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## **INFLUENCE OF THE METHYLATION PROCESS BY-PRODUCT ON THE POLY(PHENYLENE OXIDE) SYNTHESIS**

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Poly(phenylene oxide) (PPO) is an amorphous aromatic polyether, applied in many branches of modern industry.

PPO is obtained in an exothermic oxidative polymerization of dialkylphenol carried out in liquid medium with use of homogenous catalytic system.

The most commonly used monomer in this reaction is 2,6-dimethylphenol and it is prepared in the chemical reaction between phenol and methanol in the presence of metallic catalytic system. In this process, besides 2,6-dimethylphenol also other substances such as *p*- and *o*-cresols, 2,3-, 2,4-, 2,5-dimethylphenols etc. are received. The major by-product of the methylation process is 2,4,6-trimethylphenol (2,4,6-TMF), which is also known as a (mesitol). Introduction of the methyl groups to the *para*-position of phenol may cause capping effect. That is the reason why 2,4,6-trimethylphenol may be used as a chain stopper in the oxidative polymerization of 2,6-dimethylphenol.

In the present paper, the results concerning the influence of 2,4,6-trimethylphenol on the poly(phenylene oxide) synthesis are presented. PPO was obtained by the precipitation or solution method. The chain stopper in the amount up to 2.2 wt. % (at precipitation method) and up to 4.4 wt. % (at solution method) was used. The molecular weights of polymers obtained were determined by gel permeation chromatography and limiting viscosity number measurements. Additionally, the melt flow rate indices were determined.

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