A 16 b - Coffee Sediment Test

GEA Niro Method No. A 16 b

Revised: September 2005

1. Definition

The coffee sediment is equal to the sum of volumes of sediments after centrifugation of 2 g powder reconstituted in coffee under standardized conditions.

2. Scope

The method is to be used for all dried milk products whether instant or not instant.

3. Principle

A test portion of the sample is added to coffee at 80°C. The mixture is stirred manually. After a specified standing period, the mixture is centrifuged and the amount of sediment is determined.

4. Apparatus

1. Balance, sensitivity 0.01 g.
2. Weighing dish, white polystyrene.
3. 250 ml beaker - external diameter 70 ± 2 mm,
height 95 ± 3 mm, calibrated with a mark at 100 ml.
4. Centrifuge - Funke-Gerber Super Quattro, or equivalent.
Speed 900 rpm.
5. Centrifuge glasses, 50 ml conical.
6. Stop watch.
7. Teaspoon - height 40 mm, width 29 mm.
8. Thermometer - 0-100°□C ± 0.2°C.

5. Reagents

1. Standard instant coffee (Nescafé extra or similar).
2. Deionized water.

6. Procedure

1. Weigh 0.8 ± 0.01 g of coffee into the 250 ml beaker, calibrated as described in 4.3.
2. Weigh 2.0 ± 0.01 g of dried milk into the weighing dish.
3. Fill the 250 ml beaker containing the coffee to the 100 ml mark with boiling deionized water.

4. When the temperature of the black coffee has cooled to 80°C ±0.5°C, tip in the 2 g of dried milk sample and start the stop watch.

5. After 5 seconds, stir the contents of the beaker with a teaspoon, using 6 clockwise and 6 anti-clockwise stirs over 6 seconds. Circular movements of the spoon should be used, following the side of the beaker. The spoon should touch the bottom of the beaker at all times.

6. After completion of the stirring, allow the contents of the beaker to stand for 10 minutes.

7. Give the contents of the beaker one stir and immediately after pour the contents into two 50 ml centrifuge tubes, and let it stand for 5 minutes.

8. Centrifuge the tubes for 5 minutes at 900 rpm. Record the volume of sediment in each tube to the nearest 0.05 ml if the volume is < 0.5 ml, and to the nearest 0.1 ml if the volume is > 0.5 ml.

9. The procedure should be carried out in duplicate.

7. Results

1. The sediment is equal to the sum of volumes of sediments in the two centrifuge tubes.

2. Any abnormalities such as colour or a fatty appearance on the surface of the coffee after step 6.6 should be noted.

8. Reproducibility

Two determinations on the same sample should not differ by more than 0.05 ml

9. Remarks

If another coffee type is used instead of the specified, report the type and the pH of the coffee together with the results.

10. Literature

GEA Niro Research Laboratory

Ministry of Agriculture and Fisheries Dairy Division (1977), Standard Chemical Methods, 16.1 ADMI Solubility Index. 2nd ed.Wellington NZ.

NZDRI 4.10.1 Coffee sediment test. September 1990.

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