

Performance Assessment of Carbon Nano Tube Based Cutting Fluid in Machining Process

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Abstract : In machining, there is always a problem with heat generation and friction produced during the process as they consequently affect tool wear and surface finish. An instant heat transfer mechanism could protect the cutting tool edge and enhance the tool life by cooling the cutting edge of the tool. In the present work, carbon nanotube (CNT) based nano-cutting fluid is proposed for machining a hard-to-cut material. Tool wear and surface roughness are considered for the evaluation of the nano-cutting fluid in turning process. The performance of nanocoolant is assessed against the conventional coolant and dry machining conditions and it is observed that the proposed nanocoolant has produced better performance than the conventional coolant.

Keywords : CNT based nano cutting fluid, tool wear, turning, surface roughness

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