

Deposition and characterization of Ti-Al-C-N coatings

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Titanium-aluminium based carbonitrides (Ti,Al)(C,N) hard coatings are characterized by excellent tribological behaviour in metal cutting and polymer forming contacts. In the present work, Ti-Al-C-N coatings were deposited on cemented carbides (WC-10 wt.% Co) substrates by lateral rotating cathodes (LARC^{®}) process using Platin π^{80} +DLC deposition unit. The effect of C₂H₂/N₂ gas flows ratio on element concentration, deposition rate, microstructure, cross-sectional morphology, hardness and tribological properties of the coatings was studied. Following analytical techniques, namely: scanning electron microscopy (SEM) with energy dispersive X-ray spectroscopy (EDS), laser scanning confocal microscopy (LSCM), X-ray diffraction analysis (XRD), nanoindentation (NI) and tribological measurements were used for Ti-Al-C-N coatings evaluation.

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