

1. Record Nr.	UNINA9910298617203321
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Titolo	Electron Microscopical Investigation of Interdiffusion and Phase Formation at Gd ₂ O ₃ /CeO ₂ - and Sm ₂ O ₃ /CeO ₂ -Interfaces // by Christian Rockenhäuser
Pubbl/distr/stampa	Wiesbaden : , : Springer Fachmedien Wiesbaden : , : Imprint : Springer, , 2015
ISBN	3-658-08793-5
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (117 p.)
Collana	MatWerk, , 2522-0756
Disciplina	54 541 620.11 621.042 621.4021
Soggetti	Chemistry, Physical and theoretical Thermodynamics Heat engineering Heat - Transmission Mass transfer Materials science Energy systems Physical Chemistry Engineering Thermodynamics, Heat and Mass Transfer Materials Science, general Energy Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Research"--Cover.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Fundamentals -- Experimental Techniques and Instrumentation -- The Gd(x)Ce(1-x)O(2-x/2) System: Phase Formation and Cation Interdiffusion -- The Sm(x)Ce(1-x)O(2-x/2) System: Phase Formation and Cation Interdiffusion -- Summary. .
Sommario/riassunto	Christian Rockenhäuser adresses phase formation and cation interdiffusion of the GdxCe1-xO2-x/2-and SmxCe1-xO2-x/2-material

systems at temperatures ranging from 970 to 1270°C. Diffusion couples with CeO₂/Sm₂O₃ and CeO₂/Gd₂O₃ interfaces were fabricated for the investigations. The resulting reaction phases were investigated utilizing transmission electron microscopy (TEM) and allow conclusions regarding the phase diagrams in the examined temperature range. A miscibility gap can be ruled out for Gd_xCe_{1-x}O_{2-x/2} across the whole composition range. Cation interdiffusion coefficients were determined for both material systems by measuring and evaluating concentration profiles at the material interfaces. The activation enthalpies for interdiffusion were calculated using the temperature dependence of the interdiffusion coefficients. The study for the first time compiles comprehensively the previous results regarding the phase diagrams of the two material systems since 1923.
