

MW-115 Vinyl Chloride												
General Statistics												
Total Number of Observations					6	Number of Distinct Observations					6	
						Number of Missing Observations					0	
Minimum					67	Mean					83	
Maximum					95	Median					84	
SD					9.859	Std. Error of Mean					4.025	
Coefficient of Variation					0.119	Skewness					-0.663	
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												
Shapiro Wilk Test Statistic					0.952	Shapiro Wilk GOF Test						
1% Shapiro Wilk Critical Value					0.713	Data appear Normal at 1% Significance Level						
Lilliefors Test Statistic					0.194	Lilliefors GOF Test						
1% Lilliefors Critical Value					0.373	Data appear Normal at 1% Significance Level						
Data appear Normal at 1% Significance Level												
Note GOF tests may be unreliable for small sample sizes												
Assuming Normal Distribution												
95% Normal UCL						95% UCLs (Adjusted for Skewness)						
95% Student's-t UCL					91.11	95% Adjusted-CLT UCL (Chen-1995)					88.46	
						95% Modified-t UCL (Johnson-1978)					90.93	
Gamma GOF Test												
A-D Test Statistic					0.294	Anderson-Darling Gamma GOF Test						
5% A-D Critical Value					0.696	Detected data appear Gamma Distributed at 5% Significance Level						
K-S Test Statistic					0.215	Kolmogorov-Smirnov Gamma GOF Test						

5% K-S Critical Value				0.332	Detected data appear Gamma Distributed at 5% Significance Level						
Detected data appear Gamma Distributed at 5% Significance Level											
Note GOF tests may be unreliable for small sample sizes											
Gamma Statistics											
k hat (MLE)				81.19	k star (bias corrected MLE)					40.71	
Theta hat (MLE)				1.022	Theta star (bias corrected MLE)					2.039	
nu hat (MLE)				974.3	nu star (bias corrected)					488.5	
MLE Mean (bias corrected)					83	MLE Sd (bias corrected)					13.01
					Approximate Chi Square Value (0.05)					438.2	
Adjusted Level of Significance					0.0122	Adjusted Chi Square Value					420.9
Assuming Gamma Distribution											
95% Approximate Gamma UCL					92.52	95% Adjusted Gamma UCL					96.33
Lognormal GOF Test											
Shapiro Wilk Test Statistic					0.934	Shapiro Wilk Lognormal GOF Test					
10% Shapiro Wilk Critical Value					0.826	Data appear Lognormal at 10% Significance Level					
Lilliefors Test Statistic					0.2	Lilliefors Lognormal GOF Test					
10% Lilliefors Critical Value					0.298	Data appear Lognormal at 10% Significance Level					
Data appear Lognormal at 10% Significance Level											
Note GOF tests may be unreliable for small sample sizes											
Lognormal Statistics											
Minimum of Logged Data					4.205	Mean of logged Data					4.413
Maximum of Logged Data					4.554	SD of logged Data					0.123
Assuming Lognormal Distribution											
95% H-UCL					92.65	90% Chebyshev (MVUE) UCL					95.54
95% Chebyshev (MVUE) UCL					101.2	97.5% Chebyshev (MVUE) UCL					109.1
99% Chebyshev (MVUE) UCL					124.6						
Nonparametric Distribution Free UCL Statistics											

Data appear to follow a Discernible Distribution												
Nonparametric Distribution Free UCLs												
95% CLT UCL					89.62	95% BCA Bootstrap UCL					88.17	
95% Standard Bootstrap UCL					89.14	95% Bootstrap-t UCL					90.09	
95% Hall's Bootstrap UCL					89.06	95% Percentile Bootstrap UCL					88.83	
90% Chebyshev(Mean, Sd) UCL					95.07	95% Chebyshev(Mean, Sd) UCL					100.5	
97.5% Chebyshev(Mean, Sd) UCL					108.1	99% Chebyshev(Mean, Sd) UCL					123	
Suggested UCL to Use												
95% Student's-t UCL					91.11							
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.												
Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be												
reliable. Chen's and Johnson's methods provide adjustments for positively skewed data sets.												