Biodegradable Polymers and Composites for Automotive Applications: A Concise Review

| Conference paper | First Online: 27 November 2024

| pp 115–130 | Cite this conference paper

Proceedings of the International Conference on Eco-friendly Fibers and...

(EFPM 2024)

Sangilimuthukumar Jeyaguru, Senthil Muthu Kumar Thiagamani ✉, Senthilkumar Krishnasamy, Chandrasekar Muthukumar, Suchart Seingchin, Raed H. Althomali, Anish Khan, Abdullah M. Asiri & Hadi M. Marwani

Part of the book series: Springer Proceedings in Materials ((SPM,volume 60))

Included in the following conference series:
International Conference on Eco-friendly Fibers and Polymeric Materials

Abstract

The article aims in presenting an overview of the current usage of bioplastics in automotive applications. Also, we have discussed about the importance of LCA and LCA of bio composites in automotive industry. A possible substitute for synthetic polymers might be bio-based ones, as environmental protection against the pollution generated by petroleum-based polymers is becoming more and more important. Bio Polyamides possess excellent mechanical properties, good aesthetics, and easy in processability. Also, their composites occupy about 10% of the overall plastics in the automotive fields. Likewise, Polylactic acid (PLA), Polybutylene succinate (PBS), Polypropylene (PP) are also extensively used in automotive applications such as battery covers, fender liners, body panels, engine covers, dashboards, etc. So, a lot of automakers are employing bioplastics to (i) lower the total weight and (ii) boost efficiency, like mileage. For example, PLA and other polymers were used to create 3D printed vehicles. Similarly, cellulose and agricultural waste were used in the creation of the first supercar. Thus, the focus of this study is on composites based on bioplastics that are employed in the automobile sector.