

A REVIEW ON AN INNOVATIVE APPROACH FOR EFFICIENT NANOPARTICLE SYNTHESIS BY ELECTRICAL DISCHARGE MACHINING

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Abstract— Nanoparticles (NPs) have drawn immense attention due to the maximised range of new applications in various fields of industries such as electronics, optical, biomedical, pharmaceutical, cosmetics etc. Nanoparticles are the advancement of nanotechnology as a potential candidate to deliver therapeutic agents to targeted organs, tissues and cells. NPs are efficient to lower the drug delivery related problems. NPs have exceptional property compared with bound material like high surface to volume ratio, anti-bacterial property, better resistive nature towards oxidation and exhibit good thermal conductivity. These characteristics make the nanoparticles suitable in various fields. Thus, many researchers are still making research in interdisciplinary about NPs and still going on. This article describes various NPs synthesis method and shows comparatively the theory about their benefit, limitation and possible new process in this filed. A brief review on the Die-sink Electrical discharge machining (EDM) has been presented as a potential new process for NPs synthesis.

Keywords— EDM; Metal Nanoparticles; Dielectric; Plasma; MRR; Surface roughness; Oxidation

1. INTRODUCTION

Nanotechnology has been considered advanced and useful scientific technology to produce new devices. Currently, nanotechnology gets high attention, where the matter is considered and deployed on the atomic or molecular level. Nanotechnology has and will remain as heavy impact on our industry and personal life [1]. The main reason for the appeal in