

Rice husk ash reinforcement in alumina : a review on mechanical and microstructural properties

ABSTRACT

Conventional ceramic materials such as alumina (Al_2O_3) is one of the commonly used material in research because it have relatively high hardness and stiffness, good corrosion and wear resistance, and excellent dielectric properties. Alumina have been used as catalyst for NO reduction, reducing wear in the soil and also as adsorbent for the removal of lead ions from aqueous solution. The application of alumina were restricted due to its brittleness and high susceptibility to fracture. The pore properties in alumina is also prized in some of its applications such as absorber or filters. Addition of rice husk ash (RHA) have been reported to influence the formation of pores in alumina. Alumina-ceramic matrix composite (Al_2O_3 -CMC) have been fabricated through various types of techniques including hot pressing (HP), hot isotactic pressing (HIP) and liquid-phase sintering (LPS). In this review paper, an attempt has been made to summarize important research on the mechanical and microstructural properties of the Al_2O_3 -CMC reinforced with RHA with several fabrication techniques.

Keyword: Alumina-ceramic matrix composite; Rice husk ash; Fabrication techniques; Mechanical properties; Microstructural properties