



SLOVENSKI STANDARD
oSIST prEN ISO 15854:2020
01-julij-2020

Zobozdravstvo - Voski za odlitke in podstavke (ISO/DIS 15854:2020)

Dentistry - Casting and baseplate waxes (ISO/DIS 15854:2020)

Zahnheilkunde - Guss- und Basisplattenwachse (ISO/DIS 15854:2020)

Art dentaire - Cires pour coulée et pour plaque de base (ISO/DIS 15854:2020)

Ta slovenski standard je istoveten z: prEN ISO 15854

<https://standards.iteh.ai/catalog/standards/sist/e02aa68e-4d6d-4fe6-8db4-c659768bc10d/sist-en-iso-15854-2020>

ICS:

11.060.10 Zobotehnični materiali Dental materials

oSIST prEN ISO 15854:2020 **en**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 15854

ISO/TC 106/SC 2

Secretariat: ANSI

Voting begins on:
2020-04-24Voting terminates on:
2020-07-17

Dentistry — Casting and baseplate waxes

Art dentaire — Cires pour coulée et pour plaque de base

ICS: 11.060.10

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 15854:2021](https://standards.iteh.ai/catalog/standards/sist/e02aa68e-4d6d-4fe6-8db4-c659768bc10d/sist-en-iso-15854-2021)<https://standards.iteh.ai/catalog/standards/sist/e02aa68e-4d6d-4fe6-8db4-c659768bc10d/sist-en-iso-15854-2021>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING



Reference number
ISO/DIS 15854:2020(E)

© ISO 2020

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 15854:2021

<https://standards.iteh.ai/catalog/standards/sist/e02aa68e-4d6d-4fe6-8db4-c659768bc10d/sist-en-iso-15854-2021>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

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	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification	2
5 Requirements	2
5.1 Appearance.....	2
5.2 Flow.....	2
5.3 Behaviour on trimming.....	2
5.4 Behaviour on softening (Type 1).....	2
5.5 Appearance after flaming (Type 2).....	2
5.6 Behaviour on softening (Type 2).....	3
5.7 Residue on artificial teeth (Type 2).....	3
5.8 Behaviour of colouring material (Type 2).....	3
5.9 Adhesion on storage (Type 2).....	3
5.10 Residue on ignition (Type 1).....	3
5.11 Biocompatibility.....	3
6 Sampling	3
7 Test methods — General	4
7.1 Ambient temperature.....	4
7.2 Apparatus function verification.....	4
8 Test methods — Specific	4
8.1 Visual inspection.....	4
8.2 Flow.....	4
8.2.1 Principle.....	4
8.2.2 Apparatus.....	4
8.2.3 Preparation of test pieces.....	8
8.2.4 Procedure.....	9
8.2.5 Expression of results and evaluation.....	10
8.3 Behaviour on trimming.....	10
8.3.1 Principle.....	10
8.3.2 Apparatus.....	10
8.3.3 Procedure.....	10
8.4 Behaviour on softening (Type 1).....	10
8.4.1 Principle.....	10
8.4.2 Apparatus.....	11
8.4.3 Procedure.....	11
8.5 Appearance after flaming (Type 2).....	11
8.5.1 Principle.....	11
8.5.2 Procedure.....	11
8.6 Behaviour on softening (Type 2).....	11
8.6.1 Principle.....	11
8.6.2 Apparatus.....	11
8.6.3 Procedure.....	11
8.7 Residue on artificial teeth and behaviour of wax colouring material (Type 2).....	12
8.7.1 Principle.....	12
8.7.2 Apparatus.....	12
8.7.3 Procedure.....	12
8.8 Adhesion on storage (Type 2).....	13
8.8.1 Principle.....	13

ISO/DIS 15854:2020(E)

8.8.2	Apparatus.....	13
8.8.3	Procedure.....	13
8.9	Residue on ignition (Type 1).....	14
8.9.1	Principle.....	14
8.9.2	Apparatus.....	14
8.10	Procedure.....	14
8.10.1	Expression of results and evaluation.....	15
9	Marking and packaging.....	15
9.1	Marking.....	15
9.2	Packaging.....	15
10	Test report.....	15
Annex A (informative) Determination of the melting point of wax.....		17
Bibliography.....		19

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 15854:2021

<https://standards.iteh.ai/catalog/standards/sist/e02aa68e-4d6d-4fe6-8db4-c659768bc10d/sist-en-iso-15854-2021>

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15854 was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 2, *Prosthetic materials*.

This second edition cancels and replaces ISO 15854:2005, which has been revised technically throughout.

The principal modifications are:

- the requirement for separating paper for baseplate wax sheets,
- the statement of the requirement for residue on ignition for casting wax,
- the mass of wax used for the residue on ignition test has been increased to 10 g,
- the use of a mandrel for the delamination test,
- the clarification of procedural detail in most tests,
- the specification of the content of the required report.

This document does not apply to waxes supplied for use in 3D-printing or CAD/CAM procedures of any kind. These may be addressed in future work.

