

<b>STN</b>	<b>Stomatológia</b> <b>Frézovateľné bloky z kompozitu na báze</b> <b>polyméru (ISO 5139: 2023)</b>	<b>STN</b> <b>EN ISO 5139</b>  85 6407
------------	--	---

Dentistry - Polymer-based composite machinable blanks (ISO 5139:2023)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/23

Obsahuje: EN ISO 5139:2023, ISO 5139:2023

**137156**



EUROPEAN STANDARD

EN ISO 5139

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2023

ICS 11.060.10

English Version

## Dentistry - Polymer-based composite machinable blanks (ISO 5139:2023)

Médecine bucco-dentaire - Ébauches usinables en composite à base de polymères (ISO 5139:2023)

Zahnheilkunde - Maschinell bearbeitbare Rohlinge aus Kompositen auf Polymerbasis (ISO 5139:2023)

This European Standard was approved by CEN on 18 April 2023.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

**EN ISO 5139:2023 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

This document (EN ISO 5139:2023) has been prepared by Technical Committee ISO/TC 106 "Dentistry" in collaboration with Technical Committee CEN/TC 55 "Dentistry" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2023, and conflicting national standards shall be withdrawn at the latest by November 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## **Endorsement notice**

The text of ISO 5139:2023 has been approved by CEN as EN ISO 5139:2023 without any modification.

INTERNATIONAL  
STANDARD

ISO  
5139

First edition  
2023-05

---

---

**Dentistry — Polymer-based composite  
machinable blanks**

*Médecine bucco-dentaire — Ébauches usinables en composite à base  
de polymères*



Reference number  
ISO 5139:2023(E)

© ISO 2023

**ISO 5139:2023(E)****COPYRIGHT PROTECTED DOCUMENT**

© ISO 2023

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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Characteristics</b> .....	<b>2</b>
4.1 Requirement.....	2
4.2 Recommendations.....	2
4.2.1 Machining damage.....	2
4.2.2 Machinability.....	2
4.2.3 Bonding properties between blank and holding jig.....	2
<b>5 Sampling</b> .....	<b>2</b>
<b>6 Test methods</b> .....	<b>2</b>
6.1 General.....	2
6.2 Size of blanks.....	2
6.2.1 Apparatus.....	2
6.2.2 Procedure.....	2
6.3 Machining damage.....	3
6.3.1 General.....	3
6.3.2 Apparatus.....	3
6.3.3 Water.....	3
6.3.4 Preparation of test specimens.....	3
6.3.5 Procedure.....	4
6.3.6 Expression of results.....	4
<b>7 Packaging and labelling</b> .....	<b>5</b>
7.1 Packaging.....	5
7.2 Labelling.....	5
7.2.1 General.....	5
7.2.2 Labelling of outer pack.....	6
7.2.3 Labelling of polymer-based composite machinable blank.....	6
<b>8 Instructions for use</b> .....	<b>6</b>
<b>Annex A (informative) Preparation method of control specimen for flexural strength</b> .....	<b>8</b>
<b>Annex B (informative) Milling design of test specimen for machining damage</b> .....	<b>13</b>
<b>Annex C (informative) Test method to determine the bonding properties between blank and holding jig</b> .....	<b>14</b>
<b>Bibliography</b> .....	<b>18</b>

## ISO 5139:2023(E)

### 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](http://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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 106, *Dentistry*, Subcommittee SC 9, *Dental CAD/CAM systems*, 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).

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](http://www.iso.org/members.html).



## Introduction

Specific qualitative and quantitative test methods for demonstrating freedom from unacceptable biological hazards are not included in this document, but it is recommended that, for the assessment of possible biological hazards, reference should be made to ISO 10993-1 and ISO 7405.

Requirements for the materials properties of polymer-based composite machinable blanks are not included in this document, but these requirements will be included in a future edition of ISO 10477.

The test method to determine the bonding properties between blank and holding jig is not included in this document, but it is recommended to adopt the test procedure given in [Annex C](#) when measuring the bonding properties between blank and holding jig.

# Dentistry — Polymer-based composite machinable blanks

## 1 Scope

This document specifies the characteristics of polymer-based composite machinable blanks with respect to the milling process and provides the test methods that address the clinical issues specific to those materials. In addition, this document specifies the items to be described on the packaging and materials, as well as descriptions to be included in the instructions for use.

The polymer-based composite machinable blanks covered in this document are blanks that are used for fabricating permanent dental restorative appliances (e.g. single crowns or inlays) by milling processes. They do not include large-sized blanks (e.g. discs) that allow for the fabrication of two or more units of crowns or bridges from one blank or materials for temporary use.

## 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 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 4049:2019, *Dentistry — Polymer-based restorative materials*

ISO 6344-3, *Coated abrasives — Determination and designation of grain size distribution — Part 3: Microgrit sizes P240 to P5000*

ISO 6872:2015, *Dentistry — Ceramic materials*

ISO 8601-1, *Date and time — Representations for information interchange — Part 1: Basic rules*

ISO 18675:2022, *Dentistry — Machinable ceramic blanks*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**