



BSI Standards Publication

**Rubber, vulcanized or thermoplastic —
Determination of tendency to adhere
to and corrode metals**

National foreword

This British Standard is the UK implementation of ISO 6505:2021. It supersedes BS ISO 6505:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/22, Testing and analysis of rubber.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2021
Published by BSI Standards Limited 2021

ISBN 978 0 539 16791 7

ICS 83.060

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2021.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

INTERNATIONAL
STANDARD

ISO
6505

Fifth edition
2021-07-08

**Rubber, vulcanized or
thermoplastic — Determination
of tendency to adhere to and
corrode metals**

*Caoutchouc, vulcanisé ou thermoplastique — Détermination de la
tendance à adhérer aux métaux et à les corroder*



Reference number
ISO 6505:2021(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Materials	2
6 Apparatus	2
7 Test metals	2
8 Calibration	4
9 Test pieces	4
9.1 Preparation.....	4
9.1.1 Square test pieces.....	4
9.1.2 O-ring test pieces.....	4
9.2 Number.....	4
9.3 Time-interval between forming the material and testing.....	4
9.4 Storage.....	4
10 Test conditions	4
10.1 Temperature.....	4
10.2 Test period.....	4
10.3 Humidity.....	4
11 Procedure	5
11.1 Precaution.....	5
11.2 Preparation of rubber test pieces for testing.....	5
11.3 Number of metal test strips.....	5
11.4 Preparation of surfaces of metal test strips.....	5
11.5 Determination.....	5
11.5.1 Tests in a dry atmosphere.....	5
11.5.2 Tests in a wet atmosphere.....	6
12 Expression of results	7
12.1 Degree of adhesion.....	7
12.2 Degree of corrosion.....	7
12.2.1 For tests in a dry atmosphere.....	7
12.2.2 For tests in a wet atmosphere.....	7
13 Test report	7
Annex A (normative) Calibration schedule	9
Annex B (informative) Grading of degree of corrosion	11

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 fifth edition cancels and replaces the fourth edition (ISO 6505:2015), of which it constitutes a minor revision. The main changes compared to the previous edition are as follows:

- the Introduction has been deleted;
- the Normative references in [Clause 2](#) have been updated.

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 tendency to adhere to and corrode metals

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 tendency of vulcanized or thermoplastic rubbers to adhere to and to corrode metals when exposed to a specified test environment.

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 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

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

Rubber test pieces are held between metal test strips under specified conditions in a dry or wet atmosphere for a specified period.

Subsequent visual examination of the metal surface provides a subjective indication of the degree of adhesion to the metal by the rubber and corrosion of the metal.