AS 3535—2004

Australian Standard™

Wool—Method for the measurement of resistance to compression

STANDARDS AUSTRALIA

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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

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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

Page

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.

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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.

