

UCL Statistics for Uncensored Full Data Sets			
User Selected Options			
Date/Time of Computation	ProUCL 5.123/03/2019 14:59:42		
From File	input Crap parco_SS.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
Antimonio			
General Statistics			
Total Number of Observations	22,00	Number of Distinct Observations	21,00
		Number of Missing Observations	0
Minimum	0	Mean	3,378
Maximum	17,66	Median	1,366
SD	4,385	Std. Error of Mean	0,935
Coefficient of Variation	1,298	Skewness	2,085
Normal GOF Test			
Shapiro Wilk Test Statistic	0,726	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,911	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,267	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,184	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	4,986	95% Adjusted-CLT UCL (Chen-1995)	5,360
		95% Modified-t UCL (Johnson-1978)	5,056
Gamma Statistics Not Available			
Lognormal Statistics Not Available			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	4,915	95% Jackknife UCL	4,986
95% Standard Bootstrap UCL	4,846	95% Bootstrap-t UCL	5,898
95% Hall's Bootstrap UCL	5,738	95% Percentile Bootstrap UCL	4,986
95% BCA Bootstrap UCL	5,490		
90% Chebyshev(Mean, Sd) UCL	6,182	95% Chebyshev(Mean, Sd) UCL	7,453
97,5% Chebyshev(Mean, Sd) UCL	9,216	99% Chebyshev(Mean, Sd) UCL	12,68
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	7,453		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Arsenlco			
General Statistics			
Total Number of Observations	69,00	Number of Distinct Observations	60,00
		Number of Missing Observations	0
Minimum	2,000	Mean	97,20
Maximum	1500	Median	22,00
SD	250,0	Std. Error of Mean	30,09
Coefficient of Variation	2,572	Skewness	4,246
Normal GOF Test			
Shapiro Wilk Test Statistic	0,399	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,377	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,107	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	147,4	95% Adjusted-CLT UCL (Chen-1995)	163,1
		95% Modified-t UCL (Johnson-1978)	149,9
Gamma GOF Test			
A-D Test Statistic	6,948	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,815	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,258	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,113	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,514	k star (bias corrected MLE)	0,501
Theta hat (MLE)	189,1	Theta star (bias corrected MLE)	193,9
nu hat (MLE)	70,93	nu star (bias corrected)	69,18
MLE Mean (bias corrected)	97,20	MLE Sd (bias corrected)	137,3
		Approximate Chi Square Value (0,0500)	51,03
Adjusted Level of Significance	0,0465	Adjusted Chi Square Value	50,70
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	131,8	95% Adjusted Gamma UCL (use when n<50)	132,6
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,919	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	1,5516E-4	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,163	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,107	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	0,693	Mean of logged Data	3,346
Maximum of Logged Data	7,313	SD of logged Data	1,330
Assuming Lognormal Distribution			
95% H-UCL	96,81	90% Chebyshev (MVUE) UCL	109,1
95% Chebyshev (MVUE) UCL	128,1	97,5% Chebyshev (MVUE) UCL	154,4
99% Chebyshev (MVUE) UCL	206,2		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	146,7	95% Jackknife UCL	147,4
95% Standard Bootstrap UCL	146,7	95% Bootstrap-t UCL	196,3
95% Hall's Bootstrap UCL	168,9	95% Percentile Bootstrap UCL	148,1
95% BCA Bootstrap UCL	168,1		
90% Chebyshev(Mean, Sd) UCL	187,5	95% Chebyshev(Mean, Sd) UCL	228,4
97,5% Chebyshev(Mean, Sd) UCL	285,1	99% Chebyshev(Mean, Sd) UCL	396,6
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	228,4		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Mercurio			
General Statistics			
Total Number of Observations	67,00	Number of Distinct Observations	64,00
		Number of Missing Observations	0
Minimum	0,100	Mean	46,72
Maximum	440,4	Median	8,400
SD	90,90	Std. Error of Mean	11,11
Coefficient of Variation	1,946	Skewness	2,779
Normal GOF Test			
Shapiro Wilk Test Statistic	0,567	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,309	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,108	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	65,25	95% Adjusted-CLT UCL (Chen-1995)	69,02
		95% Modified-t UCL (Johnson-1978)	65,88
Gamma GOF Test			
A-D Test Statistic	2,333	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,842	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,153	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,117	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,396	k star (bias corrected MLE)	0,388
Theta hat (MLE)	118,0	Theta star (bias corrected MLE)	120,4
nu hat (MLE)	53,04	nu star (bias corrected)	52,00
MLE Mean (bias corrected)	46,72	MLE Sd (bias corrected)	75,00
		Approximate Chi Square Value (0,0500)	36,44
Adjusted Level of Significance	0,0464	Adjusted Chi Square Value	36,15
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	66,68	95% Adjusted Gamma UCL (use when n<50)	67,20
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,968	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0,223	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0832	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,108	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-2,303	Mean of logged Data	2,179
Maximum of Logged Data	6,088	SD of logged Data	1,999
Assuming Lognormal Distribution			
95% H-UCL	135,5	90% Chebyshev (MVUE) UCL	126,5
95% Chebyshev (MVUE) UCL	156,7	97,5% Chebyshev (MVUE) UCL	198,5
99% Chebyshev (MVUE) UCL	280,8		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	64,99	95% Jackknife UCL	65,25
95% Standard Bootstrap UCL	64,77	95% Bootstrap-t UCL	73,01
95% Hall's Bootstrap UCL	68,84	95% Percentile Bootstrap UCL	66,15
95% BCA Bootstrap UCL	72,38		
90% Chebyshev(Mean, Sd) UCL	80,04	95% Chebyshev(Mean, Sd) UCL	95,13
97,5% Chebyshev(Mean, Sd) UCL	116,1	99% Chebyshev(Mean, Sd) UCL	157,2
Suggested UCL to Use			
95% H-UCL	135,5		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
ProUCL computes and outputs H-statistic based UCLs for historical reasons only.			
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.			

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Plombo			
General Statistics			
Total Number of Observations	69,00	Number of Distinct Observations	65,00
		Number of Missing Observations	0
Minimum	8,000	Mean	366,8
Maximum	6030	Median	95,00
SD	902,3	Std. Error of Mean	108,6
Coefficient of Variation	2,460	Skewness	4,647
Normal GOF Test			
Shapiro Wilk Test Statistic	0,409	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,374	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,107	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	547,9	95% Adjusted-CLT UCL (Chen-1995)	610,4
		95% Modified-t UCL (Johnson-1978)	558,0
Gamma GOF Test			
A-D Test Statistic	6,722	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,809	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,238	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,113	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,575	k star (bias corrected MLE)	0,560
Theta hat (MLE)	637,9	Theta star (bias corrected MLE)	655,3
nu hat (MLE)	79,35	nu star (bias corrected)	77,23
MLE Mean (bias corrected)	366,8	MLE Sd (bias corrected)	490,3
		Approximate Chi Square Value (0,0500)	57,99
Adjusted Level of Significance	0,0465	Adjusted Chi Square Value	57,63
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	488,5	95% Adjusted Gamma UCL (use when n<50)	491,5
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,925	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	3,9843E-4	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,130	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,107	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	2,079	Mean of logged Data	4,823
Maximum of Logged Data	8,705	SD of logged Data	1,246
Assuming Lognormal Distribution			
95% H-UCL	371,2	90% Chebyshev (MVUE) UCL	417,0
95% Chebyshev (MVUE) UCL	485,7	97,5% Chebyshev (MVUE) UCL	581,1
99% Chebyshev (MVUE) UCL	768,5		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	545,4	95% Jackknife UCL	547,9
95% Standard Bootstrap UCL	547,6	95% Bootstrap-t UCL	726,3
95% Hall's Bootstrap UCL	701,3	95% Percentile Bootstrap UCL	562,3
95% BCA Bootstrap UCL	630,8		
90% Chebyshev(Mean, Sd) UCL	692,6	95% Chebyshev(Mean, Sd) UCL	840,2
97,5% Chebyshev(Mean, Sd) UCL	1045	99% Chebyshev(Mean, Sd) UCL	1448
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	840,2		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Rame totale			
General Statistics			
Total Number of Observations	69,00	Number of Distinct Observations	67,00
		Number of Missing Observations	0
Minimum	10,00	Mean	1452
Maximum	69464	Median	77,84
SD	8370	Std. Error of Mean	1008
Coefficient of Variation	5,766	Skewness	8,125
Normal GOF Test			
Shapiro Wilk Test Statistic	0,174	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,432	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,107	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	3132	95% Adjusted-CLT UCL (Chen-1995)	4162
		95% Modified-t UCL (Johnson-1978)	3296
Gamma GOF Test			
A-D Test Statistic	10,88	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,869	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,319	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,117	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,293	k star (bias corrected MLE)	0,290
Theta hat (MLE)	4950	Theta star (bias corrected MLE)	5003
nu hat (MLE)	40,47	nu star (bias corrected)	40,04
MLE Mean (bias corrected)	1452	MLE Sd (bias corrected)	2695
		Approximate Chi Square Value (0,0500)	26,54
Adjusted Level of Significance	0,0465	Adjusted Chi Square Value	26,31
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	2190	95% Adjusted Gamma UCL (use when n<50)	2209
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,877	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	1,8068E-7	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,157	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,107	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	2,303	Mean of logged Data	4,920
Maximum of Logged Data	11,15	SD of logged Data	1,598
Assuming Lognormal Distribution			
