilk Test Statistic				0.893	Shapiro Wilk GOF Test						
10% Shapiro Wilk Critical Value				0.789	Detected Data appear Lognormal at 10% Significance Level						
Lilliefors Test Statistic				0.314	Lilliefors GOF Test						
10% Lilliefors Critical Value				0.389	Detected Data appear Lognormal at 10% Significance Level						
Detected Data appear Lognormal at 10% Significance Level											
Note GOF tests may be unreliable for small sample sizes											
Lognormal ROS Statistics Using Imputed Non-Detects											
Mean in Original Scale				0.472	Mean in Log Scale					-1.198	
SD in Original Scale				0.47	SD in Log Scale					1.044	
95% t UCL (assumes normality of ROS data)				0.859	95% Percentile Bootstrap UCL					0.779	
95% BCA Bootstrap UCL				0.791	95% Bootstrap t UCL					1.874	
95% H-UCL (Log ROS)				3.834							
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution											
KM Mean (logged)				-0.952	KM Geo Mean					0.386	
KM SD (logged)				0.735	95% Critical H Value (KM-Log)					3.276	
KM Standard Error of Mean (logged)				0.371	95% H-UCL (KM -Log)					1.484	
KM SD (logged)				0.735	95% Critical H Value (KM-Log)					3.276	
KM Standard Error of Mean (logged)				0.371							
DL/2 Statistics											
DL/2 Normal					DL/2 Log-Transformed						
Mean in Original Scale				0.488	Mean in Log Scale					-1.115	
SD in Original Scale				0.458	SD in Log Scale					0.988	
95% t UCL (Assumes normality)				0.865	95% H-Stat UCL					3.243	
DL/2 is not a recommended method, provided for comparisons and historical reasons											
Nonparametric Distribution Free UCL Statistics											
Detected Data appear Normal Distributed at 1% Significance Level											
Suggested UCL to Use											
95% KM (t) UCL				0.915							
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.											
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											