

# CHARACTERIZATION OF BORON CONTAINING COATINGS SYNTHESIZED BY SPRAY PYROLYSIS TECHNIQUE\*

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In last decades, there has been an increasing interest in the use of the spray pyrolysis method to prepare inorganic materials such as powders and coatings [1]. This method involves on forming of aerosol from precursor solution (salts of metal). The aerosol is then very rapidly heated in a tube furnace at different temperatures from 200 to 1300 °C to produce oxides, oxycarbides, sulfides etc. The spray pyrolysis method is low-cost, because of it does not require to use modern equipment or high-purity materials. Typical spray pyrolysis apparatus contains an atomizer (ultrasonic nebulizer), precursor solution, heater and flow regulator of carrier gas (Fig.1).

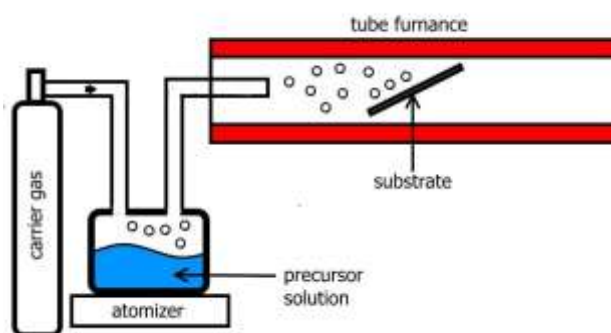


Fig.1. Spray pyrolysis apparatus.

The spray pyrolysis technique was used to deposit boron containing coatings [2]. Glass ceramic were used as substrates. The carrier gas was nitrogen. The starting reagents to deposit films were boric acid. Optical microscopy was used to investigate the microstructure and measure the thickness of the coatings. To understand the structure, phase composition of the coatings SEM and XRD was used. The surface topography evolution of coatings deposited by spray pyrolysis technique were investigated (Fig. 2).

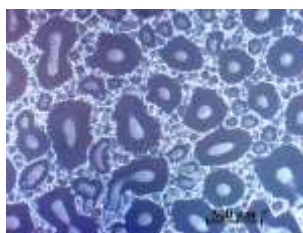


Fig.2. Coating surface topography.

It has been shown that the properties of the coatings depend on their thickness, structure, chemical and phase composition as well as on kinetic parameters used in the process [3].

## REFERENCES

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\* The work was supported by RFBR (project № 18-33-00387 mol\_a).