

Modified polymeric materials

Radka Bačovská

Most commercially synthesized polymers are created from mainly organic chains. Their properties can be modified using a wide range of both organic and inorganic additives, e.g. phosphazene derivatives. These derivatives display a number of beneficial properties (e.g. hydrophobicity), which may be transferred to their mixtures with polymers.

Phosphazene derivatives can be formed as either monomers or polymers. They contain a backbone of alternating phosphorus and nitrogen atoms with two organic, organometallic or inorganic side groups linked to each phosphorus atom.

Our research focuses on synthesizing fully substituted phosphazene monomers and phosphazene polymers containing different side groups.

Some of the synthesized phosphazene derivatives, which displayed the required properties, were then used as additives into some commercial polymers. From the resulting mixture, the nanofibres were created using electrospinning technology. These nanofibres were later tested for their hydrophobic properties, in order to gauge their potential for practical application.