BWB Technologies

Oznaczanie wapnia w mleku
Estimation of Calcium in Milk

MS Spektrum

Equipment required:

1. BWB Flame Photometer.
2. Accurate balance.

Reagent Preparation:

Dilute concentrated hydrochloric acid 1:4 with distilled water.

CAUTION: Always add acid to water with great care. Never add water to concentrated acid.

Blank Preparation:

2.5 ml of diluted hydrochloric acid.

2.0 ml 10% lanthanum chloride.

Make up to 100ml with distilled water. This gives reagent blank.

Standard Preparation:

Place 1.249 g A.R. Calcium carbonate in approximately 50 ml H_20, adding drop wise, concentrated hydrochloric acid until Calcium carbonate is dissolved (should take about 10 ml). Cool and bring to one litre. This will give 500 ppm stock Calcium standard.

The stock solution should be diluted to give standards of 2.5, 5.0, 7.5 and 10 ppm Ca^{2+}.

Sample Preparation:

1. Place 4 g (accurately weighed) of milk in a dry silica crucible.
2. Ash sample at 500-525 °C in an oven.
3. When cool, dissolve ash in 5 ml of 1:4 diluted concentrated hydrochloric acid.
4. Transfer to 100 ml volumetric flask; make up to mark.
5. Filter through filter paper, pipette 50 ml of filtrate into 100 ml volumetric flask.
6. Add 2 ml of 10 % lanthanum chloride. Make up to mark with distilled water.

Method:

1. Spray reagent blank and enter.
2. Spray 10 ppm standard and enter value.
3. Spray intermediate standards entering each value.
4. Spray test samples and read values from display.
5. This gives you Calcium in parts/million of Calcium for milk.

If percent Calcium required:

Multiply Ca^{2+} ppm sample reading by 0.025-percent Ca^{2+} in milk. Normal level for milk, approximately 0.11 %

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