Support Information

Table S1 Physical properties of the Cr-HP(x)/TP catalysts.

Fig. S1. The N_2 adsorption-desorption isotherms (a) and BJH pore distribution curves (b) of the Cr-HP(x)/TP catalysts.

Fig. S2 S 2p XPS spectra of two poisoned catalysts: Cr-HP(0)/TP and Cr-HP(3)/TP.

Table S1 Physical properties of the Cr-HP(x)/TP catalysts.

Sample	Crystal sizes[a]	Surface area (m^2 /g)[b]		Pore volume	Pore diameter[c]
	d (nm)	A_{BET}	$A_{Langmuir}$	V_p (cm^3 /g)	D_p (nm)
Cr-HP(0)/TP	6.1	140.2	221.7	0.163	7.6
Cr-HP(2)/TP	4.7	141.9	226.6	0.163	7.5
Cr-HP(3)/TP	4.2	144.2	230.6	0.171	7.2
Cr-HP(6)/TP	5.0	140.6	223.1	0.163	7.3

[a] Crystal sizes of the Cr-HP(x)/TP catalysts calculated through Debye-Scherrer formulation from half peak width of the diffraction peak in the XRD patterns.

[b] Surface areas calculated by the BET method and Langmuir method.

[c] Pore sizes obtained from the N_2 adsorption isotherms by the BJH method.

The specific surface area, total pore volume and average pore radius were obtained by N_2 adsorption at -196 °C by the Brunauer-Emmett-Teller (BET) method in a Autosorb-iQ2-MP (USA) instrument. Prior to the measurements, the samples were pretreated at 150 °C for 5 h. The BET surface area was determined using the multipoint BET method. The pore size distribution was measured by the BJH (Barret-Joyner-Halender) method.

The N_2 adsorption/desorption isotherms and the corresponding BJH pore size distribution curves of the Cr-HP(x)/TP catalysts are presented in Fig. S1. Slightly distorted type-IV isotherms in the relative pressure range of 0.4~0.8 of the sorption curves of Cr-HP(3)/TP confirm the formation of a mesopore structure. A well-defined H2-type hysteresis loop is observed at high relative pressure range (P/P_0) for every sample. This H2-type hysteresis

loop is typical for wormhole-like mesostructure and interstice mesoporous structure formed by nanoparticle assembly. The isotherms for Cr-HP(x)/TP are similar because of their same support and lower loading. Furthermore, the BJH pore size distributions of mesoporous materials, calculated from the desorption isotherms, show that the Cr-HP(0)/TP, Cr-HP(2)/TP, Cr-HP(3)/TP and Cr-HP(6)/TP have the mesoporous diameters of average pore distribution, 7.6 nm, 7.5 nm, 7.2 nm and 7.3 nm, respectively. Physical properties of the Cr-HP(x)/TP catalysts are summarized in Table S1. A relatively large surface area provides more active sites for adsorption of reactant molecules, making the denitration process more efficient. However, the special surface area is not a determining parameter for the catalytic activity in NO oxidation.

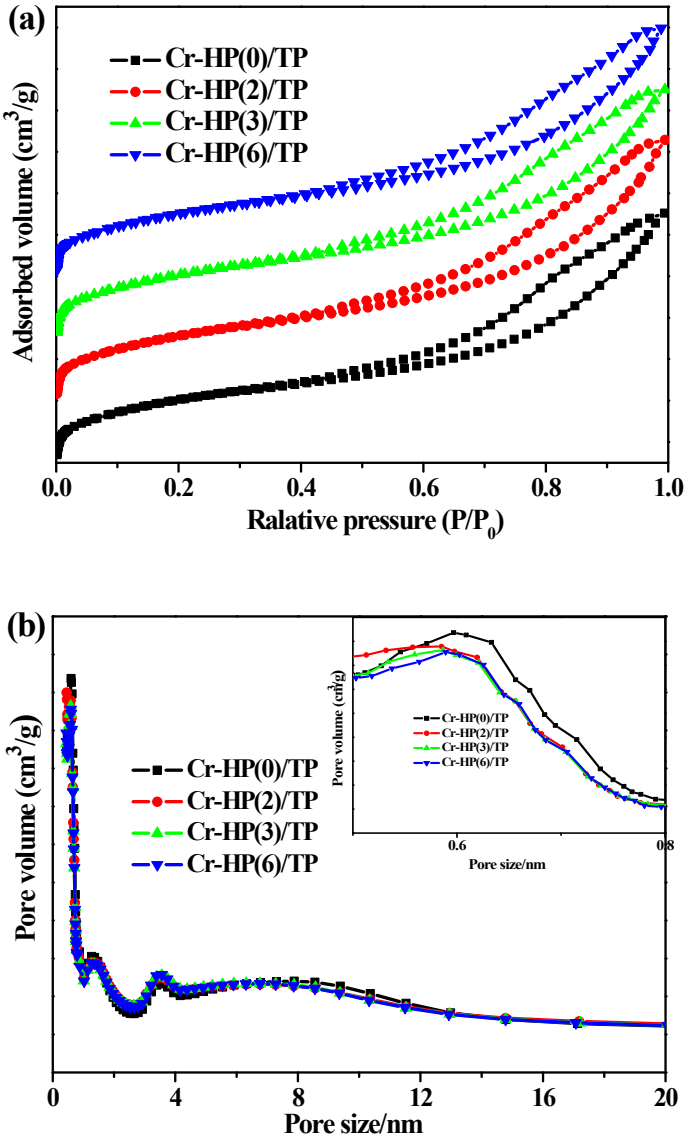

Fig. S1. The N_2 adsorption-desorption isotherms (a) and BJH pore distribution curves (b) of the Cr-HP(x)/TP catalysts.

S2p XPS spectra of two poisoned catalysts are presented in Fig. S2. Sulfur species exist in the form of sulfate and sulfite in this study. The peak at 168.6 eV is assigned to the formation of surface sulfite (SO_3^{2-}) species while the band at higher binding energy (169.7 eV) is ascribed to the formation of surface sulfate (SO_4^{2-}) species.

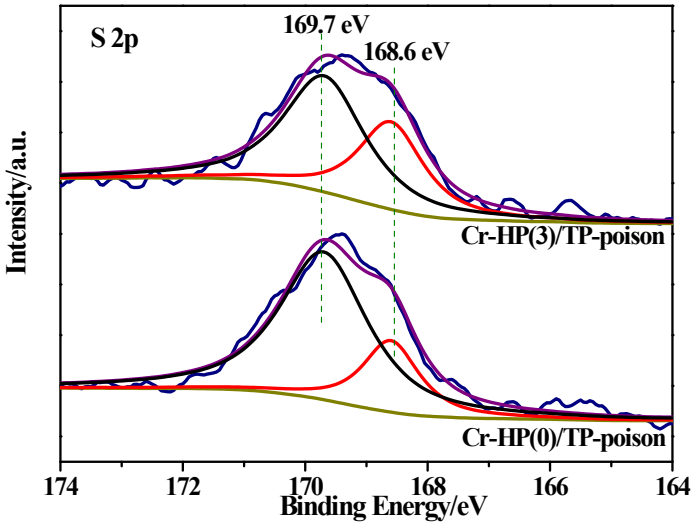

Fig. S2 S 2p XPS spectra of two poisoned catalysts: Cr-HP(0)/TP and Cr-HP(3)/TP.