

Sintering properties of urea-derived Lu_2O_3 -based phosphors.

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Using combustion synthesis and urea as a fuel, Lu_2O_3 powders were prepared and their morphology defined with HRTEM measurements. The powders were sintered at 1700 °C for 5 h and the microstructure of the obtained ceramics was characterized. It turned out that the as-made powders were strongly agglomerated compositions with a mean particle size of 15–25 nm. High-temperature sintering caused some increase in the size of the crystallites, diameter increased to an average of 25–35 nm. However, domains of about 200–300 nm diameter were formed. These were separated by relatively broad transient regions. The inter-domain regions of rather ample thickness are blamed for relatively high scattering of the sintered ceramic specimens. The formation of the domains is correlated to the existence of agglomerates in the urea-derived nanoparticulate powders.

Słowa kluczowe

Sintering, Combustion, Lu_2O_3

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