

A Review Paper on Starting Materials, Processes and Characteristics of Bio-Based Foams

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Abstract: *Bio foam products have attracted considerable attention lately because there is a growing demand for green/sustainable products. To this end, various biobased foams have either been developed or are currently in development, e.g., bio-based polyurethanes (PUs), polylactic acid (PLA), starch, and polyhydroxyalkanoates (PHAs). Indeed, significant progress has been made; however, challenges still persist, for example, biobased foam products have poor processability, inferior compatibility, thermal and strength properties. In this review, we focus on five biofoam products namely bio-based PUs, PLA, starch, PHAs, and cellulose biofoam products, along with their properties and performance, as well as their manufacturing processes. Further efforts are still needed to unlock the full potential of these bio-based products and meet the goal of complementing and gradually replacing some of their fossil-based counterparts. Finally, the challenges, as well as arising opportunities of future research directions are discussed.*

Keywords: Bio foam, Bio-based polyurethanes Poly lactic acid