Triethylene Diamine-Clay Complexes as Matrices for Adsorption and Catalytic Reactions*

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* Journal Article No. 7471. Michigan Agricultural Experiment Station. Work partially supported by National Science Foundation Grant No. MPS74-18201.

Abstract: Complexes of 1,4-diazabicyclo [2.2.2] octane (triethylene diamine) with smectite and vermiculite were made for the purpose of exposing the internal surfaces of the clays for adsorption of gases and possible catalytic activity. When the diprotonated form of the amine saturated the exchange sites, internal surfaces of the clays were found to be available to nitrogen, ethane, and 2,4-dimethyl pentane. Proton lability in the smectites was studied with NH_3, D_2O, and C_6D_6 experiments. Catalytic function was demonstrated in the conversion of acetonitrile to acetamide in the smectite.

Clays and Clay Minerals; April 1976 v. 24; no. 2; p. 60-63; DOI: 10.1346/CCMN.1976.0240202

Clay Minerals Society (www.clays.org)