Influence of yttria surface modification on high temperature corrosion of porous Ni22Cr alloy

Protective coatings for porous alloys for high temperature use are relatively new materials. Their main drawback is high temperature corrosion. In this work protective coatings based on Y-precursor infiltrated into the sintered Ni22Cr alloys are studied at 700°C. Effects of the amount of the protective phase on the resulting corrosion properties are evaluated in air and humidified hydrogen. Weight gain of the samples, their open porosities and microstructures are analyzed and compared. Results show, that by the addition of even a minor amount of the Y-precursor corrosion rates can be decreased by a factor of 50.

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