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## One-Dimensional Eu(III) and Tb(III)-Doped Gd Oxide Nanorods

Wonjoo Kim, Youngku Sohn\*

영남대학교 화학과

Red europium(III) and green terbium(III) activating phosphors have been doped and co-doped in gadolinium oxide supports by a hydrothermal method. Scanning electron microscope images reveal that they are one-dimensional nanorods of 40~50 wide and 250~300 nm long. The gadolinium oxide supports show Gd(OH)<sub>3</sub> of hexagonal phase and Gd<sub>2</sub>O<sub>3</sub> of cubic crystal structure before and after a thermal annealing, respectively based on X-ray diffraction analysis. Their physicochemical characteristics have further been examined by photoluminescence spectroscopy, FT-IR, UV-visible absorption, and optical microscope. The emission colors are characterized by CIE coordinates. In addition, the emissions from Eu(III) and Tb(III) are assigned to 5D<sub>0</sub> → 7F<sub>J</sub> (J=0,1,2,3,4) and 5D<sub>4</sub> → F<sub>J</sub> (J=6,5,4,3), respectively.

**Keyword:** Gd oxide