A Study of the Characteristics of Clay-Natural Organic Matter Complexes Prepared Using Different Methods. (S09-foan180311-Poster)

Authors:

- E.J.Foan* - *Mississippi State University*
- W.L.Kingery - *Mississippi State University*

Abstract:

The binding of organic materials to soil mineral constituents is an integral part of the carbon cycle. The reactions and conditions that lead to the sequestration of organic carbon in the soil environment warrant detailed study in view of the importance of the flux of carbon in our eco-systems. Reactions between reference clay minerals and aqueous extractable soil organic matter fractions were carried out and the resultant complexes characterised. Infrared spectroscopy and X-ray diffractometry were employed to elucidate the types of interactions between the mineral and organic components. Specifically, the sites of interaction, in the interlayer space or on the external surfaces, were sought using XRD. The functional groups involved in the binding processes were identified using IR. The stability of the complexes in various aqueous media was also investigated to determine the ability of the minerals to retain carbon under different conditions.

Corresponding Author Information:

Edward Foan
Mississippi State University
Box 9555
Mississippi State, MS 39762

phone: 662-325-9490
fax: 662-325-8742
e-mail: efoan@pss.msstate.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 4:00-6:00 pm
Poster Board Number: 2137

Keywords:

clay-organic complex, binding mechanism, natural organic matter, clay properties