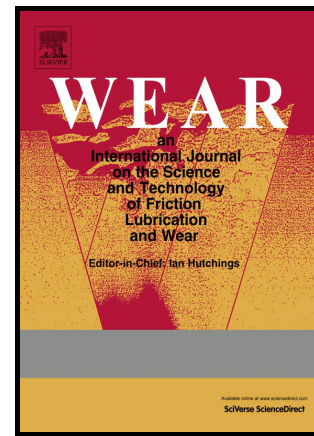


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# Wear of grinding rotors with thermally-sprayed coatings in a high-speed mill

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## Abstract

In this paper, the erosion behavior of three types of protective thermally-sprayed coatings and non-coated substrate steel was investigated under semi-industrial test conditions using a laboratory high-speed pin mill DESI-11. The grinding in the mill was performed by two counter rotors, on which protective coatings were deposited either by atmospheric plasma spraying (APS) ( $\text{Cr}_3\text{C}_2\text{-NiCr}$  and  $\text{NiCrBSi}$  coatings) or by high velocity oxy-fuel (HVOF) process ( $\text{WC-CoCr}$  coating). The grinding rotors with deposited coatings were used for milling of the Portland cement, and rotors' weight loss was monitored after milling of 1, 3, 5, 10, and 15 kg of this material. The lowest weight loss in the mixed impact erosion conditions was exhibited by  $\text{WC-CoCr}$  coating, which was followed by  $\text{Cr}_3\text{C}_2\text{-NiCr}$  and  $\text{NiCrBSi}$  coatings. The greatest material removal on the anterior and the right lateral faces of rotor pins was

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