
INTERNATIONAL STANDARD



137

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Wool — Determination of fibre diameter — Projection microscope method

Laine — Détermination du diamètre des fibres — Méthode du microscope à projection

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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 137 was drawn up by Technical Committee ISO/TC 38, *Textiles*, and circulated to the Member Bodies in September 1973.

It has been approved by the Member Bodies of the following countries :

Brazil	Hungary	Sweden
Bulgaria	India	Switzerland
Canada	Ireland	Thailand
Chile	Italy	Turkey
Czechoslovakia	Japan	United Kingdom
Denmark	New Zealand	U.S.A.
Egypt, Arab Rep. of	Poland	U.S.S.R.
Finland	Romania	Yugoslavia
France	South Africa, Rep. of	
Germany	Spain	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Belgium

This International Standard cancels and replaces ISO Recommendation R 137-1960, of which it constitutes a technical revision.

Wool – Determination of fibre diameter – Projection microscope method

0 INTRODUCTION

The method of measuring fibre diameter by the projection microscope is used throughout the world in various forms and is thus appropriate for international standardization.

1 SCOPE

This International Standard specifies the procedure and the conditions of measurement for the determination of wool fibre diameter by means of the projection microscope.

2 FIELD OF APPLICATION

The method is suitable for wool fibres in any form and also for other fibres of reasonably circular cross-section.¹⁾

3 REFERENCES

ISO 139, *Textiles – Standard atmospheres for conditioning and testing*.

ISO/R 1130, *Methods of fibre sampling for testing*.

4 PRINCIPLE

Projection on a screen of the magnified images of the profiles of wool fibre pieces, and measurement of their width by means of a graduated scale.

The operating technique assures a random sampling of the fibres to be measured.

5 APPARATUS

5.1 Projection microscope comprising a light source, a light condenser, a stage which supports the slide carrying the fibres, an objective, an ocular and a circular screen.

5.1.1 The stage is movable in two directions at right angles by means of a sliding mechanism capable of successive displacements in 0,5 mm steps.

5.1.2 The objective and ocular are capable of providing 500 X magnification.

5.1.3 The circular screen with graduated scale is able to rotate about its centre in its plane.

If this screen is not transparent, it shall carry a transparent scale, 5 cm wide, graduated in millimetres along its underside, movable diametrically across the screen between guides.

If the screen is transparent, the transparent scale, graduated in millimetres and used to measure the width of the projected image, must be placed along one of the diameters. The graduated scale must be able to rotate about the centre of the circular screen and in its plane.

In the centre of the circular screen there is a circle whose diameter is equal to a quarter of the optical distance between the ocular and the centre of the screen. All measurements shall be made inside this circle.

5.1.4 The projection microscope shall be calibrated periodically by means of a micrometer scale (certified accurate), divided in hundredths of a millimetre and placed on the stage. One division of the micrometer (i.e. 0,01 mm), projected on the screen, shall cover exactly 5 mm of the graduated scale. The magnification is then equal to 500 X.

1) In the case of dyed, bleached or finished fibres, it should be noted that the diameter may be different from that of fibres not subjected to such treatments. The estimates of fibre diameter obtained at the various stages of processing one lot of wool will not necessarily be the same.