

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The conclusions of the present research are the following:

1. Physical properties and thermal stability of titanium (IV) oxide can be controlled by the reaction of crystallite formation besides reaction conditions and strengthen of the alkyl group of the metal alkoxides.

2. The reaction of crystallite formation occurred rapidly, the crystallization of products occurred rapidly too, therefore as-synthesized products were well-crystallized anatase and have high thermal stability.

3. Thermal stability of titanium (IV) oxide can improve by the addition of amount of TEOS in reaction mixture, however the increase of TEOS content in reaction mixture yield to trend amorphous phase instead of anatase titanium (IV) oxide

6.2 Recommendations for the future studies

From the previous conclusions, the following recommendations for the future studies are proposed.

1. Study about effect of reaction conditions and structure of starting material (titanium source) on the physical properties and thermal stability of titanium (IV) oxide.

2. The acid properties of the silica modified titanium (IV) oxide prepared in each organic solvent (1,4 butanediol, toluene and 2-propanol) is not examined in this study, therefore it will be interesting to investigate in the future works.

3. It will be interesting to study the use of the titanium (IV) oxide and silica modified titanium (IV) oxide obtained by these methods as catalyst support for the selective catalytic reduction (SCR) of NO_x with ammonia or the selective oxidation of hydrocarbons, or as photocatalysts for various reactions.