

## CHAPTER 5

### CONCLUSIONS

- (1). Hydroxyapatite (MP, TP and CHA) can be fabricated into porous ceramics which pores were replicated from natural cellulose sponge or polyurethane foam. The one replicated from polyurethane foam had uniform pore distribution with pore sizes ranging from 270–1070  $\mu\text{m}$  depend on type of hydroxyapatite. The other one replicated from cellulose sponge had larger pores size range from 440–2050  $\mu\text{m}$ .
- (2). The porosity of specimens depended on viscosity of hydroxy apatite slips and type of supporter (sponge / foam). All specimens had porosity range from 36–66% porosity.
- (3). Compressive strength of specimens replicated from polyurethane was maximum in MP 70% ( $19\pm 0.42$  MPa). This result may come from calcium metaphosphate glasses adding to improve strength of specimens. m But for TP and CHA, CHA had higher compressive strength ( $8.24\pm 0.22$  MPa) than TP. Owing to viscosity of CHA slip, it was higher in solid content than that of TP. All specimens contained hydroxyapatite having impurities with in the limitation of ASTM 1185–88 in Appendix G.
- (4). Porous hydroxyapatite specimens replicated from polyurethane foam had the interesting characteristics such as uniform pore distribution and the better compressive strength than those replicated from cellulose sponge. But during the fabricated process, in burnt out of polyurethane foam at high temperature

generate the dust. Polyurethane dust irritates eyes and linings of the nose and throat and may also effect the lungs. Ventilation dust masks and eye protection are recommended in fabrication operation. In addition, inhalation of thermal decomposition product of polyurethane should be avoided because carbon monoxide and hydrogen cyanide are among the many product presented.



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