



**International
Standard**

ISO 22785-3

**Paints and varnishes — Coatings on
plastics and composites —**

**Part 3:
Constant climate and alternating
climate testing**

**First edition
2026-06**

Sample Document

get full document from standards.iteh.ai

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2026

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
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Characteristics of plastics substrates	2
4.1 General	2
4.2 Thermal conductivity of the substrate	2
4.3 Specific heat capacity of the substrate	2
4.4 Sample thickness	2
4.5 Substrate deformation	2
4.6 Phase transitions	2
4.7 Substrate ageing	2
4.8 Additive migration	3
4.9 Barrier effect of the substrate	3
4.10 Thermal expansion	3
4.11 Water absorption and release	3
4.12 Adhesive strength	3
4.13 Density	3
4.14 Elasticity	3
5 Overview on test methods	3
5.1 General	3
5.2 Constant climate	4
5.2.1 Wet climate (hydrolysis)	4
5.2.2 Dry climate	4
5.2.3 Condensation atmosphere with constant humidity	4
5.3 Alternating climate	5
5.3.1 Condensation alternating climate	5
5.3.2 Cold/warm climate	5
5.3.3 Warm and humid/cold climate	5
5.4 Immersion in water	5
6 Evaluation	6
6.1 General	6
6.2 Visual assessment of the surface condition	6
6.3 Assessment of gloss and colour	6
6.4 Assessment of adhesive strength	6
Bibliography	7

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.

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 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

A list of all parts in the ISO 22785 series can be found on the ISO website.

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

The ISO 22785 series explains the characteristics of plastics and the differences between plastics substrates and metallic substrates.

This document gives an overview of the common climate test methods used in particular for coatings of automotive exteriors and interiors. Many of the existing test methods have been developed for coatings on metals. This document specifies the test methods that can lead to a deviating behaviour of the coating on plastics substrates and the measures that can be taken, where appropriate. It is possible that the substrate has an effect on the behaviour of the coating during the test. At times, it can be useful to select test conditions which are based on standards from the plastics sector and not on standards from the coating sector, in order to take into account the thermal conductivity of a plastics substrate which is normally lower.

The methods listed in this document refer to simple, flat test specimens, but also components. For three-dimensional samples, different results can be obtained during the exposure; therefore, the installation position or test position are specified in advance or taken from a sampling plan.

Sample Document

get full document from standards.iteh.ai