

Chapter 5

Conclusion

1. Mullite can be synthesized from silica from treated rice husk using chemical and by proprietary method and alumina from commercial and also alumina from waste of other industry. Mullitization temperature is almost completed ~ 1450 °C for 3 h. It is lower than other raw materials in the past experiment for conventional mullite,
2. The mixture of rice husk silica and A-21 alumina can be sintered to high density ($\sim 98\%$) at 1700 °C. On the other hand the mixture of rice husk silica and alumina from waste can be densified $>90\%$ at 1600 °C, but can not reach full density at 1700 °C,
3. Formula 1-U-G can be used to produce porous mullite ceramic with the lowest cost in this experiment, because it is derived from SiO_2 -U (silica from untreated rice husk) and calcined alumina from gibbsite waste,
4. The microstructure of each formula is different and depends on starting materials utilized. The glassy phase between grain boundaries causes different grain shapes due to the different of surface energy while sintering.