INTERNATIONAL STANDARD

ISO 19712-3

Second edition
2022-03

Plastics — Decorative solid surfacing materials —

Part 3: Determination of properties — Solid surface shapes

Plastiques — Matériaux décoratifs massifs de revêtement de surface —

Partie 3: Détermination des propriétés — Produits mis en forme

Reference number
ISO 19712-3:2022(E)

© ISO 2022



COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

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

© ISO 2022 – All rights reserved

Contents

Page

Foreword ... **vi**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **2**

4 Cleaning the test specimen surface ... **2**
4.1 General ... 2
4.2 Materials ... 2
4.3 Procedure ... 2

5 Surface defects ... **2**
5.1 Procedure ... 2
5.2 Method of inspection of surface ... 3
5.3 Performance requirements ... 3
5.4 Test report ... 3

6 Resistance to impact by large-diameter ball ... **3**
6.1 Principle ... 3
6.2 Test specimen ... 3
6.3 Procedure ... 3
6.4 Performance requirement ... 4
6.5 Test report ... 4

7 Lightfastness ... **5**
7.1 Method A ... 5
7.1.1 Principle ... 5
7.1.2 Apparatus ... 5
7.1.3 Test specimen ... 5
7.1.4 Procedure ... 5
7.1.5 Assessment of specimen and expression of results ... 6
7.1.6 Test report ... 6
7.2 Method B ... 6
7.2.1 Principle ... 6
7.2.2 Materials ... 7
7.2.3 Apparatus ... 7
7.2.4 Standardization of apparatus ... 7
7.2.5 Test specimens ... 7
7.2.6 Procedure ... 7
7.2.7 Expression of results ... 8
7.2.8 Test report ... 8
7.3 Method C (resistance to colour change in light from an enclosed carbon-arc lamp) ... 9
7.3.1 Principle ... 9
7.3.2 Apparatus ... 9
7.3.3 Test specimen ... 9
7.3.4 Procedure ... 9
7.3.5 Evaluation and expression of results ... 9
7.3.6 Test report ... 9

8 Stain/chemical-resistance test ... **10**
8.1 Method A ... 10
8.1.1 Principle ... 10
8.1.2 Staining agents ... 10
8.1.3 Apparatus and materials ... 10
8.1.4 Test specimens ... 10
8.1.5 Procedures ... 14
8.1.6 Expression of results ... 14
8.1.7 Test report ... 14

© ISO 2022 – All rights reserved

8.2 Method B 15
8.2.1 Principle 15
8.2.2 Materials 15
8.2.3 Apparatus 16
8.2.4 Test specimen 16
8.2.5 Procedure 17
8.2.6 Expression of results 18
8.2.7 Test report 19

9 Resistance to cigarette burns 19
9.1 Method A 19
9.1.1 Principle 19
9.1.2 Materials 19
9.1.3 Test specimen 19
9.1.4 Procedure 19
9.1.5 Expression of results 20
9.1.6 Test report 20
9.2 Method B (simulated test using electric heater) 20
9.2.1 Principle 20
9.2.2 Apparatus 20
9.2.3 Test specimens 25
9.2.4 Procedure 25
9.2.5 Expression of results 27
9.2.6 Test report 27

10 Resistance to dry heat 27
10.1 Method A 27
10.1.1 Principle 27
10.1.2 Materials 27
10.1.3 Apparatus 28
10.1.4 Test specimen 28
10.1.5 Procedure 28
10.1.6 Expression of results 28
10.1.7 Test report 28
10.2 Method B 29
10.2.1 Principle 29
10.2.2 Materials 29
10.2.3 Apparatus 29
10.2.4 Test specimen 29
10.2.5 Procedure 30
10.2.6 Expression of results 31
10.2.7 Test report 32
10.3 Method C 32
10.3.1 Test specimen 32
10.3.2 Procedure 32
10.3.3 Performance requirements 32
10.3.4 Test report 32

11 Resistance to wet heat 33
11.1 Method A 33
11.1.1 Principle 33
11.1.2 Materials 33
11.1.3 Apparatus 33
11.1.4 Test specimen 33
11.1.5 Procedure 33
11.1.6 Expression of results 33
11.1.7 Test report 34
11.2 Method B 34
11.2.1 Principle 34
11.2.2 Materials 34

