

A 1 c - Free Moisture

GEA NIRO® Method No. A 1 c

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1. Definition

The free moisture content of a powder is the loss in weight (%) after oven drying at 87°C for 6 hours.

2. Scope

This is a routine method which may be used for any kind of dried milk product containing crystallized lactose (α -lactose-monohydrate), e.g. whey powder.

2. Principle

Sample is dried by oven drying at $87^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 6 hours.

4. Apparatus

- 4.1 Drying oven, with thermostat and without forced air circulation.
- 4.2 Analytical balance, sensibility 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 $87^{\circ}\text{C} \pm 2^{\circ}\text{C}$ for 6 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.

10. Literature

GEA Niro Research Laboratory

IDF Standard № 26:2004 / ISO Standard № 5537:2004