ChecklistGuro

Mean Time Between Failures (MTBF) Calculation & Review Checklist

Data Gathering & Preparation

Focuses on collecting the necessary data for accurate MTBF calculation and ensuring its quality.

Number of Units in Production

Enter a number...

Operational Hours per Unit (per year)

Enter a number...

Data Collection Period (e.g., Months, Years)

- [ ] 1 Month
- [ ] 3 Months
- [ ] 6 Months
- [ ] 1 Year
- [ ] 2 Years

Description of Manufacturing Process (brief overview)

Write something...

Equipment Bill of Materials (BOM)

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Data Source(s) for Failure Data

- [ ] CMMS (Computerized Maintenance Management System)
- [ ] Maintenance Logs
- [ ] Quality Control Records
- [ ] Operator Reports

Start Date of Data Collection

Enter date...

End Date of Data Collection

Enter date...

Failure Data Collection & Analysis

Details the process for collecting and analyzing failure data, including types of failures and root cause analysis.

Date of Failure Event

Enter date...

Time of Failure Event

Operating Hours at Time of Failure

Enter a number...

Detailed Description of Failure Event

Write something...

Failure Mode Category (e.g., Mechanical, Electrical, Software)

- [ ] Mechanical
- [ ] Electrical
- [ ] Software
- [ ] Hydraulic
- [ ] Pneumatic
- [ ] Other

Affected Components (Select all that apply)

- [ ] Motor
- [ ] Sensor
- [ ] Controller
- [ ] Actuator
- [ ] Power Supply
- [ ] Mechanical Linkage
- [ ] Other

Root Cause Analysis Summary

Write something...

Supporting Documentation (e.g., Photos, Logs)

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Severity of Failure (Impact on Production)

- [ ] Minor (Minimal Impact)
- [ ] Moderate (Temporary Downtime)
- [ ] Major (Significant Downtime)
- [ ] Critical (Production Stop)

MTBF Calculation Methodology

Covers the chosen MTBF calculation method and associated formulas/tools.

Chosen MTBF Calculation Method

- [ ] Basic Arithmetic Mean
- [ ] Minimum MTBF
- [ ] Exponential Smoothing
- [ ] Weibull Analysis
- [ ] Other (Specify)

Justification for Chosen Method

Write something...

Number of Failures Used in Calculation

Enter a number...

Total Operating Time (Hours)

Enter a number...

Mean Failure Rate (λ) - if calculated

Enter a number...

Description of any Assumptions Made

Write something...

Spreadsheet or Software Used for Calculation (Optional)

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Failure Data Correction Factors Applied?

- [ ] Yes
- [ ] No

MTBF Calculation & Validation

The step-by-step process of calculating MTBF and verifying its accuracy.

Total Operating Hours (Data Period)

Enter a number...

Number of Failures (Data Period)

Enter a number...

MTBF (Calculated)

Enter a number...

Calculation Method Used (e.g., Basic, Exponential, Miner's)

Write something...

Formula Used (Detailed)

Write something...

Units of Time for MTBF (e.g., Hours, Days, Years)

- [ ] Hours
- [ ] Days
- [ ] Weeks
- [ ] Months
- [ ] Years

Supporting Calculation Files (Spreadsheets, Documents)

Upload File

Confidence Interval (Calculated)

Enter a number...

Data Validity Review (Pass/Fail)

- [ ] Pass
- [ ] Fail

Review & Documentation

Covers the review of the calculated MTBF, ensuring it’s understood and documented appropriately.

Calculated MTBF Value (Hours)

Enter a number...

Summary of Assumptions & Limitations in Calculation

Write something...

MTBF Calculation Method Used

- [ ] Basic MTBF Calculation
- [ ] Weibull Analysis
- [ ] Other (Specify in LONG_TEXT)

Date of MTBF Calculation

Enter date...

Reviewer Comments & Observations

Write something...

Overall MTBF Result Assessment

- [ ] Acceptable
- [ ] Marginal - Further Investigation Needed
- [ ] Unacceptable - Requires Immediate Action

Supporting Documentation (e.g., Failure Logs, Data Spreadsheets)

Upload File

Reviewer Signature

Improvement & Corrective Actions

Focuses on identifying areas for improvement based on the MTBF review and implementing corrective actions.

Summarize Root Causes of Failures Affecting MTBF

Write something...

Potential Corrective Actions (Select all that apply)

- [ ] Design Modification
- [ ] Process Improvement
- [ ] Material Change
- [ ] Operator Training
- [ ] Preventative Maintenance Schedule Adjustment
- [ ] Component Redesign
- [ ] Supplier Collaboration

Estimated Cost of Corrective Action (in USD)

Enter a number...

Target Completion Date for Corrective Action

Enter date...

Detailed Description of Planned Corrective Action

Write something...

Risk Level of Proposed Corrective Action (High/Medium/Low)

- [ ] High
- [ ] Medium
- [ ] Low

Supporting Documentation (e.g., Engineering Change Orders, Test Reports)

Upload File

Expected Improvement in MTBF (Estimate)

Write something...

Calibration and Verification of Data Sources

Ensures the data used for MTBF calculation is accurate and reliable, validating the integrity of equipment logs and sensors.

Data Source Integrity Check Performed?

- [ ] Yes
- [ ] No
- [ ] Not Applicable

Last Calibration/Verification Date of Data Logging System

Enter date...

Calibration Frequency (e.g., months between calibrations)

Enter a number...

Describe Calibration Procedure Used

Write something...

Upload Calibration/Verification Documentation (e.g., reports)

Upload File

Data Source Validation Method Employed?

- [ ] Comparison with Historical Data
- [ ] Cross-Referencing with Other Systems
- [ ] Manual Verification by Trained Personnel
- [ ] Statistical Process Control (SPC) Charts
- [ ] Other

Detailed notes/observations during data source verification (e.g., anomalies, discrepancies)

Write something...