

Abstract Submitted
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Looking for Small Changes in Heat Capacity using Differential Scanning Calorimeter¹ WILL LINTHICUM, ANDREW LAUGHARN, SAMUEL AMANUEL, Union College — One of the major drawbacks of renewable energy is the lack of adequate and economical means of storage. In the case of concentrated solar power a large amount of thermal fluid is required to store a reasonable amount of energy to meet demands. This is primarily because the fluids tend to have a low specific heat capacity. Formulating composites of these fluids can enhance their specific heat capacity and avails opportunities to make concentrated solar power more attractive. Traditionally, the specific heat capacity of composite materials is computed from the weighted average of the individual heat capacities. This, however, does not take into account interfacial effects where the heat capacity could be different. Although, these changes in heat capacity may be small in traditional composites, they could be significant in the case of nanocomposites. From our phase transition studies of fluids confined in nano pores, we have demonstrated that the molecules at the interface have different thermodynamic behavior. In this presentation, we show our systematic studies and development of a baseline useful in evaluating small changes in heat capacity using a power compensated differential scanning calorimeter

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