Plastics in prosthetics

Plastics are the main **prosthetic materials** used for **fixed and removable** prosthetics. Plastics used in prosthetics are composed of a number of macromolecules. Macromolecular substances are formed **by three basic reactions:**

- polyadicí,
- polykondenzací
- polymerací

Plastics can be after processing:

- rigid
- temporarily flexible
- permanently flexible

Representatives

1. **Methacrylate** – usually supplied in the form of a liquid and powder, the base is a bubble polymer, fluids contain monomeric methacrylate, other important components are initiators and stabilizers of the reaction and pigments. The polymerization reaction is exothermic, it can be started by heating, using chemical initiators, irradiation with light or using microwaves.
2. **Polyamides** – suitable use, for example, for the preparation of total replacement bases in patients with methacrylate allergy.
3. **Silicones** – mainly used for underlaying plate prostheses.
4. **Epimine resins** – making protective crowns and bridges by the die method.

Methacrylates are the longest used. Most often methyl methacrylates (MMA), which are divided into crown and basal. **MMA** is characterized by easy laboratory processing, satisfactory mechanical properties and stability in the oral cavity.

According to the method of formation, they are divided into pressing, freely modelable and casting.

According to the type of polymerization, we distinguish:

  - light-curing
  - chemically
  - Heat
  - microwave polymerization

- **Heat-curing plastics**
  - special water or steam bath
  - Crown and basal plastics
- **Chemically solidifying plastics (=self-polymerising plastics)**
  - radikálová polymerace
  - repairs - cracked removable prosthesis, fallen facet
- **Light curing plastics**
  - crown plastics
  - auxiliary plastics (individual impression buckets)

Disadvantages

-
  - Their polymerization is accompanied by polymerization shrinkage and the resulting polymer has a considerable coefficient of thermal expansion.
  - Alcohol and some disinfectants can disrupt the surface of this material.
  - After the elimination of the monomer in incomplete polymerization, porosity of the material may occur.
  - To ensure the resistance of the substitute, it is necessary to keep the prescribed ratio of powder and liquid, slow cooling of the finished denture and storage of the denture in water.