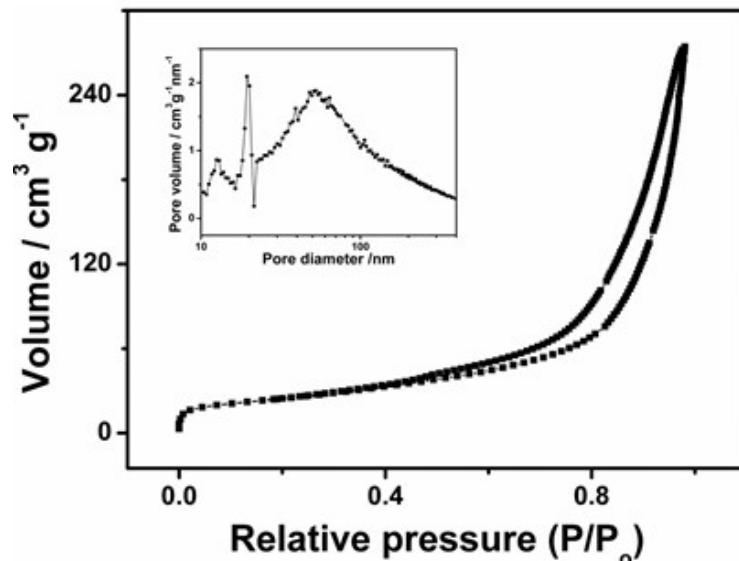
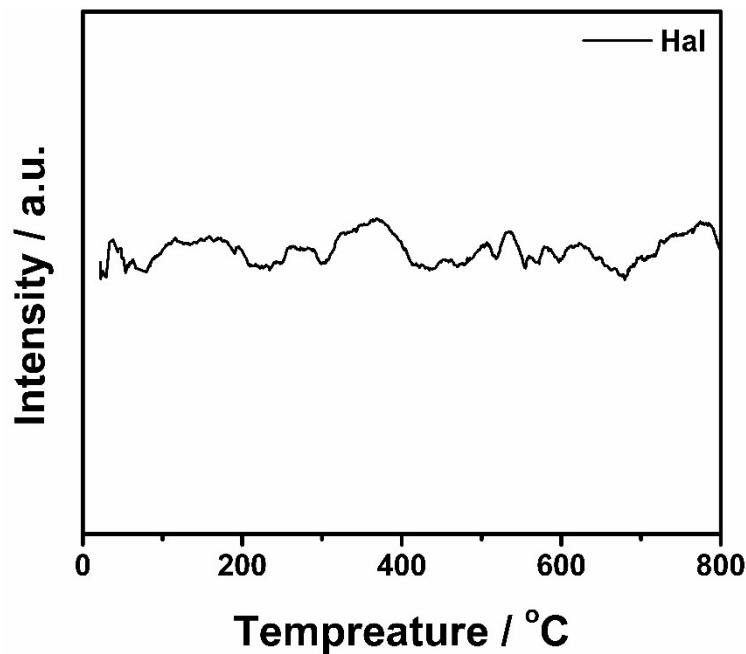


## Natural Clay-Supported Palladium Catalysts for Methane Oxidation Reaction: Effect of Alloying

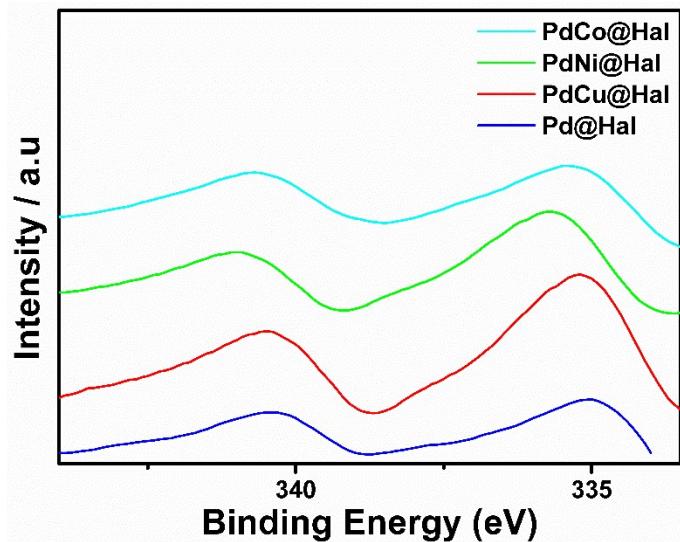
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**Fig. S1.**  $N_2$  Adsorption-desorption isotherms over pristine halloysite nanotubes



**Fig. S2.**  $H_2$ -TPR profile of halloysite nanotubes



**Fig. S3.** High resolution XPS spectra of Pd 3d in different as-synthesized catalysts