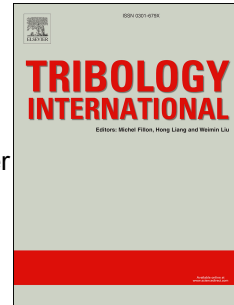


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Tribological behavior and wear mechanisms of manganese phosphate coatings under dry reciprocating sliding contact conditions

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#### Abstract

The aim of the present work is to understand the reciprocating sliding friction and wear behavior of manganese phosphate coatings that are deposited onto mild steel substrates by a wet-chemical process. All tribological tests were performed under dry conditions with a translatory oscillation tribometer for up to 500 oscillating cycles with contact pressures from 750 to 2000 MPa on three materials: (a) uncoated substrate (1.0037 mild steel) and (b) manganese phosphate (c) manganese phosphate coated with prior activation (A & Mn-P) using steel ball as a counterpart. A significant difference in the frictional performance among the two different phosphate coatings was not seen. Nevertheless, the two different phosphate coatings showed diverse wear mechanisms compared to mild steel.

Keywords: Reciprocating sliding friction and wear; manganese phosphate conversion coatings; tribology.

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