

## IR STUDY OF METALLOTROPIC REARRANGEMENTS AND ION-PAIR INTERACTIONS IN CHROMIUM TRICARBONYL COMPLEXES WITH POLYCYCLIC AROMATIC LIGANDS

B. V. LOKSHIN, M. G. EZERNITSKAYA, V. A. MALTZEVA, *A.N.Nesmeyanov Institute of Organoelement Compounds, Russian Academy of Sciences, 28 Vavilova Str., 117813 Moscow, Russia*; Yu. F. OPRUNENKO and Yu. A. USTYNYUK, *Department of Chemistry, M.V.Lomonosov Moscow State University, 119899, Vorob'evy Gory, Moscow, Russia*.

Metallotropic rearrangements (intramolecular rearrangements involving the displacement of the transition metal atom) in chromium tricarbonyl  $\pi$ -complexes with polycyclic aromatic ligands were studied by FTIR spectroscopy. A novel  $\eta^6 \eta^5$  rearrangements have been found and studied for anions  $\eta^6$ -phenalenyl- (I) and  $\eta^6$ -(9- hydroanthracenyl) (II) tricarbonylchromium generated by deprotonation of corresponding neutral  $\eta^6$ -complexes with various bases (BuLi, Ph<sub>3</sub>P=CH<sub>2</sub>, proton sponges or t-BuOM, where M= K, Cs) at low temperatures. IR spectra in the  $\nu(\text{CO})$  range of the  $\eta^6$ - and  $\eta^5$ -anions with various counter-ions (Li<sup>+</sup>, K<sup>+</sup>, and Cs<sup>+</sup>) in THF and dimethoxyethane solutions and in the presence of the solvating additive, dibenzo-18-crown-6, in a temperature region between -70 to 20°C showed that anionic complexes exist in solution as tight and solvent separated ion pairs or as their equilibrium mixture. The factors that influence the ion-pair equilibrium (solvent, the excess of the base, temperature, the nature of the counter-ion) have been studied. The results are compared with the NMR data.. The work was supported by the Russian Foundation for Basic Research (grants 96-03-3241a and 96-03-34082a).