95% H-UCL	788,1	90% Chebyshev (MVUE) UCL	850,3
95% Chebyshev (MVUE) UCL	1022	97,5% Chebyshev (MVUE) UCL	1260
99% Chebyshev (MVUE) UCL	1728		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	3109	95% Jackknife UCL	3132
95% Standard Bootstrap UCL	3104	95% Bootstrap-t UCL	15876
95% Hall's Bootstrap UCL	9185	95% Percentile Bootstrap UCL	3467
95% BCA Bootstrap UCL	4723		
90% Chebyshev(Mean, Sd) UCL	4475	95% Chebyshev(Mean, Sd) UCL	5844
97,5% Chebyshev(Mean, Sd) UCL	7744	99% Chebyshev(Mean, Sd) UCL	11478
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	5844		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Selenlo			
General Statistics			
Total Number of Observations	23,00	Number of Distinct Observations	23,00
		Number of Missing Observations	0
Minimum	0,0498	Mean	2,257
Maximum	12,51	Median	0,823
SD	3,146	Std. Error of Mean	0,656
Coefficient of Variation	1,394	Skewness	2,121
Normal GOF Test			
Shapiro Wilk Test Statistic	0,712	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,914	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,276	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,180	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	3,383	95% Adjusted-CLT UCL (Chen-1995)	3,646
		95% Modified-t UCL (Johnson-1978)	3,432
Gamma GOF Test			
A-D Test Statistic	0,491	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,792	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,152	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,190	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,647	k star (bias corrected MLE)	0,591
Theta hat (MLE)	3,491	Theta star (bias corrected MLE)	3,817
nu hat (MLE)	29,74	nu star (bias corrected)	27,20
MLE Mean (bias corrected)	2,257	MLE Sd (bias corrected)	2,935
		Approximate Chi Square Value (0,0500)	16,30
Adjusted Level of Significance	0,0389	Adjusted Chi Square Value	15,69
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	3,765	95% Adjusted Gamma UCL (use when n<50)	3,911
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,973	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,914	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,122	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,180	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,000	Mean of logged Data	-0,131
Maximum of Logged Data	2,527	SD of logged Data	1,525
Assuming Lognormal Distribution			
95% H-UCL	8,174	90% Chebyshev (MVUE) UCL	5,521
95% Chebyshev (MVUE) UCL	6,868	97,5% Chebyshev (MVUE) UCL	8,738
99% Chebyshev (MVUE) UCL	12,41		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	3,336	95% Jackknife UCL	3,383
95% Standard Bootstrap UCL	3,336	95% Bootstrap-t UCL	4,023
95% Hall's Bootstrap UCL	4,259	95% Percentile Bootstrap UCL	3,351
95% BCA Bootstrap UCL	3,657		
90% Chebyshev(Mean, Sd) UCL	4,225	95% Chebyshev(Mean, Sd) UCL	5,116
97,5% Chebyshev(Mean, Sd) UCL	6,354	99% Chebyshev(Mean, Sd) UCL	8,784
Suggested UCL to Use			
95% Adjusted Gamma UCL	3,911		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Stagno			
General Statistics			
Total Number of Observations	67,00	Number of Distinct Observations	55,00
		Number of Missing Observations	0
Minimum	0,500	Mean	9,765
Maximum	136,7	Median	3,500
SD	20,41	Std. Error of Mean	2,494
Coefficient of Variation	2,090	Skewness	4,520
Normal GOF Test			
Shapiro Wilk Test Statistic	0,454	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,336	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,108	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	13,92	95% Adjusted-CLT UCL (Chen-1995)	15,34
		95% Modified-t UCL (Johnson-1978)	14,15
Gamma GOF Test			
A-D Test Statistic	4,968	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,797	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,237	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,114	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,707	k star (bias corrected MLE)	0,685
Theta hat (MLE)	13,82	Theta star (bias corrected MLE)	14,26
nu hat (MLE)	94,69	nu star (bias corrected)	91,78
MLE Mean (bias corrected)	9,765	MLE Sd (bias corrected)	11,80
		Approximate Chi Square Value (0,0500)	70,69
Adjusted Level of Significance	0,0464	Adjusted Chi Square Value	70,28
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	12,68	95% Adjusted Gamma UCL (use when n<50)	12,75
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,937	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0,00308	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,126	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,108	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-0,693	Mean of logged Data	1,425
Maximum of Logged Data	4,918	SD of logged Data	1,149
Assuming Lognormal Distribution			
95% H-UCL	11,02	90% Chebyshev (MVUE) UCL	12,04
95% Chebyshev (MVUE) UCL	13,90	97,5% Chebyshev (MVUE) UCL	16,49
99% Chebyshev (MVUE) UCL	21,58		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	13,87	95% Jackknife UCL	13,92
95% Standard Bootstrap UCL	13,77	95% Bootstrap-t UCL	17,36
95% Hall's Bootstrap UCL	27,29	95% Percentile Bootstrap UCL	13,94
95% BCA Bootstrap UCL	15,51		
90% Chebyshev(Mean, Sd) UCL	17,25	95% Chebyshev(Mean, Sd) UCL	20,63
97,5% Chebyshev(Mean, Sd) UCL	25,34	99% Chebyshev(Mean, Sd) UCL	34,58
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	20,63		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Tallio			
General Statistics			
Total Number of Observations	20,00	Number of Distinct Observations	20,00
		Number of Missing Observations	0
Minimum	0,0972	Mean	0,647
Maximum	3,770	Median	0,350
SD	0,934	Std. Error of Mean	0,209
Coefficient of Variation	1,443	Skewness	2,827
Normal GOF Test			
Shapiro Wilk Test Statistic	0,548	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,905	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,349	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,192	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,008	95% Adjusted-CLT UCL (Chen-1995)	1,132
		95% Modified-t UCL (Johnson-1978)	1,030
Gamma GOF Test			
A-D Test Statistic	1,486	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,221	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,199	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1,066	k star (bias corrected MLE)	0,940
Theta hat (MLE)	0,607	Theta star (bias corrected MLE)	0,689
nu hat (MLE)	42,65	nu star (bias corrected)	37,58
MLE Mean (bias corrected)	0,647	MLE Sd (bias corrected)	0,668
		Approximate Chi Square Value (0,0500)	24,55
Adjusted Level of Significance	0,0380	Adjusted Chi Square Value	23,71
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	0,991	95% Adjusted Gamma UCL (use when n<50)	1,026
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,910	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,905	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,136	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,192	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-2,331	Mean of logged Data	-0,973
Maximum of Logged Data	1,327	SD of logged Data	0,958
Assuming Lognormal Distribution			
95% H-UCL	1,052	90% Chebyshev (MVUE) UCL	0,993
95% Chebyshev (MVUE) UCL	1,181	97,5% Chebyshev (MVUE) UCL	1,441
99% Chebyshev (MVUE) UCL	1,951		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,991	95% Jackknife UCL	1,008
95% Standard Bootstrap UCL	0,980	95% Bootstrap-t UCL	2,184
95% Hall's Bootstrap UCL	2,911	95% Percentile Bootstrap UCL	0,995
95% BCA Bootstrap UCL	1,169		
90% Chebyshev(Mean, Sd) UCL	1,274	95% Chebyshev(Mean, Sd) UCL	1,558
97,5% Chebyshev(Mean, Sd) UCL	1,952	99% Chebyshev(Mean, Sd) UCL	2,726
Suggested UCL to Use			
95% H-UCL	1,052		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
ProUCL computes and outputs H-statistic based UCLs for historical reasons only.			
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.			

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Zinco			
General Statistics			
Total Number of Observations	43,00	Number of Distinct Observations	43,00
		Number of Missing Observations	0
Minimum	18,38	Mean	114,7
Maximum	482,4	Median	90,89
SD	86,13	Std. Error of Mean	13,13
Coefficient of Variation	0,751	Skewness	2,431
Normal GOF Test			
Shapiro Wilk Test Statistic	0,772	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,943	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,220	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,134	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	136,8	95% Adjusted-CLT UCL (Chen-1995)	141,5
		95% Modified-t UCL (Johnson-1978)	137,6
Gamma GOF Test			
A-D Test Statistic	0,774	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,757	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,141	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,136	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	2,532	k star (bias corrected MLE)	2,371
Theta hat (MLE)	45,31	Theta star (bias corrected MLE)	48,39
nu hat (MLE)	217,7	nu star (bias corrected)	203,9
MLE Mean (bias corrected)	114,7	MLE Sd (bias corrected)	74,50
		Approximate Chi Square Value (0,0500)	171,8
Adjusted Level of Significance	0,0444	Adjusted Chi Square Value	170,8
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	136,1	95% Adjusted Gamma UCL (use when n<50)	136,9
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,977	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,943	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,103	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,134	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	2,911	Mean of logged Data	4,532
Maximum of Logged Data	6,179	SD of logged Data	0,654
Assuming Lognormal Distribution			
95% H-UCL	141,1	90% Chebyshev (MVUE) UCL	151,4
95% Chebyshev (MVUE) UCL	168,1	97,5% Chebyshev (MVUE) UCL	191,3
99% Chebyshev (MVUE) UCL	237,0		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	136,3	95% Jackknife UCL	136,8
95% Standard Bootstrap UCL	136,5	95% Bootstrap-t UCL	147,2
95% Hall's Bootstrap UCL	151,3	95% Percentile Bootstrap UCL	136,9
95% BCA Bootstrap UCL	142,0		
90% Chebyshev(Mean, Sd) UCL	154,1	95% Chebyshev(Mean, Sd) UCL	172,0
97,5% Chebyshev(Mean, Sd) UCL	196,7	99% Chebyshev(Mean, Sd) UCL	245,4
Suggested UCL to Use			
95% H-UCL	141,1		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
ProUCL computes and outputs H-statistic based UCLs for historical reasons only.			
