

Carbon Nanotubes Based Porous Framework for Filtration Applications Using Industrial Grinding Waste

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Abstract : Forging, milling, turning, grinding and shaping etc. are the various industrial manufacturing processes which generate the metal waste. Grinding is extensively used in the finishing operation. The waste generated contains significant impurities apart from the metal particles. Due to these significant impurities, it becomes difficult to process and gets usually dumped in the landfills which create environmental problems. Therefore, it becomes essential to reuse metal waste to create value added products. Powder injection molding process is used for producing the porous metal matrix framework. This paper discusses the presented design of the porous framework to be used for the liquid filter application. Different parameters are optimized to obtain the better strength framework with variable porosity. Carbon nanotubes are used as reinforcing materials to enhance the strength of the metal matrix framework.

Keywords : grinding waste, powder injection molding (PIM), carbon nanotubes (CNTs), matrix composites (MMCs)

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