Light Characteristics of Lens-type Brightness Enhancement Film

김기영*, 전애경[1], 이성일
한국생산기술연구원; [1](주)엔피케미칼
(kykim@kitech.re.kr*)

A micro-sized, spherical lens film which can be applied for optical materials for panel displays was fabricated. The mold was fabricated by arranging spherical particles on a 4x4 inch silicon wafer. The pattern was transferred onto a polyurethane film, and UV cured to make the film arranged with micro-lenses. The brightness characteristics were investigated according to the diameter and height of the lens. The diameters of the lenses used in this study were 20㎛ and 100㎛. With the 20㎛ diameter lens, the brightness increased by 10-15% when the height of the lens increased from 5 to 10㎛. With the 100㎛ diameter lens, the brightness of the film increased by 15-20% when the height of the lens increased from 25 to 50㎛. On the other hand, when the lens height increased to 50~75㎛, the brightness of the film decreased. 100㎛ lens had higher brightness than 20㎛ lens. The optimal value could be obtained when the height and radius of the lens were the same.