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.			

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

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General Statistics			
Total Number of Observations	47,00	Number of Distinct Observations	45,00
		Number of Missing Observations	0
Minimum	11,95	Mean	278,5
Maximum	2556	Median	119,0
SD	488,0	Std. Error of Mean	71,18
Coefficient of Variation	1,752	Skewness	3,480
Normal GOF Test			
Shapiro Wilk Test Statistic	0,548	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,946	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,296	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,128	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	398,0	95% Adjusted-CLT UCL (Chen-1995)	434,2
		95% Modified-t UCL (Johnson-1978)	404,0
Gamma GOF Test			
A-D Test Statistic	1,430	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,798	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,130	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,135	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,673	k star (bias corrected MLE)	0,644
Theta hat (MLE)	413,9	Theta star (bias corrected MLE)	432,4
nu hat (MLE)	63,24	nu star (bias corrected)	60,54
MLE Mean (bias corrected)	278,5	MLE Sd (bias corrected)	347,0
		Approximate Chi Square Value (0,0500)	43,65
Adjusted Level of Significance	0,0449	Adjusted Chi Square Value	43,19
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	386,3	95% Adjusted Gamma UCL (use when n<50)	390,3
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,963	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,946	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0808	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,128	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	2,481	Mean of logged Data	4,726
Maximum of Logged Data	7,846	SD of logged Data	1,340
Assuming Lognormal Distribution			
95% H-UCL	473,7	90% Chebyshev (MVUE) UCL	467,1
95% Chebyshev (MVUE) UCL	557,5	97,5% Chebyshev (MVUE) UCL	683,1
99% Chebyshev (MVUE) UCL	929,7		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	395,6	95% Jackknife UCL	398,0
95% Standard Bootstrap UCL	393,5	95% Bootstrap-t UCL	529,3
95% Hall's Bootstrap UCL	900,4	95% Percentile Bootstrap UCL	402,2
95% BCA Bootstrap UCL	469,1		
90% Chebyshev(Mean, Sd) UCL	492,0	95% Chebyshev(Mean, Sd) UCL	588,7
97,5% Chebyshev(Mean, Sd) UCL	723,0	99% Chebyshev(Mean, Sd) UCL	986,7
Suggested UCL to Use			
95% Adjusted Gamma UCL	390,3		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

PCB totall			
General Statistics			
Total Number of Observations	59,00	Number of Distinct Observations	56,00
		Number of Missing Observations	0
Minimum	0,100	Mean	664,8
Maximum	31980	Median	6,800
SD	4162	Std. Error of Mean	541,9
Coefficient of Variation	6,261	Skewness	7,597
Normal GOF Test			
Shapiro Wilk Test Statistic	0,166	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,452	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,115	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1571	95% Adjusted-CLT UCL (Chen-1995)	2129
		95% Modified-t UCL (Johnson-1978)	1660
Gamma GOF Test			
A-D Test Statistic	6,815	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,939	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,278	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,130	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,174	k star (bias corrected MLE)	0,176
Theta hat (MLE)	3820	Theta star (bias corrected MLE)	3767
nu hat (MLE)	20,54	nu star (bias corrected)	20,82
MLE Mean (bias corrected)	664,8	MLE Sd (bias corrected)	1582
		Approximate Chi Square Value (0,0500)	11,46
Adjusted Level of Significance	0,0459	Adjusted Chi Square Value	11,29
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	1208	95% Adjusted Gamma UCL (use when n<50)	1227
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,967	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0,228	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0567	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,115	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-2,303	Mean of logged Data	2,179
Maximum of Logged Data	10,37	SD of logged Data	2,821
Assuming Lognormal Distribution			
95% H-UCL	3444	90% Chebyshev (MVUE) UCL	997,5
95% Chebyshev (MVUE) UCL	1288	97,5% Chebyshev (MVUE) UCL	1692
99% Chebyshev (MVUE) UCL	2486		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1556	95% Jackknife UCL	1571
95% Standard Bootstrap UCL	1532	95% Bootstrap-t UCL	10812
95% Hall's Bootstrap UCL	8420	95% Percentile Bootstrap UCL	1734
95% BCA Bootstrap UCL	2329		
90% Chebyshev(Mean, Sd) UCL	2290	95% Chebyshev(Mean, Sd) UCL	3027
97,5% Chebyshev(Mean, Sd) UCL	4049	99% Chebyshev(Mean, Sd) UCL	6057
Suggested UCL to Use			
97.5% Chebyshev (Mean, Sd) UCL	4049		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

PCN			
General Statistics			
Total Number of Observations	40,00	Number of Distinct Observations	37,00
		Number of Missing Observations	0
Minimum	0,0717	Mean	59,71
Maximum	490,0	Median	7,250
SD	122,6	Std. Error of Mean	19,38
Coefficient of Variation	2,053	Skewness	2,622
Normal GOF Test			
Shapiro Wilk Test Statistic	0,542	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,940	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,346	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,139	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	92,36	95% Adjusted-CLT UCL (Chen-1995)	100,2
		95% Modified-t UCL (Johnson-1978)	93,70
Gamma GOF Test			
A-D Test Statistic	1,213	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,856	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,145	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,151	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,308	k star (bias corrected MLE)	0,302
Theta hat (MLE)	193,7	Theta star (bias corrected MLE)	197,9
nu hat (MLE)	24,66	nu star (bias corrected)	24,14
MLE Mean (bias corrected)	59,71	MLE Sd (bias corrected)	108,7
		Approximate Chi Square Value (0,0500)	13,96
Adjusted Level of Significance	0,0440	Adjusted Chi Square Value	13,66
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	103,3	95% Adjusted Gamma UCL (use when n<50)	105,5
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,954	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,940	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0934	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,139	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-2,635	Mean of logged Data	1,862
Maximum of Logged Data	6,194	SD of logged Data	2,536
Assuming Lognormal Distribution			
95% H-UCL	1039	90% Chebyshev (MVUE) UCL	336,3
95% Chebyshev (MVUE) UCL	433,8	97,5% Chebyshev (MVUE) UCL	569,2
99% Chebyshev (MVUE) UCL	835,1		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	91,59	95% Jackknife UCL	92,36
95% Standard Bootstrap UCL	91,75	95% Bootstrap-t UCL	110,8
95% Hall's Bootstrap UCL	103,1	95% Percentile Bootstrap UCL	94,16
95% BCA Bootstrap UCL	101,3		
90% Chebyshev(Mean, Sd) UCL	117,9	95% Chebyshev(Mean, Sd) UCL	144,2
97,5% Chebyshev(Mean, Sd) UCL	180,7	99% Chebyshev(Mean, Sd) UCL	252,5
Suggested UCL to Use			
95% Adjusted Gamma UCL	105,5		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

PCT			
General Statistics			
Total Number of Observations	29,00	Number of Distinct Observations	26,00
		Number of Missing Observations	0
Minimum	0,100	Mean	30,21
Maximum	454,0	Median	3,800
SD	85,81	Std. Error of Mean	15,93
Coefficient of Variation	2,840	Skewness	4,658
Normal GOF Test			
Shapiro Wilk Test Statistic	0,374	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,926	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,367	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,161	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	57,32	95% Adjusted-CLT UCL (Chen-1995)	71,15
		95% Modified-t UCL (Johnson-1978)	59,62
Gamma GOF Test			
A-D Test Statistic	1,439	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,845	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,196	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,176	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,352	k star (bias corrected MLE)	0,338
Theta hat (MLE)	85,86	Theta star (bias corrected MLE)	89,26
nu hat (MLE)	20,41	nu star (bias corrected)	19,63
MLE Mean (bias corrected)	30,21	MLE Sd (bias corrected)	51,93
		Approximate Chi Square Value (0,0500)	10,58
Adjusted Level of Significance	0,0407	Adjusted Chi Square Value	10,18
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	56,06	95% Adjusted Gamma UCL (use when n<50)	58,25
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,982	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,926	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0944	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,161	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-2,303	Mean of logged Data	1,499
Maximum of Logged Data	6,118	SD of logged Data	2,043
Assuming Lognormal Distribution			
95% H-UCL	167,7	90% Chebyshev (MVUE) UCL	75,43
95% Chebyshev (MVUE) UCL	96,06	97,5% Chebyshev (MVUE) UCL	124,7
99% Chebyshev (MVUE) UCL	180,9		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	56,42	95% Jackknife UCL	57,32
95% Standard Bootstrap UCL	56,25	95% Bootstrap-t UCL	148,1
95% Hall's Bootstrap UCL	146,2	95% Percentile Bootstrap UCL	60,35
95% BCA Bootstrap UCL	78,70		
90% Chebyshev(Mean, Sd) UCL	78,02	95% Chebyshev(Mean, Sd) UCL	99,67
97,5% Chebyshev(Mean, Sd) UCL	129,7	99% Chebyshev(Mean, Sd) UCL	188,8
Suggested UCL to Use			
97.5% Chebyshev (Mean, Sd) UCL	129,7		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Alfa HCH			
