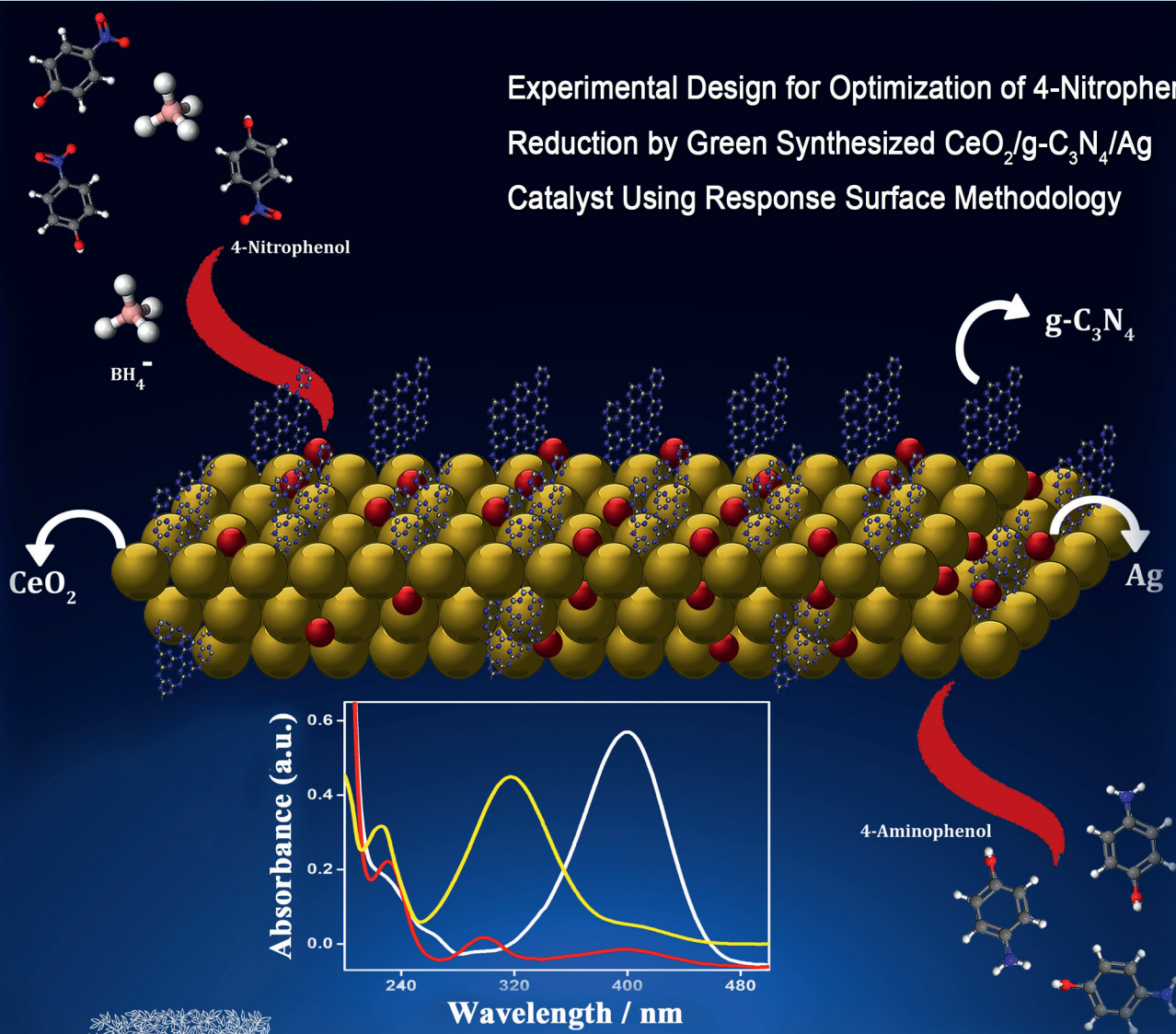


Journal of Rare Earths

Experimental Design for Optimization of 4-Nitrophenol
Reduction by Green Synthesized $\text{CeO}_2/\text{g-C}_3\text{N}_4/\text{Ag}$
Catalyst Using Response Surface Methodology



