

Figure 6. Resonance structure of lactam monomeric group of a polyvinylpyrrolidone, where M is an atom of metal

For a surface study of the polymer-metal complexes of iron a method of the scanning electron microscopy was used (Fig. 7). The analysis of images confirms formation of polymeric films with cellular non-uniform amorphous structure.

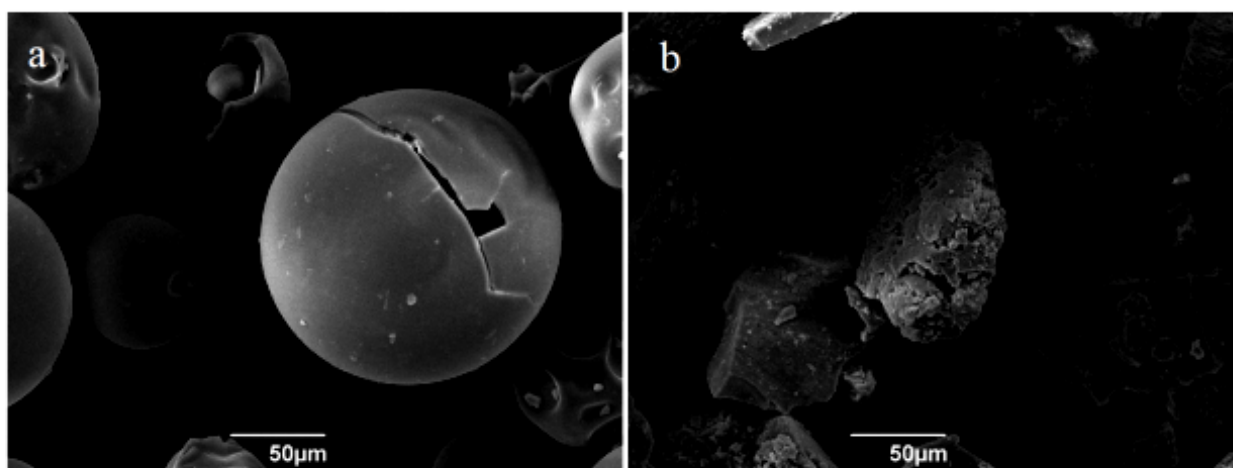


Figure 7. Images of PVP (a) and PVP-FeCl<sub>3</sub> (b) complex

### Conclusions

An iron-polymer complex  $[\text{Fe}(\text{PVP})_4(\text{H}_2\text{O})_2]\text{Cl}_3$  has been obtained from iron (III) chloride and polyvinylpyrrolidone (PVP). Using potentiometric and conductometric titration as well as IR spectroscopy, the structure of the polymeric complex was established and stability constants were calculated. Methods of an IR-spectroscopy and the scanning electron microscopy confirmed coordination of a polymeric ligand of PVP in a complex; the morphology and features of its surface were studied. It was established that atoms of oxygen of polymeric ligands shared in formation of a coordination bond with a metal ion. Results of an electron microscopy indicate amorphous structure of a complex.

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