

## ЛИТЕРАТУРА

- [1] Hu J.C., Cao Y., Yang P., Deng J.F., Fan K.N. A novel homogeneous catalyst made of poly(*N*-vinyl-2-pyrrolidone)-CuCl<sub>2</sub> complex for the oxidative carbonylation of methanol to dimethyl carbonate // *J. Mol. Catal. A Chem.* – 2002. – Vol. 185, №1–2. – P. 1–9.
- [2] Wang Y., Chen P., Liu M. Synthesis of well-defined copper nanocubes by a one-pot solution process // *Nanotechnology.* – 2006. – Vol. 17, № 24. – P. 6000–6006.
- [3] Ziegler K.J., Doty R.C., Johnston K.P., Korgel B.A. Synthesis of organic monolayer-stabilized copper nanocrystals in supercritical water // *J. Am. Chem. Soc.* – 2001. – Vol. 123, № 32. – P. 7797–7803.
- [4] Zhang Y., Yang G.H., Li X.X., Luo W., Mey-Hu H., Jiang Y.Y. Polycondensation catalyzed by polyvinyl pyrrolidone-supported metal complexes // *Polym. Adv. Technol.* – 1999, Vol. 10, № 1–2. – P. 108–111.
- [5] Tu W., Liu H., Tang Y. The metal complex effect on the selective hydrogenation of *m*- and *p*-chloronitrobenzene over PVP-stabilized platinum colloidal catalysts // *J. Mol. Catal. A Chem.* – 2000. – Vol. 159, №1. – P. 115–120.
- [6] Varghese S., Lele A.K., Srinivas D., Mashelkar R.A. Role of Hydrophobicity on Structure of Polymer-Metal Complexes // *J. Phys. Chem. B.* – 2001. – Vol. 105, № 23. – P. 5368–5373.
- [7] Patent US 4761467. Pyridine ligands for preparation of organic carbonates /Bhattacharya A.K.; publ. 02.08.1988. – 6 p.
- [8] Patent US 4636576. Cyclic amide additives for organic carbonate process /Bhattacharya A.K., Nolan J.T.; publ. 13.01.1987. – 6 p.
- [9] Raab V., Merz M., Sundermeyer J. Ligand effects in the copper catalyzed aerobic oxidative carbonylation of methanol to dimethyl carbonate (DMC) // *J. Mol. Catal. A Chem.* – 2001. – Vol. 175, № 1–2. – P. 51–63.
- [10] Yu Z., Liao S., Xu Y., Yang B., Yu D. A remarkable synergic effect of polymer-anchored bimetallic palladium–ruthenium catalysts in the selective hydrogenation of *p*-chloronitrobenzene // *J. Chem. Soc. Chem. Commun.* – 1995. – № 11. – P. 1155–1156.
- [11] Wan B., Liao S., Yu D. Polymer-supported palladium-manganese bimetallic catalyst for the oxidative carbonylation of amines to carbamate esters // *Appl. Catal. A.* – 1999. – Vol. 183, № 1. – P. 81–84.
- [12] Ishii H., Ueda M., Takeuchi K., Asai M. Oxidative carbonylation of phenol to diphenyl carbonate catalyzed by bis(benzonitrile)dichloropalladium in the presence of polyvinylpyrrolidone // *Catal. Commun.* – 2001. – Vol. 2, № 1. – P. 17–22.
- [13] Физико-химические методы анализа. Учебное пособие для вузов. – Л.: Химия, 1988. – 219 с.
- [14] Лебухов В., Павлюченкова Л. Физико-химические методы исследования. – Москва: Лань, 2013. – 480 с.
- [15] Васильев В.П. Термодинамические свойства растворов электролитов. – М.: Высшая школа, 1982. – 320 с.
- [16] Никифорова Т.Е., Козлов В.А., Исляйкин М.К. Кислотно-основные взаимодействия и комплексообразование при извлечении катионов меди(II) из водных растворов целлюлозным сорбентом в присутствии поливинилпирролидона // *Ж. физ. хим.* – 2012. – Т. 86, № 12. – С. 1974–1984.
- [17] Kuo S.W., Huang C.F., Wu C.H., Chang F.C. Thermal and spectroscopic properties of zinc perchlorate/poly(vinylpyrrolidone) blends and a comparison with related hydrogen bonding systems // *Polymer.* – 2004. – Vol. 45, № 19. – P. 6613–6621.
- [18] Wu H.D., Wu I.D., Chang F.C. The interaction behavior of polymer electrolytes composed of poly(vinyl pyrrolidone) and lithium perchlorate (LiClO<sub>4</sub>) // *Polymer.* – 2001. – Vol. 42, № 2. – P. 555–562.
- [19] Liu M., Yan X., Liu H., Yu W. An investigation of the interaction between polyvinylpyrrolidone and metal cations // *React. Funct. Polym.* – 2000. – Vol. 44, № 1. – P. 55–64.
- [20] De Amorim A.M., Franzoi A.C., Oliveira P.N., Nunes Pires A.T., Spinelli A., Bertolino J.R. Poly(vinylpyrrolidone)-Based Films Grown on Copper Surfaces // *J. Polym. Sci.: Part B: Polym. Phys.* – 2009. – Vol. 47, № 22. – P. 2206–2214.

