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# INTERNATIONAL STANDARD



# 3998

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Textiles — Determination of resistance to certain insect pests

*Textiles — Détermination de la résistance à certains insectes nuisibles*

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## FOREWORD

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3998 was developed by Technical Committee ISO/TC 38, *Textiles*, and was circulated to the member bodies in January 1976.

It has been approved by the member bodies of the following countries :

|                |                |                       |
|----------------|----------------|-----------------------|
| Australia      | Hungary        | Norway                |
| Belgium        | India          | Poland                |
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| Finland        | Mexico         | United Kingdom        |
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| Germany        | New Zealand    | U.S.S.R.              |

The member body of the following country expressed disapproval of the document on technical grounds :

Switzerland

# Textiles — Determination of resistance to certain insect pests

## 0 INTRODUCTION

Some methods previously utilized for testing resistance of textiles to insect pests relied solely on loss of mass of the test specimens exposed to larvae as the criterion of damage and this is, of course, the most objective result which can be obtained. However, with pile fabrics, if the larvae cut the roots of the pile or nap, significant loss of pile can sometimes be caused before the larvae die. In this case, the loss in 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 accepted as adequately proofed. Conversely, fabrics with a smooth milled surface, and fine knitwear, may have a loss in mass below the acceptable limit, but still show enough damage for them to be assessed as insufficiently proofed. Thus although determinations of mass are recorded in this method, subjective visual observations on the condition of the fabric and larvae play an equal part in the assessment. In most cases the losses in mass will reinforce the visual observations.

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the resistance of textiles to the larvae of certain insects. It is applicable to all textiles containing animal fibre in any proportion. Information relating to the breeding of the larvae is given in the annex.

## 2 PRINCIPLE

Conditioned voracity control specimens and test specimens of known mass are placed in contact with selected larvae for 14 days. The loss in mass of all specimens, the extent of the attack on test specimens and the condition of the test larvae are ascertained to assess the resistance of each test specimen.

## 3 APPARATUS

**3.1 Metal containers**, the covers of which are pierced with ventilating holes, shallow, large enough to permit the test larvae to remain in contact with, or move away from, the test specimens. A suitable size is 45 mm diameter, 10 mm height.

**3.2 Flexible forceps** and **camel hair brush** with pesticide-free bristles.

**3.3 Weighing bottles**, with stoppers.

**3.4 Balance** capable of determining mass to an accuracy of 0,1 mg.

**3.5 Stamp** of diameter  $40 \pm 1,5$  mm for punching circular test specimens.

## 4 CONDITIONING, REARING AND TESTING ATMOSPHERE

The atmosphere for conditioning, rearing and testing shall have a relative humidity of  $65 \pm 2$  % and a temperature as specified below, depending on the type of insect or pest.

|                             |   |               |
|-----------------------------|---|---------------|
| <i>Attagenus piceus</i>     | } | $27 \pm 1$ °C |
| <i>Anthrenus flavipes</i>   |   |               |
| <i>Tineola bisselliella</i> |   | $24 \pm 1$ °C |
| <i>Tinea pellionella</i>    |   | $25 \pm 1$ °C |

## 5 SPECIMENS

### 5.1 Number

#### 5.1.1 Test specimens

Select at random eight test specimens from the sample of material to be tested, at widely spaced intervals. Use four of these as test specimens and four as moisture regain controls.

#### 5.1.2 Test control specimens

As it is essential to provide a control on the larval voracity, select eight test control specimens of undyed unproofed woollen material or yarn corresponding to the sample to be tested. Use four of these eight specimens as voracity controls and four as moisture regain controls.

NOTE — A test control specimen should be known to support insect growth and should preferably, but not necessarily, be of the same type of material as the test specimen. A test control specimen is used to check that the test has been done correctly and that the test larvae are viable.