

16/10

Mechanical and microstructural characterization of Al₂O₃-NbC and Al₂O₃-TiC composites.

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Alumina is a ceramic material that presents high mechanical properties. However some technological applications request superior characteristics, so that different alumina-based composites have been developed. In this work samples of Al₂O₃-based composites were prepared, with addition of TiC or NbC particulates in different amounts (5, 15, 25 and 35%vol). Samples were sintered through different methods (conventional sintering and hot pressing). The obtained samples were characterized through density, microstructure hardness and fracture toughness. It was possible to evaluate the effect of the secondary phase (type and amount) in these characteristics.