| | | | |
|---|---|---|---|
| **UCL Statistics for Uncensored Full Data Sets** | | | |
| User Selected Options | | | |
| Date/Time of Computation | 10/29/2015 11:45 | | |
| From File | EPC_013Surf.xls | | |
| Full Precision | OFF | | |
| Confidence Coefficient | 95% | | |
| Number of Bootstrap Operations | 2000 | | |
| **Vanadium** | | | |
| **General Statistics** | | | |
| Total Number of Observations | 15 | Number of Distinct Observations | 12 |
| | | Number of Missing Observations | 0 |
| Minimum | 72 | Mean | 87.47 |
| Maximum | 103 | Median | 85 |
| SD | 10.66 | Std. Error of Mean | 2.751 |
| Coefficient of Variation | 0.122 | Skewness | 0.192 |
| **Normal GOF Test** | | | |
| Shapiro Wilk Test Statistic | 0.917 | **Shapiro Wilk GOF Test** | |
| 5% Shapiro Wilk Critical Value | 0.881 | Data appear Normal at 5% Significance Level | |
| Lilliefors Test Statistic | 0.155 | **Lilliefors GOF Test** | |
| 5% Lilliefors Critical Value | 0.229 | 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 | 92.31 | 95% Adjusted-CLT UCL (Chen-1995) | 92.14 |
| | | 95% Modified-t UCL (Johnson-1978) | 92.34 |
| **Gamma GOF Test** | | | |
| A-D Test Statistic | 0.497 | **Anderson-Darling Gamma GOF Test** | |
| 5% A-D Critical Value | 0.734 | Detected data appear Gamma Distributed at 5% Significance Level | |
| K-S Test Statistic | 0.158 | **Kolmogrov-Smirnoff Gamma GOF Test** | |
| 5% K-S Critical Value | 0.221 | Detected data appear Gamma Distributed at 5% Significance Level | |
| Detected data appear Gamma Distributed at 5% Significance Level | | | |
| **Gamma Statistics** | | | |
| k hat (MLE) | 72.5 | k star (bias corrected MLE) | 58.05 |
| Theta hat (MLE) | 1.206 | Theta star (bias corrected MLE) | 1.507 |
| nu hat (MLE) | 2175 | nu star (bias corrected) | 1741 |
| MLE Mean (bias corrected) | 87.47 | MLE Sd (bias corrected) | 11.48 |
| | | Approximate Chi Square Value (0.05) | 1645 |
| Adjusted Level of Significance | 0.0324 | Adjusted Chi Square Value | 1634 |
| **Assuming Gamma Distribution** | | | |
| 95% Approximate Gamma UCL (use when n>=50)) | 92.57 | 95% Adjusted Gamma UCL (use when n<50) | 93.22 |
| **Lognormal GOF Test** | | | |
| Shapiro Wilk Test Statistic | 0.924 | **Shapiro Wilk Lognormal GOF Test** | |
| 5% Shapiro Wilk Critical Value | 0.881 | Data appear Lognormal at 5% Significance Level | |
| Lilliefors Test Statistic | 0.151 | **Lilliefors Lognormal GOF Test** | |
| 5% Lilliefors Critical Value | 0.229 | Data appear Lognormal at 5% Significance Level | |
| Data appear Lognormal at 5% Significance Level | | | |
| **Lognormal Statistics** | | | |
| Minimum of Logged Data | 4.277 | Mean of logged Data | 4.464 |
| Maximum of Logged Data | 4.635 | SD of logged Data | 0.122 |
| **Assuming Lognormal Distribution** | | | |
| 95% H-UCL | 92.67 | 90% Chebyshev (MVUE) UCL | 95.72 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 95% Chebyshev (MVUE) UCL | | | | 99.47 | 97.5% Chebyshev (MVUE) UCL | | | | | 104.7 |
| 99% Chebyshev (MVUE) UCL | | | | 114.9 | | | | | | |
| | | | | | | | | | | |
| Nonparametric Distribution Free UCL Statistics | | | | | | | | | | |
| Data appear to follow a Discernible Distribution at 5% Significance Level | | | | | | | | | | |
| | | | | | | | | | | |
| Nonparametric Distribution Free UCLs | | | | | | | | | | |
| 95% CLT UCL | | | | 91.99 | 95% Jackknife UCL | | | | | 92.31 |
| 95% Standard Bootstrap UCL | | | | 91.75 | 95% Bootstrap-t UCL | | | | | 92.74 |
| 95% Hall's Bootstrap UCL | | | | 91.91 | 95% Percentile Bootstrap UCL | | | | | 91.53 |
| 95% BCA Bootstrap UCL | | | | 92 | | | | | | |
| 90% Chebyshev(Mean, Sd) UCL | | | | 95.72 | 95% Chebyshev(Mean, Sd) UCL | | | | | 99.46 |
| 97.5% Chebyshev(Mean, Sd) UCL | | | | 104.6 | 99% Chebyshev(Mean, Sd) UCL | | | | | 114.8 |
| | | | | | | | | | | |
| Suggested UCL to Use | | | | | | | | | | |
| 95% Student's-t UCL | | | | 92.31 | | | | | | |
| | | | | | | | | | | |
| Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. | | | | | | | | | | |
| These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) | | | | | | | | | | |
| and Singh and Singh (2003). However, simulations results will not cover all Real World data sets. | | | | | | | | | | |
| For additional insight the user may want to consult a statistician. | | | | | | | | | | |