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- Plasmon-enhanced broad-band quantum-cutting of NaBaPO₄:Eu²⁺,Er³⁺ phosphors with silver nano-particles
*Jinquan Hong, Lin Lin, Xiaoyan Li, Zhuohong Feng, Lili Huang, Qing Qin, Zhiqiang Zheng* 1151
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*Guangpeng Jiang, Lulu Song, Dongliang Tao, Feng Jin* 1165

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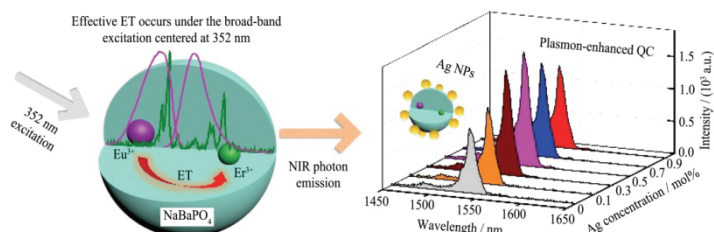
- Partitioning of rare earth elements and yttrium (REY) in five coal-fired power plants in Guizhou, Southwest China
*Zhonggen Li, Xinyu Li, Leiming Zhang, Shan Li, Ji Chen, Xinbin Feng, Dongbo Zhao, Qingfeng Wang, Zhixi Gao, Bailian Xiong* 1257

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SPECTROSCOPY, LUMINESCENCE AND PHOSPHORS

- 1151 Plasmon-enhanced broad-band quantum-cutting of $\text{NaBaPO}_4:\text{Eu}^{2+}, \text{Er}^{3+}$ phosphors with silver nano-particles

Jinquan Hong, Lin Lin, Xiaoyan Li,
Zhuohong Feng, Lili Huang, Qing Qin,
Zhiqiang Zheng

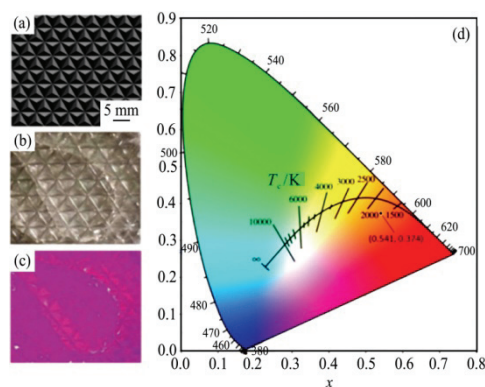


Three-photon NIR quantum-cutting occurs through two-step cross-relaxation of Er^{3+} under the broad excitation band centered at 352 nm in $\text{NaBaPO}_4:\text{Eu}^{2+}, \text{Er}^{3+}$ phosphors. Plasmon-enhanced broad-band QC of $\text{NaBaPO}_4:\text{Eu}^{2+}, \text{Er}^{3+}$ phosphors are realized by decorating with Ag NPs, and the maximum enhancement factor is 1.395

J. Rare Earths, (38) 2020: 1151-1157

- 1158 A downshifting Eu^{3+} doped glass embedded with concave pyramid microstructure to improve the efficiency of silicon solar cell

Xing Yang, Jiachao Chen, Songsheng Zheng,
Chao Chen

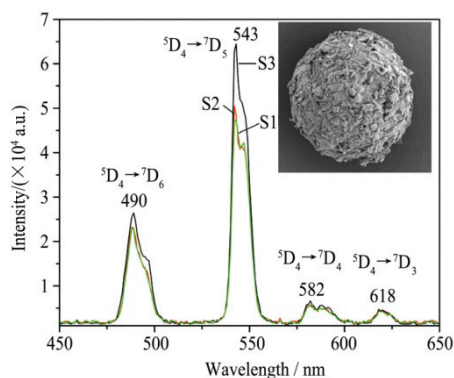


A Eu^{3+} doped CPM glass was fabricated. The average PCE increases from 14.21 (± 0.005)% to 14.61 (± 0.07)% when a 5 wt% Eu^{3+} doped CPM glass covers on the silicon solar cell

