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**Laser-Induced Fluorescence Studies of Sm(III) and Cm(III) in HNO₃/DHDECMP
Extraction System**

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Abstract

Laser-induced fluorescence(LIF) studies of Sm³⁺ and Cm³⁺ complexes in HNO₃/DHDECMP solvent extraction system have been carried out. Luminescence lifetime together with LIF spectra were measured to determine the number of water molecules coordinated to Sm³⁺ and Cm³⁺ in the nitric acid solution and in DHDECMP phase. The hydration number of Sm³⁺ and Cm³⁺ in nitric acid solution decreased linearly with an increasing nitric acid concentration. The hydration numbers of Sm³⁺ and Cm³⁺ in DHDECMP phase decreased with an increase of nitric acid concentration. The water molecules in the inner coordination sphere of Sm³⁺ and Cm³⁺ extracted into the DHDECMP from nitric acid solution were not completely removed at the low nitric acid concentration and decreased with an increase of nitric acid concentration.