

EVALUATION AND CHARACTERIZATION OF THIN FILM COATINGS

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ABSTRACT

Recent advancement in cutting tool materials and PVD (physical Vapour Deposition) surface coatings are making high-speed dry machining an increasingly viable machining operation in commercial manufacturing sectors. High oxidation resistant coatings, such as TiAlN, are used extensively in global manufacturing for reducing production costs and improving productivity in such aggressive metal-cutting operations. In this investigation, the characterization of different types of coatings (TiN, TiAlN, TiN+TiAlN, TiN+AlCrN) assessed by Coating's thickness, surface roughness, hardness and SEM with EDS have been evaluated. Cutting tools coated with materials capable of enhanced tribological and resistance properties. A heat-treated monolayer coating, competitive with other coatings. The film made out of TiN+AlCrN (aluminum–chromium–nitride) showed good characterization compared to other monolayer coatings.

KEYWORDS: Thin Film Coatings, PVD