J Material Sci Eng 2013, 2:4
http://dx.doi.org/10.4172/2169-0022.S1.012

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Materials Science & Engineering

October 07-09, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

## Application of reinforced AMC friction material in vehicle industry

**Mohammad Reza Allazadeh**
Hungarian Academy of Sciences, Hungary

Aluminum metal matrix composites (AMC) are good candidates for friction material application in vehicle industry. Understanding the mechanism of material behavior under braking loads utilizes perceiving the advantages of fabricating brake pads from AMC material. Pressure, contacting temperature, and sliding velocity are the three critical factors that affect friction and wear performances of vehicles' brake material. A portion of the worn material forms a thin solid film known as tribo-layer or tribofilm with different chemical composition structure and tribological behavior than the material of the sliding contact surfaces over each other. Another part of the worn material may be redistributed, crushed, and consolidated in the sliding interface. A portion of the brake dust (brake wear debris) may be airborne and some other portion may be deposited on the brake hardware. The abrupt formation of three-body abrasion causes significant increment in the applied pressure which affects the wearing mechanism. Incorporation of hard ceramic reinforcement and soft lubricant into AMC increases wear resistance property of frictional material. I also discuss other main parameters affecting the wear mechanism of the brake pad and the reinforced AMC producing methods.

### Biography

Mohammad Reza Allazadeh received two master's degrees in technology planning and solid mechanics from University of Miskolc in Hungary, and Brown University in the USA, respectively. He has completed his Ph.D. at University of Pittsburgh, where he worked as postdoctoral fellow at mechanical engineering and material science department, and civil engineering department. Later, he worked as Assistant Professor at University of Panonia in Hungary. Currently, he is a researcher at Hungarian Academic of Sciences. He has published number of peer reviewed journal papers and industrial reports. Moreover, he is the author of four books and book chapter in different engineering sciences.

mrallazadeh@gmail.com

## α-phase organic/inorganic layered nanohybrids, types, structures and their application as the precursors for producing carbon materials for use as polymeric fuel cell cathode materials

**Mohammad Yeganeh Ghotbi and Marzieh Azad Fallah**
Malayer University, Iran

The α-phase metal hydroxides are layered materials with positively charged layers formed solely with divalent cations in the brucite-like structure. These layered hydroxides are important materials owing to their ability to intercalate various organic/inorganic functional anions to produce layer by layer nanohybrids. This leads to the production of the materials with new physico-chemical properties when combined with the appropriate guest species to be used in diverse technological applications. Moreover, α-phase layered hydroxides and their nanohybrids are suitable precursors to obtain two-dimensional nanostructures of pure and doped metal oxides, metallic alloys, carbon materials as well as metal oxide/carbon composites.

This present deals with a short description of structures, properties and applications of α-phase metal hydroxides and their nanohybrids. Moreover, in particular, carbon materials produced by heat-treatment of an organic/inorganic nanohybrid, namely Ni/Co/Fe doped zinc hydroxide-nitro benzoate to be used as polymeric fuel cell cathode materials is addressed here.

### Biography

Mohammad Yeganeh Ghotbi has completed his Ph.D. in the field of Nanomaterials and Nanotechnology (Department of Advanced Materials, Institute of Advanced Technology (ITMA), UPM, Malaysia). He has published more than 18 papers in reputed journals, 5 patents and 1 book chapter in Nova Science Publishers, New York, 2012. He has also been an Organizing Committee Member (EMN Fall Meeting, Nevada, USA, 2012), guest editor (Journal of Chemistry) and technical advisory member (The 2nd international conference on fundamental and applied sciences ISFAS (UTP), Malaysia, 2012).

yeganehghotbi@gmail.com