

Electrochemical properties of phosphinophenols and their esters – potential ligands for homogeneous processes of ethylene oligo- and polymerization

© Olga S. Fomina,¹ Oleg G. Sinyashin,¹
Joachim Heinicke,³ and Dmitry G. Yakhvarov^{1,2}

¹ Department of Coordination Chemistry and Nanomaterials. A.E. Arbuzov Institute of Organic and Physical Chemistry of the Russian Academy of Sciences. Arbuzov St., 8. Kazan, 420088. Tatarstan Republic. Russia.

Phone: +7 (843) 273-48-93. E-mail: fomina@iopc.ru

² Physical Chemistry Division. A.M. Butlerov Institute of Chemistry. KFU.

Kremlevskaya St., 18. Kazan, 420008. Tatarstan Republic. Russia.

Phone: +7 (843) 233-73-46. E-mail: yakhvar@iopc.ru

³ Laboratory of Inorganic Chemistry. Institute of Biochemistry Ernst-Moritz-Arndt University of Greifswald. Felix-Hausdorff-Strasse, 4. Greifswald, 17487. Germany

Phone: +49-3834-864318. E-mail: heinicke@uni-greifswald.de

*Supervising author; +Corresponding author

Keywords: organophosphorus ligands, phosphinophenols, electrochemistry, cyclic voltammetry, polymerization.

Abstract

The electrochemical properties of some tertiary *ortho*-phosphinophenols and their esters, which are highly effective ligands for nickel catalyzed homogeneous ethylene oligo- and polymerization, have been investigated. It has been found that these species are electrochemically stable in a wide range of the cathodic potentials, allowing to use them as the suitable reagents for generation of an active nickel catalyst by the reaction of oxidative addition of electrochemically generated nickel(0) complexes.