J. Rare Earths, (38) 2020: 1158-1164

- 1165 Characterization of luminescent hydroxyapatite@terbium complex core-shell composites using chlorobenzoic acid as ligands

Guangpeng Jiang, Lulu Song,
Dongliang Tao, Feng Jin



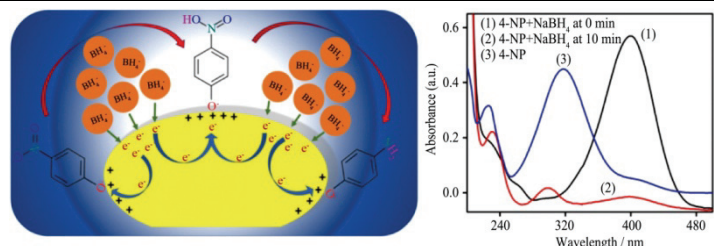
Luminescent hydroxyapatite@terbium complex core-shell composites were synthesized. Tb complexes are homogeneously coated on the surface of hydroxyapatite microspheres

J. Rare Earths, (38) 2020: 1165-1170

RARE EARTH CATALYSIS

- 1171 Experimental design for optimization of 4-nitrophenol reduction by green synthesized $\text{CeO}_2/\text{g-C}_3\text{N}_4/\text{Ag}$ catalyst using response surface methodology

Dephan Pinheiro, K.R. Sunaja Devi,
Ajay Jose, Kashinathan Karthik,
Sankaran Sugunan, Mothi Krishna Mohan

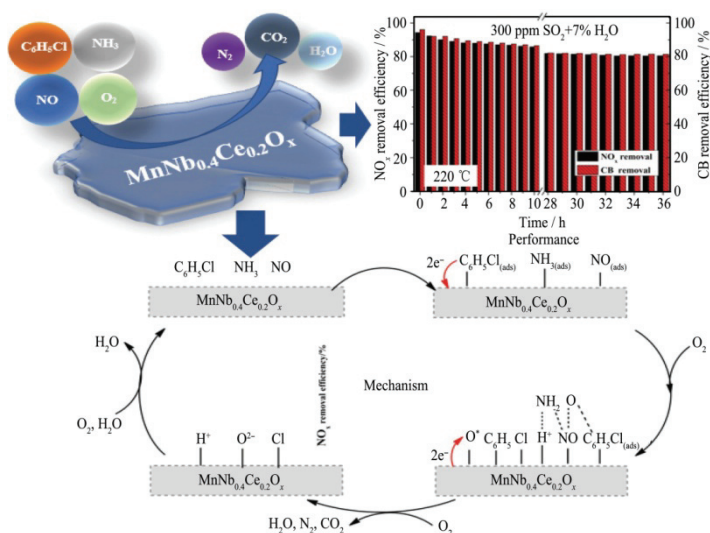


$\text{CeO}_2/\text{g-C}_3\text{N}_4/\text{Ag}$ catalyst synthesized using *Piper betle* leaf extract shows good catalytic activity towards the reduction of 4-nitrophenol. The reaction conditions were optimized for maximum efficiency using BBD of RSM. Quick reduction time and green synthetic method make $\text{CeO}_2/\text{g-C}_3\text{N}_4/\text{Ag}$ an efficient and eco-friendly catalyst for the reduction of 4-nitrophenol

J. Rare Earths, (38) 2020: 1171-1177

- 1178 Synergetic catalytic removal of chlorobenzene and NO_x from waste incineration exhaust over $\text{MnNb}_{0.4}\text{Ce}_{0.2}\text{O}_x$ catalysts: Performance and mechanism study

Bo Yang, Qijie Jin, Qiong Huang,
Mindong Chen, Leilei Xu, Yuesong Shen,
Haitao Xu, Shemin Zhu, Xiujun Li

