STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF CHEMICAL AND PHYSICAL TESTING FOR THE DAIRYING INDUSTRY

PART 8—ANHYDROUS MILK FAT

AS 2300.8.2
DETERMINATION OF MOISTURE—KARL FISCHER METHOD

1 SCOPE. This standard sets out a method for the determination of the moisture content of anhydrous milk fat based on a method developed by Karl Fischer.

2 APPLICATION. The method is applicable to anhydrous milk fat with a moisture content not exceeding 1 percent by mass.

3 REFERENCED DOCUMENT. The following standard is referred to in this standard:

BS 2511 Methods for the Determination of Water (Karl Fischer Method).

4 PRINCIPLE. Water in either free or bound state is converted into H_2SO_4 and HI by titration with a solution of SO_2 and I_2 in methanol/ pyridine, this solution being known as Karl Fischer reagent. The endpoint of the titration which detects the presence of free residual iodine is determined by an electrometric dead stop procedure.

5 REAGENTS AND MATERIALS.

5.1 General requirements. All reagents shall be anhydrous and shall be stored and handled to ensure minimal moisture absorption from the environment during the determinations. Gas streams shall be dried by passing through a suitable dehydration system before use.

5.2 Reagents.

(a) *Methanol,* anhydrous.

NOTE: The water content of the methanol should be less than 0.01 percent and it is recommended that it is stored over an effective desiccant.

(b) *Karl Fischer reagent, 1 mL ≡ at least 4 mg water* (available commercially in Australia).

(c) *Chloroform/methanol solution.* Mix 60 volumes of chloroform with 40 volumes of anhydrous methanol.

(d) *Methanol/water standard.* Weigh to the nearest 0.0001 g approx. 0.1 g of water into a 50 mL volumetric flask. Make up to volume with anhydrous methanol and mix. 5 mL of this solution will contain a known mass (m_1) of approximately 10 mg of water.

(e) *Dry nitrogen.*

6 APPARATUS. Usual laboratory apparatus and the following apparatus are required:

Suitable electrometric titration apparatus designed for use with Karl Fischer reagent.

NOTES:

1. Either apparatus described in Parts 1 and 2 of BS 2511 is suitable. Sets of suitable apparatus are available commercially in Australia.
2. Ensure that all apparatus is clean and dry before use.

7 PROCEDURE.

(a) Assemble the apparatus and pass through it, for at least 5 min before step (b), a steady stream of nitrogen dried by passage through an efficient desiccant then

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