
Zobozdravstvo - Osnovni polimeri - 1. del: Osnovni polimeri za proteze (ISO/DIS 20795-1:2026)

Dentistry - Base polymers - Part 1: Denture base polymers (ISO/DIS 20795-1:2026)

Zahnheilkunde - Kunststoffe - Teil 1: Prothesenkunststoffe (ISO/DIS 20795-1:2026)

Médecine bucco-dentaire - Polymères de base - Partie 1: Polymères pour base de prothèses dentaires (ISO/DIS 20795-1:2026)

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DRAFT International Standard

ISO/DIS 20795-1

Dentistry — Base polymers — Part 1: Denture base polymers

*Médecine bucco-dentaire — Polymères de base —
Partie 1: Polymères pour base de prothèses dentaires*

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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.

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

This third edition cancels and replaces the second edition (ISO 20795-1:2013), which has been technically revised.

The following main changes have been made to the document:

- Updated Scope, Terms and definitions, and Classification for the inclusion of additively and subtractively manufactured materials
- Addition of [Annex B](#), where preparation procedures are extracted from previous main document and added for new types/classes
- Introduction of ISO TS 19736 as supplemental method for evaluation of bonding to synthetic teeth
-

ISO 20795 consists of the following parts, under the general title *Dentistry — Base polymers*:

- *Part 1: Denture base polymers*
- *Part 2: Orthodontic base polymers*

ISO/DIS 20795-1:2026(en)**Introduction**

Since the first editions of this standard, many developments have been made concerning materials used for the denture bases as well as for the technical processing of these materials. This revision of the standard was started with the aim to include, in more clarity, some new materials and processing techniques, in particular CAD-CAM using additive manufacturing (e.g. vat photopolymerization) and subtractive manufacturing (automated milling). Softer or more elastic thermoplastic materials (e.g. polyamide) are neither specifically included nor excluded from this document.

Specific qualitative and quantitative requirements for freedom from biological hazard are not included in this document, but it is recommended that, in assessing possible biological or toxicological hazards, reference be made to ISO 10993-1 and ISO 7405.

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Dentistry — Base polymers —

Part 1: Denture base polymers

1 Scope

1.1 This document classifies denture base polymers, including materials for additive and subtractive manufacturing, and specifies their requirements. It also specifies the test methods to be used in determining compliance with these requirements. It further specifies requirements with respect to packaging and marking the products and to the instructions to be supplied for use of these materials. Furthermore, it applies to denture base polymers for which the manufacturer claims that the material has improved impact resistance. It also specifies the respective requirement and the test method to be used.

1.2 Although this document does not require manufacturers to declare details of the composition, attention is drawn to the fact that some national or international authorities require such details to be provided.

NOTE This document does not address possible biological hazards associated with the materials. Assessment of these hazards is addressed in ISO 7405 and the ISO 10993 series.

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 463, *Geometrical Product Specifications (GPS) — Dimensional measuring equipment — Design and metrological characteristics of mechanical dial gauges*

ISO 1942, *Dentistry — Vocabulary*

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

ISO 6344-2, *Coated abrasives — Determination and designation of grain size distribution — Part 2: Macrogrit sizes P12 to P220*

ISO 6344-3, *Coated abrasives — Determination and designation of grain size distribution — Part 3: Microgrit sizes P240 to P5 000*

ISO 7491, *Dental materials — Determination of colour stability*

ISO 8601-1:2019, *Date and time — Representations for information interchange — Part 1: Basic rules*

ISO 15223-1:2021, *Medical devices — Symbols to be used with information to be supplied by the manufacturer — Part 1: General requirements*

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

ISO/TS 19736:2017, *Dentistry — Bonding test between polymer teeth and denture base materials*

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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

materials for additive manufacturing

polymer-based materials, with or without fillers, for production of denture base by additive manufacturing

3.2

3D printing

fabrication of objects by vat polymerization or through the deposition of a material using a print head, nozzle or another printer technology

[SOURCE: ISO/ASTM 52900:2021, 3.3.1, modified – addition of vat polymerization]

Note 1 to entry: This term is often used in a non-technical context synonymously with *additive manufacturing* (3.3) and, in these cases, typically associated with machines used for non-industrial purposes including personal use.