General Statistics			
Total Number of Observations	11,00	Number of Distinct Observations	11,00
		Number of Missing Observations	0
Minimum	0,0100	Mean	0,183
Maximum	0,515	Median	0,100
SD	0,178	Std. Error of Mean	0,0537
Coefficient of Variation	0,974	Skewness	0,921
Normal GOF Test			
Shapiro Wilk Test Statistic	0,868	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,850	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0,224	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,251	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,280	95% Adjusted-CLT UCL (Chen-1995)	0,287
		95% Modified-t UCL (Johnson-1978)	0,283
Gamma GOF Test			
A-D Test Statistic	0,265	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,756	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,122	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,263	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,893	k star (bias corrected MLE)	0,710
Theta hat (MLE)	0,205	Theta star (bias corrected MLE)	0,258
nu hat (MLE)	19,64	nu star (bias corrected)	15,62
MLE Mean (bias corrected)	0,183	MLE Sd (bias corrected)	0,217
		Approximate Chi Square Value (0,0500)	7,693
Adjusted Level of Significance	0,0278	Adjusted Chi Square Value	6,805
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	0,371	95% Adjusted Gamma UCL (use when n<50)	0,420
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,915	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,850	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,156	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,251	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-4,605	Mean of logged Data	-2,355
Maximum of Logged Data	-0,663	SD of logged Data	1,398
Assuming Lognormal Distribution			
95% H-UCL	1,360	90% Chebyshev (MVUE) UCL	0,515
95% Chebyshev (MVUE) UCL	0,649	97,5% Chebyshev (MVUE) UCL	0,836
99% Chebyshev (MVUE) UCL	1,202		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,271	95% Jackknife UCL	0,280
95% Standard Bootstrap UCL	0,268	95% Bootstrap-t UCL	0,310
95% Hall's Bootstrap UCL	0,307	95% Percentile Bootstrap UCL	0,273
95% BCA Bootstrap UCL	0,280		
90% Chebyshev(Mean, Sd) UCL	0,344	95% Chebyshev(Mean, Sd) UCL	0,417
97,5% Chebyshev(Mean, Sd) UCL	0,518	99% Chebyshev(Mean, Sd) UCL	0,717
Suggested UCL to Use			
95% Student's-t UCL	0,280		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

beta HCH			
General Statistics			
Total Number of Observations	19,00	Number of Distinct Observations	19,00
		Number of Missing Observations	0
Minimum	0,00626	Mean	1,585
Maximum	21,23	Median	0,163
SD	4,870	Std. Error of Mean	1,117
Coefficient of Variation	3,072	Skewness	4,066
Normal GOF Test			
Shapiro Wilk Test Statistic	0,355	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,901	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,416	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,197	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	3,523	95% Adjusted-CLT UCL (Chen-1995)	4,537
		95% Modified-t UCL (Johnson-1978)	3,696
Gamma GOF Test			
A-D Test Statistic	2,045	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,839	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,270	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,215	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,319	k star (bias corrected MLE)	0,303
Theta hat (MLE)	4,976	Theta star (bias corrected MLE)	5,225
nu hat (MLE)	12,11	nu star (bias corrected)	11,53
MLE Mean (bias corrected)	1,585	MLE Sd (bias corrected)	2,878
		Approximate Chi Square Value (0,0500)	4,918
Adjusted Level of Significance	0,0369	Adjusted Chi Square Value	4,545
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	3,716	95% Adjusted Gamma UCL (use when n<50)	4,021
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,949	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,901	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,144	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,197	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-5,074	Mean of logged Data	-1,683
Maximum of Logged Data	3,056	SD of logged Data	1,914
Assuming Lognormal Distribution			
95% H-UCL	7,376	90% Chebyshev (MVUE) UCL	2,420
95% Chebyshev (MVUE) UCL	3,095	97,5% Chebyshev (MVUE) UCL	4,032
99% Chebyshev (MVUE) UCL	5,873		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	3,423	95% Jackknife UCL	3,523
95% Standard Bootstrap UCL	3,373	95% Bootstrap-t UCL	21,46
95% Hall's Bootstrap UCL	15,27	95% Percentile Bootstrap UCL	3,739
95% BCA Bootstrap UCL	5,144		
90% Chebyshev(Mean, Sd) UCL	4,937	95% Chebyshev(Mean, Sd) UCL	6,456
97,5% Chebyshev(Mean, Sd) UCL	8,563	99% Chebyshev(Mean, Sd) UCL	12,70
Suggested UCL to Use			
99% Chebyshev (Mean, Sd) UCL	12,70		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Lindano			
General Statistics			
Total Number of Observations	10,00	Number of Distinct Observations	10,00
		Number of Missing Observations	0
Minimum	0,00645	Mean	3,701
Maximum	27,98	Median	0,232
SD	8,728	Std. Error of Mean	2,760
Coefficient of Variation	2,358	Skewness	2,927
Normal GOF Test			
Shapiro Wilk Test Statistic	0,498	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,842	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,374	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,262	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	8,761	95% Adjusted-CLT UCL (Chen-1995)	10,97
		95% Modified-t UCL (Johnson-1978)	9,186
Gamma GOF Test			
A-D Test Statistic	0,611	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,830	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,252	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,290	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,262	k star (bias corrected MLE)	0,250
Theta hat (MLE)	14,15	Theta star (bias corrected MLE)	14,82
nu hat (MLE)	5,232	nu star (bias corrected)	4,996
MLE Mean (bias corrected)	3,701	MLE Sd (bias corrected)	7,406
		Approximate Chi Square Value (0,0500)	1,150
Adjusted Level of Significance	0,0267	Adjusted Chi Square Value	0,865
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	16,08	95% Adjusted Gamma UCL (use when n<50)	21,37
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,960	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,842	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,113	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,262	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-5,044	Mean of logged Data	-1,386
Maximum of Logged Data	3,332	SD of logged Data	2,759
Assuming Lognormal Distribution			
95% H-UCL	8946	90% Chebyshev (MVUE) UCL	13,71
95% Chebyshev (MVUE) UCL	18,13	97,5% Chebyshev (MVUE) UCL	24,25
99% Chebyshev (MVUE) UCL	36,27		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	8,241	95% Jackknife UCL	8,761
95% Standard Bootstrap UCL	7,940	95% Bootstrap-t UCL	50,06
95% Hall's Bootstrap UCL	47,13	95% Percentile Bootstrap UCL	8,911
95% BCA Bootstrap UCL	11,87		
90% Chebyshev(Mean, Sd) UCL	11,98	95% Chebyshev(Mean, Sd) UCL	15,73
97,5% Chebyshev(Mean, Sd) UCL	20,94	99% Chebyshev(Mean, Sd) UCL	31,16
Suggested UCL to Use			
95% Adjusted Gamma UCL	21,37		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Dieldrin			
General Statistics			
Total Number of Observations	12,00	Number of Distinct Observations	12,00
		Number of Missing Observations	0
Minimum	0,0100	Mean	0,104
Maximum	0,670	Median	0,0327
SD	0,185	Std. Error of Mean	0,0533
Coefficient of Variation	1,768	Skewness	3,065
Normal GOF Test			
Shapiro Wilk Test Statistic	0,542	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,308	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,243	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,200	95% Adjusted-CLT UCL (Chen-1995)	0,242
		95% Modified-t UCL (Johnson-1978)	0,208
Gamma GOF Test			
A-D Test Statistic	0,803	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,768	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,222	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,255	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,715	k star (bias corrected MLE)	0,592
Theta hat (MLE)	0,146	Theta star (bias corrected MLE)	0,176
nu hat (MLE)	17,16	nu star (bias corrected)	14,20
MLE Mean (bias corrected)	0,104	MLE Sd (bias corrected)	0,136
		Approximate Chi Square Value (0,0500)	6,709
Adjusted Level of Significance	0,0290	Adjusted Chi Square Value	5,941
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	0,221	95% Adjusted Gamma UCL (use when n<50)	0,249
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,934	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,159	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,243	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-4,605	Mean of logged Data	-3,103
Maximum of Logged Data	-0,401	SD of logged Data	1,243
Assuming Lognormal Distribution			
95% H-UCL	0,345	90% Chebyshev (MVUE) UCL	0,191
95% Chebyshev (MVUE) UCL	0,238	97,5% Chebyshev (MVUE) UCL	0,303
99% Chebyshev (MVUE) UCL	0,430		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,192	95% Jackknife UCL	0,200
95% Standard Bootstrap UCL	0,187	95% Bootstrap-t UCL	0,431
95% Hall's Bootstrap UCL	0,486	95% Percentile Bootstrap UCL	0,200
95% BCA Bootstrap UCL	0,258		
90% Chebyshev(Mean, Sd) UCL	0,264	95% Chebyshev(Mean, Sd) UCL	0,337
97,5% Chebyshev(Mean, Sd) UCL	0,437	99% Chebyshev(Mean, Sd) UCL	0,634
Suggested UCL to Use			
95% Adjusted Gamma UCL	0,249		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

DDD, DDT, DDE			
General Statistics			
Total Number of Observations	30,00	Number of Distinct Observations	30,00
		Number of Missing Observations	0
