
**Rubber- or plastics-coated fabrics —
Determination of blocking resistance**

*Supports textiles revêtus de caoutchouc ou de plastique —
Détermination de la résistance au blocage*

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ISO 5978:2023

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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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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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.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 5978:1990), which has been technically revised.

The main changes are as follows:

- the definition of "blocking" ([3.1](#)) has been revised;
- strips of filter paper have been added to the list of apparatus ([Clause 4](#));
- tolerances have been added to the dimensions of test pieces ([Clause 6](#));
- conditioning of test pieces has been clarified ([Clause 7](#));
- a temperature of (70 ± 2) °C and a duration of 3 h have been added as standard test conditions (others are also allowed).

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.

Introduction

Blocking tests at elevated temperatures are designed to estimate the relative resistance of rubber- or plastics-coated fabrics to blocking. For this purpose, the coated fabric is subjected to a specified load over a defined area at a specific temperature.

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Rubber- or plastics-coated fabrics — Determination of blocking resistance

WARNING — Persons using this document should be familiar with normal laboratory practices. 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 regulatory limitations prior to use.

1 Scope

This document specifies a method for the determination of the resistance of rubber- or plastics-coated fabric sheets to blocking when left in contact for specified temperature, time and pressure.

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 2231, *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.

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

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

3.1

blocking

unintentional adherence between sheet materials

4 Apparatus

4.1 Lower glass plate, measuring minimum 153 mm × 153 mm and approximately 3 mm thick.

NOTE In order to facilitate the handling of the test assemblies (e.g. to/from the oven), it can be suitable to use a lower glass plate with larger dimensions than the test specimens.

The dimensions of the lower glass plate shall not be smaller than the dimensions of the test specimens (see [Clause 6](#)).

4.2 Upper glass plate, measuring (155 ± 2) mm × (155 ± 2) mm and approximately 3 mm thick.

The dimensions of the upper glass plate shall not be smaller than the dimensions of the test specimens (see [Clause 6](#)).

4.3 Strips of filter paper, measuring (160 ± 2) mm \times (160 ± 2) mm.

The filter paper shall be used as interlayer between each glass plate and test specimen in order to prevent any sticking of the test specimens on the glass plates (4.1 and 4.2).

The dimensions of the strips of filter paper shall not be smaller than the dimensions of the glass plates (4.1 and 4.2) and the test specimens (see Clause 6).

4.4 Weight piece, of mass $(5,0 \pm 0,1)$ kg.

If the dimensions of the test specimens deviate from standard size (see Clause 6), the weight piece shall be selected so that a nominal pressure of $(2,18 \pm 0,02)$ kPa is exerted on the sample.

4.5 Circulating-air oven, capable of being maintained at (70 ± 2) °C or another specified temperature, and of such a size that the total volume of the test assemblies does not exceed 10 % of the free space in the oven.

Provision shall be made for placing the test assemblies on shelves, so they are not less than 50 mm from each other or from the sides of the oven.

Provision shall be made for circulation of air through the oven at a rate such as to provide a minimum of six air changes per hour.

5 Time between manufacture and testing

For all purposes, the minimum time between manufacture and testing shall be 16 h.

For non-product tests, the maximum time between manufacture and testing shall be four weeks. For evaluations intended to be comparable, the tests, as far as possible, shall be carried out after the same time interval.

For product tests, whenever possible, the time between manufacture and testing shall not exceed three months. In other cases, tests shall be made within two months of the date of receipt by the customer.

6 Samples and test pieces

Samples shall be taken at least 100 mm from the edge and not less than 1 m from the end of the roll.

The sample to be tested shall consist of six test specimens, each (150 ± 2) mm \times (150 ± 2) mm.

Test specimens shall be representative of the material being tested. They shall be taken from the working width of the sample. They shall be cut with one edge parallel to the longitudinal axis of the sample.

The longitudinal and lateral axes shall be marked on the test pieces.

7 Conditioning of test pieces

If not otherwise specified, the test specimens, the glass plates (4.1 and 4.2) and the strips of filter paper (4.3) shall be conditioned in one of the standard atmospheres as defined in ISO 2231 (climate B recommended) for a period of at least 24 h.

8 Procedure

8.1 Arrange two test specimens, strips of filter paper and glass plates on top of each other in the following order: lower glass plate, strip of filter paper, specimen with face uppermost, specimen with face downwards, strip of filter paper, upper glass plate.

Take care that the upper glass plate and the strips of filter paper cover the complete surface areas and edges of the test specimens.

If the determination of blocking of face to back is required, prepare one more assembly in the same way, except that one specimen shall be with face uppermost and the other with back downwards.

8.2 Place each assembly in the oven (4.5) and load each with a weight piece (4.4) on the top glass plate in a central position to ensure a uniform pressure of $(2,18 \pm 0,02)$ kPa. Expose each test assembly for the specified test conditions (duration and temperature of storage) in the pre-heated oven.

The temperature and the duration of storage in the oven should reflect the conditions of usage or further processing. If not otherwise specified, apply a test temperature of (70 ± 2) °C and a test duration of 3 h to be used as standard test conditions.

8.3 At the end of the exposure period, remove each assembly from the oven, immediately take each stacked pair of test specimens from between the strips of filter paper and glass plates and allow it to cool for 1 h in standard atmosphere as used for pre-conditioning. Then carefully separate the test pieces and examine them for adherence or peeling.

8.4 Rate the resistance of each test piece to blocking by the scale given below:

- a) No blocking: coated surfaces separate without any evidence of adhering.
- b) Slight blocking: some adherence of coated surfaces takes place on separation, but without detriment to the coating.
- c) Blocking: coated surfaces are difficult to separate; the coating or part of the coating is removed during separation.

9 Test report

The test report shall include the following information:

- a) a reference to this document, i.e. ISO 5978:2023;
- b) all details necessary for the identification of the sample;
- c) dimensions of the test specimens;
- d) the conditioning atmosphere used (see [Clause 7](#));
- e) the test temperature, test duration and pressure, if deviating from the standard test conditions;
- f) the total mass on the test assemblies;
- g) the rating for resistance to blocking, in accordance with [8.4](#);
- h) the date of the test;
- i) any deviation from the procedure specified.

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