ENTHALPIC PAIR INTERACTION COEFFICIENTS BETWEEN AMINOPHOSPHONIC ACIDS IN WATER AND AQUEOUS UREA AT 298.15 K

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Aminophosphonic acids are analogs of natural aminoacids. Aminophosphonate molecule consists a constant group NH_2-CH_2-PO_3H_2 and vane side chains -R which shows different affinities to water and are partly responsible for hydrofobic –hydrofilic properties. The structural analogy of these compounds is due to diverse biochemical activity, displayed especially in agrochemistry – glyphosate (N-(phosphonomethyl)glycine) is one of the most popular herbicide. They compete to active centre of enzymes as result it can inhibit enzymes such as aminotransferases or proteases. Their variety applications include enzyme inhibitors, potent antibiotics, herbicydes, and also antitumor medicines. Aminophosphonates also occure in many living organisms, eg. bacteria, protozoa, inverbrates, sea anemones, mussels.

Thus is interesting to research interaction between these compounds and constituent organisms fluids, for example urea. Urea is used to produc-

tion of many fertilizers. its aqueous solutions are used as a protein denaturation factor and it is ingredient of cosmetic products.

In these studies solution enthalpies of series aminoalkanephosphonic acids (phosphonovaline and phosphononorvaline) and N-methyl derivatives (N-methyl-aminopropylphosphonic acid and N.N-dimethylaminopropylophosphonic acid) in water and aqueous urea in 298.15 K have been measured. Modified McMillan-Mayer theory allows use these data to calculate enthalpic heterogenous pair interaction coefficients of aminophosphonic acids – urea molecules.