鎳磷合金電鍍層之內應力與磨耗研究

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摘 要

鎳磷合金具有高強度、耐磨耗、抗腐蝕性與微細的組織並指出可代替鍍鎘(Cd)或鍍硬鉻 (Cr)，常被用於汽車、航空、印刷等工業產業上。此篇論文應用胺基磺酸鎳鍍液系統，所採用的電源形式為脈衝電流，其能提高鍍層磷含量並改善電流效率與內應力，並利用梢與圓環式（block-on-ring）的磨耗測試方法研究鎳磷合金腐蝕與磨耗的特性。測試的環境包括乾磨耗與浸在25 ° C 和50 ° C 的5%重量濃度鹽水腐蝕液中腐蝕磨耗，討論比較摩擦係數、磨耗率與表面粗糙度之間的關係。在邊界潤滑下，最初乾磨耗有著研磨磨耗與黏著磨耗的特性，最終研磨磨耗主導了磨耗形式，而加速腐蝕形成的腐蝕膜，不僅降低摩擦係數而且也改善磨耗率。

關鍵詞 : 鎳磷合金鍍層 ; 內應力 ; 腐蝕磨耗 ; 邊界潤滑 ; 腐蝕膜

目錄

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