

**Luminescence and Site Distribution of
Divalent Europium Ions in BaMgAl₁₀O₁₇
(BAM)**

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Search for efficient and robust luminescent materials for PDPs and highly loaded lamps continues since a majority of phosphors currently being used or studied exhibit various problems. BaMgAl₁₀O₁₇ doped with divalent Eu (BAM) is widely used as a blue phosphor in a number of applications. Equally known are the shortcomings in its brightness and maintenance [1]. We studied the material in single and polycrystalline form for determining the location of Eu ions in this complex lattice and the luminescence mechanisms using a variety of experimental and computer modeling methods. Reflectance, excitation, emission and time-resolved studies in VUV-UV-visible range will be presented and analyzed in the context of different environments in activator coordination. These results are compared with the picture of Eu²⁺ ions obtained from Mössbauer spectroscopy and cluster calculations. The likely luminescence mechanism will be outlined and its validity discussed in the context of maintenance problems.

1. S. Oshio, K. Kitamura, T. Nishiura, T. Shigeta, S. Horii, T. Matsuoka, National Technical Report 43, (1997) 181.

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