

## Effect of performance parameters on characteristics of polyurethane coating prepared by using diphenylolpropane

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### Abstract

The effect of performance parameters on characteristics of polyurethane coating prepared by using vanish composition based on oligoetherpolyol with molecular weight of 3600 and OH-functionality of 3, aromatic polyisocyanate, and diphenylolpropane was studied. The coating under study was shown to be inferior to commercial counterparts by its resistance to heat deflection but surpass them by chemical resistance. The lower resistance of the coating to elevated temperatures is explained by the lower thermal stability of urethane groups formed by phenolic hydroxyl in comparison with those formed by alcoholic hydroxyl. The proposed coating demonstrates its characteristics unchanged in storage, excellent oil- and petrol resistance as well as hydrolytic stability and could be recommended for protection of inner surfaces of oil lines and tanks for oil products. Due to its excellent adhesion and flexibility together with hardness and wear resistance the coating allows anticorrosive protection of equipment, avoiding surface deposits, as well as protection from erosive and mechanical wear.

### References

- [1] S.E. Mitrofanova, I.N. Bakirova, L.A. Zenitova, A.R. Galimzyanova, E.S. Nefed'ev. Polyurethane varnish materials based on diphenylolpropane. *J. Appl. Polymer Sci.* **2009**. Vol.82. No.9. P.1630-1635.
- [2] S.E. Mitrofanova, I.N. Bakirova. Lightfastness of polyurethane coating based on diphenylolpropane. *Butlerov Communications.* **2018**. Vol.55. No.8. P.151-155. ROI: jbc-02/18-55-8-151
- [3] I.N. Bakirova, N.V. Galkina. A Polyurethane Coating Based on Hydroxyethylated Diphenylolpropane. *J.Polymer Science.- Series D.* **2018**. Vol.11. No.2. P.135-139.