



Ceramic Materials

Type of attachment

1. Dense, nonporous, nearly inert ceramics attach by bone growth into surface irregularities by cementing the device into the tissue or by press-fitting into a defect (termed „morphological fixation“)
2. For porous inert implants, bone ingrowth occurs that mechanically attaches the bone to the material (termed „biological fixation“)
3. Dense, nonporous surface-reactive ceramics, glasses and glass-ceramics attach directly by chemical bonding with the bone (termed „chemical fixation“)
4. Dense, nonporous (or porous) bioactive ceramics are designed to be replaced by bone

Example

- Al_2O_3 Single crystal and polycrystalline
- Al_2O_3 (Polycrystalline) Hydroxyapatite-coated porous metals
- Bioactive glasses Bioactive glass-ceramics Hydroxyapatite
- Calcium sulfate (Plaster of Paris) Tricalcium phosphate Calcium-phosphate salts



White
-ve
AMICS
bio
resorbable
give
 Al_2O_3 ZrO_2
POP; HAP
ceramics | Bioglass (W) Hark
Bokros high blood comp.