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Thermodynamic simulation of phase formation in the Mo-Si, alloys doped with scandium or neodymium

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Abstract

Thermodynamic simulation of the phase formation in Mo-Si hypoeutectic alloys when doping with scandium or neodymium was carried out. It was determined that scandium or neodymium in the Mo-Si(5.0%)-(Sc, Nd)(0-5.0%) ternary alloys can be found both in the form of silicides and in a metallic state. Their concentrations depend on the temperature and the amount of scandium or neodymium additives in the alloy. To retain the two-phase structure of the Mo-Si hypoeutectic alloys the amount of scandium or neodymium additive should be limited.