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**Rubber, vulcanized or  
thermoplastic — Determination of  
adhesion to textile fabrics**

*Caoutchouc vulcanisé ou thermoplastique — Détermination de  
l'adhérence aux textiles*

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## 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](http://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](http://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 of the voluntary nature of standards, 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This seventh edition cancels and replaces the sixth edition (ISO 36:2017), which has been technically revised.

The main change compared to the previous edition is that another method, using film, has been added to prepare test pieces (7.2).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Rubber, vulcanized or thermoplastic — Determination of adhesion to textile fabrics

**WARNING** — Persons using this document should be familiar with normal laboratory practice. This document 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 determine the applicability of any national regulatory conditions.

## 1 Scope

This document specifies a method of test for measuring the force required to separate, by stripping, two plies of fabric bonded with rubber, or a rubber layer and a fabric ply bonded together.

The method is applicable when the ply surfaces are approximately plane or when they are in the form of a cylinder having an internal diameter greater than approximately 50 mm. The method is not applicable when the ply surfaces contain sharp bends, angles or other gross irregularities which cannot be excluded when cutting out test pieces.

This document does not apply to coated fabrics, which are tested in accordance with ISO 2411, or textile conveyor belts, which are tested in accordance with ISO 252.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5893:2019, *Rubber and plastics test equipment — Tensile, flexural and compression types (constant rate of traverse) — Specification*

ISO 6133:2015, *Rubber and plastics — Analysis of multi-peak traces obtained in determinations of tear strength and adhesion strength*

ISO 18899:2013, *Rubber — Guide to the calibration of test equipment*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### adhesion strength

force per unit width required to cause a separation at the interface between the assembled components

Note 1 to entry: Any separation occurring at any other point, for example inside either component under test, is a failure of the component material, and does not indicate an adhesion strength. In such cases, the adhesion strength is greater than the strength of the weakest component involved.

## 4 Principle

The stripping force required to separate two plies of fabric bonded with rubber, or a rubber layer and a fabric ply bonded together, is measured under specified conditions using test pieces of standard dimensions in the form of a flat strip.

## 5 Apparatus

**5.1 Test machine**, power-driven and equipped with a suitable dynamometer; it shall be capable of maintaining a substantially constant rate of traverse of the moving head during the test and shall be linked to an autographic recorder or a computer with graphic capabilities for data acquisition and processing. A dynamometer without inertia (e.g. of the electronic or optical type) should preferably be used.

The machine shall comply with the requirements of ISO 5893, be capable of measuring force with an accuracy corresponding to class 1 as defined in ISO 5893:2019, and have a rate of traverse of the moving grip of 50 mm/min  $\pm$  5 mm/min.

The machine shall be fitted with grips capable of holding the test piece and the ply to be separated without slipping during the test.

**5.2 Autographic recorder**, with a scale sufficiently large to permit easy interpretation of the trace, or computer with graphic capabilities and software enabling it to be in accordance with the procedure for data processing described in ISO 6133.

## 6 Calibration

The test apparatus shall be calibrated in accordance with the schedule given in [Annex A](#).

## 7 Test piece

### 7.1 Test piece cut from a product

The test piece shall have a width of 25 mm  $\pm$  0,5 mm and shall be of sufficient length to permit ply separation during measurement over a length of at least 100 mm. The minimum thickness of the constituent components, or of one of them, shall be such that the weakest component can transmit the force necessary for separation without breaking.

The test piece shall be cut in a plane parallel to the warp in the length direction and parallel to the weft in the width direction.

If required, also cut test pieces in a plane parallel to the weft in the length direction and parallel to the warp in the width direction.

If there is a danger of bits of fabric being removed from the test piece due to irregularity of fabric alignment, make the test pieces slightly wider, but at least the ply to be stripped shall be cut to the width of 25 mm.

The thickness shall be suitably reduced in accordance with ISO 23529, if necessary, in order to ensure that the line of separation of the plies during the test lies as close as possible to the plane of the strips of test piece held in the grips (see [Figure 1](#)). For tests intended to be comparable, the test pieces shall have the same dimensions.

Whenever possible, the standard test piece shall be cut from the article and prepared in accordance with the relevant product standard, if one exists.