Acta Chim. Slov. **1997**, *44*(3), pp. 261-271

INTERFERENCES BY MINERAL ACIDS IN INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROMETRY USING AN ULTRASONIC NEBULISER*

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ABSTRACT

The effect of hydrochloric and perchloric acid on analyte emission intensities of Ba, Mg and Zn as well as on excitation conditions in ICP and on analyte transport rates in ICP-AES using an ultrasonic nebuliser was studied. No significant changes in analyte transport rates or on Mg ionic to atomic line intensity ratios due to presence of acids was found. The intensity of each analyte emission line responded differently in the presence of hydrochloric or perchloric acid and was dependent on the instrumental operating conditions used. It has been shown that HCl and $HClO_4$ cause mostly depressant effects on the relative analyte emission intensities under various instrumental operating conditions. When introducing acid solutions no simple relationship between changes in analyte emission intensities and analyte transport rates or ionic to atomic line intensity ratios was observed.

Acta Chim. Slov. **1997**, *44*(3), pp. 273-287

TEMPERATURE DEPENDENCE OF THE VISCOSITY OF AQUEOUS SOLUTIONS OF PECTIC ACID AND ITS TETRA-n-ALKYLAMMONIUM SALTS

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ABSTRACT

The influence of the temperature on the viscosity of aqueous solutions of pectic acid, tetramethyl-, tetraethyl-, tetra-n-propyl- and tetra-n-butylammonium pectate was investigated and interpreted on the basis of the theory of rate processes. The activation parameters for viscous flow were obtained and are discussed with respect to the solute - solvent interactions.

Acta Chim. Slov. **1997**, *44*(3), pp. 289-301

THE ACTIVITY COEFFICIENT OF MAGNESIUM CHLORIDE IN (WATER + 1,4-DIOXANE) MIXTURES FROM VAPOUR PRESSURE MEASUREMENTS

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ABSTRACT

From accurate vapour pressure and vapour composition measurements the activity coefficients of magnesium chloride have been determined for five different compositions of the solvent at 25 °C. The same measurements have also been applied to evaluate the difference between the standard chemical potential of magnesium chloride in the mixed solvent and in water.

Acta Chim. Slov. **1997**, *44*(3), pp. 303-316

APPARENT MOLAR VOLUMES AND EXPANSIBILITIES OF SOME ALKYL ACETATES IN AQUEOUS SOLUTION

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ABSTRACT

The densities of aqueous solutions of methyl-, ethyl-, 1-propyl-, 1-butyl-, 2-methyl-1-propyl, 2-butyl- and 2-methyl-2-propyl-acetate were measured at 298,15 K. The apparent molar volumes of the solutes were calculated and their limiting values evaluated. The partial molar expansibilities of the solutes were calculated from the temperature dependence of the known partial molar volumes at infinite dilution. The excess molar volume and excess thermal expansion coefficient of the solute were derived and discussed on the basis of solute-solvent interactions. The volumetric virial coefficients of the McMillan-Mayer theory were estimated and explained in terms of a solvation model. In addition, the limiting partial molar volume of the solute was discussed in terms of the scaled particle theory.

Acta Chim. Slov. **1997**, *44*(3), pp. 317-325

SYNTHESES, CHARACTERIZATION AND CRYSTAL STRUCTURE OF $[MF_3py_3]$ (M=Ga, Cr; py = pyridine)

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ABSTRACT.- Mer-trifluorotris(pyridine)chromium(III) was prepared simply by refluxing of $CrF_3 \cdot 3.5H_2O$ in pyridine, while gallium trifluoride trihydrate could be dehydrated only by refluxing in tetrahydrofuran. Trifluorotris(pyridine)gallium(III) was prepared by recrystallisation of the anhydrous product from pyridine. Both compounds are isotypic and crystallize in orthorhombic Pbca space group. A unit cell contains eight $[MF_3py_3]$ octahedra. Each metal atom is coordinated octahedrally by three fluorine and three nitrogen atoms from pyridine, which are distributed in meridional mode. Infrared spectra and a study of thermal decomposition of the compounds are presented.

Acta Chim. Slov. **1997**, *44*(3), pp. 327-333

APPLICATION OF AN IMPROVED SIMPLIFIED SCHEME OF ATOM EQUIVALENTS TO CALCULATE HEATS OF FORMATION OF ALKENES

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Abstract: An improved simplified scheme of atom equivalents to calculate heats of formation is applied to a set of 35 alkenes. Theoretical results are compared with available experimental data and a satisfactory enough agreement is found. This finding makes up a valid support of the method and stimulates new applications for other different kind of molecules.

Acta Chim. Slov. **1997**, *44*(3), pp. 335-339

THERMAL WATER PURIFICATION

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ABSTRACT

The object of this article is the purifying of a special thermal water (TW) containing potentially toxic organic micropollutants like benzene, toluene, mesitylene and xylene which are of geogene origin. Although the use of granular activated carbon (GAC) adsorption is well known in potable water treatment, in industrial water polishing and waste water treatment, there is no information about its use for the purification of special TW. The results of our purification with GAC adsorption is a bathing water quality that corresponds to the requirements of DIN 19643. After this treatment TW reached the hygienic quality of drinking water and could be used for balneological purposes.

Acta Chim. Slov. **1997**, *44*(3), pp. 341-346

O NEKATERIH SPLOŠNIH VPRAŠANJIH SLOVENSKE KEMIJSKE NOMENKLATURE

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Pri pisanju ali prevajanju besedil s področja naravoslovja in tehnike človek včasih naleti na težave v zvezi s pisanjem občnih imen npr. ali pisati wurtzit ali vurcit, einsteinij ali ajnštajnij, newton ali njuten. Poleg tega se včasih pojavijo pomisleki jezikoslovcev - slovenistov v zvezi s pravili kemijske nomenklature, češ da ta niso vedno skladna z duhom slovenskega jezika. Pomanjkanje trdnih pravil se občuti tudi pri rabi in pisavi kratic za bolj zapletene kemijske spojine: ali kratice lahko slovenimo, npr. RNA v RNK?

Ime spojine mora biti pregledno, zato naj vsebuje le toliko podatkov, da lahko na njihovi osnovi napišemo kemijsko formulo spojine.