

LIGHTWEIGHT NATURAL FIBER COMPOSITES

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Composites made of natural fibers represent an emergent research area in material science and technology. The positive impact of using these materials is related to availability of natural fibers in large amount in nature, its biodegradability features, besides, they are global environmental sustainable, economical and have good balance between the mechanical properties and lightweight. Today, lightweight natural fiber composite materials appear to be the primary choice for many engineering applications. Therefore, many researchers have focused their attention towards lightweight natural fiber composites to create economical and lightweight engineering applications. The progress of using lightweight natural fiber composites offer better product performance, ecofriendly factor and advantage competition in the global market for lightweight components.

In vehicle manufacturing, the selection of lightweight materials allows to reduce the body weight of vehicle and improve performance by reduction of fuel consumption and emission. Door frames, door shutters, window frame, mirror casing, etc. are some of the most manufactured parts made of natural fiber composites due to its proficient lightweight quality. Nowadays, light weight natural fiber components were considered for the sports goods industry in order to produce: ice skating boards, bicycle frames, baseball bats, tennis racket, fork, helmet, etc. Construction and building sector is another important area for using the natural fiber lightweight materials that were embedded within roofing sheets, bricks, furniture panels, storage tanks, pipelines, etc. Other than these specific sectors, the natural fiber composites are used to manufacture different lightweight structures such as boat hulls, fish rods, laptop and mobile cases, chip boards, projector and voltage stabilizer cover, post-boxes, etc.

Consequently, it is needed a strong awareness to extend the natural fiber potential in order to create innovative and sustainable components at large industrial scale.