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**Synthesis of a Single-Phase RuAl Intermetallic  
Compound by Reactive Powder Processing**

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**ABSTRACT**

Single-phase ruthenium-aluminum RuAl was synthesized from elemental powders by reactive sintering. The process involves a self-propagating exothermic reaction between the constituent powders to form an intermetallic compound. It was shown that the initial composition, density of the green compact, and Ru:Al particle-size ratio strongly affect the structure and density of the final material. An initial excess of aluminum of 1.5 at.% over the stoichiometric composition is necessary in order to compensate for Al loss during reactive sintering in vacuum.