

# Australian Standard®

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## Food microbiology

### Method 3.11: Examination of specific products—Dairy products—Test for penicillin

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#### PREFACE

This Standard was prepared by the Standards Australia Committee on Food Microbiology to supersede the following Standard:

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1095 Microbiological methods for the dairy industry  
1095.1—1971 General procedures and techniques  
Section 3.3: Tests for penicillin

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#### METHOD

**1 SCOPE** This Standard sets out a disc assay method using *Bacillus stearothermophilus* for testing milk and other dairy products for penicillin at or above a level of 0.003 µg/mL (0.005 IU/mL).

##### NOTES:

- 1 For further reading on the test see Ref. 1.
- 2 The method may be used as either a qualitative or a quantitative test.
- 3 Other inhibitory substances to which the test organism is sensitive may also be detected non-specifically.
- 4 This Method is intended as the reference method. There is another disc assay method (Ref. 2) and also a tube method (Ref. 3) which may be quicker or more convenient for non-reference purposes e.g. routine quality control.

**2 PRINCIPLE** A small paper disc is impregnated with the sample solution and placed on the surface of agar medium inoculated with a sensitive test organism, *B. stearothermophilus*, and incubated. Antibiotics or other inhibitory substances, if present in the sample solution, diffuse into the agar medium surrounding the disc, preventing growth of the test organism. This is shown by a circular zone of inhibition. The activity of inhibitory substances in the sample is estimated, in penicillin equivalents, from a reference curve of penicillin concentration versus diameter of zone of inhibition. The presence of penicillin is confirmed by the use of penicillinase which destroys the inhibitory activity of the penicillin in the sample.

#### 3 REAGENTS AND MATERIALS

**3.1 Inhibitor-free reference sample**—this is the same product as the test sample but which has been tested and found to be free of penicillin and other inhibitory substances.

**3.2 Penicillinase solution**, of sufficient strength to inhibit penicillin when used in Clause 7.4.

**3.3 Penicillin G**, of labelled purity in terms of the subsidiary standard.

**WARNING: CARE SHALL BE TAKEN TO PREVENT CONTACT WITH THE SKIN WHEN HANDLING PENICILLIN. PERSONS KNOWN TO BE ALLERGIC TO PENICILLIN SHOULD NOT HANDLE IT.**

**3.4 Nutrient agar slopes**

**3.5 Plate count agar**, dispensed in 5 mL quantities.