



Title: Appraisal of Thermal Properties of Mud in the Ariake Sea, Japan  
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Source: American J. of Environmental Sciences 4(2): 129-135 , 2008

Abstract: In order to explore the thermal properties of the Ariake Sea mud and to find out the affecting factors which affect these values, a portable thermal properties analyzer was used. Thermal conductivity, thermal resistivity, thermal diffusivity and volumetric heat capacity of the mud samples collected from both the tidal flat and inside the deep sea were measured in the laboratory. The thermal properties of mud collected from tidal flat showed a different trend from the mud collected from inside the sea due to the enough exposure to the sunlight and vigorous exchange of sea water in the tidal flat. Thermal conductivity of the Ariake mud was reduced 85-90% after it was oven dried and was increased up to 30% after the ignition loss test. Thermal resistivity of the Ariake mud increased dramatically after oven dried and it was less affected by the organic matter content. Thermal diffusivity was decreased 10-30% after oven dry however it increased up to 40% after the ignition loss test. The volumetric heat capacity of the Ariake mud was reduced up to 90% and increased 40% after the oven dry and ignition loss, respectively.