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Effects of precious metal doping on stainless steels produced by spark plasma sintering



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ABSTRACT:

The corrosion resistance of stainless steels can prove inadequate in particularly aggressive environments leading to reduced service life and poor performance. Research shows that cathodic modification with precious metals by alloying and coating can improve the corrosion resistance of stainless steels. Research which explores the use of spark plasma sintering (SPS) to produce stainless steels cathodically modified by precious metals remains lacking. This project aims to incorporate precious metals into stainless steels by functional grading using SPS. The metal powders used have been characterised by particle size analysis and SEM. The sintered parts have been analysed using SEM to investigate grain size and elemental segregation. Indentation testing and density measurements of the sintered samples was also carried out.

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