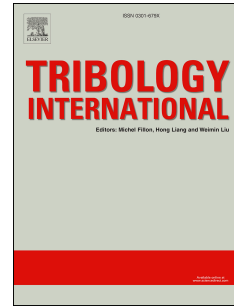


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## **Tribology review of blended bulk polymers and their coatings for high-load bearing applications**

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### **ABSTRACT**

The present study reviews tribology research on bulk polymers and coatings, employed in several applications, including air-conditioning, refrigeration, and thrust pad bearings. Known polymers such as polyetheretherketone (PEEK), Polytetrafluoroethylene (PTFE), and aromatic thermosetting polyester (ATSP) were reviewed. PEEK outperforms PTFE when used in bulk format, while PTFE coatings demonstrated superior performance, and ATSP-based polymers exhibited remarkably low wear rates. The effect of critical operating conditions namely load, environmental pressure and temperature at different lubrication regimes were investigated. The ability to develop a transfer film on the countersurface was determined as a key factor in polymer tribological performance. High performance bulk polymers and coatings are viable candidates for today's demanding tribological applications.

**KEYWORDS:** ATSP; PEEK; PTFE; Polyimide; Polymer coating

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