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IIUM Engineering Journal  
 Volume 18, Issue 2, 2017, Pages 189-195

## A study on capabilities of different electrode materials during electrical discharge machining (EDM) (Article)

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### Abstract

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Electrode material in the electro discharge machining (EDM) process plays an important role in terms of material removal rate (MRR), electrode wear rate (EWR) and surface roughness (Ra). The purpose of this research is to investigate the capability of different electrode materials: copper, aluminum, and graphite in EDM of AISI 304 stainless steel as a work piece. The research focuses on three current settings: 2.5A, 4.5A, and 6.5A using kerosene as a dielectric fluid. The experiment was planned and analyzed using the full factorial of experimental design using response surface methodology (RSM). In this research, two outputs have been investigated: MRR and EWR. The results indicated that the responses increased with the increase in current. Finally, the desirability function method has been used to determine the optimum values. The results show that maximum MRR and minimum EWR were achieved using a graphite electrode at current 6.5A.

### Author keywords


[EDM](#)
[Electrode material](#)
[Electrode wear rate](#)
[Material removal rate](#)
[Surface roughness](#)

### Funding details

Funding number	Funding sponsor	Acronym
	International Islamic University Malaysia	IIUM
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