INTERNATIONAL STANDARD

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Second edition
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Adhesives — Determination of the solubility of water-soluble or alkali-soluble pressure-sensitive adhesives

Adhésifs — Détermination de la solubilité des adhésifs sensibles à la pression, solubles dans l'eau ou dans les alcalis

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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).

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 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 the following URL: www.iso.org/iso/foreword.html.

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

This second edition cancels and replaces the first edition (ISO 25179:2010) of which it constitutes a minor revision. The main changes compared to the previous edition are as follows:

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— definitions have been added in Clause 3 for “pressure sensitive adhesive” and “solubility”;

— Annex A has been revised to include columns for signature;

— a Bibliography has been added.

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Adhesives — Determination of the solubility of water-soluble or alkali-soluble pressure-sensitive adhesives

SAFETY STATEMENT — Persons using this document should be familiar with normal laboratory practice, if applicable. 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 other restrictions. It is recognized that some of the materials permitted in this document may have a negative environmental impact. As technological advances lead to more acceptable alternatives for such materials, they will be eliminated to the greatest extent possible. At the end of the test, care should be taken to dispose of all waste in an appropriate manner.

1 Scope

This document specifies a test method for the determination of the solubility of a water-soluble pressure-sensitive adhesive in water or the solubility of an alkali-soluble pressure-sensitive adhesive in alkali by measuring the loss in mass of the adhesive when immersed in water or alkali. The solubility of the adhesive is one of the key factors in assessing the possibility of recycling products to which labels are fixed using a pressure-sensitive adhesive.

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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 291, *Plastics — Standard atmospheres for conditioning and testing*

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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:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
pressure sensitive adhesive
adhesive which in a dry state is permanently tacky at room temperature and adheres readily to surfaces under brief and light pressure

3.2
solubility
chemical property referring to the ability for a given substance, the solute, to dissolve in a solvent

Note 1 to entry: It is measured in terms of the maximum amount of solute dissolved in a solvent at equilibrium.

4 Principle

This method measures the solubility of a water-soluble or an alkali-soluble adhesive, coated on kraft paper, as a function of time by measuring the loss in mass of an adhesive-coated test specimen after shaking the specimen in water or alkali solution.

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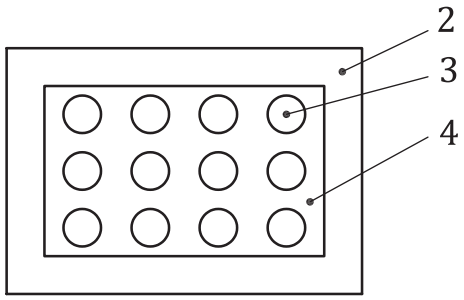
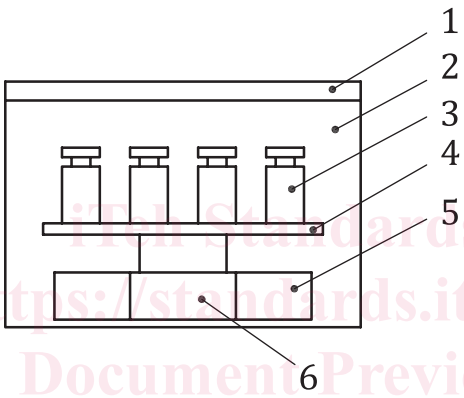
5 Apparatus

5.1 Orbital shaker, enclosed in a chamber capable of being heated by air at a temperature in the range 40 °C to 80 °C, accurate to within ± 2 °C, and having a motor capable of producing a shaking speed of 10 r/min to 100 r/min, for shaking the bottles (5.2) containing the test specimens (see Figure 1).



a) Top view



b) Side view

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Key

1	shaker chamber cover	3	bottle	5	heater
2	shaker chamber	4	shaker plate	6	motor

Figure 1 — Example of a shaker

5.2 Bottles, made of glass, with a volume of 500 ml and capable of being sealed with a cap to prevent the escape of any vapour.

NOTE The method uses two types of bottle cap, an ordinary bottle cap and a prepared bottle cap (see Figure 2) to which the test specimen holder (see Figure 3) is connected.

5.3 Test specimen holder, comprising a cylindrical drum, two specimen-clamping bars and a connecting rod made of AISI 316 stainless steel, as shown in Figures 3, 4 and 5.

5.4 Drying oven, with forced-air convection, capable of being maintained at a temperature in the range from 50 °C to 120 °C to an accuracy of ± 2 °C.

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