

## THE PERFORMANCE OF ALUMINA MIXED COCONUT OIL IN TURNING OF SS304 ALLOY

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### ABSTRACT

*In the present scenario there is a vast stipulate for environmental friendly cutting fluids because of severe rule enforced on usage of synthetic cutting fluids prepared by organic oils which creates perilous to the health of machine operators and environment. Ensuing towards this, better and safe cutting fluids are required to overcome these problems.*

*In this connection, compare to present cutting fluids organic cutting fluids give a better results and also easily available. In these organic cutting fluids coconut oil is the best one.*

*Coconut oil is safe to use, decomposable and ecologically friendly cutting fluid. Moreover, the performance of coconut based cutting fluids can be improved by addition of micro or nano particles. This present study emphasis on performance and the usage of the nano alumina with coconut oil in turning of stainless steel 304 alloy with minimum quantity of lubrication. L16 design of experiments done with different speeds, feeds, depth of cuts and percentages of alumina varied cutting fluids are the input process variables. Surface finish and material removal rate has been calculated in 16 machining conditions. Based on the results this study clearly reveals that speed rate and alumina percentage in coconut oil are the major parameters that have considerable effect on the surface finish. The depths of cut and alumina percentage in coconut oil are the main parameters that affect the material removal rate.*

**KEYWORDS:** Coconut Oil, Alumina Nano Particles, Turning, Stainless Steel 304 Alloy, MRR & Surface Finish

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