Minimum	0,0199	Mean	10,56
Maximum	83,24	Median	0,721
SD	21,80	Std. Error of Mean	3,980
Coefficient of Variation	2,065	Skewness	2,654
Normal GOF Test			
Shapiro Wilk Test Statistic	0,548	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,927	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,326	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,159	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	17,32	95% Adjusted-CLT UCL (Chen-1995)	19,16
		95% Modified-t UCL (Johnson-1978)	17,64
Gamma GOF Test			
A-D Test Statistic	1,540	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,865	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,222	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,174	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,278	k star (bias corrected MLE)	0,272
Theta hat (MLE)	38,01	Theta star (bias corrected MLE)	38,79
nu hat (MLE)	16,66	nu star (bias corrected)	16,33
MLE Mean (bias corrected)	10,56	MLE Sd (bias corrected)	20,24
		Approximate Chi Square Value (0,0500)	8,195
Adjusted Level of Significance	0,0410	Adjusted Chi Square Value	7,863
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	21,03	95% Adjusted Gamma UCL (use when n<50)	21,92
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,930	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,927	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,115	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,159	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,915	Mean of logged Data	-0,158
Maximum of Logged Data	4,422	SD of logged Data	2,609
Assuming Lognormal Distribution			
95% H-UCL	279,9	90% Chebyshev (MVUE) UCL	51,48
95% Chebyshev (MVUE) UCL	66,94	97,5% Chebyshev (MVUE) UCL	88,39
99% Chebyshev (MVUE) UCL	130,5		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	17,10	95% Jackknife UCL	17,32
95% Standard Bootstrap UCL	16,94	95% Bootstrap-t UCL	24,06
95% Hall's Bootstrap UCL	25,26	95% Percentile Bootstrap UCL	17,47
95% BCA Bootstrap UCL	20,59		
90% Chebyshev(Mean, Sd) UCL	22,50	95% Chebyshev(Mean, Sd) UCL	27,90
97,5% Chebyshev(Mean, Sd) UCL	35,41	99% Chebyshev(Mean, Sd) UCL	50,15
Suggested UCL to Use			
97.5% Chebyshev (Mean, Sd) UCL	35,41		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Benzo(a)anthracene			
General Statistics			
Total Number of Observations	36,00	Number of Distinct Observations	36,00
		Number of Missing Observations	0
Minimum	0,0323	Mean	0,728
Maximum	3,406	Median	0,275
SD	0,905	Std. Error of Mean	0,151
Coefficient of Variation	1,242	Skewness	1,829
Normal GOF Test			
Shapiro Wilk Test Statistic	0,731	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,935	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,266	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,145	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,983	95% Adjusted-CLT UCL (Chen-1995)	1,025
		95% Modified-t UCL (Johnson-1978)	0,991
Gamma GOF Test			
A-D Test Statistic	0,782	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,785	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,160	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,152	Data Not Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,820	k star (bias corrected MLE)	0,770
Theta hat (MLE)	0,888	Theta star (bias corrected MLE)	0,946
nu hat (MLE)	59,05	nu star (bias corrected)	55,46
MLE Mean (bias corrected)	0,728	MLE Sd (bias corrected)	0,830
		Approximate Chi Square Value (0,0500)	39,34
Adjusted Level of Significance	0,0428	Adjusted Chi Square Value	38,73
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	1,027	95% Adjusted Gamma UCL (use when n<50)	1,043
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,966	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,935	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0929	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,145	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,433	Mean of logged Data	-1,038
Maximum of Logged Data	1,226	SD of logged Data	1,275
Assuming Lognormal Distribution			
95% H-UCL	1,433	90% Chebyshev (MVUE) UCL	1,372
95% Chebyshev (MVUE) UCL	1,645	97,5% Chebyshev (MVUE) UCL	2,024
99% Chebyshev (MVUE) UCL	2,769		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,976	95% Jackknife UCL	0,983
95% Standard Bootstrap UCL	0,969	95% Bootstrap-t UCL	1,083
95% Hall's Bootstrap UCL	1,016	95% Percentile Bootstrap UCL	0,985
95% BCA Bootstrap UCL	1,019		
90% Chebyshev(Mean, Sd) UCL	1,181	95% Chebyshev(Mean, Sd) UCL	1,386
97,5% Chebyshev(Mean, Sd) UCL	1,670	99% Chebyshev(Mean, Sd) UCL	2,229
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,043		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Benzo(a)pirene			
General Statistics			
Total Number of Observations	34,00	Number of Distinct Observations	34,00
		Number of Missing Observations	0
Minimum	0,0498	Mean	0,850
Maximum	5,337	Median	0,362
SD	1,116	Std. Error of Mean	0,191
Coefficient of Variation	1,313	Skewness	2,385
Normal GOF Test			
Shapiro Wilk Test Statistic	0,715	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,933	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,248	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,150	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,174	95% Adjusted-CLT UCL (Chen-1995)	1,248
		95% Modified-t UCL (Johnson-1978)	1,187
Gamma GOF Test			
A-D Test Statistic	0,910	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,786	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,154	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,157	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,791	k star (bias corrected MLE)	0,741
Theta hat (MLE)	1,075	Theta star (bias corrected MLE)	1,147
nu hat (MLE)	53,78	nu star (bias corrected)	50,37
MLE Mean (bias corrected)	0,850	MLE Sd (bias corrected)	0,987
		Approximate Chi Square Value (0,0500)	35,07
Adjusted Level of Significance	0,0422	Adjusted Chi Square Value	34,44
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	1,221	95% Adjusted Gamma UCL (use when n<50)	1,243
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,955	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,933	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,112	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,150	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,000	Mean of logged Data	-0,914
Maximum of Logged Data	1,675	SD of logged Data	1,283
Assuming Lognormal Distribution			
95% H-UCL	1,710	90% Chebyshev (MVUE) UCL	1,585
95% Chebyshev (MVUE) UCL	1,906	97,5% Chebyshev (MVUE) UCL	2,352
99% Chebyshev (MVUE) UCL	3,228		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1,165	95% Jackknife UCL	1,174
95% Standard Bootstrap UCL	1,151	95% Bootstrap-t UCL	1,335
95% Hall's Bootstrap UCL	1,403	95% Percentile Bootstrap UCL	1,199
95% BCA Bootstrap UCL	1,269		
90% Chebyshev(Mean, Sd) UCL	1,424	95% Chebyshev(Mean, Sd) UCL	1,684
97,5% Chebyshev(Mean, Sd) UCL	2,045	99% Chebyshev(Mean, Sd) UCL	2,755
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,243		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Benzo(b)fluorantene			
General Statistics			
Total Number of Observations	37,00	Number of Distinct Observations	37,00
		Number of Missing Observations	0
Minimum	0,0251	Mean	1,047
Maximum	5,285	Median	0,450
SD	1,327	Std. Error of Mean	0,218
Coefficient of Variation	1,268	Skewness	1,715
Normal GOF Test			
Shapiro Wilk Test Statistic	0,750	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,936	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,238	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,144	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,415	95% Adjusted-CLT UCL (Chen-1995)	1,471
		95% Modified-t UCL (Johnson-1978)	1,425
Gamma GOF Test			
A-D Test Statistic	0,664	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,791	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,120	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,151	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,719	k star (bias corrected MLE)	0,679
Theta hat (MLE)	1,455	Theta star (bias corrected MLE)	1,542
nu hat (MLE)	53,23	nu star (bias corrected)	50,24
MLE Mean (bias corrected)	1,047	MLE Sd (bias corrected)	1,270
		Approximate Chi Square Value (0,0500)	34,97
Adjusted Level of Significance	0,0431	Adjusted Chi Square Value	34,41
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	1,504	95% Adjusted Gamma UCL (use when n<50)	1,528
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,969	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,936	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0717	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,144	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,687	Mean of logged Data	-0,791
Maximum of Logged Data	1,665	SD of logged Data	1,415
Assuming Lognormal Distribution			
95% H-UCL	2,444	90% Chebyshev (MVUE) UCL	2,210
95% Chebyshev (MVUE) UCL	2,680	97,5% Chebyshev (MVUE) UCL	3,333
99% Chebyshev (MVUE) UCL	4,616		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1,405	95% Jackknife UCL	1,415
95% Standard Bootstrap UCL	1,402	95% Bootstrap-t UCL	1,510
95% Hall's Bootstrap UCL	1,465	95% Percentile Bootstrap UCL	1,433
95% BCA Bootstrap UCL	1,453		
90% Chebyshev(Mean, Sd) UCL	1,701	95% Chebyshev(Mean, Sd) UCL	1,997
97,5% Chebyshev(Mean, Sd) UCL	2,409	99% Chebyshev(Mean, Sd) UCL	3,217
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,528		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Benzo(k)fluorantene			
General Statistics			
Total Number of Observations	34,00	Number of Distinct Observations	34,00
		Number of Missing Observations	0
