Direct Phenol Synthesis by Selective Oxidation of Benzene with Molecular Oxygen on a N-interstitial Re Cluster/Zeolite Catalyst**

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Supporting Information 1. Catalytic performances for the selective benzene oxidation under the steady-state conditions on the Re/HZSM-5 catalyst (Re: 0.58 wt%, SiO$_2$/Al$_2$O$_3$ = 19) at 553 K. ▲: phenol formation rate on Re-CVD/HZSM-5, ▼: phenol selectivity on Re-CVD/HZSM-5, □: phenol formation rate on Re-impreg/HZSM-5, △: phenol selectivity on Re-impreg/HZSM-5.
Supporting Information 2. Re L-edge EXAFS Fourier-transforms for Re/HZSM-5 (Re: 0.58 wt%, CVD, SiO$_2$/Al$_2$O$_3$ = 19) after He treatment (top), after the NH$_3$ treatment for 2 h (middle), and after the steady-state reaction (bottom). Solid and dotted spectra represent observed and fitted data (absolute and imaginary parts), respectively.
Supporting Information 3. N$_2$ TPD spectra for the Re/HZSM-5 catalyst (Re: 0.58 wt%, CVD, SiO$_2$/Al$_2$O$_3$ = 19) (•) and HZSM-5 (○), treated with NH$_3$ at 553 K for 2 h.