

Australian Standard[®]

Methods of chemical and physical testing for the dairying industry

Method 2.8: Liquid milks—Determination of chloride

AS 2300.2.8—2008

PREFACE

This Standard was prepared by the Standards Australia Committee FT-024, Food Products and Subcommittee FT-024-05, Dairy Products, to supersede AS 2300.2.8—1990.

After a periodic review, the Committee recommended a new edition. This edition confirms the method without technical changes, but updates the reference documents and reflects the current editorial style and includes a clause on uncertainty of measurement.

AS 2300 comprises a series of methods and related Standards for chemical and physical testing of milk and dairy products, including the preparation of samples for testing.

Standards in the AS 2300 series are divided into categories according to type of product to be tested, as follows:

AS

- 2300.1 General methods and principles
- 2300.2 Liquid milks
- 2300.4 Dried milk and dried milk products
- 2300.5 Condensed milk
- 2300.6 Cheese
- 2300.7 Butter
- 2300.8 Anhydrous milk fat
- 2300.9 Analysis of ice cream and frozen milk products
- 2300.10 Caseins, caseinates and coprecipitates
- 2300.11 Cultured milk products

FOREWORD

This method is based on classical procedures but it should be recognized that other procedures using more advanced instrumentation are available, for example, ion chromatography. A silver ion electrode may be used in place of the indicator solution.

METHOD

1 SCOPE

This Standard sets out a method for the determination of the chloride content of liquid milks. The method is applicable to raw milk, pasteurized milk, homogenized milk, reconstituted milk, skim or low fat milk, modified milk, flavoured milk, UHT milk and sterilized milk.

2 REFERENCED DOCUMENT

The following document is referred to in this Standard.

AS/NZS

2243 Safety in laboratories

2243.2 Part 2: Chemical aspects

3 PRINCIPLE

A known amount of silver nitrate is added to the milk sample and, after digestion with nitric acid, the excess silver nitrate is back-titrated with potassium thiocyanate solution using an indicator or silver ion electrode.

WARNING: THE USE OF THIS STANDARD MAY INVOLVE THE USE OF HAZARDOUS MATERIALS, OPERATIONS AND EQUIPMENT. THIS STANDARD DOES NOT PURPORT TO ADDRESS ALL THE SAFETY RISKS ASSOCIATED WITH ITS USE. IT IS THE RESPONSIBILITY OF THE USER OF THIS STANDARD TO ESTABLISH APPROPRIATE SAFETY AND HEALTHY PRACTICES AND DETERMINE THE APPLICABILITY OF LOCAL REGULATORY LIMITATIONS PRIOR TO USE. SEE AS/NZS 2243.2 FOR MORE DETAILS REGARDING LABORATORY SAFETY.

4 REAGENTS

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

- Indicator solution*—prepare a saturated solution of ammonium ferric sulfate dodecahydrate ($\text{C}_{12}\text{H}_{14}\text{Fe}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$) in water. Add sufficient cold colourless 5 mol/L nitric acid to bleach the brown colour.
- Concentrated nitric acid*—(approximately 1420 kg/m³).
- Silver nitrate solution* (0.05 mol/L)—store in a brown bottle away from light. Standardize against anhydrous sodium chloride.
- Potassium thiocyanate solution*—standardized to 0.05 mol/L as follows:

Pipette 10.0 mL of the silver nitrate solution into a 250 mL conical flask and add 30 mL of water, 1 mL of concentrated nitric acid and 1 mL of indicator solution. Titrate with the potassium thiocyanate solution until a faint reddish-brown colour persists on shaking and calculate its strength in mol/L KCNS.