Minimum	0,0251	Mean	0,680
Maximum	4,089	Median	0,235
SD	0,881	Std. Error of Mean	0,151
Coefficient of Variation	1,295	Skewness	2,181
Normal GOF Test			
Shapiro Wilk Test Statistic	0,735	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,933	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,229	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,150	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,936	95% Adjusted-CLT UCL (Chen-1995)	0,989
		95% Modified-t UCL (Johnson-1978)	0,945
Gamma GOF Test			
A-D Test Statistic	0,685	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,789	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,165	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,157	Data Not Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,733	k star (bias corrected MLE)	0,688
Theta hat (MLE)	0,928	Theta star (bias corrected MLE)	0,989
nu hat (MLE)	49,84	nu star (bias corrected)	46,77
MLE Mean (bias corrected)	0,680	MLE Sd (bias corrected)	0,820
		Approximate Chi Square Value (0,0500)	32,08
Adjusted Level of Significance	0,0422	Adjusted Chi Square Value	31,48
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	0,992	95% Adjusted Gamma UCL (use when n<50)	1,011
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,958	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,933	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0937	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,150	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,687	Mean of logged Data	-1,205
Maximum of Logged Data	1,408	SD of logged Data	1,395
Assuming Lognormal Distribution			
95% H-UCL	1,629	90% Chebyshev (MVUE) UCL	1,430
95% Chebyshev (MVUE) UCL	1,736	97,5% Chebyshev (MVUE) UCL	2,162
99% Chebyshev (MVUE) UCL	2,999		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,929	95% Jackknife UCL	0,936
95% Standard Bootstrap UCL	0,936	95% Bootstrap-t UCL	1,052
95% Hall's Bootstrap UCL	1,069	95% Percentile Bootstrap UCL	0,941
95% BCA Bootstrap UCL	0,984		
90% Chebyshev(Mean, Sd) UCL	1,133	95% Chebyshev(Mean, Sd) UCL	1,339
97,5% Chebyshev(Mean, Sd) UCL	1,624	99% Chebyshev(Mean, Sd) UCL	2,183
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,011		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Benzo(g,h,i)perilene			
General Statistics			
Total Number of Observations	35,00	Number of Distinct Observations	35,00
		Number of Missing Observations	0
Minimum	0,0251	Mean	0,897
Maximum	8,125	Median	0,317
SD	1,615	Std. Error of Mean	0,273
Coefficient of Variation	1,800	Skewness	3,459
Normal GOF Test			
Shapiro Wilk Test Statistic	0,547	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,934	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,295	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,148	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,359	95% Adjusted-CLT UCL (Chen-1995)	1,517
		95% Modified-t UCL (Johnson-1978)	1,386
Gamma GOF Test			
A-D Test Statistic	1,114	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,801	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,140	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,156	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,615	k star (bias corrected MLE)	0,581
Theta hat (MLE)	1,460	Theta star (bias corrected MLE)	1,544
nu hat (MLE)	43,03	nu star (bias corrected)	40,68
MLE Mean (bias corrected)	0,897	MLE Sd (bias corrected)	1,177
		Approximate Chi Square Value (0,0500)	27,06
Adjusted Level of Significance	0,0425	Adjusted Chi Square Value	26,53
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	1,349	95% Adjusted Gamma UCL (use when n<50)	1,376
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,972	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,934	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0993	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,148	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,687	Mean of logged Data	-1,110
Maximum of Logged Data	2,095	SD of logged Data	1,437
Assuming Lognormal Distribution			
95% H-UCL	1,960	90% Chebyshev (MVUE) UCL	1,686
95% Chebyshev (MVUE) UCL	2,053	97,5% Chebyshev (MVUE) UCL	2,562
99% Chebyshev (MVUE) UCL	3,562		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1,346	95% Jackknife UCL	1,359
95% Standard Bootstrap UCL	1,347	95% Bootstrap-t UCL	1,923
95% Hall's Bootstrap UCL	3,506	95% Percentile Bootstrap UCL	1,377
95% BCA Bootstrap UCL	1,581		
90% Chebyshev(Mean, Sd) UCL	1,716	95% Chebyshev(Mean, Sd) UCL	2,087
97,5% Chebyshev(Mean, Sd) UCL	2,602	99% Chebyshev(Mean, Sd) UCL	3,614
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,376		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Dibenzo(a,e)pirene			
General Statistics			
Total Number of Observations	16,00	Number of Distinct Observations	16,00
		Number of Missing Observations	0
Minimum	0,0235	Mean	0,438
Maximum	2,145	Median	0,158
SD	0,680	Std. Error of Mean	0,170
Coefficient of Variation	1,553	Skewness	2,289
Normal GOF Test			
Shapiro Wilk Test Statistic	0,583	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,887	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,332	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,213	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,736	95% Adjusted-CLT UCL (Chen-1995)	0,822
		95% Modified-t UCL (Johnson-1978)	0,753
Gamma GOF Test			
A-D Test Statistic	0,970	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,775	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,183	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,223	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,747	k star (bias corrected MLE)	0,649
Theta hat (MLE)	0,586	Theta star (bias corrected MLE)	0,675
nu hat (MLE)	23,91	nu star (bias corrected)	20,76
MLE Mean (bias corrected)	0,438	MLE Sd (bias corrected)	0,544
		Approximate Chi Square Value (0,0500)	11,41
Adjusted Level of Significance	0,0335	Adjusted Chi Square Value	10,63
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	0,797	95% Adjusted Gamma UCL (use when n<50)	0,856
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,955	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,887	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,114	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,213	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,752	Mean of logged Data	-1,627
Maximum of Logged Data	0,763	SD of logged Data	1,250
Assuming Lognormal Distribution			
95% H-UCL	1,172	90% Chebyshev (MVUE) UCL	0,819
95% Chebyshev (MVUE) UCL	1,009	97,5% Chebyshev (MVUE) UCL	1,274
99% Chebyshev (MVUE) UCL	1,794		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,718	95% Jackknife UCL	0,736
95% Standard Bootstrap UCL	0,709	95% Bootstrap-t UCL	1,634
95% Hall's Bootstrap UCL	2,236	95% Percentile Bootstrap UCL	0,730
95% BCA Bootstrap UCL	0,824		
90% Chebyshev(Mean, Sd) UCL	0,948	95% Chebyshev(Mean, Sd) UCL	1,180
97,5% Chebyshev(Mean, Sd) UCL	1,500	99% Chebyshev(Mean, Sd) UCL	2,131
Suggested UCL to Use			
95% Adjusted Gamma UCL	0,856		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Dibenzo(a,l)pirene			
General Statistics			
Total Number of Observations	17,00	Number of Distinct Observations	17,00
		Number of Missing Observations	0
Minimum	0,0291	Mean	0,793
Maximum	3,705	Median	0,356
SD	1,036	Std. Error of Mean	0,251
Coefficient of Variation	1,306	Skewness	2,132
Normal GOF Test			
Shapiro Wilk Test Statistic	0,696	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,892	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,270	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,207	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,232	95% Adjusted-CLT UCL (Chen-1995)	1,345
		95% Modified-t UCL (Johnson-1978)	1,253
Gamma GOF Test			
A-D Test Statistic	0,363	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,774	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,135	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,217	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,807	k star (bias corrected MLE)	0,703
Theta hat (MLE)	0,983	Theta star (bias corrected MLE)	1,127
nu hat (MLE)	27,42	nu star (bias corrected)	23,92
MLE Mean (bias corrected)	0,793	MLE Sd (bias corrected)	0,946
		Approximate Chi Square Value (0,0500)	13,79
Adjusted Level of Significance	0,0346	Adjusted Chi Square Value	12,98
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	1,376	95% Adjusted Gamma UCL (use when n<50)	1,461
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,980	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,892	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,103	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,207	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,538	Mean of logged Data	-0,967
Maximum of Logged Data	1,310	SD of logged Data	1,328
Assuming Lognormal Distribution			
95% H-UCL	2,652	90% Chebyshev (MVUE) UCL	1,778
95% Chebyshev (MVUE) UCL	2,202	97,5% Chebyshev (MVUE) UCL	2,790
99% Chebyshev (MVUE) UCL	3,945		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1,206	95% Jackknife UCL	1,232
95% Standard Bootstrap UCL	1,194	95% Bootstrap-t UCL	1,856
95% Hall's Bootstrap UCL	3,483	95% Percentile Bootstrap UCL	1,221
95% BCA Bootstrap UCL	1,371		
90% Chebyshev(Mean, Sd) UCL	1,547	95% Chebyshev(Mean, Sd) UCL	1,888
97,5% Chebyshev(Mean, Sd) UCL	2,362	99% Chebyshev(Mean, Sd) UCL	3,292
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,461		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Dibenzo(a,l)pirene			
General Statistics			
Total Number of Observations	14,00	Number of Distinct Observations	14,00
		Number of Missing Observations	0
Minimum	0,0524	Mean	1,213
