Effect of phenolic compound *Irganox-1010* on elastic-strength properties and thermostability, heat resistance of molded polyurethane polyester

© Sergey V. Nesterov, †Yakov D. Samuilov, ††Indira N. Bakirova, and Alexander Ya. Samuilov

Department of Technology of Synthetic Rubber, Kazan National Research Technological University.
K. Marx St., 68, Kazan, 420015, Tatarstan Republic, Russia.
Phone: +7 (843) 231-42-14. E-mail: sergei_nesterov@yahoo.com

*Supervising author; †Corresponding author

**Keywords:** isocyanates, polyurethanes, thermostability, heat resistance, thermal destruction, phenolic compounds.

**Abstract**

The introduction of the phenolic compound *Irganox-1010* into the composite structure of polyurethane molding SCU-6 is an effective method for increasing its thermostability and heat resistance. This conclusion is confirmed by the results of investigation into stress-strain, thermomechanical and thermogravimetric characteristics of polyurethane compositions containing *Irganox-1010*. Based on these data and the results of quantum-chemical study of the interaction of isocyanates with hydroxyl compounds, the mechanism of stabilizing effect of phenolic compounds has been proposed.