Routine Testing

SOP for Periodic Sensitivity Tests of Moisture Analyzers

Title:	SOP for Periodic Sensitivity Tests of Moisture Analyzers
Document No.:	
Author:	METTLER TOLEDO Laboratory & Weighing Technologies
Number of Pages:	4
Controls	
Replacement Document:	N/A
Reason for Revision:	N/A
Release Date:	11. Oct. 2011
Release for Routine Operation	
Reviewed by:	
Date:	
Signature:	
Approved by:	
Date:	
Signature:	

METTLER TOLEDO

General

To test the sensitivity of the weighing unit of a moisture analyzer, a large test weight (between 50% and 100% of capacity) is recommended.

Basic Rules for Handling Moisture Analyzers

- Before using a moisture analyzer, make sure the instrument was left on power for a sufficient period of time (mentioned in the user manual).
- Make sure the moisture analyzer is leveled.
- Minimize environmental influences, e.g. air draft, vibrations or direct sunlight.

Basic Rules for Handling Weights

Important to know

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

How to Store Weights

- Weights should be stored in their original box.
- Weights should be stored at room temperature, since temperature differences between weights and their surrounding could lead to measurement errors.
- Weights that have not been stored at the same temperature need acclimatization before use.

How to Move Weights

- 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 weights, due to possible contamination.

Sensitivity Test

Preparation

- Before the test is performed, the test weights must be acclimatized to the ambient temperature of the moisture analyzer.
- When the test is performed, the heating unit of the moisture analyzer should be at room temperature.

Test Procedure HX and HS Models

- Start test mode and follow the instructions.

Test Procedure other Moisture Analyzers

- Remove the sample pan.
- Tare the balance.
- Place the test weight(s) on the sample pan holder.
- Read the stable value from the display and note it.

Evaluation

- Evaluate whether the noted value exceeds the defined "Warning Limit". [1)]
- Evaluate whether the noted value exceeds the defined "Control Limit". [2)]

Deviation

Warning Limit [1)] (where defined)

- If the warning limit is exceeded, repeat the test.
- If the warning limit is exceeded again, report that the warning limit was not met to the laboratory supervisor or the person responsible for the moisture analyzer.
- Level the moisture analyzer, perform adjustment with built-in (if applicable) or external weight and repeat the test.
- If the warning limit is still exceeded, report the problem to the laboratory supervisor or the person responsible of the moisture analyzer. Optionally, contact METTLER TOLEDO's service organization for advice.

Control Limit [2)]

- If the control limit is exceeded, report the problem to the laboratory supervisor or the person responsible of the moisture analyzer.
- Mark the moisture analyzer as "out of control limits".
- Contact METTLER TOLEDO service organization for advice.

[1)] – Value within the warning limit: no action is necessary.
– Value between the warning and control limit are within the tolerance but must be kept under surveillance.

[2)] – Value within the control limit, see [1)]
– Value beyond the control limit show that weighing process is no longer under control and immediate action is therefore required.

Recommended Test Weights, Warning and Control Limits

Moisture Analyzer	HX/HS	HR/HG	HB/MJ
Test weight	100 g	50 g	20 g
Warning Limit	± 25 mg	± 12.5 mg	± 5 mg
Control Limit	± 50 mg	± 25 mg	± 10 mg

Recommendation is based on 0.1% weighing accuracy and safety factor of 2. The absolute tolerances depend on the mass of the test weight.
Various weighing parameters can contribute to the measurement uncertainty of a weighing result. With the exception of the repeatability test, all control limits are set to 1/2 of the weighing accuracy in order to have a security reserve accounting for any other influences such as eccentricity and linearity on the result (control limit = test weight * weighing accuracy / 2)

www.mt.com/moisture
For more information

Mettler-Toledo AG
Laboratory & Weighing Technologies
CH-8606 Greifensee
Tel. +41 44 944 22 11
Fax. +41 44 944 31 70

Printed in Switzerland 30031488
Global MarCom Switzerland