STUDY OF THE SPECIFIC HEAT OF THERMAL PELOIDS DEPENDING ON WATER CONCENTRATION AND TEMPERATURE

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Thermal peloids [1] are heterogeneous mixtures formed of a solid mineral or organic component with mineral-medicinal water or seawater, for therapeutic or cosmetic uses [2,3]. Among the therapeutic uses, thermotherapy [4] stands out for the treatment of chronic diseases such as rheumatism [5].

The specific heat is one of the properties of great importance to define the suitability in thermotherapeutic applications [6].

Since the peloids are applied at different temperatures and have different water concentrations, the behavior of the heat capacity with water concentration and temperature is of interest.

In this work we study the specific heat of peloids that have already been defined in previous works [6-9]. The specific heat has been measured in a SETARAM calorimeter Calorimeter BT 2.15 with temperature control. This calorimeter has been previously adapted to measure the specific heat of liquid samples [10], is equipped with two stainless steel vessels with an internal volume of approximately 12 cm^3 and the temperature stability is ±0.01K. Mixtures were prepared by weight using an ACCULAB ALC-210.4 analytical balance. Specific heat measurements were made using the temperature scan mode between 293.15 and 317.15K, at atmospheric pressure.

The results show that the specificity increases at higher water concentrations and at slightly higher temperatures.

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