

**OFFICIAL SEED TESTING STATION
SEED TESTING LABORATORY, KEDL0100**

Standard Operating Procedure:

Moisture test

SOP/MET/07

Revision number 8

Issue date: 18th January 2023

**STANDARD OPERATING PROCEDURE FOR MOISTURE
TEST**

SOP/MET/07

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Approved by:.....

Technical Manager

Quality Assurance Manager

Date:.....

Date:.....



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1.0 **Purpose:**

1.1 To determine the moisture content of seed by methods suitable for routine use.

2.0 **Scope:**

2.1 From sample preparation, drying to calculation of test results and reporting of seed moisture content.

3.0 **References:**

3.1 Request of the test

3.2 International Rules for Seed Testing (ISTA Rules)

3.4 Quality Assurance Manual

3.5 ISTA Handbook on moisture determination

4.0 **Definitions and Acronyms:**

4.1. KEPHIS: Kenya Plant Health Inspectorate Service (Seed Certifying Agent-SCA)

4.2 Seed Testing Laboratory (STL) - The Laboratory for seed testing with capability to conduct seed sampling, analyze seed samples for various tests and to report the analysis results.

4.3. ISTA - International Seed Testing Association

4.4 Seed analyst – Person qualified and approved/Authorized by Managing Director KEPHIS to analyze seed samples at the Seed Testing Laboratory.

4.5 Official Seed Tester (OST) – Person in charge of the Seed Testing Laboratory

4.6 Moisture content - The loss in weight when the sample is dried in accordance with the ISTA rules and it is expressed as a percentage of the weight of the original sample.



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5.0 **Responsibilities:**

- 5.1 STL - Official Seed Tester (OST) - Owner of the process
- 5.3 Analyst - Seed analyst/In-charge – Conducts the tests
- 5.3 STL - Publishing of final certificates.

6.0 **Activities/procedure:**

- 6.1 Sample submitted should be intact, in a moisture-proof container and the test should be started as soon as possible after receipt.
- 6.2 The apparatus necessary depending on the method used are:
 - (a) A grinding mill
 - (b) An electrically heated oven.
 - (c) A balance
 - (d) Sieves (wire sieves with meshes of 0.5, 1.00, 2.00 and 4.00mm)
 - (e) A cutting tool
 - (f) Containers
 - (g) Desiccator
- 6.3 **Working sample** – The determination must be carried out in duplicate on two independently drawn working samples, each of the following weight ,depending on the diameter of the containers used;
 - Diameter >5cm and <8cm; 4.5±0.5g
 - Diameter ≥8cm; 10g±1.0g
- 6.4 Submitted sample must be thoroughly mixed by either stirring the sample in its container with a spoon, or place the opening of the original container against the opening of a similar container and pour the seed back and forth between the two containers .
- 6.5 Heat clean empty containers for one hour at 130°C and then cool for 45 minutes in a desiccator.

Take at minimum three subsamples with a spoon from different positions and combine them to form the subsample of the required size. The seed may not be exposed to the air during sample reduction for more than 30s.



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- 6.6 Weigh empty container and its cover as M1, weight of container, cover and content before drying as M2 and weight of container, cover and content after drying as M3 all in three decimal places and record in moisture card (**WC/STL/MST**)
- 6.7 Samples must not be put in the desiccator after grinding and weighing to reduce the risk of moisture loss.
- 6.8 After placing the samples in the oven, wait for the oven to regain the set temperature and record the time drying time starts on the moisture card.
- 6.9 The samples shall be kept in the oven for the period for the species under test as indicated in table 9A part 1 and part 2 of the ISTA Rules.
- 7.0 Immediately the drying time elapse, remove the samples from the oven and record the time of removal in the moisture card.
- 7.1 Remove sample from the oven and put it in a desiccator to cool for at least 30 minutes.
- 7.2 Weigh sample after cooling and record the weight in the moisture card.

7.3 Calculation and expression of results

a) Calculate results according to Chapter 9 (Determination of Moisture content) section 9.1.6 of current edition of ISTA Rules. The moisture content as a percentage by weight must be calculated to three decimal places for each replicate by means of the following formula;

$$\frac{\text{Loss of weight}}{\text{Initial weight}} * 100 = \frac{M2 - M3}{M2 - M1} * 100$$

Where

- b) **M1** is the weight in grams (to a minimum of three decimal places) of the container and its cover. **M2** is the weight in grams (to a minimum of three decimal places) of the container, its cover and its contents before drying **M3** is the weight in grams (to a minimum of three decimal places) of the container, its cover and its contents after drying Record the results on the moisture card (The result of a moisture content test must be reported to the nearest 0.1%)
- c) If the sample is predried, follow the procedure on clause 9.2.6 of the current edition of the ISTA Rules.



