عنوان مقاله:

Processing and Characterization of AA۲۰۲۴/Al۲O۳/SiC Reinforces Hybrid Composites Using Squeeze Casting Technique

محل انتشار:

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خلاصه مقاله:

The present requirement of automobile industry is seeking lightweight material that satisfices the technical and technological requirements with better mechanical and tribological characteristics. Aluminium matrix composite (AMC) materials meet the requirements of the modern demands. AMCs are used in automotive applications as engine cylinders, pistons, disc and drum brakes. This paper investigates the effect of particle size and wt% of Al۲O۳/SiC reinforcement on mechanical and tribological properties of hybrid metal matrix composites (HMMCs). AA۲۰۲۴ aluminium alloy is reinforced with Al۲O۳/SiC different particle sizes (۱۰, ۲۰ and ۴۰ µm) and weight fractions (upto ۱۰ wt %) were fabricated by using squeeze casting technique. HMMCs were characterized for its properties such asX-ray diffraction (XRD), density, scanning electron microscope (SEM), hardness, tensile strength, wear and coefficient of friction. AA۲۰۲۴/۵wt%Al۲O۳/۵wt%SiC with ۱۰ µm reinforced particle size showed maximum hardness and tensile strength ۱۵۶.۴ HV and ۵۳۱.۴۳ MPa and decrease in wear rate was observed from from ۰.۰۰۳۰۷ to ۰.۰۰۲۲۱ for ۱۰N. .Hybrid composites showed improved mechanical and wear resistance suitable for engine cylinder liner applications

کلمات کلیدی:

.Hardness, Density, Tensile, Wear, Squeeze casting, Particle size