

Preparation of  $\text{LaPO}_4:\text{Tb}$  green nanophosphor by spray pyrolysis and application as  
luminescent pearl pigment

민병호, 정경열<sup>†</sup>, 김대성<sup>1</sup>, 최병기<sup>2</sup>, 강광중<sup>2</sup>

공주대학교; <sup>1</sup>한국세라믹기술연구원;

<sup>2</sup>(주)CQV

(kyjung@kongju.ac.kr<sup>†</sup>)

The phosphor is a useful material as a security material because it has an advantage of being easily identified using a simple light source. Therefore, if phosphor is used in combination with other security materials, it can be easily identified and the anti-counterfeiting function of the product, secured. Pearl luster pigment is a material that has its own security characteristics because it changes into a specific color depending on the angle of light shining. Therefore, it is possible to manufacture a high-level luminescent security material by introducing a phosphor into the pearlescent pigment. At this point, since the phosphors to be introduced should not impair the characteristics of the pearlescent pigment, optical characteristics and particle sizes corresponding thereto are required. In this study,  $\text{LaPO}_4:\text{Tb}$  green nano-phosphors were prepared by using salt-assisted spray pyrolysis(SASP). Also, concentrations of Tb and  $\text{NaHCO}_3$  were changed to confirm the luminescence characteristics and particle size changes. Finally, phosphors were coated on the surface of pearlescent pigments and results of their luminescent properties were confirmed.