

MW-101D Benzene												
General Statistics												
Total Number of Observations					14	Number of Distinct Observations					5	
Number of Detects					3	Number of Non-Detects					11	
Number of Distinct Detects					3	Number of Distinct Non-Detects					2	
Minimum Detect					0.33	Minimum Non-Detect					0.1	
Maximum Detect					1.6	Maximum Non-Detect					0.3	
Variance Detects					0.436	Percent Non-Detects					78.57%	
Mean Detects					0.86	SD Detects					0.661	
Median Detects					0.65	CV Detects					0.768	
Skewness Detects					1.286	Kurtosis Detects					N/A	
Mean of Logged Detects					-0.356	SD of Logged Detects					0.792	
Warning: Data set has only 3 Detected Values.												
This is not enough to compute meaningful or reliable statistics and estimates.												
Normal GOF Test on Detects Only												
Shapiro Wilk Test Statistic					0.924	Shapiro Wilk GOF Test						
1% Shapiro Wilk Critical Value					0.753	Detected Data appear Normal at 1% Significance Level						
Lilliefors Test Statistic					0.291	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					0.263	KM Standard Error of Mean					0.131	
90KM SD					0.399	95% KM (BCA) UCL					N/A	
95% KM (t) UCL					0.494	95% KM (Percentile Bootstrap) UCL					N/A	
95% KM (z) UCL					0.478	95% KM Bootstrap t UCL					N/A	
90% KM Chebyshev UCL					0.655	95% KM Chebyshev UCL					0.833	
97.5% KM Chebyshev UCL					1.079	99% KM Chebyshev UCL					1.564	
Gamma GOF Tests on Detected Observations Only												
A-D Test Statistic					0.277	Anderson-Darling GOF Test						
5% A-D Critical Value					0.636	Detected data appear Gamma Distributed at 5% Significance Level						
K-S Test Statistic					0.253	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)				2.586	k star (bias corrected MLE)					N/A	
Theta hat (MLE)				0.333	Theta star (bias corrected MLE)					N/A	
nu hat (MLE)				15.51	nu star (bias corrected)					N/A	
Mean (detects)				0.86							
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					0.192	
Maximum				1.6	Median					0.01	
SD				0.445	CV					2.317	
k hat (MLE)				0.332	k star (bias corrected MLE)					0.308	
Theta hat (MLE)				0.579	Theta star (bias corrected MLE)					0.623	
nu hat (MLE)				9.287	nu star (bias corrected)					8.63	
Adjusted Level of Significance (β)				0.0312							
Approximate Chi Square Value (8.63, α)				3.105	Adjusted Chi Square Value (8.63, β)					2.682	
95% Gamma Approximate UCL				0.534	95% Gamma Adjusted UCL					N/A	
Estimates of Gamma Parameters using KM Estimates											
Mean (KM)				0.263	SD (KM)					0.399	
Variance (KM)				0.16	SE of Mean (KM)					0.131	
k hat (KM)				0.433	k star (KM)					0.388	
nu hat (KM)				12.12	nu star (KM)					10.86	
theta hat (KM)				0.607	theta star (KM)					0.678	
80% gamma percentile (KM)				0.423	90% gamma percentile (KM)					0.746	
95% gamma percentile (KM)				1.104	99% gamma percentile (KM)					2.005	
Gamma Kaplan-Meier (KM) Statistics											
Approximate Chi Square Value (10.86, α)				4.485	Adjusted Chi Square Value (10.86, β)					3.956	
95% KM Approximate Gamma UCL				0.636	95% KM Adjusted Gamma UCL					0.722	

Lognormal GOF Test on Detected Observations Only												
Shapiro Wilk Test Statistic					0.993	Shapiro Wilk GOF Test						
10% Shapiro Wilk Critical Value					0.789	Detected Data appear Lognormal at 10% Significance Level						
Lilliefors Test Statistic					0.204	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					0.206	Mean in Log Scale					-3.566	
SD in Original Scale					0.44	SD in Log Scale					2.236	
95% t UCL (assumes normality of ROS data)					0.414	95% Percentile Bootstrap UCL					0.411	
95% BCA Bootstrap UCL					0.507	95% Bootstrap t UCL					1.038	
95% H-UCL (Log ROS)					8.413							
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution												
KM Mean (logged)					-1.886	KM Geo Mean					0.152	
KM SD (logged)					0.853	95% Critical H Value (KM-Log)					2.558	
KM Standard Error of Mean (logged)					0.279	95% H-UCL (KM -Log)					0.4	
KM SD (logged)					0.853	95% Critical H Value (KM-Log)					2.558	
KM Standard Error of Mean (logged)					0.279							
DL/2 Statistics												
DL/2 Normal						DL/2 Log-Transformed						
Mean in Original Scale					0.295	Mean in Log Scale					-1.645	
SD in Original Scale					0.402	SD in Log Scale					0.818	
95% t UCL (Assumes normality)					0.485	95% H-Stat UCL					0.476	
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					0.494							
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.												