Maximum	12,51	Median	0,120
SD	3,281	Std. Error of Mean	0,877
Coefficient of Variation	2,704	Skewness	3,633
Normal GOF Test			
Shapiro Wilk Test Statistic	0,392	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,874	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,394	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,226	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	2,766	95% Adjusted-CLT UCL (Chen-1995)	3,565
		95% Modified-t UCL (Johnson-1978)	2,908
Gamma GOF Test			
A-D Test Statistic	1,763	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,812	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,244	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,245	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,405	k star (bias corrected MLE)	0,366
Theta hat (MLE)	2,996	Theta star (bias corrected MLE)	3,316
nu hat (MLE)	11,34	nu star (bias corrected)	10,24
MLE Mean (bias corrected)	1,213	MLE Sd (bias corrected)	2,006
		Approximate Chi Square Value (0,0500)	4,095
Adjusted Level of Significance	0,0312	Adjusted Chi Square Value	3,594
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	3,035	95% Adjusted Gamma UCL (use when n<50)	3,459
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,846	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,874	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,227	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,226	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-2,949	Mean of logged Data	-1,428
Maximum of Logged Data	2,527	SD of logged Data	1,584
Assuming Lognormal Distribution			
95% H-UCL	4,558	90% Chebyshev (MVUE) UCL	1,732
95% Chebyshev (MVUE) UCL	2,195	97,5% Chebyshev (MVUE) UCL	2,836
99% Chebyshev (MVUE) UCL	4,097		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	2,655	95% Jackknife UCL	2,766
95% Standard Bootstrap UCL	2,602	95% Bootstrap-t UCL	12,79
95% Hall's Bootstrap UCL	9,148	95% Percentile Bootstrap UCL	2,894
95% BCA Bootstrap UCL	3,829		
90% Chebyshev(Mean, Sd) UCL	3,844	95% Chebyshev(Mean, Sd) UCL	5,035
97,5% Chebyshev(Mean, Sd) UCL	6,689	99% Chebyshev(Mean, Sd) UCL	9,937
Suggested UCL to Use			
95% Adjusted Gamma UCL	3,459		
When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test			
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Dibenzo(a,h)anthracene			
General Statistics			
Total Number of Observations	21,00	Number of Distinct Observations	21,00
		Number of Missing Observations	0
Minimum	0,0341	Mean	0,292
Maximum	1,352	Median	0,160
SD	0,324	Std. Error of Mean	0,0707
Coefficient of Variation	1,111	Skewness	2,029
Normal GOF Test			
Shapiro Wilk Test Statistic	0,764	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,908	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,213	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,188	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,414	95% Adjusted-CLT UCL (Chen-1995)	0,441
		95% Modified-t UCL (Johnson-1978)	0,419
Gamma GOF Test			
A-D Test Statistic	0,591	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,769	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,164	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,195	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1,036	k star (bias corrected MLE)	0,919
Theta hat (MLE)	0,282	Theta star (bias corrected MLE)	0,317
nu hat (MLE)	43,49	nu star (bias corrected)	38,61
MLE Mean (bias corrected)	0,292	MLE Sd (bias corrected)	0,304
		Approximate Chi Square Value (0,0500)	25,38
Adjusted Level of Significance	0,0383	Adjusted Chi Square Value	24,56
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	0,444	95% Adjusted Gamma UCL (use when n<50)	0,459
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,940	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,908	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,132	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,188	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,380	Mean of logged Data	-1,787
Maximum of Logged Data	0,302	SD of logged Data	1,111
Assuming Lognormal Distribution			
95% H-UCL	0,609	90% Chebyshev (MVUE) UCL	0,543
95% Chebyshev (MVUE) UCL	0,655	97,5% Chebyshev (MVUE) UCL	0,810
99% Chebyshev (MVUE) UCL	1,115		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,408	95% Jackknife UCL	0,414
95% Standard Bootstrap UCL	0,402	95% Bootstrap-t UCL	0,470
95% Hall's Bootstrap UCL	0,708	95% Percentile Bootstrap UCL	0,412
95% BCA Bootstrap UCL	0,452		
90% Chebyshev(Mean, Sd) UCL	0,504	95% Chebyshev(Mean, Sd) UCL	0,600
97,5% Chebyshev(Mean, Sd) UCL	0,733	99% Chebyshev(Mean, Sd) UCL	0,995
Suggested UCL to Use			
95% Adjusted Gamma UCL	0,459		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Indeno(1,2,3-c,d)pirene			
General Statistics			
Total Number of Observations	33,00	Number of Distinct Observations	33,00
		Number of Missing Observations	0
Minimum	0,0355	Mean	0,870
Maximum	6,442	Median	0,317
SD	1,320	Std. Error of Mean	0,230
Coefficient of Variation	1,517	Skewness	2,919
Normal GOF Test			
Shapiro Wilk Test Statistic	0,644	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,931	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,264	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,152	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,259	95% Adjusted-CLT UCL (Chen-1995)	1,372
		95% Modified-t UCL (Johnson-1978)	1,278
Gamma GOF Test			
A-D Test Statistic	0,751	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,794	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,142	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,160	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,677	k star (bias corrected MLE)	0,636
Theta hat (MLE)	1,284	Theta star (bias corrected MLE)	1,368
nu hat (MLE)	44,70	nu star (bias corrected)	41,97
MLE Mean (bias corrected)	0,870	MLE Sd (bias corrected)	1,091
		Approximate Chi Square Value (0,0500)	28,12
Adjusted Level of Significance	0,0419	Adjusted Chi Square Value	27,54
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	1,298	95% Adjusted Gamma UCL (use when n<50)	1,326
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,962	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,931	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0883	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,152	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,337	Mean of logged Data	-1,036
Maximum of Logged Data	1,863	SD of logged Data	1,415
Assuming Lognormal Distribution			
95% H-UCL	2,038	90% Chebyshev (MVUE) UCL	1,761
95% Chebyshev (MVUE) UCL	2,145	97,5% Chebyshev (MVUE) UCL	2,678
99% Chebyshev (MVUE) UCL	3,725		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1,248	95% Jackknife UCL	1,259
95% Standard Bootstrap UCL	1,237	95% Bootstrap-t UCL	1,548
95% Hall's Bootstrap UCL	3,011	95% Percentile Bootstrap UCL	1,275
95% BCA Bootstrap UCL	1,392		
90% Chebyshev(Mean, Sd) UCL	1,559	95% Chebyshev(Mean, Sd) UCL	1,871
97,5% Chebyshev(Mean, Sd) UCL	2,305	99% Chebyshev(Mean, Sd) UCL	3,156
Suggested UCL to Use			
95% Adjusted Gamma UCL	1,326		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Pirene			
General Statistics			
Total Number of Observations	36,00	Number of Distinct Observations	36,00
		Number of Missing Observations	0
Minimum	0,0351	Mean	1,364
Maximum	6,784	Median	0,509
SD	1,874	Std. Error of Mean	0,312
Coefficient of Variation	1,374	Skewness	1,851
Normal GOF Test			
Shapiro Wilk Test Statistic	0,682	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,935	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,272	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,145	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1,892	95% Adjusted-CLT UCL (Chen-1995)	1,981
		95% Modified-t UCL (Johnson-1978)	1,908
Gamma GOF Test			
A-D Test Statistic	1,088	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,792	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,166	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,153	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,713	k star (bias corrected MLE)	0,672
Theta hat (MLE)	1,912	Theta star (bias corrected MLE)	2,029
nu hat (MLE)	51,35	nu star (bias corrected)	48,40
MLE Mean (bias corrected)	1,364	MLE Sd (bias corrected)	1,663
		Approximate Chi Square Value (0,0500)	33,43
Adjusted Level of Significance	0,0428	Adjusted Chi Square Value	32,87
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	1,975	95% Adjusted Gamma UCL (use when n<50)	2,009
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,970	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,935	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,0761	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,145	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-3,350	Mean of logged Data	-0,535
Maximum of Logged Data	1,915	SD of logged Data	1,367
Assuming Lognormal Distribution			
95% H-UCL	2,867	90% Chebyshev (MVUE) UCL	2,642
95% Chebyshev (MVUE) UCL	3,194	97,5% Chebyshev (MVUE) UCL	3,961
99% Chebyshev (MVUE) UCL	5,467		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	1,878	95% Jackknife UCL	1,892
95% Standard Bootstrap UCL	1,864	95% Bootstrap-t UCL	2,044
95% Hall's Bootstrap UCL	1,904	95% Percentile Bootstrap UCL	1,898
95% BCA Bootstrap UCL	1,931		
90% Chebyshev(Mean, Sd) UCL	2,301	95% Chebyshev(Mean, Sd) UCL	2,725
97,5% Chebyshev(Mean, Sd) UCL	3,314	99% Chebyshev(Mean, Sd) UCL	4,471
Suggested UCL to Use			
95% H-UCL	2,867		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
ProUCL computes and outputs H-statistic based UCLs for historical reasons only.			
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.			

