STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF CHEMICAL AND PHYSICAL TESTING FOR THE DAIRYING INDUSTRY

AS 2300.2.6 LIQUID MILKS— DETERMINATION OF LACTOSE

PREFACE

This Standard was prepared by the Association's Committee on Chemical Analysis of Dairy Products to supersede AS 1084—1974, *Methods for the analysis of liquid milk and cream*, Section 4, *Determination of lactose*.

This Standard is technically identical with the superseded Standard but with some rearrangement of material to comply with the format of the AS 2300 series.

METHOD

1 SCOPE. This Standard sets out a method for the determination of the lactose content of liquid milks.

2 APPLICATION. The method is applicable to raw milk, pasteurized milk, homogenized milk, reconstituted milk, skim or low fat milk, UHT milk and sterilized milk.

3 PRINCIPLE. The protein in the milk is precipitated, and the lactose content determined indirectly by titrimetric estimation of the amount of halogen reduced in the reaction between lactose and chloramine T/potassium iodide.

4 REAGENTS. Use only reagents of recognized analytical reagent quality, and freshly distilled water or water of equivalent purity. The following reagents are required:

(a) *Chloramine T solution* (5.7 g/L)—made up using freshly manufactured reagent before each batch of assays.

(b) *Hydrochloric acid solution*—approximately 2 mol/L.

(c) *Potassium iodide solution* (100 g/L)—freshly prepared, colourless.

(d) *Sodium thiosulphate solution*—standardized slightly above 0.04 mol/L.

The concentration of the sodium thiosulphate solution shall be determined regularly by titrating into 10.00 mL of 0.0400 mol/L potassium iodate to which 5 mL of the potassium iodide solution and 5 mL of the hydrochloric acid solution have been added.

NOTE: The strength of the thiosulphate solution is so chosen that a burette reading of between 2.0 mL and 3.5 mL is obtained for most milk samples, and of between 9.5 mL and 9.7 mL for the 'blank'.

(e) *Iodine indicator of suitable type*—e.g. starch solution.

(f) *Tungstic acid reagent*—dissolve 7 g of sodium tungstate ($Na_2WO_4.2H_2O$) in 870 mL of water, add 0.1 mL of orthophosphoric acid solution (88 percent, *m*/*m*) and 70 mL of 0.5 mol/L sulphuric acid solution.

5 APPARATUS. The following apparatus is required:

(a) *Burette*—capacity 10 mL, graduated to 0.02 mL.

(b) *Conical flasks with ground-glass stoppers*—150 mL capacity.

(c) *Filter papers*—acid washed, medium speed, 100 mm to 125 mm diameter.

6 PREPARATION OF TEST SAMPLE. Warm the sample to 35 ±5°C and mix thoroughly but gently by repeated inversion of the container, so that any cream layer

ISBN 0 7262 5274 3