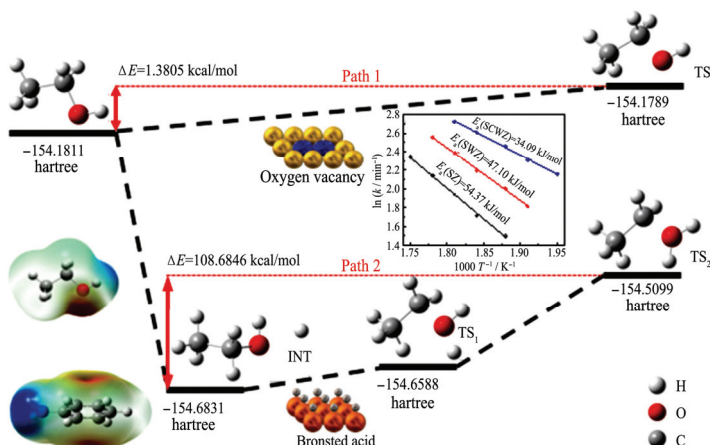


The NO_x and CB removal efficiency of $\text{MnNb}_{0.4}\text{Ce}_{0.2}\text{O}_x$ still remains above 80% after injecting 300 ppm SO_2 and 7 vol% H_2O for 36 h. In addition, the presence of CB and NO_x + NH_3 can improve the NO_x and CB removal efficiency of $\text{MnNb}_{0.4}\text{Ce}_{0.2}\text{O}_x$, respectively

J. Rare Earths, (38) 2020: 1178-1189

- 1190 Lewis acid-oxygen vacancy interfacial synergistic catalysis over $\text{SO}_4^{2-}/\text{Ce}_{0.84}\text{Zr}_{0.16}\text{O}_2\text{-WO}_3\text{-ZrO}_2$ for N,N-diethylation of aniline with ethanol

Yacheng Liu, Qifan Mao, Xiaoyan Cao,
Xin Huang, Kaijun Wang, Can Wang,
Shuo Li, Zhenggui Gu

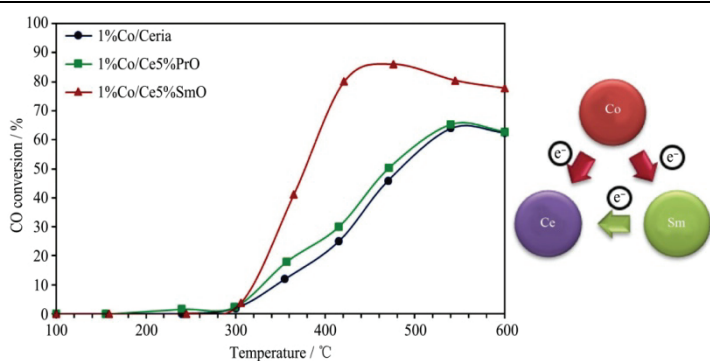


The lower energy, calculated by DFT, needs to be input for the release of the carbocation on oxygen vacancy than that on Bronsted acid contributes the N,N-diethylation of aniline with ethanol. The apparent activation energy (E_a) of $\text{SO}_4^{2-}/\text{Ce}_{0.84}\text{Zr}_{0.16}\text{O}_2\text{-WO}_3\text{-ZrO}_2$ is much lower than that of $\text{SO}_4^{2-}/\text{WO}_3\text{-ZrO}_2$ and $\text{SO}_4^{2-}/\text{ZrO}_2$, illustrating comparatively preferable kinetics of SCWZ than that of SWZ and SZ

J. Rare Earths, (38) 2020: 1190-1200

- 1201 Effect of samarium and praseodymium addition on water gas shift performance of Co/CeO₂ catalysts

Pannipa Tepamatr, Navadol Laosiripojana,
Thanathon Sesuk, Sumittra Charojrochkul

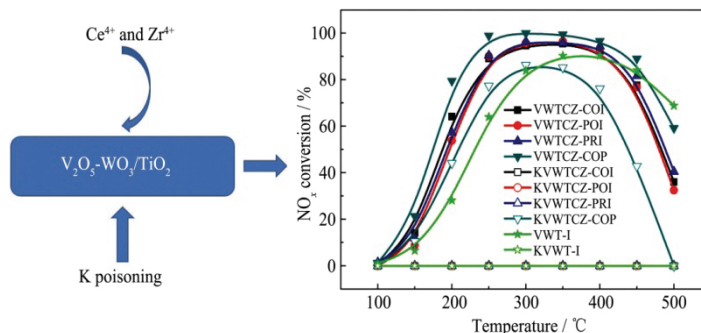


Cobalt donates its electron to both cerium and samarium. Therefore, Sm helps Co in reducing Ce^{4+} and giving rise to more oxygen vacancies which facilitates the electron movement at the surface leading to an increase in the water gas shift rates

