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Tribological Characterization of Composites Based on Epoxy Resin Filled with Tailings of Scheelite

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Abstract : The use of mineral fillers in the preparation of organic matrix composites can be an efficient alternative in minimizing the environmental damage generated in passive mineral beneficiation processes. In addition, it may represent a new material option for wind, construction, and aeronautical industries, for example. In this sense, epoxy resin composites with Tailings of Scheelite (TS) were developed. The composites were manufactured with 5%, 10% and 20% of TS in volume percentage, homogenized by mechanical mixing and molded in a silicon mold. In order to make the tribological evaluation, pin on disk tests were performed to analyze coefficient of friction and wear. The wear mechanisms were identified by SEM (scanning electron microscope) images. The coefficient of friction had a tendency to decrease with increasing amount of filler. The wear tends to increase with increasing amount of filler, although it exhibits a similar wear behavior. The results suggest characteristics that are potential used in many tribological applications.

Keywords : composites, mineral filler, tailings of scheelite, tribology
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