Equipment Calibration

While the reliability of METTLER TOLEDO titrators is ensured through periodic maintenance, its accuracy relies on calibrations, which are performed by manufacturer trained and certified technicians. METTLER TOLEDO recommends yearly calibration intervals with the following benefits:

- Documented evidence your titrator is working within manufacturer specification
- Calibration process performed in accordance with ISO 8655-6 reference material traceable to National Standards
- Compliance with ISO, GxP and HACCP requirements
- Known history of equipment performance
- All calibrations performed using METTLER TOLEDO proprietary CertiCase

Equipment Qualification

METTLER TOLEDO qualification solutions for titrators take away the guess work when it comes down to ensuring quality and regulatory compliance. These professional solutions offer a myriad of benefits:

- No wasted time – a quick installation and qualification allows you to immediately start working with the titrator
- Increased productivity – users receive product familiarization to ensure productive processes
- Compliance – Limited risk of non-compliance during FDA audits and other quality management system assessments
A Well Maintained Titrator to Guarantee Accurate Results

While your METTLER TOLEDO titrator is known for its accuracy and dependability, proper care is required to keep it performing at its peak potential. Depending on your application, critical components can become worn or decayed which may cause a negative impact on your results. Intermittent negative effects can lead to inconsistency in testing and wasted product. Long term neglect of critical components may lead to unit failure, unexpected downtime and costly repair. Scheduled Preventive Maintenance ensures the reliability of your titrator as shown in the picture below.

METTLER TOLEDO knows the most significant costs associated with a maintenance plan are often not considered. Some of the hidden costs are downtime, product nonconformance or measurement inaccuracies. With this in mind we have tailored service packages to best meet your needs. When selecting a service solution, the focus should be to minimize the total cost of ownership and increase the effectiveness of your manufacturing processes.

Maintenance and Calibration Process

Initial testing/calibration
- Stopcock, burette and electrode input are checked.
- Sampling bottle, burette, stopcock, drives and gears are cleaned and adjusted.

Cleaning and adjusting
- The instrument is disassembled. PC boards, burette, stopcock drives and gears are cleaned and adjusted.

Final testing/calibration
- Electrode voltages are checked along with shaker, burette, tubing and IS232 output.

Documentation
- The titrator service is recorded on the appropriate documentation.
Titrator Service

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**Maintenance and Calibration Process**

**Initial testing/calibration**
- Stopcock, burette and electrode input are checked.

**Cleaning and adjusting**
- The instrument is disassembled. PC boards, burette, stopcock drives and gaskets are cleaned and adjusted.

**Final testing/calibration**
- Electrode voltages are checked along with stirrer, burette tubing and RS232 output.

**Documentation**
- The titrator service is recorded on the appropriate documentation.

**Key Maintenance Activities**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking/cleaning of delivery system including replacement of siphon</td>
<td>Prevents from clogs and air leaks, and ensures consistent dispensing of titrant</td>
</tr>
<tr>
<td>Replacement of burette pistons</td>
<td>Prevents from leaking and dispensing inconsistently</td>
</tr>
<tr>
<td>Testing and adjustment of sensor inputs</td>
<td>Ensures manufacturer specification</td>
</tr>
<tr>
<td>Verification of burette drive stroke</td>
<td>Ensures correct volumes of titrant to be dispensed</td>
</tr>
<tr>
<td>Cleaning and lubrication of mechanical parts</td>
<td>Ensures manufacturer specifications</td>
</tr>
</tbody>
</table>

**Customer Requirements**

- Full coverage
  - Maximized budget control
  - Coverage of breakdowns
  - Replacement of worn-out parts
  - Documented calibration

**Customer Benefits**

- No unbudgeted costs in case of breakdown
- Calibration certificate
- Comply with tight budget
- Reliable and clean equipment
- Replacement of worn-out parts
- Low-cost option
- Prevents equipment failure

**TotalCareXXL**

- Comprehensive Maintenance
  - Full coverage
  - Preventive Maintenance
    - Complies with tight budget
    - Reliable and clean equipment
    - Replacement of worn-out parts

**A Well Maintained Titrator to Guarantee Accurate Results**

While your METTLER TOLEDO titrator is known for its accuracy and dependability, proper care is required to keep it performing at its peak potential. Depending on your application, critical components can become worn or decayed which may cause a negative impact on your results. Intermittent negative effects can lead to inconsistency in testing and wasted product. Long term neglect of critical components may lead to untimed failure, unexpected downtime and costly repair. Scheduled Preventive Maintenance ensures the reliability of your titrator as shown in the picture below.
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