

Are Natural Fiber Composites Environmentally Superior to Glass Fiber Reinforced Composites?

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Natural fibers are emerging as low cost, lightweight and apparently environmentally superior alternatives to glass fibers in composites. We review select comparative life cycle analysis studies of natural fiber and glass fiber composites, and identify key drivers of their relative environmental performance. Natural fiber composites are likely to be environmentally superior to glass fiber composites in most cases for the following reasons: (1) natural fiber production has lower environmental impacts compared to glass fiber production; (2) natural fiber composites have higher fiber content for equivalent performance, reducing more polluting base polymer content; (3) the light-weight natural fiber composites improve fuel efficiency and reduce emissions in the use phase of the component, especially in auto applications; and (4) end of life incineration of natural fibers results in recovered energy and carbon credits.