© ISO 2022 – All rights reserved

11.2.3 Apparatus 34
11.2.4 Test specimen 35
11.2.5 Procedure 35
11.2.6 Expression of results 35
11.2.7 Test report 36

12 Hot/cold-cycle water-resistance test 36
12.1 Method A — Kitchen sinks 36
12.1.1 Principle 36
12.1.2 Apparatus and materials 36
12.1.3 Test specimen 37
12.1.4 Procedure 37
12.1.5 Performance requirement 38
12.1.6 Test report 38
12.2 Method B — Other shaped products 39
12.2.1 Principle 39
12.2.2 Apparatus and materials 39
12.2.3 Test specimen 39
12.2.4 Procedure 39
12.2.5 Performance requirement 39
12.2.6 Test report 39

13 Hardness 40

14 Ability to be renewed 40

Bibliography 41

© ISO 2022 – All rights reserved

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 61, *Plastics*, Subcommittee SC 11 *Products,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 19712-3:2007), of which it constitutes a minor revision.

The changes compared to the previous edition are as follows:

— the normative references clause has been updated;

— the rate of flow of water has been updated in Table 6 and subclause 12.2.4.

A list of all parts in the ISO 19712 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.

© ISO 2022 – All rights reserved

Plastics — Decorative solid surfacing materials —

Part 3:
Determination of properties — Solid surface shapes

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 regulatory limitations prior to use.

1 Scope

This document specifies the methods of test for determination of the properties of solid surfacing materials, as defined in Clause 3, in the form of shaped products. These methods are primarily intended for testing the materials specified in ISO 19712-1.

The tests can be carried out on finished products, but are generally carried out on test panels of a size sufficient to meet the requirements of the test, and of the same material and finish as the finished product.

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 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-B02, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 209, *Aluminium and aluminium alloys — Chemical composition*

ISO 1770, *Solid-stem general purpose thermometers*

ISO 2039-1, *Plastics — Determination of hardness — Part 1: Ball indentation method*

ISO 2039-2, *Plastics — Determination of hardness — Part 2: Rockwell hardness*

ISO 3668, *Paints and varnishes — Visual comparison of colour of paints*

ISO 4211:1979, *Furniture — Assessment of surface resistance to cold liquids*

ISO 4892 (all parts), *Plastics — Methods of exposure to laboratory light sources*

ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

ISO 4892-2:2013, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc sources*

ISO 9370, *Plastics — Instrumental determination of radiant exposure in weathering tests — General guidance and basic test method*

ASTM D 2244, *Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates*

© ISO 2022 – All rights reserved

ASTM D 2583, *Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor*

CIE Publication No 85:1989, *Solar spectral irradiance*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

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

3.1
solid surfacing material
SSM
material, composed of polymeric materials together with pigments and fillers, intended to be cast into sheets or shaped products

Note 1 to entry: The material is of the same composition throughout the whole thickness of the sheet or product.

Note 2 to entry: Sheets and products made from SSMs are repairable and renewable to the original finish.

Note 3 to entry: SSMs can also be fabricated into continuous sheets with inconspicuous seams.

4 Cleaning the test specimen surface

4.1 General

The surface to be tested shall be prepared prior to testing using the procedure specified in 4.3.

4.2 Materials

4.2.1 **Cellulose sponge**.

4.2.2 **Non-abrasive cleanser**, containing a bleaching agent.

4.2.3 **Water**.

4.2.4 **Clean, absorbent, lint-free material**.

4.3 Procedure

Clean the surface using a damp sponge and non-abrasive cleanser containing a bleaching agent, scrubbing the surface with light hand pressure for up to 1,0 min/m^2. Rinse the prepared surface with water and dry with clean, absorbent, lint-free material.

5 Surface defects

5.1 Procedure

The entire finished surface of the shaped product under test shall be rubbed with a sponge and a 50 % solution of tap water and water-soluble black or blue-black ink after the surface has been washed and

© ISO 2022 – All rights reserved