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Enhanced mechanical and tribological properties in polyphenylene sulfide/polytetrafluoroethylene composites reinforced by short carbon fiber

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Abstract

Self-lubricating composites based on Polyphenylene sulfide/Polytetrafluoroethylene (PPS/PTFE) reinforced with short carbon fibers (CF) were prepared by melt-blending. The effect of CF loadings on morphology, mechanical and dry-sliding behavior of the composite were carefully investigated in expectation of providing valuable information for the application of polymer-based composites. Results indicated that the incorporation of CF apparently improved the tensile strength, flexural modulus and hardness of PPS/PTFE blends. Meanwhile, the specific wear rate and average friction coefficient of PPS/PTFE reinforced by 15vol% CF reached to 5.2

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