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# ABSTRACT BOOK

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# 2018

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# ABSTRACT BOOK



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➤ ORAL PRESENTATION

### Effect of Glass Surface Treatment on Boron Nitride Thin Film Formation

Duygu Gokdai<sup>1</sup>, Alev Akpınar Borazan<sup>1\*</sup>, Nuran Ay<sup>2</sup>

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#### Abstract

Boron nitride (BN) has extensive applications due to its many unique features. It is believed that BN crystal structure with an exposed crystal surface will benefit from many unique properties, such as excellent high thermal conductivity, mechanical strength. Thanks to these features thin h-BN coatings find applications in several fields such as protective coating for oxidation, UV, humidity and corrosion. Adhesion is one of the most important factors in thin film formation. In order to increase the adhesion between the two phases (glass substrate and film), the glass surface must be treated before coating. In this study, after the glass surfaces were treated using TEOS silane group and piranha solution, the coating was applied. The retention times of the glass surfaces in the piranha solution and the adherence of different ratios of the silane solution to the glass surface were investigated. Fourier Transform Infrared Spectrophotometer (FT-IR) analysis was performed for analysis of bond structures of the components in the thin film structure. Scanning Electron Microscopy (SEM) images were taken at different magnification ratios to define the surface morphology of the thin films. When the results were examined, it was observed that the piranha and silane solutions improved the glass surface. According to the SEM images, the silane was coated on the glass surface and the coating material was held on the silane.

**Keywords:** thin film, boron nitride, surface treatment, silane

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### ➤ POSTER PRESENTATION

#### Effect of Calcination Temperature on Egg shell/Polyester Composites

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#### Abstract

Composites are materials consisting of two or more definable components of different natures. Chicken eggshell (ES) is an agriculture product that has been listed worldwide as one of the worst environmental problems, especially in those countries where the egg product industry is well developed. ES consists of 95 % calcium carbonate and 5 % organic materials such as X collagen, polysaccharides, and other proteins. Although there have been several efforts to use eggshell reinforcements for different applications its chemical composition and availability makes eggshell a potential source of filler for polyester composites. In reported study egg shell/polyester composites were manufactured via casting method. The waste egg shells were heat pretreated prior to casting. Heating was carried out gradually at different temperatures (800, 900, 1000°C). The effect of calcination temperature on mechanical and physical properties of composites were investigated. Some mechanical properties such as bending strength, elastic modulus, hardness and izod impact were obtained. Physical properties (water absorption, open porosity, bulk density and thickness swelling) were investigated at different calcination temperatures. TGA analysis of egg shell/polyester composites was carried out to determine thermal behavior of egg shell during calcination process. SEM images were examined for morphological structure of egg shell/polyester composites.

**Keywords:** waste egg shell, mechanical properties, physical properties, calcination temperature



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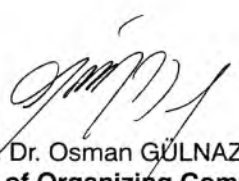
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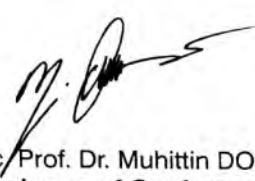
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