

Spectroscopic properties of sintered $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}$ (BAM) translucent pellets. Comparison to the commercial powder.

Autorzy

Eugeniusz Zych

W. Goetz

N. Harrit

H. Spanggaard

Rok wydania

2004

Czasopismo

Journal of Alloys and
Compounds

Numer woluminu

380

Strony

113-117

DOI

10.1016/j.jallcom.2004.03.036

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Efforts to obtain translucent pellets of BAM for Martian UV-dosimeter were undertaken. Sinterability of both commercial BAM powder and a Pechini-derived one was examined. The commercial phosphor sinters with difficulty only, while the one made with Pechini procedure sinters easily and translucent pellets could be obtained in such a way. Vacuum sintering at 1750 °C for 15 h was also enough to fully convert Eu^{3+} into Eu^{2+} in the sintered pellets without the necessity of using hydrogen-containing gas. The spectroscopy of the sintered BAM differs noticeably from its commercial powdered counterpart. The excitation is much more flat in the entire UV and especially strong enhancement of the excitation efficiency is observed in the near-Vis part of the UV region. Decay kinetics is exactly the same for commercial powder and sintered ceramic, which proves the lack of luminescence quenching in the latter. The sintered pellets of BAM made in our laboratory show mechanical and spectral characteristics, which make the material suitable for Martian UV-dosimeter.

Słowa kluczowe

BAM, Sintering, UV-dosimetry, Eu^{2+} luminescence

Adres publiczny

<https://doi.org/10.1016/j.jallcom.2004.03.036>

Strona internetowa wydawcy

<http://www.elsevier.com>