



SOLUBILITY, DIFFUSIVITY, INTERFACIAL TENSION AND SPECIFIC VOLUME OF PCL/CO₂ SOLUTIONS

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In this paper we present a new methodology that allows for the simultaneous measurement of solubility, diffusivity, specific volume and interfacial tension of molten polymer/gas solutions. By coupling a gravimetric method with the Axisymmetric Drop Shape Analysis (ADSA), we were able to obtain these useful properties in a single experiment. In the present work, in particular, this coupling of the two techniques allows for the measure of the specific volume of molten polymer/gas solutions, a key property that is rarely measured and, conversely, is necessary for the accurate buoyancy correction, needed in both the gravimetric sorption experiment and in the ADSA. In this work, we present the advantages of this simultaneous and fully-empirical measure and report the results on molten poly(ϵ -caprolactone)/carbon dioxide solutions.