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## Wear resistance of Eutalloy 10224 on Creusabro 4800 steel fabricated by laser cladding

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Eutalloy 10224 was deposited by Laser Cladding on a Creusabro 4800 steel substrate with laser powers of 1 kW (C4800-1) and 1.8 kW (C4800-1.8). The chemical compositions and microstructures of these coatings were evaluated by atomic absorption spectroscopy, optical microscopy and scanning electron microscopy. The microhardness of the coatings was measured and the wear mechanism of the coatings was assessed using a ball-on-plate (reciprocating) wear testing machine. The results indicated lesser cracking and pore development for Eutalloy 10224 coatings applied to the Creusabro 4800 substrate with the lower laser power (C4800-1). Furthermore, the stellite coating for C4800-1 was substantially harder than that obtained for C4800-1.8. The wear test results showed that the weight loss for C4800-1 was much lesser than for C4800-1.8. The assessment of dilution and coating C content were discussed and showed that C4800-1 has lesser dilution and higher coating C content than C4800-1.8. The lesser hardness of the coating for C4800-1.8 together with the un-rigid underlying substrate structure markedly reduced the wear resistance of the Eutalloy 10224 coating and the lesser hardness of the coating for C4800-1.8 was due to higher level of dilution and lesser coating C content.

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