CVD SYNTHESIS OF BN AND BCN COATINGS USING TRIMETHYLBORATE PRECURSOR

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We have studied the formation conditions of boronitride (c-BN and a-BN) and B-C-N thin films deposited in abnormal glow discharge plasma using trimethylborate B(OCH$_3$)$_3$ as a main boron source precursor. Effect of gaseous atmosphere composition and the discharge current-voltage characteristics on the phase composition of deposited coatings was investigated. The composition and structure of the coatings were investigated using Raman spectroscopy, X-ray diffractimetry and SEM. Micro- and nanohardness of the films were also measured. Optical emission spectroscopy (OES) has been used to investigate the generation of active species in plasma during the deposition process.

Keywords: CVD synthesis, Boronitride, Boron carbonitride, Glow discharge plasma.