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

1,2,4-tricloro benzene			
General Statistics			
Total Number of Observations	10,00	Number of Distinct Observations	10,00
		Number of Missing Observations	0
Minimum	0,00443	Mean	94,56
Maximum	656,0	Median	0,0993
SD	213,5	Std. Error of Mean	67,51
Coefficient of Variation	2,257	Skewness	2,505
Normal GOF Test			
Shapiro Wilk Test Statistic	0,535	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,842	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,430	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,262	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	218,3	95% Adjusted-CLT UCL (Chen-1995)	262,8
		95% Modified-t UCL (Johnson-1978)	227,2
Gamma GOF Test			
A-D Test Statistic	0,946	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,898	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,307	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,299	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,153	k star (bias corrected MLE)	0,174
Theta hat (MLE)	618,8	Theta star (bias corrected MLE)	544,6
nu hat (MLE)	3,056	nu star (bias corrected)	3,473
MLE Mean (bias corrected)	94,56	MLE Sd (bias corrected)	226,9
		Approximate Chi Square Value (0,0500)	0,525
Adjusted Level of Significance	0,0267	Adjusted Chi Square Value	0,367
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	625,2	95% Adjusted Gamma UCL (use when n<50)	894,5
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,878	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,842	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,247	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,262	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-5,419	Mean of logged Data	-0,467
Maximum of Logged Data	6,486	SD of logged Data	4,263
Assuming Lognormal Distribution			
95% H-UCL	3,619E+10	90% Chebyshev (MVUE) UCL	656,7
95% Chebyshev (MVUE) UCL	877,6	97,5% Chebyshev (MVUE) UCL	1184
99% Chebyshev (MVUE) UCL	1786		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	205,6	95% Jackknife UCL	218,3
95% Standard Bootstrap UCL	199,6	95% Bootstrap-t UCL	2705
95% Hall's Bootstrap UCL	3088	95% Percentile Bootstrap UCL	212,5
95% BCA Bootstrap UCL	275,8		
90% Chebyshev(Mean, Sd) UCL	297,1	95% Chebyshev(Mean, Sd) UCL	388,8
97,5% Chebyshev(Mean, Sd) UCL	516,1	99% Chebyshev(Mean, Sd) UCL	766,2
Suggested UCL to Use			
95% Hall's Bootstrap UCL	3088		
Recommended UCL exceeds the maximum observation			
In Case Bootstrap t and/or Hall's Bootstrap yields an unreasonably large UCL value, use 97.5% or 99% Chebyshev (Mean, Sd) UCL			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,2,4,5-tetrachloro benzene			
General Statistics			
Total Number of Observations	11,00	Number of Distinct Observations	11,00
		Number of Missing Observations	0
Minimum	0,00590	Mean	8,473
Maximum	47,40	Median	0,0853
SD	15,48	Std. Error of Mean	4,666
Coefficient of Variation	1,826	Skewness	2,044
Normal GOF Test			
Shapiro Wilk Test Statistic	0,642	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,850	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,336	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,251	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	16,93	95% Adjusted-CLT UCL (Chen-1995)	19,22
		95% Modified-t UCL (Johnson-1978)	17,41
Gamma GOF Test			
A-D Test Statistic	0,782	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,853	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,261	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,280	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,221	k star (bias corrected MLE)	0,221
Theta hat (MLE)	38,34	Theta star (bias corrected MLE)	38,28
nu hat (MLE)	4,861	nu star (bias corrected)	4,869
MLE Mean (bias corrected)	8,473	MLE Sd (bias corrected)	18,01
		Approximate Chi Square Value (0,0500)	1,092
Adjusted Level of Significance	0,0278	Adjusted Chi Square Value	0,833
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	37,77	95% Adjusted Gamma UCL (use when n<50)	49,55
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,882	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,850	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,197	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,251	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-5,132	Mean of logged Data	-1,142
Maximum of Logged Data	3,859	SD of logged Data	3,388
Assuming Lognormal Distribution			
95% H-UCL	804877	90% Chebyshev (MVUE) UCL	63,52
95% Chebyshev (MVUE) UCL	84,48	97,5% Chebyshev (MVUE) UCL	113,6
99% Chebyshev (MVUE) UCL	170,7		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	16,15	95% Jackknife UCL	16,93
95% Standard Bootstrap UCL	15,91	95% Bootstrap-t UCL	33,38
95% Hall's Bootstrap UCL	48,77	95% Percentile Bootstrap UCL	16,19
95% BCA Bootstrap UCL	19,12		
90% Chebyshev(Mean, Sd) UCL	22,47	95% Chebyshev(Mean, Sd) UCL	28,81
97,5% Chebyshev(Mean, Sd) UCL	37,61	99% Chebyshev(Mean, Sd) UCL	54,90
Suggested UCL to Use			
95% Adjusted Gamma UCL	49,55		
Recommended UCL exceeds the maximum observation			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Pentachloro benzene			
General Statistics			
Total Number of Observations	10,00	Number of Distinct Observations	10,00
		Number of Missing Observations	0
Minimum	0,0171	Mean	3,494
Maximum	17,96	Median	0,279
SD	6,030	Std. Error of Mean	1,907
Coefficient of Variation	1,726	Skewness	1,896
Normal GOF Test			
Shapiro Wilk Test Statistic	0,669	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,842	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,373	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,262	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	6,990	95% Adjusted-CLT UCL (Chen-1995)	7,852
		95% Modified-t UCL (Johnson-1978)	7,181
Gamma GOF Test			
A-D Test Statistic	0,715	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,820	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,217	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0,289	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,284	k star (bias corrected MLE)	0,265
Theta hat (MLE)	12,30	Theta star (bias corrected MLE)	13,16
nu hat (MLE)	5,680	nu star (bias corrected)	5,309
MLE Mean (bias corrected)	3,494	MLE Sd (bias corrected)	6,782
		Approximate Chi Square Value (0,0500)	1,298
Adjusted Level of Significance	0,0267	Adjusted Chi Square Value	0,988
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	14,30	95% Adjusted Gamma UCL (use when n<50)	18,78
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,862	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,842	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,221	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,262	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-4,069	Mean of logged Data	-1,199
Maximum of Logged Data	2,888	SD of logged Data	2,774
Assuming Lognormal Distribution			
95% H-UCL	12093	90% Chebyshev (MVUE) UCL	17,02
95% Chebyshev (MVUE) UCL	22,49	97,5% Chebyshev (MVUE) UCL	30,09
99% Chebyshev (MVUE) UCL	45,02		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	6,631	95% Jackknife UCL	6,990
95% Standard Bootstrap UCL	6,408	95% Bootstrap-t UCL	12,02
95% Hall's Bootstrap UCL	9,229	95% Percentile Bootstrap UCL	6,832
95% BCA Bootstrap UCL	7,774		
90% Chebyshev(Mean, Sd) UCL	9,215	95% Chebyshev(Mean, Sd) UCL	11,81
97,5% Chebyshev(Mean, Sd) UCL	15,40	99% Chebyshev(Mean, Sd) UCL	22,47
Suggested UCL to Use			
95% Adjusted Gamma UCL	18,78		
Recommended UCL exceeds the maximum observation			
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

Somma PCDD/F (conversione TEQ)			
General Statistics			
Total Number of Observations	41,00	Number of Distinct Observations	41,00
		Number of Missing Observations	0
Minimum	3,3182E-5	Mean	0,0218
Maximum	0,288	Median	0,00534
SD	0,0479	Std. Error of Mean	0,00748
Coefficient of Variation	2,199	Skewness	4,607
Normal GOF Test			
Shapiro Wilk Test Statistic	0,476	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0,941	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0,325	Lilliefors GOF Test	
5% Lilliefors Critical Value	0,137	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0,0344	95% Adjusted-CLT UCL (Chen-1995)	0,0398
		95% Modified-t UCL (Johnson-1978)	0,0353
Gamma GOF Test			
A-D Test Statistic	0,677	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0,835	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0,117	Kolmogorov-Smlrnov Gamma GOF Test	
5% K-S Critical Value	0,148	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0,406	k star (bias corrected MLE)	0,392
Theta hat (MLE)	0,0537	Theta star (bias corrected MLE)	0,0555
nu hat (MLE)	33,28	nu star (bias corrected)	32,18
MLE Mean (bias corrected)	0,0218	MLE Sd (bias corrected)	0,0348
		Approximate Chi Square Value (0,0500)	20,22
Adjusted Level of Significance	0,0441	Adjusted Chi Square Value	19,87
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	0,0347	95% Adjusted Gamma UCL (use when n<50)	0,0353
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0,971	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0,941	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0,105	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0,137	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	-10,31	Mean of logged Data	-5,444
Maximum of Logged Data	-1,245	SD of logged Data	2,125
Assuming Lognormal Distribution			
95% H-UCL	0,149	90% Chebyshev (MVUE) UCL	0,0858
95% Chebyshev (MVUE) UCL	0,109	97,5% Chebyshev (MVUE) UCL	0,140
99% Chebyshev (MVUE) UCL	0,203		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	0,0341	95% Jackknife UCL	0,0344
95% Standard Bootstrap UCL	0,0341	95% Bootstrap-t UCL	0,0499
95% Hall's Bootstrap UCL	0,0799	95% Percentile Bootstrap UCL	0,0352
95% BCA Bootstrap UCL	0,0429		
90% Chebyshev(Mean, Sd) UCL	0,0442	95% Chebyshev(Mean, Sd) UCL	0,0544
97,5% Chebyshev(Mean, Sd) UCL	0,0685	99% Chebyshev(Mean, Sd) UCL	0,0962
Suggested UCL to Use			
95% Adjusted Gamma UCL	0,0353		
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.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			