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Good Weighing Practice™

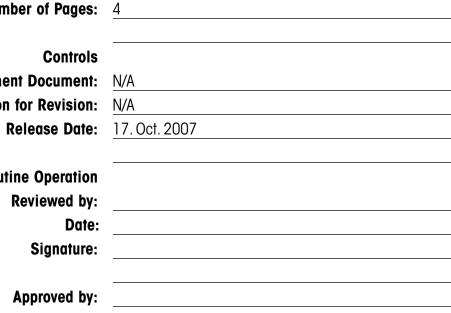# SOP for Periodic Repeatability Tests (Routine Tests)

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METTLER TOLEDO

General

Basic Rules for Handling Balances
- Before using a balance, make sure the balance was left on power for a sufficient period of time (mentioned in the balance operating instructions).
- Make sure the balance is leveled.
- Minimize environmental influences, e.g. open windows, direct sunlight or strong drafts.
- Do not enter the draft shield with hands. Use gloves or long tweezers.
- Place objects gently and in the center of the pan.

Basic Rules for Handling Weights

Test Weights
- Only an external test weight with calibration certificate can make a balance a "traceable" piece of equipment.
- Test weights should always be placed gently on a clean weighing pan and put back immediately in their storage place after use.
- Test weights (since they are also part of measuring equipment) need to be re-calibrated at specified intervals (ISO 9001).
- Any incident, which might have affected the value of the test weight, should trigger an immediate re-calibration. METTLER TOLEDO's calibration services will give advice on this.

How to Store Test Weights
- Test weights should be stored in their original box.
- Test weights should be stored in the same room as the balance they are used with, since temperature differences between test weights and their surrounding lead to measurement errors.
- Test weights that have not been stored at the same temperature need acclimatization, which can take several hours.

How to Move Weights
- Test weights should only be handled with appropriate tools such as tweezers, forks, handles or gloves (see METTLER TOLEDO's accessories for weights).
- These tools should be exclusively used for transferring test weights, to avoid possible contamination.

Repeatability Test

Preparation
- Before performing the test, the test weight must be acclimatized to the ambient temperature of the balance.
- Prepare a sheet where you can note the readings of the repeatability test points. Prepare 3 columns titled "w/o Test Wght", "With Test Wght." and "Differences".

Test Procedure
- Empty the pan
- If required, place tare load on the weighing pan
- Tare the balance (if required press zero)
- Read the stable value from the display and note it in the column "w/o Test Wght."
- Place the test weight in the center of the weighing pan
- Read the stable value from the display and note it in the column "With Test Wght."
- Remove the test weight
- Repeat the measurements from "tare the balance" to "remove test weight" until the customer defined number of "w/o Test Wght." and "With Test Wght." readings is performed

Evaluation
- Subtract each "w/o Test Wght." from the corresponding "With Test Wght." to calculate the difference.
- Calculate the standard deviation of the differences.
- Evaluate whether standard deviation exceeds the defined "Control Limit" [1].

Deviation
Control Limit [1]
- If the control limit is exceeded, report the problem to the laboratory supervisor or the person responsible of the balance.
- Mark the balance as "out of control limits".
- Contact METTLER TOLEDO service organization for advice.

[1] – Values within the control limit: No action is necessary.
 – Values beyond the control limit show that weighing process is no longer under control and immediate action is therefore required.