Compressive Creep Testing of Composites on the Based of $MoSi_2$ – SiC Nanoparticles

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The aim of this study is to investigate the creep resistance of molybdenum disilicide ($MoSi_2$-SiC) based composites with different types of embedded particles. The materials were prepared via powder metallurgy using high temperature controlled reaction sintering (CRS). The creep experiments were performed in uniaxial compression at constant stress in the temperature range from 1273 K (1000 °C) to 1473 K (1200 °C) for applied stress from 50 to 100 MPa. Creep was tested by stepwise loading: in each step, the load was changed to a new value after steady state creep rate had been established. The applied stress dependences of the creep rate at different temperatures were analyzed in terms of stress exponent (*n*) and activation energy (*Q*). Possible rate-controlling mechanisms were suggested.

Keywords: $MoSi_2$-SiC, creep test, compressive creep, stress exponent, activation energy

Acknowledgement

This work was realized in CEITEC - Central European Institute of Technology with research infrastructure supported by the project CZ.1.05/1.1.00/02.0068 financed from European Regional Development Fund.

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Paper number: M201566