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Various types of catalysts in polymer additive technologies

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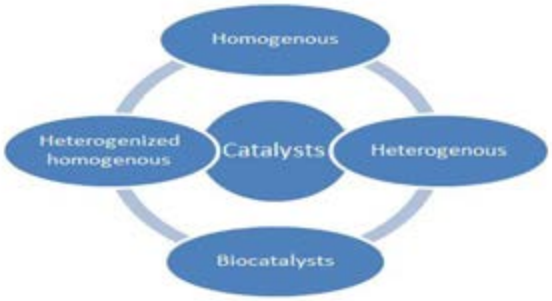
Abstract

Polymer additives chemistry is specific area of research because of variety of chemical compound that are included in this group. These compounds may be obtained in many types of chemical reactions, and with usage of various catalytic systems.

Depending on chemical character of additive we want to obtain, an appropriate chemical reaction should be carried out. Therefore, various types of catalysts are used in the preparation of polymer additives. A catalyst is a chemical compound that allows a chemical reaction to take place, often also significantly accelerating its course. Catalysis has important meaning in both research studies and industry as well. These days, we may observe constant looking for new types of catalysts which has less toxic impact on final product and with higher effectiveness. Catalysts were categorized into four types. They are homogeneous, heterogeneous (ion-exchange resins), heterogenized homogeneous catalyst and biocatalysts. Depending on type of processing reaction, its mechanism and technology scientist are performing research studies on choosing the right type of catalysts. It is possible that one type of catalyst is appropriate for many different chemical reactions. In complicated cases there is also a possibility of using few catalysts or mixed catalysts in one process.

Recently a significant development and improvement have been made in case of catalysis. Researchers are still trying to find new types of catalysts. A field of concern is lifetime of the catalysts that are currently using in actual technologies and finding ways of its prolonger. Recycling of the used catalytic materials has become more popular among researchers these days. Finding way of reuse catalysts could be an interesting issue in case of circular economy.



Biography

Katarzyna Zielińska is the leader of Catalytic Processes Research Group in Łukasiewicz – ICSO Blachownia in Kedzierzyn-Kozle, Poland. Her research Group specialize in research studies in area of phenol derivatives obtaining technologies (bisphenols, alkylphenols), plastic additives, esterification, etherification and condensation reactions, purification and isolation processes. Research Group focuses on using raw materials of natural origin and circular economy issues. Katarzyna has PhD in Organic Chemistry.

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