
**Rubber, vulcanized or
thermoplastic — Determination of
adhesion to a rigid substrate — 90°
peel method**

*Caoutchouc vulcanisé ou thermoplastique — Détermination de
l'adhérence à un substrat rigide — Méthode par pelage à angle droit*

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 813:2019](https://standards.iteh.ai/catalog/standards/iso/33c5a32c-d249-45bd-adfc-35a99dc3e174/iso-813-2019)

<https://standards.iteh.ai/catalog/standards/iso/33c5a32c-d249-45bd-adfc-35a99dc3e174/iso-813-2019>



iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 813:2019](https://standards.iteh.ai/catalog/standards/iso/33c5a32c-d249-45bd-adfc-35a99dc3e174/iso-813-2019)

<https://standards.iteh.ai/catalog/standards/iso/33c5a32c-d249-45bd-adfc-35a99dc3e174/iso-813-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Apparatus	2
6 Test pieces	2
6.1 Dimensions	2
6.2 Preparation	3
6.3 Number	4
6.4 Conditioning before testing	4
7 Test temperature and humidity	5
8 Procedure	5
9 Expression of results	5
9.1 Adhesion strength	5
9.2 Adhesion failure symbols	5
10 Precision	6
11 Test report	6
Annex A (informative) Analysis of the viscoelastic behaviour of the bond	7
Annex B (normative) Calibration schedule	8
Bibliography	10

ISO 813:2019

<https://standards.iteh.ai/catalog/standards/iso/33c5a32c-d249-45bd-adfc-35a99dc3e174/iso-813-2019>

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 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 2, *Testing and analysis*.

This sixth edition cancels and replaces the fifth edition (ISO 813:2016), of which it constitutes a minor revision to correct a typo in [Table B.1](#) in [Annex B](#).

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.

Rubber, vulcanized or thermoplastic — Determination of adhesion to a rigid substrate — 90° peel method

WARNING 1 — 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 other restrictions.

WARNING 2 — Certain procedures specified in this document might involve the use or generation of substances, or the generation of waste, that could constitute a local environmental hazard. Reference should be made to appropriate documentation on safe handling and disposal after use.

1 Scope

This document specifies a method for the determination of the adhesive strength of a vulcanized or thermoplastic rubber bonded to a rigid substrate, using a test piece comprising a strip of rubber bonded to a single plate of rigid material. The test is carried out at a peel angle of 90°.

The method is applicable primarily to test pieces prepared in the laboratory under standard conditions, such as can be used to provide data for the choice of rubber compounds or adhesive systems, the development of such materials and the control of manufacturing processes.

This method is not suitable for high-hardness rubbers, typically above 85 IRHD.

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

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

No terms and definitions are listed in this document.

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/>

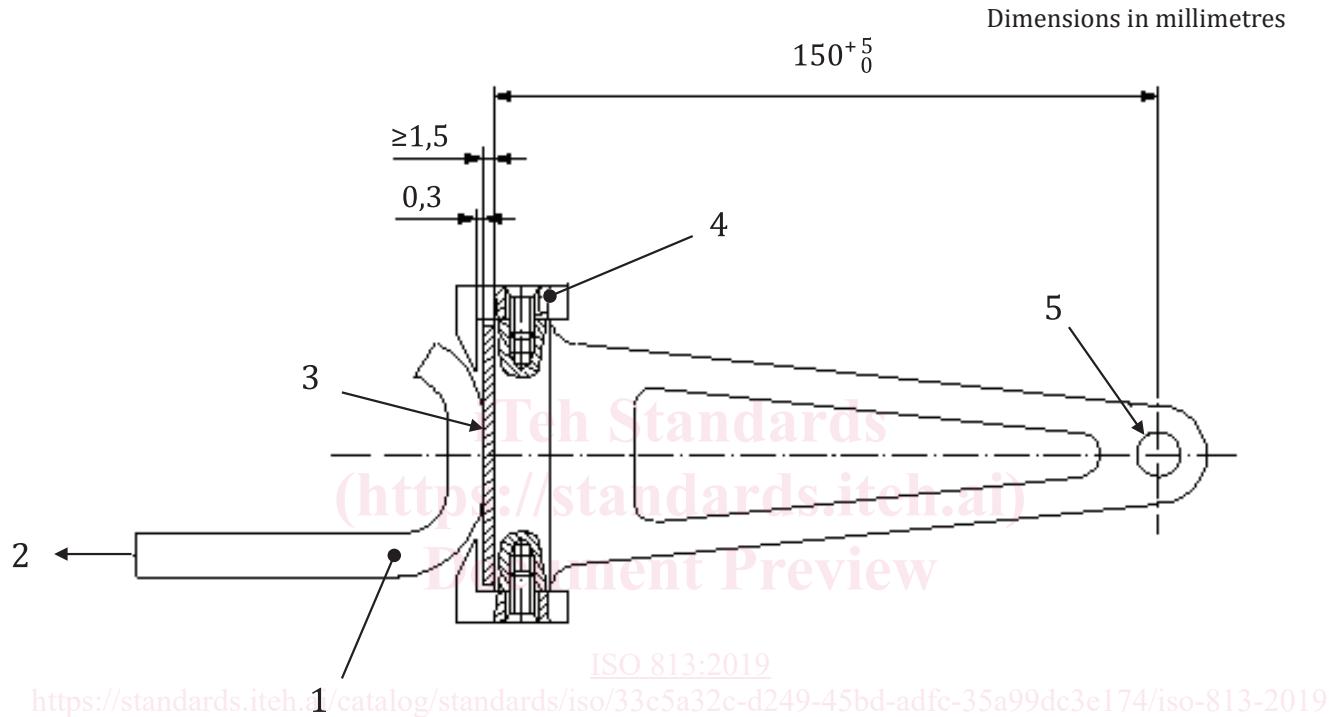
4 Principle

The force required to cause separation of a strip of rubber bonded to a rigid substrate is measured, the angle of separation being 90° and the width and thickness of the rubber and the rigid material being fixed within specified limits.

5 Apparatus

5.1 Tensile-testing machine, in accordance with the requirements of ISO 5893, capable of measuring force with an accuracy corresponding to class 1 and with a rate of traverse of the moving grip of 50 mm/min \pm 5 mm/min.

5.2 Fixture, for holding the test piece to the moving grip of the testing machine (5.1) so that the direction of pull to cause separation is at all times during the test as nearly perpendicular as possible to the plane of the bond between the rubber and the rigid substrate, i.e. making an angle of 90° with the face of the fixture. The fixture shown in Figure 1 complies with this requirement.



Key

- 1 rubber
- 2 tensile force
- 3 rigid substrate
- 4 adjustment grooves
- 5 attachment to upper grip of test machine

Figure 1 — Example of test fixture

5.3 Grip, so designed that it does not allow the rubber to slip or cause it to rupture.

5.4 Temperature-controlled chamber (if needed), for carrying out tests at a chosen temperature which can be kept within the tolerances given in ISO 23529.

6 Test pieces

6.1 Dimensions

The standard test piece shall consist of a strip of rubber 6 mm \pm 0,1 mm thick in the test area, 25 mm \pm 0,1 mm wide and 125 mm long, bonded to a square area, 25 mm long and 25 mm \pm 0,1 mm