

Mechanical Characterization of Aluminum 6013-Red Mud Particulate Composites for Sustainable Structural Applications

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Editor's note: Red mud, a by-product of the Bayer process, is an abundant and eco-friendly material that can serve as a low-cost alternative for enhancing the mechanical and tribological properties of aluminum alloys. Chandrashekara K.N. et al. reinforced aluminum 6013 with red mud using liquid melt metallurgy. The results indicated that increasing the content of red mud improved various mechanical properties, including ultimate tensile strength, compressive strength, elongation, and hardness of aluminum 6013. These enhancements were attributed to factors such as particle distribution and grain refinement. The findings underscore the potential of red mud as a sustainable reinforcement material, promoting environmental sustainability in structural applications.

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