

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS OF TEST FOR TEXTILES

PART 2—PHYSICAL TESTS

AS 2001.2.18
DETERMINATION OF RESISTANCE OF FABRICS TO
WATER PENETRATION—CONE TEST

PREFACE

This edition of this standard was prepared by the Association's Committee on Testing of Textiles to supersede AS 1066—1973, Method 3.

It is one of a series of methods which takes cognizance of the work of a technical committee of the International Organization for Standardization (ISO/TC 38, Textiles) and is being adapted to suit Australian conditions.

This standard varies from AS 1066—1973 and from corresponding Department of Defence methods in that the current method includes an application to coated fabrics.

METHOD

1 SCOPE. This standard sets out a method for determining the resistance of textile fabrics to penetration by water under static conditions.

2 APPLICATION. The method is applicable to all fabrics which are water-repellent or coated to impart resistance to water penetration.

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

AS 2001 Methods of Test for Textiles
 2001.1 Conditioning Procedures

4 DEFINITIONS. For the purpose of this standard, the following definitions apply:

4.1 Coated fabric—a textile fabric on which there has been formed, in situ, on one or both surfaces, a layer, or layers, or firmly adherent coating material.

4.2 Water-repellent—a state characterized by the non-spreading of a globule of water on a textile material.

NOTE: This term is not normally applied to a water-repellent finish impervious to air; the latter is generally referred to as 'water-proof'.

5 PRINCIPLE. A test specimen is folded to form a cone, placed in a funnel, and filled with a standard volume of water under controlled conditions. The volume of water which passes through the specimen into a container after a specified time is measured.

6 REAGENT.

6.1 Distilled or deionized water.

7 APPARATUS.

7.1 Conditioning facility. Means of providing and maintaining a standard atmosphere as described in AS 2001.1.

7.2 Glass funnel. A funnel with an angle of 60°, and a diameter of approximately 150 mm at the top.

7.3 Funnel support. Means of supporting the funnel in a vertical position.

7.4 Measuring cylinder. A measuring cylinder with a capacity of 250 mL.

7.5 Beaker or flask. A glass beaker or conical flask with a capacity of 250 mL.

NOTE: The glass funnel should be supported so that the tip of the stem of the funnel is just below the top level of the beaker or flask.

8 SAMPLE AND TEST SPECIMENS. Care shall be taken to ensure that the operator's hands are dry. Excessive handling of the sample and the test specimens shall be avoided.

8.1 Sample. The sample shall be selected in one of the following ways:

- (a) According to the directions given in the relevant material specification.
- (b) According to the procedure agreed upon by the interested parties, if such directions are not included in the material specification.

- (c) According to the procedures approved by SAA for textile products*, if directions on sampling are not included in the material specification.

8.2 Conditioning. Condition the fabric sample in accordance with AS 2001.1. Prepare test specimens from the fabric sample and conduct subsequent testing without removal from the standard atmosphere.

8.3 Test specimens. Three specimens, each not less than 250 mm square, shall be cut so as to be representative of the sample under test. Creased or folded areas of the sample shall be avoided when cutting the specimens.

When in doubt as to which surface is to be tested, prepare a set of specimens for each surface.

9 PROCEDURE. The procedure for each test specimen shall be as follows:

- Condition and test all specimens in the standard atmosphere (7.1).
- Lightly fold the specimen twice to form a square of at least 125 mm. The face surface of a water-repellent specimen, if known, shall be in contact with the water. A coated specimen is tested with the coated side or the uncoated side in contact with the water according to specification requirements, or by arrangement between the interested parties.

- Open the folded specimen to form a cone with three layers of fabric on one side and one layer of fabric on the opposite side.
- Place the cone shaped specimen into the funnel with the point downwards.
- Carefully and slowly pour 250 ± 5 mL of distilled or deionized water, previously adjusted to $20 \pm 2^\circ\text{C}$, into the cone and down the inside of the single layer of the specimen.
- After 18 ± 0.5 h, measure the volume of water which has passed through the fabric into the beaker.

NOTE: It is preferable to weigh the beaker prior to use so that the passage of small volumes of water into the beaker can be determined by reweighing. The mass of water, in grams, may be taken as the volume of water in mL.

10 REPORT. The following information shall be reported:

- Reference to this Australian standard, i.e. AS 2001.2.18.
- Mean volume of water in mL which has passed through the three specimens into the beakers, for each surface tested.
- If required, the volume in mL which has passed through each specimen into each beaker, for each surface tested.

* In course of preparation.

This Australian Standard was prepared by Committee TX/20, Testing of Textiles. It was approved on behalf of the Council of the Standards Association of Australia on 13 October 1986 and published on 2 March 1987.

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