DETERMINATION OF SALT

NG M. C.

INTRODUCTION

Sodium chloride (Food grade) is an important additive for the production of fish jelly products. Its main function is to extract the salt soluble protein to give the gel strength of the final product.

The amount of sodium chloride present in such products can be determined by titrating the extract containing the chloride ion with silver nitrate, $AgNO_3$. Potassium chromate (K_2CrO_4) is used as the indicator and the end point is indicated by the change in colour from yellow to reddish brown.

I PREPARATION

Collect fish jelly products sample (≤ 100 g) and pass 2-3 times through food mincer, or chop very finely and mix thoroughly.

II REAGENTS

All reagents should be of GR grade or AR grade:-

a) 0.1N silver nitrate ($AgNO_3$) solution

Dissolve 17 g of $AgNO_3$ in distilled water and make up to 1 litre in volumetric flask. Keep it in a brown colour glass bottle in the dark.

b) Potassium chromate indicator, K_2CrO_4

Dissolve 5 g K_2CrO_4 in distilled water and dilute to 100 ml.

III PROCEDURE

1. Weigh accurately 25 g sample into a 400 ml beaker.
2. Add 200 ml hot boiled water and stir for 60 mins.
3. Filter through the glass wool. Collect the filtrate in a 250 ml volumetric flask. Make up to the volume and shake well.
4. Transfer 10 ml filtrate with bulb pipette into 100 ml conical flask. Add 50 ml distilled water using the measuring cylinder and 1 ml K_2CrO_4 indicator.
5. Titrate with 0.1N $AgNO_3$ (S ml). At the end point, the colour changes from yellow to brownish red.
6. Carry out a blank determination using 60 ml distilled water and 1 ml K_2CrO_4 indicator (B ml).

IV CALCULATION

$$\text{Salt (\%)} = \frac{250 \text{ ml}}{10 \text{ ml} \times 25 \text{ g}} \times (S - B) \times F \times 100$$

where S = Titration volume of sample (ml)

B = Titration volume of blank (ml)

F = Conversion factor of 1 ml 0.1N $AgNO_3$ to 0.005844 g NaCl

REFERENCES

David Pearson. The chemical analysis of food. 7th Ed: 519.

Official method of analysis of the Association of Official Analytical Chemists 13th Ed. 1980:289, 18.034.