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Tribological Characterization of PEEK Polymer Composite for Bush Application

Mr. Samir Dighe¹, Mr. Arya Amle², Prof. P. M. Karandikar³, Mr. Kalyan Gadhe⁴,

Mr. Sahil Tamboli⁵

Professor, Department of Mechanical Engineering¹ Students, Department of Mechanical Engineering^{2,3,4,5} Pravara Rural Engineering College, Loni, India

Abstract: This study presents a "Tribological Characterization of PEEK Polymer Composite for Bush Application" specifically Polyether ether ketone (PEEK) reinforced with Glass fiber, MOS2, Graphite, Bronze when tested using Pin On Disc Tribometer. Polyether ether ketone (PEEK) is a high-performance polymer with excellent mechanical strength and wear resistance, making it a suitable material for tribological applications. The study evaluates the coef

ficient of friction (COF) and wear rate of PEEK composites under varying loads, speeds, and lubrication conditions, and comparing it with Gunmetal material specifications. In this work attention is given to suggest self-lubricating PEEK composite bush in place of the existing hydrostatically lubricated gun metal or brass bush used for sugar mills. PEEK + Glass Fiber composite gives Excellent Chemical Resistance: Resistant to many acids, bases, and solvents. Experimental work is carried out by varying loads of 30N, 60 N, 80 N at sliding velocity 1.2, 1.6, 2.0 m/s, keeping rest of the parameter's constant. Rubbing the test pins of PEEK composites against EN 8 stainless steel disc surface in dry condition using a pin-on-disc Tribometer.

Keywords: PEEK (Polyether Ether Ketone), Polymer Composite, Tribology, Wear Resistance, Friction Coefficient, Bush Applications, Abrasive Wear, Lubricated Wear

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