

## Microwave Sintering and Its Application on Cemented Carbides

**Authors :** Rumman M. D. Raihanuzzaman, Lee Chang Chuan, Zonghan Xie, Reza Ghomashchi

**Abstract :** Cemented carbides, owing to their excellent mechanical properties, have been of immense interest in the field of hard materials for the past few decades. A number of processing techniques have been developed to obtain high quality carbide tools, with a wide range of grain size depending on the application and requirements. Microwave sintering is one of the heating processes, which has been used on a wide range of materials including ceramics. The complete understanding of microwave sintering and its contribution towards control of grain growth and on deformation of the resulting carbide materials needs further studies and attention. In addition, the effect of binder materials and their behaviour as a function of microwave sintering is another area that requires clear understanding. This review aims to focus on microwave sintering, providing information of how the process works and what type of materials it is best suited for. In addition, a closer look at some microwave sintered Tungsten Carbide-Cobalt samples will be taken and discussed, addressing some of the key issues and challenges faced in the research.

**Keywords :** cemented carbides, consolidation, microwave sintering, mechanical properties

**Conference Title :** ICAMME 2015 : International Conference on Applied Mechanics and Materials Engineering

**Conference Location :** London, United Kingdom

**Conference Dates :** August 20-21, 2015