

## Fizička hemija / Physical Chemistry

## FH O 1

**Interakcije prelaznih metala sa *N*-metilformamidom kao model sistemom peptidne veze**

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Sintetisane su tri nove soli prelaznih metala u cilju proučavanja interakcija sa molekulom *N*-metilformamida (NMF), kao model sistemom peptidne veze. Da bi se izbegle sporedne interakcije između katjona i anjona komercijalno dostupnih soli i dobili relevantni podaci o njihovim interakcijama sa NMF, sintetisane su nove soli sa nekoordinišućim perhloratnim anjonom i NMF kao solvatom. Sintetisane soli su kobalt(II)-perhlorat  $\text{Co}(\text{ClO}_4)_2 \cdot 6\text{NMF}$ , nikal(II)-perhlorat  $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{NMF}$  i bakar(II)-perhlorat  $\text{Cu}(\text{ClO}_4)_2 \cdot 4\text{NMF}$ . Njihova struktura je potvrđena rentgeno-strukturnom analizom. Urađena su denzimetrijska, viskozimetrijska, konduktometrijska i spektrofotometrijska merenja rastvora soli u NMF, na temperaturi od 298,15 K i koncentracijama do 0,2 mol  $\text{dm}^{-3}$ . Spektrofotometrijski podaci, negativne vrednosti prividne molarne zapremine i visoke vrednosti *B*-koeficijenta *Jones-Dole*-ove jednačine ukazuju na snažne jon-dipol interakcije i formiranje kompleksa između molekula NMF i ispitivanih jona, čak i u prisustvu vode.

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**Interactions of transition metal ions with *N*-methylformamide as a peptide bond model system**

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The three newly synthesized transition metal salts were investigated in order to show the interactions between transition metal ions with *N*-methylformamide (NMF), as a peptide-bond model system. In order to eliminate additional interactions between the cations and anions from commercially available inorganic salts and to obtain the most relevant data for their interactions with NMF, new complex compounds with the *N*-methylformamide and non-coordinating perchlorate anion were synthesized and used for measurements. The salts that were studied are the following:  $\text{Co}(\text{ClO}_4)_2 \cdot 6\text{NMF}$ ,  $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{NMF}$  and  $\text{Cu}(\text{ClO}_4)_2 \cdot 4\text{NMF}$ . Their structure was confirmed by the X-ray crystallographic data analysis. Density, viscosity, electrical conductivity and spectrophotometric measurements of salt solution in NMF were performed at 298.15 K and in the concentration range from up to ~ 0.2 mol  $\text{dm}^{-3}$ . Spectrophotometric data, negative values of apparent molar volumes at infinite dilution of ions and high values of the *B*-coefficient of the *Jones-Dole* viscosity equation indicate strong ion-dipole interactions and the formation of complexes between NMF molecules and investigated ions, even in the presence of water.