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Recent progress in development of tungsten-copper composites: fabrication, modification and applications

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Abstract: Tungsten copper (W-Cu) composites, as a traditional refractory material, are promising materials for manufacture of electrical contacts and electrodes, heavy duty electronic contacts, welding and electro-forging dies, heat sinks, packaging material, arcing resistance electrodes and thermal management devices owing to their excellent properties. This critical review presents and discusses the current progress of W-Cu composites. Starting with an introduction of the synthesis methods for W-Cu composites, including the conventional and modern preparation approaches. After that we focus on the description of the improvement of mechanical properties and arc-erosion properties by modification techniques. Finally, the advantages of W-Cu composites in applications such as electrical contacts, electronic packaging materials, and heat sinks, as well as military materials, are described, respectively.

Keywords: Tungsten-copper composites, Preparation method, Modification, Application

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