J. Rare Earths, (38) 2020: 1201-1206

1207 Effects of different introduction methods of Ce^{4+} and Zr^{4+} on denitration performance and anti-K poisoning performance of $V_2O_5-WO_3/TiO_2$ catalyst

Jun Cao, Xiaojiang Yao, Li Chen,
Keke Kang, Min Fu, Yang Chen

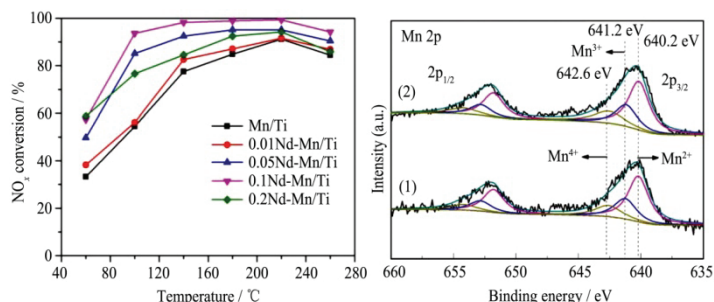


Introduction of Ce^{4+} and Zr^{4+} by co-precipitation method is more beneficial to enhancing the denitration performance and anti-K poisoning performance of $V_2O_5-WO_3/TiO_2$ catalyst than impregnation method, and the optimal molar ratio of Ce^{4+}/Zr^{4+} is 2:1

J. Rare Earths, (38) 2020: 1207-1214

1215 Promoting effect and mechanism of neodymium on low-temperature selective catalytic reduction with NH_3 over Mn/TiO₂ catalysts

Peng Wu, Yaping Zhang, Ke Zhuang,
Kai Shen, Sheng Wang, Tianjiao Huang



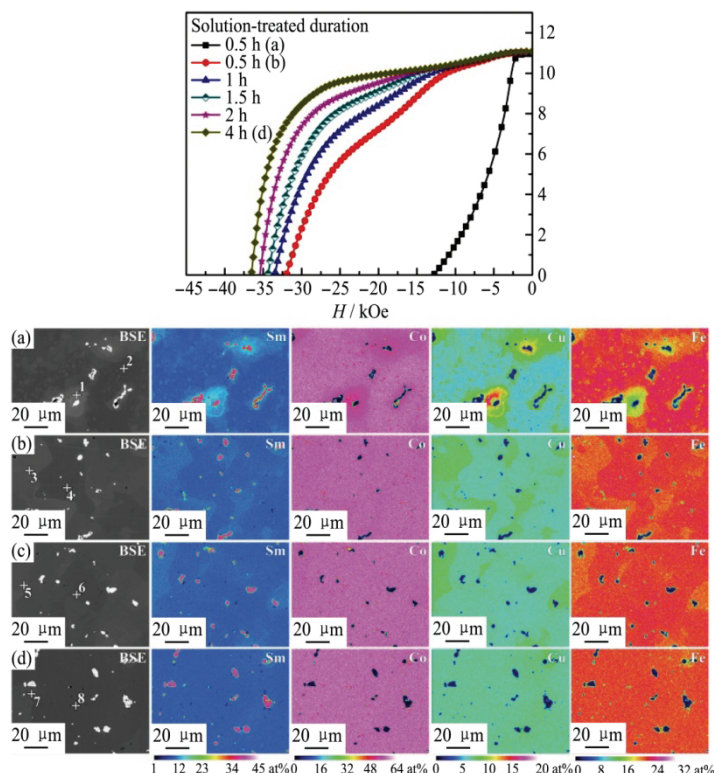
Nd-modified Mn/Ti catalyst exhibits better low-temperature SCR activity with high N_2 selectivity and SO_2 resistance. Nd addition significantly improves the concentration of Mn^{4+} and the amount of adsorbed oxygen

