

caprolactone and L-lactide with the maximal elasticity are considered. The purpose of the work is to receive the diblock polymer with mechanical properties as close as possible to elastomer for medical devices. The task is reached due to application of design of experiment with the subsequent optimization of the received results.

Synthesis of polymers was realized in the melt and in the solvent with  $\text{Sn}(\text{Oct})_2$  as catalyst. Maximization of elongation at maximum load of received polymer is solved by the greatest possible reduction of crystallinity with a variation of molecular weight of both part of diblock: polycaprolactone and polylactide.

The approach to search optimum mechanical properties in this class of polymers at a variation of several factors was developed. Realized researches are used for further work to obtain biodegradable polymers with high elasticity.

## **SEPARATION OF MINOR MACROMOLECULAR ADMIXTURES FROM MULTICOMPONENT POLYMER SYSTEMS BY ADVANCED LIQUID CHROMATOGRAPHIC TECHIQUES**

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Polymer blends are to be separated to assess the molecular characteristics of their constituents. Size exclusion chromatography, SEC discriminates macromolecules according to their molecular size in eluent. Evidently, SEC cannot separate constituents of polymer blends possessing similar size in solution. Moreover, due to the limited detector sensitivity, it is practically impossible to identify the minor macromolecular constituents (<1%) in polymer blends even if well discriminated from the matrix. ***Liquid chromatography under limiting conditions of enthalpic interactions, LC LC***

is a novel isocratic, fast, robust and simple approach to separate minor constituents of polymer blends. LC LC combines exclusion and interaction retention mechanisms of macromolecules that is adsorption, enthalpic partition (absorption) or phase separation (precipitation) in a column filled with porous particles. Difference in the slow elution of small molecules of solvents that permeate most pores of the column packing and the fast elution of partially or fully excluded macromolecules is utilized. Appropriately chosen small molecules introduced in front of polymer sample promote enthalpic interactions within column and thus create a slowly progressing **barrier**, which selectively decelerates elution of certain kind(s) of macromolecules. In this way, polymer species of different nature are efficiently separated irrespectively of their molar mass. The principle of LC LC will be elucidated in detail and the discrimination of selected minor macromolecular admixtures from polymer blends, as well as separation of parent homopolymers from block copolymers will be presented.

## STRUCTURE AND PROPERTIES OF PVC NANOCOMPOSITES

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The poly(vinyl chloride) belongs nowadays to the mostly used polymers, especially in house building, medical applications, food packaging, housekeeping, production of electrical cables, water canalization and automotive industries where the major advantages like a relatively low price, widely developed processing, possibilities of modification of mechanical properties and environmental resistance may be cited. This is the reason of standing growing production and application of this polymer. In the huge