

**"EFFECT OF CVD-GROWN Al_2O_3 COATINGS IN IMPROVING THE
PERFORMANCE OF CEMENTED CARBIDE CUTTING TOOL INSERTS"**

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ABSTRACT

This project presents the results of comparison between three coated cemented carbide cutting tool inserts (TiN/TiC/WC, CVD-coated Al_2O_3 , and MOCVD-coated Al_2O_3 on TiN/TiC/WC) from the experimental work on mild steel work pieces. During the machining of the mild steel work pieces, the axial, tangential, and radial forces were measured using a lathe tool dynamometer (LTD) for different cutting speeds (180, 250, 400, and 600 RPM), for a depth of cut varying from 0.25 to 1mm (0.25, 0.5, 0.75, and 1mm), while the feed rate was kept constant at 0.2 mm/min. Once the forces were measured, the test specimens (machined work pieces) were subjected to surface roughness test. The results thus obtained clearly indicate that the MOCVD grown alumina coated cemented carbide cutting tool insert gives a better performance because of lower values of cutting forces and surface roughness followed by CVD coated alumina and then by TiN/TiC/WC.