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Laser Surface Alloying (LSA) of Martensitic Stainless Steel using Nickel Powder

The current investigation deals with laser surface alloying of nickel powder on martensitic stainless steel, the aim was to improve the hardness of the substrate.
Nd-YAG laser was used with argon as shielding gas and process parameters were varied. The characterization of the alloyed surface was carried out by Optical Microscopy (OPM), Scanning Electron Microscopy (SEM/EDS) and X-ray Diffraction (XRD). The microstructure of alloyed layer shows the nickel powder was well dispersed within the metal matrix. Hardness measures were carried out. The average hardness values for the alloyed layers were calculated. A significant increase in the hard

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