

Liquid Phase Sintering of a Boron Alloyed Austenitic Stainless Steel

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Abstract

It is well known that PM stainless steels have lower corrosion resistance than the corresponding wrought steels, since they are affected by the presence of the open porosity.

A way to obtain a surface densification is the addition of a small quantity of boron (from 0,3 to 0,5%wt.) to the stainless steel. The presence of Boron produces a liquid phase phenomenon that results in a final microstructure consisting of a Boron-rich phase network surrounding the stainless steels grains. Close to the surface, a Boron-free layer was observed in which pores are very few, closed and round. This leads to an improvement in the steel corrosion resistance.