Australian Standard®

# Methods of test for textiles

# Method 2.24: Physical tests—Determination of resistance of textile fabrics to water vapour diffusion—Control dish method

## PREFACE

This Standard was prepared by the Standards Australia Committee on Testing of Textiles under the direction of the Textile Standards Board.

This Australian Standard is based on the Canadian Standard CAN/CGSB-4.2-M77, Method 49-1977, *Method of test for resistance of materials to water vapour diffusion (control-dish method)*, since this method is the most appropriate for Australian conditions.

## METHOD

**1 SCOPE.** This Standard sets out a method for determining the resistance of textile fabrics to water vapour diffusion. The method is applicable to all textile fabrics. It is particularly useful with fabrics of low resistance, i.e. fabrics essentially permeable to water vapour.

**2 REFERENCED DOCUMENTS.** The following documents are referred to in this Standard:

AS
1199 Sampling procedures and tables for inspection by attributes

2001 Methods of test for textiles
2001.1 Method 1: Conditioning procedures
2001.2.15 Method 2.15: Physical tests—Determination of thickness of textile fabrics

**3 PRINCIPLE.** The rate of diffusion of water vapour from a dish covered by a permeable cover fabric and a test specimen is compared with the rates of diffusion from control dishes covered only by the permeable cover fabric. Three or more different thicknesses of the air layer between the water surface and the cover fabric are used in the control dishes to provide the experimental means for obtaining a relationship between thickness of the contained air layer and rate of water vapour loss from the dish. The resistance of the test specimen to water vapour diffusion is calculated from this relationship, when the rate of water vapour loss from the specimen dish and the total thickness of the air layers above and below the test specimen within this dish have been determined. The water vapour diffusion resistance is expressed as the number of millimetres of still air presenting an equivalent resistance to the diffusion of water vapour.

NOTE: The rate at which water diffuses from a dish is governed by—

(a) vapour pressure difference between the water surface and external ambient conditions;

(b) temperature of the assembly;

(c) atmospheric pressure;

(d) total thickness of air between the water surface and the region in the external ambient atmosphere in which uniform conditions exist. This total thickness is made up of one or more air layers within the dish, the equivalent thickness of the permeable cover fabric, and an air layer external to the dish, which is the same for all dishes in the procedure given in Clause 7.3 (g) to (j) and Clause 8.1; and

(e) water vapour diffusion resistance of the test specimen.