

Measurements of Constant Pressure Specific Heat Capacity of IAPSO Standard Seawater

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Caloric properties of seawater are much less measured compared to thermal properties. Among the caloric properties, speed of sound has been investigated more than specific heat capacity since it has direct applications in bathymetry and localization. Differently, a very limited number of experimental measurements of specific heat capacity is available today and their agreement spans over a range of ± 5 %. For this reason, constant pressure specific heat capacity of IAPWS standard seawater has been measured using a differential scanning calorimeter (DSC) where the reference crucible was filled with bi-distilled water. In this configuration, the specific heat capacity is determined with respect to that of fresh water, which is known with an uncertainty of 0.1 %, in the temperature range between 276 K and 353 K for practical salinity between 10 and 35.