3.3

additive manufacturing (AM)

process of joining materials to make dentures from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing and formative manufacturing methodologies

[SOURCE: ISO/ASTM 52900:2021, 3.1.2, modified - Note 1 and Note 2 to entry have been deleted.]

3.4

autopolymerizable materials

products having polymerization initiated by chemical means and not requiring application of temperatures above 65 °C nor any other energy source to complete the polymerization

3.5

capsulated material

material consisting of two or more components supplied in a container that keeps them separated until the time they are mixed together and dispensed for use directly from the container

3.6

curing

changing of the physical properties of a material by means of a chemical reaction

[SOURCE: ISO/ASTM 52900:2021, 3.6.9, modified – from “cure” to “curing”]

Note 1 to entry: One of the most important curing operations in additive manufacturing is the changing of a polymer resin from liquid to solid by light-activated cross-linking of molecule chains.

3.7

denture

dental device replacing one or more missing teeth and, if required, associated anatomical structures

[SOURCE: ISO 1942:2020, 3.3.1.19]

3.8

denture base

that part of a denture which rests on soft tissue foundations and to which artificial teeth are added

ISO/DIS 20795-1:2026(en)**3.9****denture base disc or blank**

pre-cured polymer-based materials, with or without fillers, delivered as discs or blocks, intended for production of denture base by subtractive manufacturing

3.10**feedstock**

bulk raw material supplied to the additive manufacturing building process

[SOURCE: ISO/ASTM 52900:2021, 3.6.5]

3.11**final packing time**

last time, after achievement of the initial packing time, at which a denture base material mixture retains packing consistency

3.12**heat-polymerizable materials**

products requiring application of temperatures above 65 °C to complete polymerization

3.13**immediate container**

container that is in direct contact with the denture base materials

3.14**initial packing time**

time after mixing, or other preparation, when a denture base material mixture first reaches packing consistency

3.15**liquid**

monomeric liquid to be mixed with polymeric particles to form a mouldable dough or fluid resin mixture used for forming denture bases

3.16**outer packaging**

labelled container or wrapping within which other containers are packed

3.17**packing**

<of a denture> act of filling a denture base mould with a material (using a compression, pour, or injection technique) to form a denture base

3.18**post-processing**

process steps, or series of process steps, taken after the completion of an *additive manufacturing build cycle* in order to achieve the desired properties in the final product

[SOURCE: ISO/ASTM 52900:2021, 3.6.10]

3.19**powder**

polymeric particles to be mixed with monomeric liquid to form a mouldable dough or fluid resin mixture used for forming denture bases, i.e. the powder & liquid-technique

3.20**processing**

complete procedure of preparing a solid denture base polymer plate and/or specimen

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3.21

subtractive manufacturing

process of machining, grinding, or reducing a larger bulk object to create a smaller detailed three-dimensional object using computer aided design software and computer aided manufacturing methods

[SOURCE: ISO 23704-1:2022, 3.1.29]

3.22

thermoplastic

characteristic of a hard polymeric material that allows it to be softened by application of heat to make it mouldable, and then return to the hardened state upon cooling

3.23

translucency

capacity of a body of material to allow the passage of light, yet diffusing the light so as not to render objects lying beyond the body clearly visible

3.24

vat photopolymerization

additive manufacturing process in which liquid photopolymer in a vat is selectively cured by light-activated polymerization

[SOURCE: ISO/ASTM 52900:2021, 3.6.7]

4 Classification

Denture base polymers covered by this document are categorized into the following types and classes:

- Type 1: Heat-polymerizable materials
 - Class 1: Powder and liquid
 - Class 2: Premixed paste-like materials
- Type 2: Autopolymerizable materials

NOTE Autopolymerizable materials can be powder and liquid for packing technique, and powder and liquid for pouring or injection technique

- Type 3: Thermoplastic materials

NOTE Thermoplastic materials can be delivered as thermoformable plates, pellets for injection or filaments for additive manufacturing.

- Type 4: Photo-activated materials
 - Class 1: Paste-like materials
 - Class 2: Materials for additive manufacturing
- Type 5: Microwave cured materials
- Type 6: Materials for subtractive manufacturing

5 Requirements

5.1 Unpolymerized material

5.1.1 Liquid component, Type 1 and 2

The liquid shall be free of deposit or sediment that can be observed by visual inspection (see [8.1.1](#)).