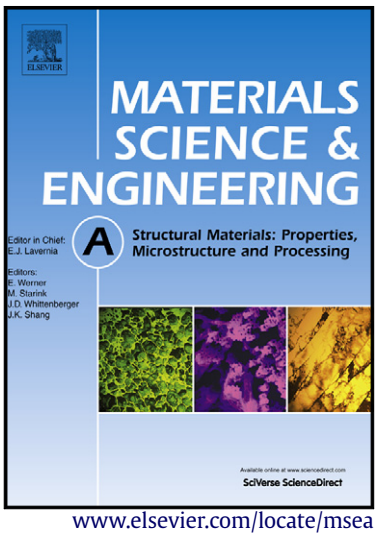

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Fabrication of W–Cu/CeO_2 composites with excellent electric conductivity and high strength prepared from copper–coated tungsten and ceria powders

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Abstract: W–Cu/CeO_2 composites with excellent electric conductivity and high strength have been prepared from Cu-coated W and CeO_2 composite powders. The phase and morphology of W–Cu/CeO_2 composite powders and W–Cu/CeO_2 composites are characterized by X-ray diffraction, field-emission scanning electron microscopy and energy-dispersive spectroscopy. The relative density, microhardness, electrical conductivity, and bending strength of the sintered samples are also examined. Results show that the addition of Cu-coated CeO_2 composite powders significantly affect the microstructure and properties of W–Cu composite materials. The low content of CeO_2 (0, 0.25 wt.%, 0.5 wt.%) have made an inconspicuous impression on bending strength and microhardness. While the composites still exhibit a best bending strength of 1102.7 MPa, which is higher than the national standard