

# Dental waxes

Waxes are classified as modeling materials, they are used to create a model of future replacements and auxiliary operations in the dental laboratory and surgery.

## Basic components of dental waxes

Exclusively mixtures of individual waxes are used. In addition to its own waxes, the mixture contains types of oils, fatty acids, synthetic and natural resins and dyes. According to their origin, waxes can be divided into **natural** and **synthetic**.

### Natural waxes[edit | edit source]

- **Animal:** lanolin, shellac wax, beeswax.
- **Vegetable:** candelilla, carnauba wax.
- **Mineral:** cerezin, montane wax, ozokerite, paraffin.<sup>[1]</sup>

**Paraffin:** forms the basic component of most dental waxes, melts in the range of 40-70 ° C, after solidification it is characterized by a large contraction between 10-15%, for this reason other types of waxes are added to improve the properties

**Ozokerite, cerezin:** increase melting point

**Candelilla, carnauba wax, montane wax:** increase melting point and hardness in the mixture

**Beeswax:** softens mixtures and increases their stickiness

### Synthetic waxes

We use mainly because of the knowledge of the exact composition and thus the immutable properties:

- **Paraffined**
- **Polyethylene**
- **Polyglycol**

### Resin

- **Natural:** increase the hardness of waxes.
- **Synthetic:** increase the rigidity of waxes.

### Oil

- They reduce the melting point in the mixture.

## Dental types of waxes

### Casting wax

- **Type I.** The softest consistency, used for functional adjustments of individual impression buckets.
- **Type II.** Medium consistency, so-called winter wax – suitable for working in colder environments.
- **Type III.** Stiffer consistency, so-called summer wax – suitable for work in warmer environments.

Use: Modelling of bases of removable dentures, auxiliary work in the laboratory – bite moulds, bite imprints, framing of imprints. Representative: *Ceradent* – pink wax plates 1.5 mm high, trapezoidal sticks 1.5 cm high.

### Casting wax

It is necessary to seal the waxes as soon as possible.

- **Type I.** Inlay wax, for direct use technique – making root inlays directly in the oral cavity. It should be easily coolable and removable from the oral cavity at 37 °C. Representative: *Cerin* – sticks, lancets.
- **Type II.** For indirect technology – i.e. exclusively in the laboratory. Produced in the forms of thin foils with a thickness of 0.15-0.50 mm, sticks, sticks, lancets, filled containers. Usually in dark colors.

1. **Foil casting waxes** : plain or rasterized foils.
2. **Cervical waxes:** very hard waxes, used to model the neck parts of fixed prostheses.
3. **Crown waxes:** for modelling tooth crowns.
4. **Immersion waxes:** designed to create the base layer of the model – the so-called droplets. They get into a



Modification of the wax model of the total denture

plastic state in electric wax heaters.

5. **Waxes for staking technology**: produced in the form of stirrups and cones, connecting wax from the same manufacturer is used for modelling replacements.

## Wax prefabs

Designed for removable prosthetics and fixed prosthetics.

- **Removable prosthetics** – in the shape of rods, inserts, strips or directly structural elements of restorations, they are slightly sticky for better adaptation to the casting model.
- **Fixed prosthetics** – stiffer, less sticky. They have the shape of a chewing surface, a full-shell crown, a frame, an intermediate for fixed bridges. Casting wax of the same composition is used for modelling.

## Adhesive wax

For gluing broken resin parts of restorations, before soldering metal parts of restorations. Very sticky due to its composition: 1 part beeswax or paraffin and 3 parts rosin. After solidification, it turns into a very hard mass. Representative: *Tenit* – sticks of dark color.

## Other types of waxes

1. **Covering waxes**: to cover sub-skeletons of working models, then they are modified in parallelometer.
2. **Impression waxes**: for imprints of total substitutes, for the treatment of individual impression plates. In three consistencies, they are used as classic silicone materials – **type I and II** for mucostatic imprints, **type III** for myodynamic imprints.
3. **Waxes for laboratory framing of imprints.**
4. **Wax casting pins.**

## Links

### Related articles

- Modeling materials

### References

1. BITTNER, Jiří. *Protetická technologie pro střední zdravotnické školy obor zubní technik*. 1. edition. Praha : Scientia Medica, 2001. 96 pp. pp. 61-69. ISBN 80-85526-77-8.

### Literature

- DOSTÁLOVÁ, Tatjana. *Fixní a snímatelná protetika*. 1. edition. Praha : Grada Publishing, a.s, 2004. 220 pp. pp. 78. ISBN 80-247-0655-5.
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- BITTNER, Jiří. *Technologie pro zubní laboranty*. 1. edition. Praha : Avicenum, 1979. 276 pp. pp. 100-113. ISBN 08-012-79.