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7.4 Tolerances: The difference must be calculated to three decimal places and then rounded off to one decimal place. The maximum difference between the two replicates must not exceed 0.2% after rounding from three to one decimal place.

7.5 Take the results to the Official Seed Tester or technical manager.

8.0 Records:

8.1 Moisture card (**WC/STL/MST**)

8.2 Sample movement register (R/STL/17)

9.0 Flowchart:

9.1 Flowchart for moisture test.



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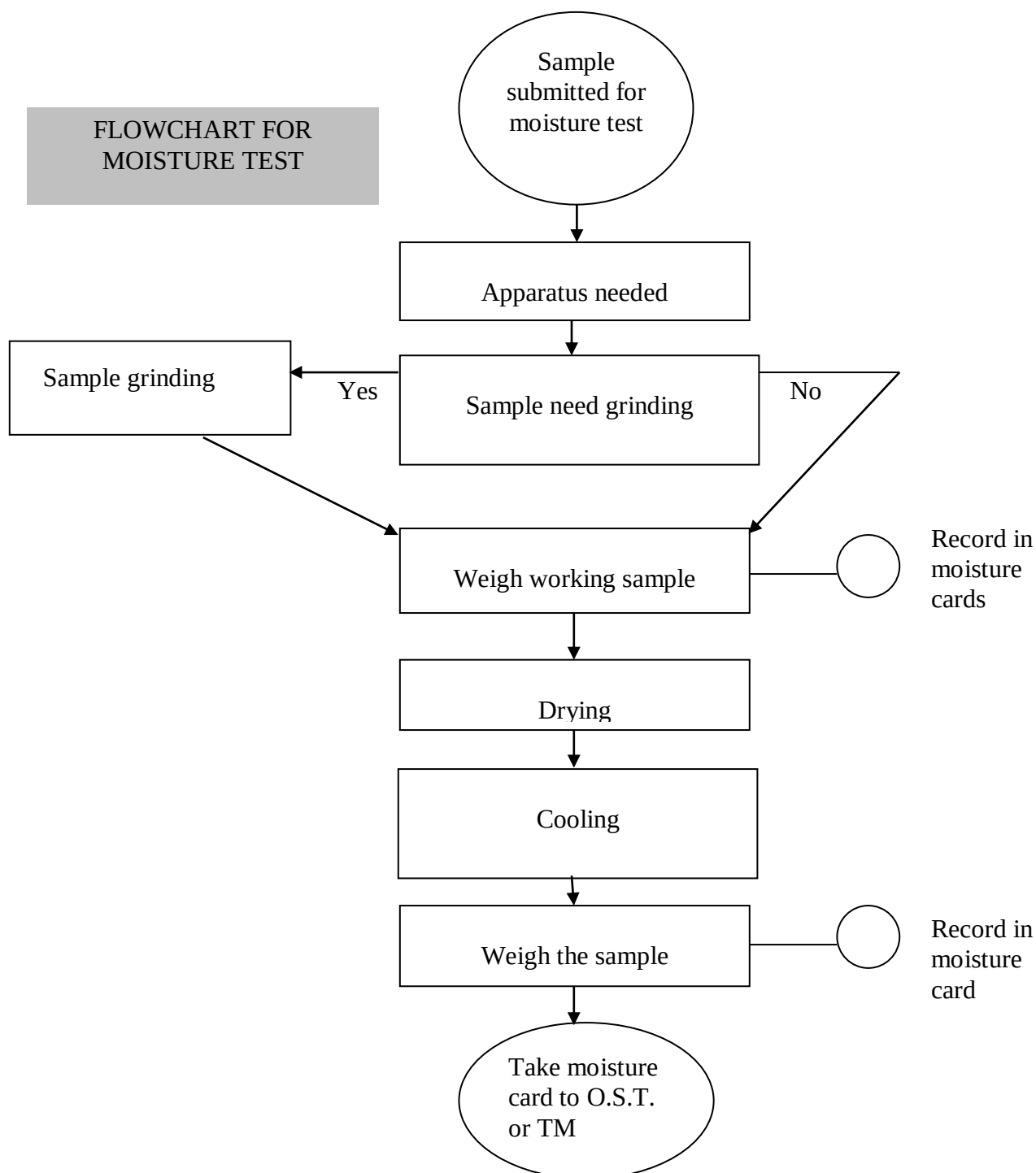
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Appendices

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