



Short communication

Oxide-fibre/molybdenum-alloy-matrix composites: A new way of making and some mechanical properties



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ABSTRACT

Ultra-high temperature metal matrix composites are to be constructed using a sufficiently strong refractory matrix. Oxide fibres are primary candidates to reinforce molybdenum matrix by the internal crystallisation method. However, strong molybdenum alloys have not been used as the matrix until recently because the matrix preparation requires the alloys in form of foil and wire, which are not available. Hence, a way to strengthen pure molybdenum is now found through introducing reinforcing phases into it on the stage of matrix preparation prior to its reinforcement by oxide fibres. This communication presents the results of first experiments which show that such modification of the matrix yields composites of high strength at temperatures up to 1400 °C. The composites are characterized by sufficiently high fracture toughness at room temperature.

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