

CHAPTER V

CONCLUSIONS

The plateau region of the CTAB adsorption at neutral pH on Hi-Sil[®] 233, the precipitated silica, was measured and found the adsorption of 300 $\mu\text{moles/g}$ of silica and CMC of approximately 3000 μM . The region II and IV in the isotherm can support the believing that the admicelle aggregates are occurred. The maximum coverage of bonded monolayer of ODS to silica surface is slightly higher than that of CTAB. The interferences of phenol and TCE in adsorption of CTAB on silica were not found in this study.

To compare the adsolubilization properties between both bonded monolayer and admicelles, the polar molecule (phenol) has very high effect in adsolubilization constant. For nonpolar organic (TCE), it was found very slight effect on the adsolubilization constant for both forms of layer.

For the stability measurements, the very fast rate of ODS desorption was detected at high agitation speed (greater than 310 rpm) and high temperature (above 40 °C). The pH values were observed only a little effect on ODS desorption. In the stability demonstration, bonded ODS layer indicates that it takes long times (in 120 min.) to start desorbing.

The oxidation of ODS on silica surface by ozone increases with increasing in ozone concentration and ODS silica presents the satisfactory ozone resistance. Both types of oxidants of ozone at different pH values were found to have an insignificant effect on the oxidation of ODS silica surface.