

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 2001.6.1—1980

Methods of test for textiles

Part 6.1: Miscellaneous tests—Determination of the resistance of textiles to certain insect pests

RECONFIRMATION NOTICE

Technical Committee TX-020 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 6 July 2016.

The following are represented on Technical Committee TX-020:

Ag Research
Australian Wool Processors Council
AWTA Textile Testing
Council of Textile and Fashion Industries of Australia
Drycleaning Institute of Australia
National Association of Testing Authorities Australia
RMIT University
The Textile Institute

NOTES

Australian Standard
METHODS OF TEST FOR TEXTILES

PART 1 ISOLLANUS S

AS 2001.6.1
DETERMINATION OF THE RESISTANCE OF
TEXTILES TO CERTAIN INSECT PESTS

PREFACE

This standard method was prepared by the Association's Committee on Testing the Resistance of Textiles to Insects under the direction of the Textile Standards Board in response to a request by wool textile manufacturing and research interests. It is based on ISO 3998 Textiles, Determination of Resistance to Certain Insect Pests.

The standard is applicable to textile fibres derived from animals. It describes a method for assessing the susceptibility of the test insects by comparing their feeding habits with insects of a wild strain. In so doing it recommends replacing the test insects if there is a significant disparity in the susceptibility. In assessing proofness against insect attack, loss of mass of test specimen and assessment of visual damage are taken into account.

The breeding of insects for test purposes is a complex operation in order to preserve and maintain them with consistent voracity. Some details for breeding them are given in Appendix A. Test insects and more complete information about breeding them are available from:

CSIRO, Division of Textile Industry
Wool Research Laboratories
PO Box 21
BELMONT VIC 3216

The standard requires reference to the following Australian standards:

AS 1152	Test Sieves
AS 1587	Methods for Measurement of Textile Fabrics — Length, Width, Thickness, Mass per Unit Length and Mass per Unit Area
AS 2001.1	Methods of Test for Textiles — Conditioning Procedures*
AS 2001.3.1	Methods of Test for Textiles Part 3 — Chemical Tests — Determination of pH of Aqueous Extract

* Revision of AS 1090 in course of preparation.

FOREWORD

Some previous methods for testing resistance of textiles to insect pests have relied on the loss of mass of the test specimens exposed to larvae as the sole criterion of damage. However, if the larvae cut the roots of the pile or nap of pile fabrics, significant loss of pile can be caused before the larvae die. In this case, the loss of mass of the test specimen may be above the generally acceptable limit although no damage is visible to the naked eye, and the fabric may be acceptable as adequately proofed. Conversely, fabrics with a smooth milled surface, and fine knitwear, may have a loss of mass below the acceptable limit, but still show enough damage for them to be assessed as insufficiently proofed. Thus the determination of loss of mass and the visual observation on the condition of the fabric and larvae play an equal part in the assessment. In most cases, the determination of loss of mass will reinforce the visual observation owing to the fact that loose fibre cannot easily be separated from the insect debris.

Preliminary cleaning of test samples may be desirable to determine the durability of the protection during conditions of service. The cleaning procedure used is subject to mutual agreement between the parties involved with the sample to be tested.

The choice of test insects in this method has been deliberately limited to two species to provide the most realistic test conditions. Of the common textile pests, particularly those encountered in Australia, *Tinea* (moth) and *Anthrenus* (beetle) species are the most difficult to control with currently available mothproofing agents and are considered the most appropriate species for this test method.

Although other standards for determining the resistance of textiles to insects, such as ISO 3998 and IWTO 1*, may use other insect species, the level of treatments required for the species named in this standard is more than adequate to control those otherwise specified.

* IWTO 1, Method of Test and Assessment for Proofness of Wool Fabrics Against the Black Carpet Beetle.

METHOD

1 Scope. This standard sets out a method for the determination of the resistance of textiles to certain insects or their larvae. It is applicable to all textiles containing animal fibre in any proportion. Information on the breeding of the larvae is given in Appendix A.

2 Conditioning. Conditioned test control specimens and test specimens of known mass are placed with selected larvae for 14 days. The loss in mass of all test specimens and the extent of the attack on test specimens are ascertained to assess the resistance of the test specimens.

3 Apparatus and material. The following apparatus and material are required:

- a Metal containers, well ventilated, shallow, large enough to permit the test larvae to remain in contact with, or to move away from, the test specimens. A suitable size is 75 mm in diameter and 10 mm in height. The containers for any single test shall be the same shape and size.
- b Pointed forceps and camelhair brush with pesticide-free bristles.
- c Glass or suitable plastics weighing bottles, with stoppers.
- d Balance capable of determining mass to an accuracy of 0.1 mg.
- e Cutting die of diameter 0.0 ± 2.0 mm for punching circular test specimens.

f Standard wool test fabric consisting of scoured undyed wool cloth, free from mothproofing agent or other deleterious finishes, and having —

- i a mass of 125 g/m² to 175 g/m² when determined in accordance with AS 1587 and
- ii pH in the range of 4.0 to 7.0 when determined in accordance with AS 2001.3.1.

NOTE: Care should be taken to ensure that the equipment and materials used for testing do not become contaminated with substances which will adversely affect insects. All equipment must be thoroughly cleaned before use.

4 Atmosphere. The atmosphere for rearing and feeding insects shall have a temperature of $20 \pm 2^\circ\text{C}$ and a relative humidity of 60 ± 5 percent.

NOTE: This temperature has been specified because a lower temperature lengthens the life of the insects and slows down the development of the larvae.

5 Symbols. The symbols used in this standard are as follows:

1 Test specimens.

1.1 Test specimens. Select at random eight test specimens from the sample of material to be tested, at widely spaced intervals. Use four test specimens for testing and four for moisture regain control specimens.