

X-ray luminescence of Gadolinium and Europium Silicate-based materials

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The materials on the basis of gadolinium and europium silicates were investigated to find compositions deciding x-ray luminescence optimum parameters. The colorless $Gd_2SiO_5(Eu)$ single crystals were obtained by Chochralski method. Their optical and scintillation homogeneity was provided by the proximity of europium distribution coefficient along the ingot to one. Concentration dependence of x-ray luminescence intensity was studied in the $Gd_2SiO_5 - Eu_2SiO_5$ system. Effective x-ray luminescence was demonstrated to have the solid solutions of europium oxoorthosilicate (to 10 mol.%) in gadolinium oxoorthosilicate.

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