J. Rare Earths, (38) 2020: 1215-1223

MAGNETISM AND MAGNETIC MATERIALS

1224 Optimization of both coercivity and knee-point magnetic field of Sm_2Co_{17} -type magnets via solid solution process

Shuai Wang, Yikun Fang, Kuikui Song,
Xiaoyu Zhu, Lei Wang, Wei Sun, Wei Pan,
Minggang Zhu, Wei Li



Microstructure and magnetic properties of the $Sm(Co_{0.9}Fe_{0.233}Cu_{0.073}Zr_{0.024})_{7.6}$ sintered magnets were adjusted by solid-solution treatment. There mainly exist two different regions except the Sm_2O_3 : the gray region and the dark one in all the specimens and the content of Sm, Cu and Fe elements in the two types of regions tends to the same with increasing t_s from 0 to 4 h. At the same time, intrinsic coercivity (H_{ci}) increases from 12.83 to 36.54 kOe, magnetic field at knee-point (H_{knee}) increases from 2.76 to 19.14 kOe, and the maximum energy product increases from 19.79 to 29.48 MGOe. It is verified that sufficient solution treatment duration is prerequisite to form these homogeneous microstructural features, which are the key points for obtaining both high H_{ci} and H_{knee}

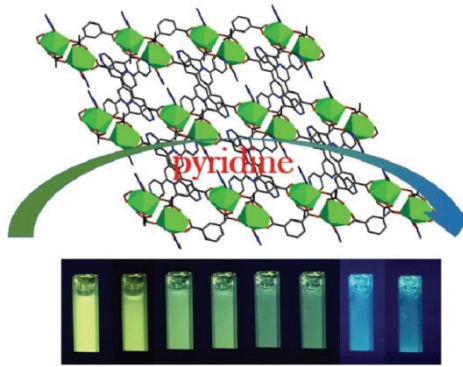
J. Rare Earths, (38) 2020: 1224-1230

ADVANCED RARE EARTH MATERIALS

1231 A novel terbium metal-organic framework for luminescence sensing of pyridine: Synthesis, structure, selectivity, sensitivity and recyclability

Ying Shi, Liyuan He, Xinxin Wang, Zhilei Wu, Ning Gao, Huan Zhang, Wenmin Wang, Jianzhong Cui

J. Rare Earths, (38) 2020: 1231-1236

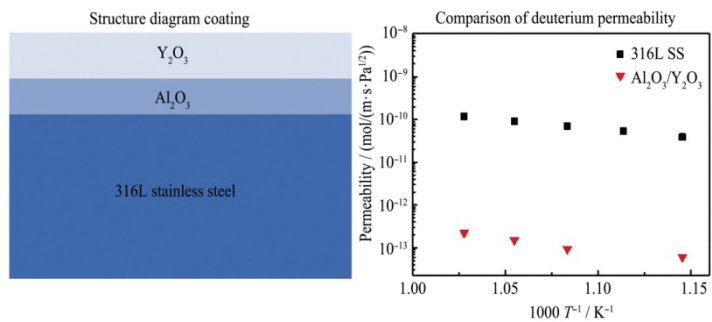


One novel two-dimensional terbium-based framework exhibits highly sensitive sensing of pyridine with the lowest detection limit of 0.12 vol%

