Optimizing the Design of Advanced Life Support Technologies for Future Manned Space Exploration

Process Performance
Evaluation of the process performance by analyzing key process parameters.

Process Capability Index
\[ C_{pk} = \frac{UCL - \mu}{3 \sigma} \]
\[ \mu = \text{process mean} \]
\[ \sigma = \text{standard deviation} \]

Process Performance Index
\[ P_{pk} = \frac{UCL - \mu}{3 \sigma} \]
\[ \mu = \text{process mean} \]
\[ \sigma = \text{actual standard deviation} \]

Capable but not performant
\[ C_{pk} < 1 \]
Performant process
\[ P_{pk} = C_{pk} \]
Not capable
\[ C_{pk} < 0 \]
Optimize control

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