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Abstract:

The microstructure and sliding wear properties of Co-Cr-W alloy (Stellite 6) coatings were studied in the dependence on the deposition technology. The HVOF as-sprayed, laser remelted HVOF sprayed and laser clad coatings were evaluated by SEM, XRD and ASTM G-133 reciprocating sliding wear test. In dependence on used deposition technology, the microstructure of coating varied namely in terms of grain size and phase composition. The XRD analyses in the wear track revealed that the strain-induced fcc-to-hcp transformation is taking part during wear of laser remelted HVOF sprayed coatings. The difference of the phase composition, grain size and strain-induced fcc-to-hcp transformation was shown to be responsible for differences in the sliding wear behaviour.

Keywords: Stellite 6; HVOF; laser remelting; laser clad; wear; phase transformation