
**Rubber- or plastics-coated
fabrics — Determination of roll
characteristics —**

**Part 3:
Method for determination of thickness**

*Supports textiles revêtus de caoutchouc ou de plastique —
Détermination des caractéristiques des rouleaux —*

Partie 3: Méthode de détermination de l'épaisseur



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative reference	1
3 Terms and definitions	1
4 Apparatus	1
5 Conditioning	2
6 Procedure	2
6.1 General.....	2
6.2 Measurement.....	2
7 Expression of results	3
8 Test report	3

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword – Supplementary information](#)

The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

This second edition cancels and replaces the first edition (ISO 2286-3:1998), which has been technically revised. The changes are as follows:

- in [4.1](#), the smallest scale reading has been changed to 0,01 mm;
- in [4.2](#), the pressure of 5 kPa has been added and the force corresponding to each pressure has been added for reference;
- in [Clause 5](#), the conditioning atmosphere has been clarified;
- in [Clause 6](#), the requirement for recording the temperature and humidity has been added; the usable width has been clearly specified; the period of pressing time has been changed to more flexible;
- in [Clause 8](#), items b) and e) have been added.

ISO 2286 consists of the following parts, under the general title *Rubber- or plastics-coated fabrics — Determination of roll characteristics*:

- *Part 1: Methods for determination of length, width and net mass*
- *Part 2: Methods for determination of total mass per unit area, per unit area of coating and mass per unit area of substrate*
- *Part 3: Method for determination of thickness*

Introduction

Compared with metals, coated fabrics are easily compressed, and the measured thickness will depend considerably upon the method and pressure employed. This is perhaps the single most important reason for having a standard method for measuring the thickness of coated fabrics.

An effort has been made to enable the results to be comparable with measurements of the thickness of textile substrates.

Rubber- or plastics-coated fabrics — Determination of roll characteristics —

Part 3: Method for determination of thickness

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This International Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

1 Scope

This part of ISO 2286 specifies a method for the determination, at a specified pressure, of the thickness of rubber- and plastics-coated fabrics, irrespective of the type of substrate employed. It is applicable to single-face, double-face and double-texture coated fabrics, as well as materials in which an expanded layer is included in the coating.

2 Normative reference

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2231:1989, *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 thickness

distance between the face and the back of a coated fabric, measured as the vertical distance between a reference plate on which the fabric rests and a parallel presser foot that is applying a pressure to the fabric

3.2 usable width

width of a coated fabric, excluding the selvedge, which is consistent in its properties, uniformly finished and free from unacceptable flaws

4 Apparatus

4.1 Dial gauge, of the deadweight type, designed to register the vertical distance between the bearing surfaces of a presser foot and reference plate, and equipped with a dial graduated to give a direct readout of the thickness to the nearest 0,01 mm. The gauge shall be calibrated in such a way as to permit at least one of the pressures specified in [4.2](#) to be obtained using at least one of the presser foot sizes.

4.2 Circular pressure foot, with a smooth, flat surface and a diameter of not less than 9 mm, capable of applying one or more of the following pressures:

ISO 2286-3:2016(E)

- a) 2 kPa \pm 0,2 kPa;
- b) 5 kPa \pm 0,5 kPa;
- c) 10 kPa \pm 1,0 kPa;
- d) 24 kPa \pm 2,4 kPa.

NOTE 1 In case of the pressure foot of 10 mm diameter, the force is calculated from the pressure for each.

- a) 0,157 N \pm 0,016 N
- b) 0,393 N \pm 0,039 N
- c) 0,785 N \pm 0,079 N
- d) 1,88 N \pm 0,19 N

NOTE 2 The actual pressure exerted by the presser foot can be calculated in one of the following ways:

- a) by determining
 - 1) the force exerted by the presser foot assembly, using a calibrated counterbalance, and
 - 2) the surface area of the presser foot by direct measurement,

or

- b) by using a tension dial gauge.

4.3 Reference plate (anvil), having a plane upper surface of diameter not less than, preferably 50 mm greater than that of the presser foot ([4.2](#)).

4.4 Means for moving the pressure foot, in a direction normal to the upper surface of the reference plate so that its bearing surface is maintained parallel to the upper surface of the reference plate.

NOTE The parallelism of the presser foot and anvil surfaces when brought together can conveniently be checked by inserting a feeler gauge (one only, not several together) at points round the edge of the presser foot while it is resting freely on the anvil.

5 Conditioning

Condition the fabric to be tested in accordance with the method of conditioning "1" in ISO 2231:1989.

6 Procedure

6.1 General

Record the atmospheric temperature and the humidity at the time of the measurement.

6.2 Measurement

Before each determination, clean the surfaces of the presser foot and anvil and adjust the dial gauge to register zero when the anvil and presser foot are in contact. Make at least five thickness measurements, evenly spaced across the usable width of the fabric excluding 50 mm from the edge of the fabric, as follows.

Place the fabric on the anvil, ensuring that the fabric is smooth, without any accidental creases or wrinkles and without any tension. If there are intentional creases in the fabric, no attempt shall be made to smooth them out before making measurements. Lower the presser foot gently on to the fabric

and allow it to rest on the fabric until the gauge reading is stable. If it takes more than 30 s, record the period of time to get stable in the test report. Record the dial gauge reading to the nearest 0,01 mm.

If the fabric has an embossed surface, do not avoid the areas of embossing.

Do not make any measurements within 1 m of a production-manufactured roll end.

7 Expression of results

Calculate the arithmetic mean, in millimetres, of all determinations. Take this mean as the thickness of the coated fabric.

8 Test report

The test report shall include the following information:

- a) a reference to this part of ISO 2286, i.e. ISO 2286-3;
- b) the atmospheric temperature and humidity at the time of the measurement;
- c) a complete description of the coated fabric;
- d) the mean, minimum and maximum thicknesses, in millimetres, of the coated fabric, the pressure at which the measurements were made, the diameter of the presser foot used and the length of time the presser foot was allowed to rest on the fabric;
- e) the period of time when the test piece is pressed for more than 30 s;
- f) details of any deviations from the procedure specified;
- g) the date of the determination.

