

Powder Moisture Routine Method GEA Niro analytical method A 1 b

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1. Definition

The moisture content of a powder is the loss in weight (%) after oven drying at 102°C for 3 hours.

2. Scope

This is a routine method which may be used for milk powder and all other powdered dairy products which do not contain crystallized lactose (α -lactose-monohydrate).

3. Principle

Sample is dried by oven drying at 102°C \pm 2°C for 3 hours.

4. Apparatus

4.1 Drying oven, with thermostat and without forced air circulation.

4.2 Analytical balance, sensibility \pm 0.1 mg.

4.3 Desiccator with colour-indicating desiccant (e.g. silica gel).

4.4 Weighing dishes with lid.

5. Reagents

None.

6. Procedure

6.1 Dry weighing dish with open lid in the oven, and cool it in desiccator.

6.2 Weigh the empty dish (a), add approx. 3 g of powder and weigh again (b).

6.3 Place the loaded dish with open lid in the oven at 102°C \pm 2°C for 3 hours.

6.4 Cool closed dish to room temperature in desiccator, and weigh (c).

7. Calculation

$$\text{Moisture} = \frac{b-c}{b-a} \times 100\%$$

a = weight of empty dish

b = weight of dish + powder

c = weight of dish + dried powder

8. Reproducibility

\pm 0.1 %

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9. Remarks

A sample for moisture determination has to be handled carefully in order to avoid evaporation or prevent adsorption.

Moisture content of a powder sample depends on the drying time, our experience has shown that 3 hours is sufficient.

10. Literature

- [Niro Research Laboratory](#)
- [IDF Standard № 26:2004 / ISO Standard № 5537:2004](#)
- De Knecht, R.J. and Brink, H.v.d.: Improvement of the drying oven method for the Determination of the Moisture Content of Milk Powder. Int. Dairy Journal, 8, 1998, pp. 733-738.

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