203-001

DILATOMETRIC STUDY ON SINTERING MECHANISM OF THE WC-10WT% CO CEMENTED CARBIDE DOPED WITH TANTALUM CARBIDE AND NIUBIUM CARBIDE

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Nanocrystalline WC-10wt.%Co powders were prepared by high energy milling and were liquid phase sintered. The powders were milled at 20 hours and characterized by X-ray diffraction, and Scanning electron microscopy. The particle size distribution and mean diameter analysis were characterized by Granulometro Cilas model 920 L and 1180. After sintering the WC-10wt.%Co cemented carbides doped with tantalum carbide and niobium carbide exhibited ultra fine grain sizes. dilatometer study on sintering mechanism detected phase transformations and degassing.