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Editorial

Special Issue "Green Synthesis Processes of Polymers & Composites"

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Undoubtedly, polymers and composites are the most important materials in the late XXth and early XXIst century. From packaging, through structural materials to biomedicine, polymers and their composites are used in every area of everyday life. Therefore, there is a substantial environmental impact associated with their production, use, and disposal. The relevance of the topic "Green Synthesis Processes of Polymers & Composites" in the fields of environmental and polymer chemistry is proven by the numerous research papers, reviews, and journals worldwide that address this topic, as well as the many successful Special Issues published in MDPI journals. In this Special Issue, we primarily focus on the environmentally benign synthesis of polymer-based materials, which can help to reduce their environmental footprint. Monomers from renewable resources, green synthesis conditions, environmentally friendly processing, and recycling methods are all represented in this Special Issue, and the produced materials are targeted towards a broad range of applications, from synthetic rubbers to tissue adhesion.

First, a review of elastomers synthesized from terpenes, monomers from renewable feedstock is presented [1]. This paper deals not only with the synthetic possibilities of such materials but also the physical properties that determine their fields of applications. Two additional research articles also examine green elastomers. The first describes the synthesis of a poly(myrcene-*co*-furfuryl methacrylate) copolymer and its outstanding dual stimuli-responsive behavior [2], while the second describes the synthesis of a poly(dibutyl itaconate-*co*-butadiene) elastomer, with better rolling resistance and heat generation than the commercially, fully petroleum-derived emulsion-polymerized styrene-butadiene rubber [3].

A green macromolecular tissue adhesive—more specifically, a whey protein-based adhesive—is also described [4]. In combination with the antimicrobial totarol and glutaraldehyde cross-linker, this is found to be as successful as its commercial competitors. The synthesis of poly(ε-caprolactam) was carried out under environmentally benign conditions, i.e., solvent-free polymerization reached near quantitative monomer conversion after a short time [5].

Several green composites are also synthesized and investigated in this Special Issue. Cryo-milled wood–plastic composites composed of sawdust and poly(ε-caprolactone), even with recycled poly(ethylene terephthalate), can be used as packaging materials [6,7]. The paper deals not only with the synthesis of such materials but also with waste management/recycling. Ternary green polymer composites based on a poly(L-lactic acid)/poly (ethylene adipate)/hexagonal boron nitride system are also synthesized, and the effect of composition on the crystallization rate of poly(L-lactic acid) is investigated [8].

Novel, environmentally friendly flame retardants for polypropylene, based on trisubstituted triazine derivates, are also introduced here, and they are found to be effective for

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the proposed application [9]. Finally, new nano-silica particles are synthesized using an environmentally friendly method from natural precursors [10].

This Special Issue attempts to demonstrate the diversity of the field of green polymers and composites, with the main aim of presenting some exciting examples of the synthesis of such materials.

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