

Australian Standard™

**Wool—Method for the measurement of  
resistance to compression**

This Australian Standard was prepared by Committee TX-012, Testing of Wool. It was approved on behalf of the Council of Standards Australia on 8 July 2004. This Standard was published on 16 August 2004.

---

The following are represented on Committee TX-012:

Australian Wool Exchange  
Australian Wool Industries Secretariat  
Australian Wool Innovation  
Australian Wool Processors Council  
CSIRO Textile and Fibre Technology  
International Accreditation New Zealand  
Meat and Wool New Zealand  
National Association of Testing Authorities Australia  
National Council of New Zealand Interests  
National Council of Wool Selling Brokers of Australia  
New Zealand Council of Wool Exporters Inc  
New Zealand Wool Brokers Association  
New Zealand Wool Testing Authority  
New Zealand Woolscourers Association  
Testing Interests (Australia)  
Testing Interests (New Zealand)  
University of New England  
Wool Research New Zealand

---

### **Keeping Standards up-to-date**

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at [www.standards.com.au](http://www.standards.com.au) and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards™ and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at [mail@standards.org.au](mailto:mail@standards.org.au), or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

---

Australian Standard™

**Wool—Method for the measurement of  
resistance to compression**

Originated as AS 3535—1988.  
Second edition 2004.

**COPYRIGHT**

© Standards Australia International

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia International Ltd GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 5512 7

## PREFACE

This Standard was prepared by the Australian members of Joint Standards Australia/New Zealand Committee TX-012, Testing of Wool, to supersede AS 3535—1988. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide a method for determining the resistance to compression of cleaned and carded wool samples and describes the procedures for cleaning and preparation of the wool sample prior to measuring. Changes in this revision were included to reflect current practice.

## CONTENTS

	<i>Page</i>
FOREWORD.....	4
1 SCOPE.....	5
2 APPLICATION .....	5
3 REFERENCED DOCUMENTS.....	5
4 DEFINITIONS.....	5
5 PRINCIPLE .....	6
6 APPARATUS .....	6
7 SELECTION AND PREPARATION OF TEST SPECIMENS .....	7
8 CALIBRATION OF THE INSTRUMENT .....	8
9 MEASUREMENT .....	8
10 CALCULATION OF RESULTS.....	8
11 PRECISION .....	9
12 REPORT .....	9

## FOREWORD

Resistance to compression is a small but significant factor in the prediction of the processing performance of a lot of wool and of the properties of the resulting fabric. It is related to the fibre diameter and to the frequency and form of the fibre crimp. It is defined as the force per unit area required to compress a fixed mass of wool to a fixed volume. An alternative method of prediction involves the measurement of bulk or space-filling capacity, defined as the volume to which a fixed pressure compresses a fixed mass of wool.

For merino wools the resistance to compression, as measured by the method described in this Standard, ranges from 8 kPa to 12 kPa. For other types of wool and for speciality animal fibres such as mohair or cashmere, values outside that range are found.

Wools of high resistance to compression tend to have a harsher handle and a lower felting potential than other wools of the same fibre diameter. During processing, they generally produce more card waste and more noilage, and in the resulting top, a reduced mean fibre length and increased short fibre content. Spinning performance and yarn strength are inferior. The final fabrics tend to be thicker, less porous and more resistant to felting and to have reduced strength.

Wools of lower resistance to compression are generally softer and more lustrous, but more susceptible to felting. They tend to be easier to process and to produce stronger fabrics.

Resistance to compression data can be useful in assessing the suitability of wools for specific end uses. For example, wools which are more resistant to felting are desirable for use in quality worsteds, whereas low resistance to compression can produce soft, lustrous effects in quality knitted fabrics.

Further information can be found in the following publications:

- (a) KURDO, K.O.A., WHITELEY, K.J. and SMITH, L.J., *Journal Textile Institute*, 'The influence of resistance to compression on the processing performance of superfine wools Part I: Topmaking', 1986, Vol. 77, pp 104–118.
- (b) KURDO, K.O.A., SMITH, L.J. and WHITELEY, K.J., 'The influence of resistance to compression on the processing performance of superfine wools Part II: Spinning performance', IWTO Technical Committee, Jan 1986, Report No. 1.
- (c) HUNTER, L., KAWABATA, S., GEE, E. and NIWA, MASAKO, 'The effect of wool fibre diameter and crimp on the objectively measured handle of woven fabrics', Proceedings of the Japan-Australia Joint Symposium on Objective Specification of Fabric Quality, Mechanical Properties and Performance, 1982, pp 167–182.
- (d) HUNTER, L., SMUTS, S. and GEE, E., 'The effect of wool fibre properties on woven and knitted fabric properties' Proceedings of the Second Australia-Japan Bilateral Science and Technology Symposium on Objective Evaluation of Apparel Fabrics, 1983, pp 183–192.

## STANDARDS AUSTRALIA

### Australian Standard

## Wool—Method for the measurement of resistance to compression

### 1 SCOPE

This Standard sets out a method for determining the resistance to compression of a cleaned and carded sample taken from a lot of raw wool by core sampling. It also describes the procedures to be used to clean and prepare the wool sample prior to measurement.

### 2 APPLICATION

This method applies to core samples taken from bales of raw wool. The test specimens produced are suitable for subsequent measurement of fibre diameter by the airflow method according to IWTO-28 if the subsamples have been drawn, scoured and dried in accordance with IWTO-19. Test specimens produced in accordance with IWTO-28 will be suitable for resistance to compression measurement only if the following conditions apply:

- (a) The carded laboratory sample shall not be dried at any time after carding.
- (b) Test specimens shall be kept intact, and not compressed before measurement.
- (c) Measurements shall be made within 30 h after carding.

### 3 REFERENCED DOCUMENTS

The documents below are referred to in this Standard.

#### IWTO

- |      |  |
|------|--|
| 19   | Determination of wool base and vegetable matter base of core samples of raw wool           |
| 28   | Determination by the airflow method of the mean fibre diameter of core samples of raw wool |
| 52   | Conditioning procedure for testing textiles  |
| IWTO | Condition Testing Regulations for Scoured or Carbonised Wool                               |
| IWTO | Core Test Regulations  |

### 4 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

#### 4.1 Core sample

The wool drawn by the core sampling procedure give in the IWTO Core Test Regulations or the IWTO Condition Testing Regulations for Scoured or Carbonised Wool from a lot or consignment of raw wool in bales.

#### 4.2 Greasy wool

Unprocessed wool from sheep or wool shorn from sheepskins.

#### 4.3 Laboratory sample

The randomly drawn portion, representative of the scoured and dried subsamples, to be carded and conditioned.