ISO/DIS 15854:2020(E)**Introduction**

This International Standard does not include specific and quantitative requirements for freedom from biological hazards. It is recommended that, in assessing possible biological or toxicological hazards, reference be made to ISO 7405 and ISO 10993-1 (see Bibliography).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 15854:2021

<https://standards.iteh.ai/catalog/standards/sist/e02aa68e-4d6d-4fe6-8db4-c659768bc10d/sist-en-iso-15854-2021>

Dentistry — Casting and baseplate waxes

1 Scope

This document is applicable to waxes used for dental casting and dental baseplates. It specifies the classification of, and requirements for such waxes together with the test methods to be employed to determine compliance with these requirements. It does not apply to waxes supplied for 3D-printing or CAD/CAM-based procedures.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for the application 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 8601:2004, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 1942:2009, *Dentistry — Vocabulary*

ISO 6873:2013, *Dentistry — Gypsum products*

ISO 22112:2017, *Dentistry — Artificial teeth for dental prostheses*

3 Terms and definitions

ISO and IEC maintains terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

For the purposes of this document, the terms and definitions given in ISO 1942 and the following apply.

3.1

casting wax

mouldable material with minimal residue on ignition suitable primarily for shaping patterns in the production of cast restorations using the “lost-wax” technique

3.2

baseplate wax

mouldable material primarily for forming occlusion rims, positioning and retaining artificial teeth therein, and shaping patterns that will be duplicated in denture base polymer

3.3

melting point

temperature above which no solid material exists at equilibrium

Note 1 to entry: Note to entry: For the practical purposes of this document, the melting point and freezing point shall be considered as being the same.

ISO/DIS 15854:2020(E)

4 Classification

Dental waxes covered by this document are classified according to the flow characteristics that represent their hardness, as follows:

a) **Type 1** (casting wax):

- 1) **Class 1** Soft
- 2) **Class 2** Hard

b) **Type 2** (baseplate wax):

- 1) **Class 1** Soft
- 2) **Class 2** Hard
- 3) **Class 3** Extra hard

5 Requirements

5.1 Appearance

The wax shall be uniform in colour, supplied in pieces of uniform size, of smooth texture and free of foreign materials. Test in accordance with [8.1](#).

5.2 Flow

The wax when tested in accordance with [8.2](#) shall have flow values complying with the appropriate requirements in [Table 1](#).

5.3 Behaviour on trimming

The wax shall be capable of being trimmed without chipping, flaking, or other undesirable behaviour when tested in accordance with [8.3](#).

5.4 Behaviour on softening (Type 1)

The wax shall soften without flaking or crumbling and shall cohere readily when tested in accordance with [8.4](#).

5.5 Appearance after flaming (Type 2)

The wax shall present a smooth glossy surface when tested in accordance with [8.5](#).

Table 1 — Flow requirements / %

Temperature / °C	Type 1 Casting wax				Type 2 Baseplate wax					
	Class 1		Class 2		Class 1		Class 2		Class 3	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
23,0 ± 0,2	—	—	—	—	—	1,0	—	0,6	—	0,2
30,0 ± 0,2	—	1,0	—	—	—	—	—	—	—	—
37,0 ± 0,1	—	—	—	1,0	5,0	90,0	—	10,0	—	1,2
40,0 ± 0,1	50,0	—	—	20,0	—	—	—	—	—	—
— not required										

Table 1 (continued)

Temperature / °C	Type 1 Casting wax				Type 2 Baseplate wax					
	Class 1		Class 2		Class 1		Class 2		Class 3	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
45,0 ± 0,1	70,0	90,0	70,0	90,0	—	—	50,0	90,0	5,0	50,0
— not required										

5.6 Behaviour on softening (Type 2)

The wax shall soften without becoming sticky or crumbly and shall be mouldable without breaking or delaminating when tested in accordance with 8.6.

This requirement shall not apply to baseplate preforms where a suitable square test piece cannot be cut.

5.7 Residue on artificial teeth (Type 2)

The wax shall not leave a visible residue on either ceramic or synthetic polymer teeth when tested in accordance with 8.7.

5.8 Behaviour of colouring material (Type 2)

The colouring material shall neither separate from the wax nor impregnate the gypsum mould when tested in accordance with 8.7.

5.9 Adhesion on storage (Type 2)

Adhesion due to storage of the wax shall be such that, when tested in accordance with 8.8, there shall be no evidence of damage to wax surfaces. Wax and separating paper surfaces shall separate cleanly and readily.

NOTE The separating paper might not cover the whole area of the wax sheet.

5.10 Residue on ignition (Type 1)

If the manufacturer does not state a value for the residue on ignition, the value as determined in accordance with 8.9 shall be no greater than 0,10 % by mass.

If the residue on ignition is greater than 0,10 % by mass, this value shall be stated by the manufacturer and the value as determined in accordance with 8.9 shall be not more than 20 % greater than that stated value.

5.11 Biocompatibility

See ISO 7405 and ISO 10993-1 for guidance on compatibility in respect of waxes that are offered for use in the mouth or that are not specifically excluded from that application.

6 Sampling

The amount of material procured for testing shall be at least 250 g for Type 1, or 500 g for Type 2, and from one batch, and one packet where possible. This material shall be obtained on the open market unannounced and thus taken randomly from stock.