STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 2001.3.3—1978
Methods of test for textiles
Part 3.3: Chemical tests—Determination of solubility of wool in alkali

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

AS 2001.3.3—1978
DEF (Aust.) 5037 Method D7
Reconfirmed 2016

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS OF TEST FOR TEXTILES

PART 3—CHEMICAL TESTS

AS 2001.3.3
DETERMINATION OF THE SOLUBILITY OF WOOL IN ALKALI

PREFACE

This standard describes a method for determining the solubility of wool in alkali. The method takes into account IWTO-4-60 (e), ASTM D1283-57 and DEF (AUST) 37 Method D7, and recognizes the work of Harris and Smith (Bur. Stand. Journal Res., 17, 577 (1936)).

This method requires reference to the following standards:

AS 2001.3.1	Methods of Test for Textiles—Part 3, Chemical Tests—Determination of pH of Aqueous Extract
BS 1752	Laboratory Sintered or Fritted Filters
BS 2071	Soxhlet Extractors

FOREWORD

The solubility of wool in alkali provides a useful index of the extent of the change in the chemical properties of the fibre brought about by certain agents. Treatment with acids, oxidizing agents or reducing agents, and exposure to heat and light causes an increase in solubility, whereas treatment with alkalis or cross-linking agents causes the solubility to decrease. The change in solubility is thus a measure of the severity of the treatment. The test is most useful when an untreated control sample is available and when the nature of the treatment of the sample under test is known, i.e. as a method of control. When the sample has been treated by two agents having opposite effects on the solubility, the interpretation of the results, even when an untreated control sample is available, is difficult and may be misleading. It is essential to maintain strict control of temperatures during the test if reproducible results are to be obtained. The test does not provide an absolute measure of damage.

When the pH of the aqueous extract is outside the range 4.0 to 9.0 the reproducibility of the method is questionable.

METHOD

1 SCOPE. This standard describes a procedure for determining the solubility of wool in alkali where the pH of the aqueous extract lies within the range 4.0 to 9.0.

2 APPLICATION. The method is applicable to wool textiles in any form, viz loose fibre, sliver, roving, yarn or cloth. It is also applicable to wool/polyamide blends.

NOTE: Alkali solubility of wool in wool/polyamide blends may be slightly greater than that obtained for the wool fibre in the textile blend.

3 PRINCIPLE. Specimens of wool (the pH of the aqueous extract of which lies within the range 4.0 to 9.0) are immersed in sodium hydroxide solution under specified conditions of time, temperature and volume. The oven-dry mass of the specimens is determined before and after alkali treatment, and the loss in mass, expressed as a percentage of the original oven-dry mass, is reported as the alkali solubility.

4 REAGENTS. The following analytical grade reagents are required:

(a) *Dichloromethane.*

NOTE: Observe precautions applicable to toxic solvents in operations using dichloromethane.

(b) *Sodium hydroxide solution,* 0.100 mol/L, carbonate free.

(c) *Acetic acid solution,* 10 mL of glacial acetic acid per litre of solution.

(d) *Distilled or deionized water.*

NOTE: Reference to distilled water in this standard means distilled or deionized water.

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