## REFERENCES

- [1] Hu J.C., Cao Y., Yang P., Deng J.F., Fan K.N. *J. Mol. Catal. A Chem.*, **2002**, 185(1–2), 1–9. (in Engl.)
- [2] Wang Y., Chen P., Liu M. *Nanotechnology*, **2006**, 17(24), 6000–6006. (in Engl.)
- [3] Ziegler K.J., Doty R.C., Johnston K.P., Korgel B.A. *J. Am. Chem. Soc.*, **2001**, 123(32), 7797–7803. (in Engl.)
- [4] Zhang Y., Yang G.H., Li X.X., Luo W., Mey-Hu H., Jiang Y.Y. *Polym Adv Technol.*, **1999**, 10(1–2), 108–111. (in Engl.)
- [5] Tu W., Liu H., Tang Y. *J. Mol. Catal. A Chem.*, **2000**, 159(1), 115–120. (in Engl.)
- [6] Varghese S., Lele A.K., Srinivas D., Mashelkar R.A. *J. Phys. Chem. B.*, **2001**, 105(23), 5368–5373. (in Engl.)
- [7] Patent US 4761467. Pyridine ligands for preparation of organic carbonates /Bhattacharya A.K.; publ. 02.08.1988. – 6 p. (in Engl.)
- [8] Patent US 4636576. Cyclic amide additives for organic carbonate process /Bhattacharya A.K., Nolan J.T.; publ. 13.01.1987. – 6 p. (in Engl.)
- [9] Raab V., Merz M., Sundermeyer J. *J. Mol. Catal. A Chem.*, **2001**, 175(1–2), 51–63. (in Engl.)
- [10] Yu Z., Liao S., Xu Y., Yang B., Yu D. *J. Chem. Soc. Chem. Commun.*, **1995**, 11, 1155–1156. (in Engl.)
- [11] Wan B., Liao S., Yu D. *Appl. Catal. A.*, **1999**, 183(1), 81–84. (in Engl.)
- [12] Ishii H., Ueda M., Takeuchi K., Asai M. *Catal. Commun.*, **2001**, 2(1), 17–22. (in Engl.)
- [13] Physico-chemical methods of the analysis. Manual for higher education institutions. L.: *Chimiya*, **1988**, 219 p. (in Russ.)
- [14] Lebukhov V., Pavlyuchenkova L. Physico-chemical research techniques. Moscow: *Lan'*, **2013**, 480 p. (in Russ.)
- [15] Vasil'ev V.P. Thermodynamic properties of electrolytes solutions. Moscow: *Vysshaya shkola*, **1982**, 320 p. (in Russ.)
- [16] Nikiforova T.E., Kozlov V.A., Islyaykin M.K. *Zh. Phys. Chem.*, **2012**, 86(12), 1974–1984. (in Russ.)