## **Graded Orientation of the Linear Polymers**

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**Abstract :** Some regularities of formation of a new structural state of the thermoplastic polymers-gradually oriented (stretched) state (GOS) are discussed. Transition into GOS is realized by the graded oriented stretching-by action of inhomogeneous mechanical field on the isotropic linear polymers or by zonal stretching that is implemented on a standard tensile-testing machine with using a specially designed zone stretching device (ZSD). Both technical approaches (especially zonal stretching method) allows to manage the such quantitative parameters of gradually oriented polymers as a range of change in relative elongation/orientation degree, length of this change and profile (linear, hyperbolic, parabolic, logarithmic, etc.). Uniaxial graded stretching method should be considered as an effective technological solution to create polymer materials with a predetermined gradient of physical properties.

Keywords : controlled graded stretching, gradually oriented state, linear polymers, zone stretching device

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