



Comparison of physiochemical treatment and petrographic methods to identify organic matter facies that control sorption in soils and sediments

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Identification of sorption environments and mechanisms is confounded by efforts to distinguish the types and amounts of different organic matter facies in soils and sediments. We evaluated two different approaches for their ability to distinguish organic matter facies following density separation. The first approach involved application of a series of physiochemical treatments including hydrochloric acid, hydrofluoric acid, sodium hydroxide, acid dichromate, and thermal oxidation. Limitations include loss of fines and sample alteration during treatment. The second approach involved identification of organic matter facies using petrographic analysis. Limitations include the presence of organic matter which is not amenable to visualization (e.g., fines, <1 micron). The types and amounts of organic matter facies determined from the two approaches will be presented, as well as the amount of two hydrophobic organic chemicals (polycyclic aromatic hydrocarbons and trichloroethene) in the different organic matter facies.