International Standard

ISO 14356

Dentistry — Duplicating material

Médecine bucco-dentaire — Produits pour duplication

Second edition
2024-10

Reference number
ISO 14356:2024(en)

© ISO 2024



COPYRIGHT PROTECTED DOCUMENT

© ISO 2024

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 ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Classification by types **3**

5 Material characteristics and properties — Requirements **4**
5.1 General 4
5.2 Melting temperature — Type 1 materials 4
5.3 Pouring temperature — Type 1 materials 4
5.4 Component colours — Type 2 materials 4
5.5 Detail reproduction 4
5.6 Compatibility with refractory investment and, if applicable, gypsum 4
5.7 Elastic recovery 4
5.8 Tear strength 4
5.9 Resistance to fungal growth — Type 1 materials only 4

6 Sampling **4**

7 Test methods — General **5**
7.1 Laboratory conditions 5
7.2 Verification of apparatus function 5
7.3 Specimen preparation and testing 5
7.3.1 General 5
7.3.2 Preparation of Type 1 materials 5
7.3.3 Preparation of Type 2 materials 5
7.4 Pass/fail determinations 5
7.5 Expression of test results 6

8 Specific specimen preparation and test procedures **6**
8.1 Melting temperature test — Type 1 materials only 6
8.2 Detail reproduction test 6
8.2.1 Apparatus and materials 6
8.2.2 Specimen preparation (three specimens) 7
8.2.3 Test procedure 7
8.2.4 Pass/fail determination and expression of results 7
8.3 Test for compatibility with refractory investment and, if applicable, gypsum 7
8.3.1 Apparatus and materials 7
8.3.2 Specimen preparation 8
8.3.3 Test procedure 9
8.3.4 Pass/fail determination and expression of results 9
8.4 Elastic recovery test 9
8.4.1 Apparatus — Type 1 materials 9
8.4.2 Apparatus — Type 2 materials 9
8.4.3 Apparatus — Type 1 and Type 2 materials 9
8.4.4 Specimen preparation — Type 1 materials (five specimens) 10
8.4.5 Specimen preparation — Type 2 materials (five specimens) 10
8.4.6 Test procedure — Type 1 and Type 2 materials 11
8.4.7 Calculation of results 11
8.4.8 Pass/fail determinations and expression of results 12
8.5 Tear strength test 12
8.5.1 Apparatus and materials 12
8.5.2 Specimen preparation (five specimens) 13
8.5.3 Test procedure 14
8.5.4 Calculation of results 14
8.5.5 Pass/fail determination and expression of results 14

© ISO 2024 – All rights reserved

8.6 Fungal growth resistance test — Type 1 agar materials only 14
8.6.1 Apparatus and materials 14
8.6.2 Specimen preparation (1 test specimen and 1 control specimen) 14
8.6.3 Test procedure 14
8.6.4 Pass/fail determination 14
8.6.5 Expression of results 15
9 Requirements for packaging **15**
10 Requirements for labelling **15**
11 Instructions for use — Required information **15**
Annex A (informative) **Optional procedure for tear test** **26**
Bibliography **30**

© ISO 2024 – 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).

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 106, *Dentistry*, Subcommittee SC 2, *Prosthodontic materials,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 55, *Dentistry,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14356:2003), which has been technically revised.

The main changes are as follows:

— figures have been updated to be consistent with other impression material related standards;

— terminology, references and document format 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.

© ISO 2024 – All rights reserved

Dentistry — Duplicating material

1 Scope

This document specifies the requirements and tests for the duplicating materials used in dentistry which are primarily intended for forming flexible moulds needed to produce positive refractory investment copies of properly blocked-out master models.

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 1942, *Dentistry — Vocabulary*

ISO 6873, *Dentistry — Gypsum products*

ISO 15912, *Dentistry — Refractory investment and die material*

ASTM D624-00, *Standard test method for tear strength of conventional vulcanized rubber and thermoplastic elastomers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1942 and the following 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
double boiler
container system in which the upper container fits into the lower container such that boiling water in the lower container heats the contents of the lid-covered upper container

3.2
non-reversible duplicating material
material which converts from a pourable consistency to a gel or rubber-like state and which thereafter cannot be returned to the pourable consistency for repeated use

3.3
effective setting time
time measured from the commencement of mixing components of a material together, or otherwise activating the chemistry involved, to the time at which the activated material has developed the properties (elasticity, hardness, etc.) that will permit it to be used with optimal effectiveness in a subsequent step or for its intended purpose

Note 1 to entry: This applies to materials setting at or near oral or room temperature.

© ISO 2024 – All rights reserved