

CHAPTER VI

CONCLUSION AND RECOMMENDATION

This chapter is divided into two sections. The first section, section 6.1, concerns about the conclusion of this thesis. The second section, section 6.2, concerns about the recommendation about the future works.

6.1 Conclusion

The reaction of AIP and TEOS in toluene gave products having the χ -alumina structure. These products were not transformation to be another phase except α phase. When water was added in the gap between the beaker and the autoclave wall the product as it was the structure of boehmite as was the product synthesized in 1-butanol. When temperature rose water in the gap evaporated and then dissolved in toluene. AIP was hydrolyzed by this water. In 1-butanol when temperature rose, 1-butanol was dehydrated and gave water hydrolyzing AIP. The BET surface area depended on the structure of the product. The products prepared in toluene had the highest surface area at AIP/TEOS weight ratios = 15, but the products prepared in 1-butanol had the highest surface area at AIP/TEOS weight ratios = 8. Because a limited amount of silicon atoms can be homogeneously incorporated in the aluminum matrix, the results indicated when the products had the boehmite structure, aluminas obtained thereof could incorporated larger amount of silica than aluminas obtained from χ -alumina could. The particle shape of products depended on the mechanism of the reaction. The spherical particle occurred from the thermal decomposition of the aluminum alkoxide. In the other hands, the hydrolysis of AIP gave the wrinkle sheets product. BAS8 had the highest thermal stability. It had high surface are of 169 m²/g even after calcination at 1150 °C

6.2 Recommendation

From the previous conclusions, the following recommendation for future studies can be proposed

1. For the one-pot synthesis, it will be interesting to use this method in the another synthesis of metal oxide such as TiO_2 , SiO_2 and MgO_2 etc. Because it's a method having the preparation and separation in one reactor, therefore this method can be used in real processing.

2. It's will be interesting to use 2-propanol in the synthesis of silica-modified aluminas because 2-propanol can dehydrated to give more water than 1-butanol. And find the optimum point of the silicon contents in this preparation. From the experiment 2-propanol can be dehydrated and give more water than 1-butanol using in this thesis.