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Moisture Measurement — Unground Grain and Seeds



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Keywords: Grain, Moisture, Seeds

1 Purpose and Scope

1.1 This Standard is to provide a uniform method for determining the moisture content of unground samples of agricultural seeds. Only those seeds are included for which documented comparisons with the Karl Fischer method are available. These techniques should become common practice and their use referenced in all technical presentations where moisture content determinations have been a factor. Deviations from these methods should be reported.

1.2 Specifying sampling procedures is not within the scope of this recommendation. It will be assumed that the sample used for analysis is representative of the quantity from which it was taken.

2 Apparatus

2.1 Moisture dishes. Moisture dishes should be made of heavy gauge aluminum that does not dent readily. The dishes should be provided with tightly fitting covers. Both the dish and its cover should be identified by the same number. Before using, dry the moisture dish for one hour at the drying temperature to be used and obtain the tare weight. Other similar containers may be used provided they are tared before and after drying and their use is mentioned in referring to the moisture measurement techniques used.

2.2 Desiccator. Desiccator should be airtight and should contain activated alumina or other equally suitable desiccant. Silica gel and anhydrous calcium chloride are not suitable desiccants.

2.3 Oven. Oven may be of gravity-convection or mechanical-convection (forced-draft) type. It should be well insulated, maintain a reasonably uniform temperature throughout the chamber and maintain specified temperature at shelf level. A properly ventilated oven, equipped with removable perforated or wire shelves and a suitable thermometer accurate to within 0.5°C, is required. To ensure uniformity of heating, ovens should be in operation for several hours prior to the drying operation.

2.4 Balance. A balance should be used for all weighings in making moisture content determinations. Weighings should be made to the nearest 1 mg.

3 Procedure

3.1 Using the sample size specified in table 1, place a representative sample of the unground grain or seed in each of two or more tared moisture dishes. Weigh the covered dishes and contents. Subtract the weight of