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Wear Resistance of 20MnCr5 Steel Nitrided by Plasma

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Abstract : This paper presents wear behavior of the plasma-nitrided 20MnCr5 steel. Untreated and plasma nitrided samples were tested. The morphology was observed by scanning electron microscopy (SEM). The plasma nitriding behaviors of 20MnCr5 steel have been assessed by evaluating tribological properties and surface hardness by using a pin-on-disk wear machine and microhardness tester. Experimental results showed that the nitrides ε-Fe2−3N and γ′-Fe4N present in the white layer improve the wear resistance.

Keywords : plasma-nitriding, alloy 20mncr5, steel, friction, wear
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