

Free Moisture GEA Niro analytical method 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.

3. Principle

Sample is dried by oven drying at 87°C \pm 2°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°C \pm 2°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

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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 N° 26:2004 / ISO Standard N° 5537:2004](#)

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