

A 1 b - Powder Moisture Routine Method

GEA Niro Method No. A 1 b

Revised: September 2006

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

± 0.1 %

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.