

Abstract

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On The Diffusion Behaviour of Os in the Binary Ni-Os system

The diffusion of Os in Ni is characterised by measuring interdiffusion coefficients in the binary Ni–Os system, in the temperature range 1200–1350°C. The results are compared with data for Ni–Re. Theoretical calculations indicate that Os should display a diffusion coefficient comparable with Re, among the lowest displayed by elements from the d-block transition elements. The authors' experimental findings confirm these predictions, and suggest that alloying with Os is likely to improve the high temperature properties of the nickel-based superalloys.