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ISOTHERMAL SECTION OF THE La_2O_3-Lu_2O_3-Er_2O_3 TERNARY PHASE DIAGRAM AT 1250°C

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Abstract. The phase equilibria in the ternary La_2O_3–Lu_2O_3–Er_2O_3 system at 1250°C were studied by X-ray diffraction, and electron microscopy in the overall concentration range. At 1250°C in the La_2O_3–Lu_2O_3–Er_2O_3 system solution fields are formed based on cubic (C) modification of Lu_2O_3(Er_2O_3), hexagonal (A) modification of La_2O_3, as well as ordered phase structure perovskite-type $LaLuO_3$ ($LaErO_3$) (R). The isothermal section of the La_2O_3–Lu_2O_3–Er_2O_3 phase diagram at 1250°C has shown the three one-phase fields (A-La_2O_3, R, C-Lu_2O_3(Er_2O_3)) corresponding to solid solutions based on starting components and two dual-phase fields (C+R, A+R) between them. The refined lattice parameters of the unit cells for solid solutions and microstructures of the definite field of compositions for the systems solid were determined.

Keywords: phase equilibria, lanthana, lutetia, erbia, lattice parameter.

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