**AFTER**

Currently, intensive work is ongoing to create and research bio-degradable polymers. Biodegradable implies degradation upon direct exposure to microorganisms or rapid erosion due to the environment, followed by microbial degradation. In developed countries, the majority of disposable packaging material is already made from bio-degradable materials. There are approaches that are employed to control environmental pollution and that are associated with the production of polymers.

During the bio-degradation process, macromolecules first disintegrate into small parts (oligomers) that are further re-processed via bacteria. Often, the disintegration products are carbon dioxide and water.

Currently, one problem involves the long and complex degradation of polymers and polymer-based products, which are a source of environmental pollution. The solution to the problem is the creation of bio-degradable polymer composites for industrial needs by incorporating a bio-degradable plant-based polymer, crude natural rubber, in the basic polymer.

Traditional methods of obtaining degradable polymers are based on the following:

• the use of water-soluble and bio-degradable polymers,

• incorporation of water-soluble and bio-degradable compounds and polymers into the basic non-degradable polymer, and

• the use of decomposing microorganisms that are immobilized in the polymer, which further degrades during storage.

However, none of these methods are universal. Thus, the application of water-soluble and bio-degradable polymers is limited by the low range of performance composition characteristics that are formed from them. This does not provide any opportunity for using the polymers for manufacturing high-strength products, such as in single-use medical devices that are made of metal substituting materials.

The second method significantly lowers the range of performance characteristics, which limits the areas of use.