

## The study of dielectric properties of one-component polyurethane modified esters of ortho-silicic acid in centimeter ultra-high frequencies

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### Abstract

In the work presented here dielectric characteristics of a one-component polyurethanes modified esters of ortho-silicic acid including tetraethoxysilane and tetrapropoxysilane by way to improve dielectric characteristics in the centimeter super-high frequency radio. Research has shown that introduction tetraethoxysilane and tetrapropoxysilane in polyurethane oligomer lead to large rise of hydrophobic characters of developed composition. In the course of investigations made it clear that permittivity up to the hub to depend from nature of esters of ortho-silicic acid and also from it content in composition. Was determined the dependence of tangent of angle of dielectric loss on a frequency of 9/8 GHz from content of esters of ortho-silicic acid. It is found that dielectric loss far fewer in composition modified esters of ortho-silicic acid in comparison with unmodified monopartite polyurethanes. Maximum effect will be attained using as modifier is tetraethoxysilane by concentration from 3 to 5 percent. Apart from nature esters of ortho-silicic acid by concentration the last in composition from above 5% there is to growth of dielectric loss. In consequence of incurred researches it is found that moisture absorption of materials modified esters of ortho-silicic acid way below than unmodified materials. This lead to lowering of dielectric loss as a consequence to more high-pitched stability of electrical properties in process of exploitation of materials based on monopartite polyurethane.

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