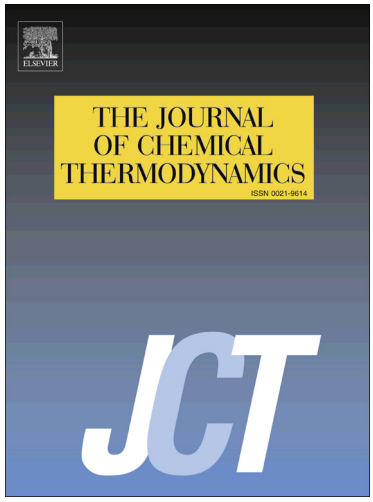

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Gerson A. Rodríguez, Fleming Martínez, Edgar F. Vargas

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Volumetric and acoustic properties of some sodium sulfonamides in dilute aqueous solutions at several temperatures

Gerson A. Rodríguez[a], Fleming Martínez[a], Edgar F. Vargas[b*]

[a] Grupo de Investigaciones Farmacéutico-Fisicoquímicas, Departamento de Farmacia, Facultad de Ciencias, Universidad Nacional de Colombia –Sede Bogotá, Cra. 30 No. 45-03, Bogotá D.C., Colombia.

[b] Grupo de Termodinámica de Soluciones, Departamento de Química, Facultad de Ciencias, Universidad de los Andes, Cra 1 No. 18A-12, Bogotá D.C., Colombia. * Corresponding author. Tel.: +571 3394949x3136; E-mail address: edvargas@uniandes.edu.co (E.F. Vargas).

Abstract

Densities and speed of sound of dilute aqueous solutions of three sodium sulfonamides structurally-related, namely, sodium sulfadiazine (NaSD), sodium sulfamerazine (NaSMR) and sodium sulfamethazine (NaSMT) were measured as a function of molal concentration at various temperatures (278.15 to 308.15) K. Standard molar quantities and related properties were calculated and the results were interpreted in terms of structural effects, and solute–solvent interactions. Results suggest that these sulfonamides are acting as structure makers of the water–structure.

Keywords: Sodium sulfonamides, apparent molar volume, molar expansibility, adiabatic compressibility, water-structure.

1. Introduction

Sulfonamides are drugs extensively used in the treatment of different infections caused by several Gram negative and Gram positive bacteria [1]. In addition, these types of molecules have shown different kind of activities such as diuretic, hypoglycemic and antitumoral