

Supporting Information for

**New Short-Channel SBA-15 Mesoporous Silicas Functionalized with
Polyazamacrocyclic Ligands for Selective Capturing of Palladium Ions in HNO₃**

Media

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Experimental details

Sample preparation for XPS survey

50 mg SBA-15-Cyclen were immersed in 1.0 mol/L HNO₃ solution containing 0.5 g/L Pd(II) in a 25 °C oscillator. After shaking for 48 h to reach the adsorption equilibrium, the resulting SBA-15-Cyclen-Pd were separated by centrifuging and washed with water and ethanol, respectively, followed by drying at 60 °C under vacuum for 12 h.

Regeneration of SBA-15-Cyclen

The reusability of SBA-15-Cyclen was evaluated through batch adsorption-elution cycle experiments. Firstly, the Pd(II)-loaded SBA-15-Cyclen mesoporous silicas after saturated adsorption were separated by centrifuging and rinsed with deionized water and ethanol, respectively. After drying at 60 °C under vacuum, the SBA-15-Cyclen-Pd were relocated to 1% thiourea in 0.5 mol/L HNO₃ solutions and shaken for 4 h at 25°C. After the desorption of Pd(II), the SBA-15-Cyclen were regenerated and washed with deionized water for cycle use.