1237 Preparation of Al₂O₃/Y₂O₃ composite coating for deuterium permeation reduction

Weijing Wang, Qinghe Yu, Xiaopeng Liu, Zheng Lu

J. Rare Earths, (38) 2020: 1237-1242



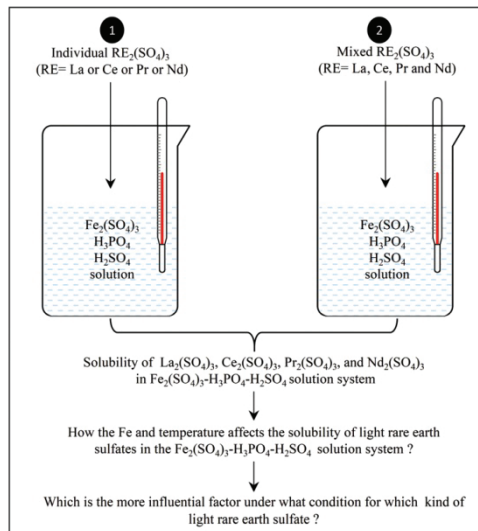
The deuterium permeability of Al₂O₃/Y₂O₃ composite coating can be 3 orders of magnitude lower than that of uncoated 316 L stainless steel, and it offers efficient inhibition to deuterium permeation with a D-PRF of 536–750 at 873–973 K

CHEMISTRY AND HYDROMETALLURGY

1243 Effects of iron and temperature on solubility of light rare earth sulfates in multicomponent system of Fe₂(SO₄)₃-H₃PO₄-H₂SO₄ synthetic solution

Shiliang Chen, Longsheng Zhao, Meng Wang, Zongyu Feng, Chao Xia, Yang Xu, Xiaowei Huang

J. Rare Earths, (38) 2020: 1243-1250

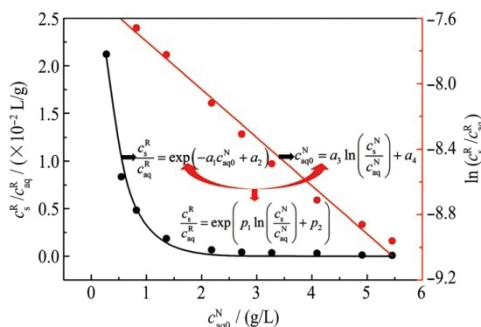


The solubility behavior of individual rare earth sulfate and mixed rare earth sulfate in the Fe₂(SO₄)₃-H₃PO₄-H₂SO₄ solution system shows great difference. The concentration of Fe₂(SO₄)₃ has a negative influence on the solubility of light rare earth sulfates

1251 A two-parameter model for ion exchange process of ion-adsorption type rare earth ores

Ping Long, Guanshi Wang, Chao Zhang, Ying Huang, Sihai Luo

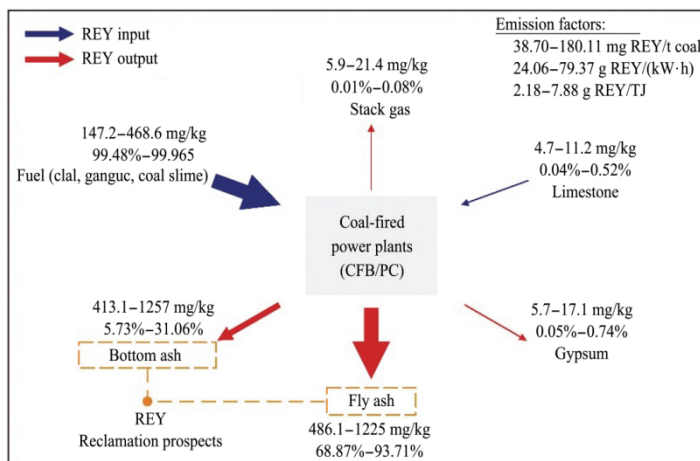
J. Rare Earths, (38) 2020: 1251-1256



Through the analysis of the data of batch test, a two-parameter model (empirical model) for the equilibrium ion exchange process of IATREO was established. Compared with the commonly used models, the proposed model is more accurate

1257 Partitioning of rare earth elements and yttrium (REY) in five coal-fired power plants in Guizhou, Southwest China

Zhonggen Li, Xinyu Li, Leiming Zhang,
 Shan Li, Ji Chen, Xinbin Feng,
 Dongbo Zhao, Qingfeng Wang, Zhixi Gao,
 Bailian Xiong



Partition of REY in CFPPs in Guizhou

J. Rare Earths, (38) 2020: 1257-1264