

INTERNATIONAL  
STANDARD

**ISO**  
**10364**

First edition  
1993-06-15

---

---

**Adhesives — Determination of working life  
(pot life) of multi-component adhesives**

**iTeh STANDARD PREVIEW**  
*Adhésifs — Détermination du délai d'utilisation (vie en pot) d'adhésifs  
multicomposants*  
**(standards.iteh.ai)**

ISO 10364:1993

<https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f6692fd72e6f/iso-10364-1993>



Reference number  
ISO 10364:1993(E)

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10364 was prepared by Technical Committee ISO/TC 61, *Plastics*, Sub-Committee SC 11, *Products*.

Annex A of this International Standard is for information only.

ISO 10364:1993  
<https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f692fd72e6f/iso-10364-1993>

© ISO 1993

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization  
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

# Adhesives — Determination of working life (pot life) of multi-component adhesives

## 1 Scope

This International Standard specifies a method of determining the working life of an adhesive. It is intended to determine whether the working life conforms to the minimum specified working life required of an adhesive by viscosity tests or by bond strength tests or by both.

This method is not suitable for determining the working life of a multi-component adhesive whose working life is very short, because a minimum amount of time is necessary to conduct the required testing.

NOTE 1 In general five minutes is considered the minimum working life of a multi-component adhesive suitable for testing by this method.

## 2 Definition

For the purposes of this International Standard, the following definition applies.

**2.1 pot life; working life:** The period of time during which an adhesive or resin, prepared for application, remains usable.

## 3 Principle

The working life of an adhesive is determined by measuring the viscosity and/or bond strength at specified intervals. The time at which the bond strength drops to a specified level and/or a specified change in viscosity is obtained is considered the working life of the adhesive.

## 4 Apparatus

**4.1 Beaker,** squat form, 400 ml (or container of similar dimensions), with a wall thickness not exceeding 1 mm and made of a material that does not react with the adhesive.

## 4.2 Viscometer.

Any means of measuring the viscosity of the adhesive can be selected provided that it is suitable for the type of adhesive under test.

NOTE 2 A Brookfield viscosimeter or Tecam tester is suitable for that measurement. Disposable spindles are recommended in order to avoid damage to or loss of the spindles.

**4.3 Test machine,** of suitable capacity, equipped with self-aligning grips for holding the specimens, and capable of maintaining a specified rate of displacement of the grips.

**4.4 Temperature-controlled bath,** capable of maintaining the components at the appropriate application temperature or, if a range of application temperatures is given, at the upper limit of the range, to within  $\pm 0,1$  °C.

## 4.5 Stopwatch.

## 5 Procedure

### 5.1 Viscosity

**5.1.1** At the start of the test, all the components shall be at the same temperature, which shall be reported.

NOTE 3 23 °C  $\pm$  2 °C is commonly used.

**5.1.2** Prepare a sample of the adhesive in accordance with the manufacturer's instructions, and immediately place the prepared adhesive in the 400 ml beaker (4.1).

NOTE 4 The preferred amount of adhesive is 200 g, but other quantities may be used.

**5.1.3** Record the time at the moment the adhesive is placed in the beaker and is ready for use. Keep the beaker uncovered throughout the test.

**5.1.4** Determine the viscosity of the freshly prepared adhesive, and after time intervals appropriate for covering the working life of the adhesive given in the adhesive manufacturer's instructions for use. The time interval chosen shall be reported in the test report.

NOTE 5 The method described in ISO 2555[2] is suitable for viscosity determinations.

**5.1.5** The working life of the adhesive, as determined by viscosity, shall be the total time elapsed between the time recorded when the adhesive was freshly prepared and the time at which the viscosity of the adhesive reaches a predetermined value or increases by a predetermined percentage.

## 5.2 Bond strength

**5.2.1** Prepare and blend the adhesive as prescribed in 5.1.1 to 5.1.3.

**5.2.2** Prepare specimens for determining the bond strength of the adhesive in accordance with any of the ISO test methods suitable for the purpose.

NOTE 6 For example, the shear specimens or peel specimens described in the following International Standards may be used: ISO 4587[3], ISO 6237[4], ISO 8510-1[5], ISO 8510-2[6] and ISO 9653[7].

**5.2.3** In preparing the specimens, apply the adhesive in accordance with the manufacturer's instructions.

**5.2.4** Determine the bond strength of the freshly prepared adhesive, and after time intervals appropriate for the working life of the adhesive given in the adhesive manufacturer's instructions. The time interval chosen shall be reported in the test report.

**5.2.5** The working life of the adhesive, as determined by the bond strength test, shall be the total time elapsed between the time recorded when the adhesive was freshly prepared and the time at which the bond strength drops to a predetermined value or decreases by a predetermined percentage.

## 6 Expression of results

Express the working life of the adhesive in hours and/or in minutes, as appropriate.

## 7 Test report

The test report shall include the following:

- a) a reference to this International Standard;
- b) all details necessary for complete identification of the adhesive, including type, source, manufacturer's code number, form and date of manufacture;
- c) the quantity of adhesive used for the test;
- d) the proportions taken when mixing the adhesive for use;
- e) the material and dimensions of the adhesive container;
- f) the ISO method used to determine the viscosity, the temperature at which the viscosity was determined, and all details necessary for the complete identification of the viscometer used;
- g) the viscosity results and the time interval between test points;
- h) the ISO method used to determine the bond strength, with all details necessary for complete identification of the adherends used, as well as details of specimen preparation, the manner of applying the adhesive, the curing treatment, and all other pertinent bonding conditions;
- i) the bond strength test results and the time interval between test points;
- j) the working life of the adhesive;
- k) the predetermined values adopted in 5.1.5 and 5.2.5;
- l) pertinent observations, such as setting, discolouring, separating, caking or gelling which might influence the usability of the adhesive;
- m) any other factors which may have influenced the result;
- n) the date of the test.

## Annex A (informative)

### Bibliography

- [1] ISO 472:1988, *Plastics — Vocabulary*.
- [2] ISO 2555:1989, *Plastics — Resins in the liquid state or as emulsions or dispersions — Determination of apparent viscosity by the Brookfield Test method*.
- [3] ISO 4587:1979, *Adhesives — Determination of tensile lap-shear strength of high strength adhesive bonds*.
- [4] ISO 6237:1987, *Adhesives — Wood-to-wood adhesive bonds — Determination of shear strength by tensile loading*.
- [5] ISO 8510-1:1990, *Adhesives — Peel test for a flexible-bonded-to-rigid test specimen assembly — Part 1: 90 degree peel*.
- [6] ISO 8510-2:1990, *Adhesives — Peel test for a flexible-bonded-to-rigid test specimen assembly — Part 2: 180 degree peel*.
- [7] ISO 9653:1991, *Adhesives — Test method for shear impact strength of adhesive bonds*.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO 10364:1993](https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f6692fd72e6f/iso-10364-1993)

<https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f6692fd72e6f/iso-10364-1993>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

This page intentionally left blank

[ISO 10364:1993](#)

<https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f6692fd72e6f/iso-10364-1993>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

This page intentionally left blank

[ISO 10364:1993](#)

<https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f6692fd72e6f/iso-10364-1993>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO 10364:1993

<https://standards.iteh.ai/catalog/standards/sist/1210e8c9-7297-4f04-b073-f6692fd72e6f/iso-10364-1993>

---

---

**UDC 665.93:620.179.4**

**Descriptors:** plastics, adhesives, tests, determination, life (durability).

Price based on 3 pages

---

---