

# 24<sup>th</sup> Global Organic & Inorganic Chemistry Conference

July 18-19, 2018 | Atlanta, USA



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### Synthesis of magnesium aluminate composites reinforced with ceramic particulates for grinding applications

This project aimed at investigating the possibility to synthesize magnesium aluminate composite reinforced with ceramic particulates to be used as grinding materials. Generally, magnesium aluminate ( $MgAl_2O_4$ ) is commonly used in the industries as refractories. Due to its high chemical stability, this project aims at broadening the industrial applications of magnesium aluminate to be used as grinding materials. Grinding materials are usually used in finishing the machining of metals parts to give it its final bright luster. This project is designed to increase the hardness of magnesium aluminate by incorporation of hard ceramic particulates such as borides or carbides. Titanium carbide (TiC) was chosen to be the reinforcement of magnesium aluminate matrix. This work targets at synthesizing  $MgAl_2O_4$ -TiC composite in a high dense form. The target composite will be synthesized by self-propagating high-temperature synthesis (SHS). SHS is an *in-situ* process that can perform synthesis and sintering in one step. To the best of our knowledge this composite in its dense form does not prepare by SHS. Different factors controlling the physical and mechanical properties of the final object will be investigated. This factors include, grain sizes of the starting materials, pressing load, initial temperature of the reaction, amount of ceramic and metallic additions.

### Biography

Saad Alotaibi has completed his PhD at the age of 28 years from Western Michigan University and postdoctoral studies from King Abdullah University School of Chemistry. He is the Dean of Turabah University College. He has published more than 8 papers in reputed journals and has been serving as an editorial board member of repute.

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