



Moisture Determination in Cereals

General

Vegetable products contain cellular matter which releases water only slowly. The direct titration at room temperature is therefore not recommended. It is possible to preextract the water prior to the titration. A finely divided sample is essential. It is preferable to grind the sample in a lab grinder. This accelerates the extraction of water.

Reagent

Titrant: HYDRANAL-Titrant 5
 Working medium: 40 ml HYDRANAL Solvent
 A one-component reagent can be used as well:
 Titrant: HYDRANAL-Composite 5
 Working medium: 40 ml methanol

Sample preparation

Take two clean glass containers that can be closed hermetically with a septum stopper.

Leave them 1 hour in an oven at 120°C and let them cool down to room temperature in a dessicator. In both containers add 70 ml formamide from the same bottle, it is important that the moisture content of the extraction solution is identical for each glass container.

Weigh precisely 7 to 10 g of the sample (cereal), note the exact amount and pour the sample in one of the two glass containers. Close each bottle hermetically, and leave them for 3 hours (moisture extraction).

From time to time shake the bottle containing the sample.

Primary Settings

Method ID:	Cereal
Use oven:	No
Auto start:	Yes
Blank:	Yes
Uncert. calc.:	Yes
Reproducibility:	0.1%

Parameters

Stirring speed:	600 rpm
Max. bur. speed:	150%/min
Min. titr. time:	00:30 (min:s)
Max. titr. time:	00:05 (h:min)
Max. volume:	10 ml

Sample

Sample ID:	Yes
Sample unit:	g
Sample amount:	7.590 g
Sample uncertainty:	0.001 g
Dilution volume:	70 ml
Dilution uncertainty:	0.200 ml
Advised aliquot:	1.000 ml
Aliquot uncertainty:	0.050 ml
Sample factor:	1.000
Result unit:	mg/g
Number of digits:	6
Quality control:	No

Blank

Advised amount:	5.000 ml
Uncertainty:	0.100 ml
Blank res. unit:	mg/ml
Quality control:	No

Comments

Blank and/or sample analysis can be repeated in the same solvent until the titration cell needs to be mptied.

Blank determination:

With a dry syringe take 5 ml solvent from the bottle without sample and inject it in the cell.

Mean: 0.341 ±0.243 mg/ml
 (K=2, 4 replicates)
 K: coverage factor

Sample analysis:

With a dry syringe take 1 ml solvent from the bottle with sample and inject it in the cell.

Mean: 112.82 ±5.898 mg/g
 (K=2, 4 replicates)
 K: coverage factor