The existing states of potassium species in K-doped Co₃O₄ catalysts and their influences on the activities for NO and soot oxidation

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![Fig. S1 FT-IR spectra of K₀.₁Co and K₀.₁Co-w catalysts.](image)

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Fig. S2 Soot combustion in 8% O2/Ar.
Fig. S3 Ozawa plots at a soot conversion of 50% on Co$_3$O$_4$, K$_{0.1}$Co and K$_{0.1}$Co-w. The feed gas was 8% O$_2$/Ar.
Fig. S4 Ozawa plots at a soot conversion of 50% on $\text{Co}_3\text{O}_4$, $K_{0.1}\text{Co}$ and $K_{0.1}\text{Co-w}$. The feed gas was 500 ppm NO + 8% O$_2$/Ar.
Fig. S5 Arrhenius plots for NO oxidation on $\text{Co}_3\text{O}_4$ and $\text{K}_{0.1}\text{Co-w}$. The feed gas was 500 ppm NO + 8% $\text{O}_2$/Ar.
Fig. S6 Activity curves for soot oxidation in 8% O₂/Ar over Co₃O₄, K₀.1Co-w and 0.7 wt% K₂CO₃/Co₃O₄ catalysts.
Fig. S7 XRD patterns of K$_{0.1}$Ce and K$_{0.1}$Ce-w.
Fig. S8 XRD patterns of $K_{0.1}\text{Cu}$ and $K_{0.1}\text{Cu-w}$. 
Fig. S9 XRD patterns of $K_{0.1}\text{Fe}$ and $K_{0.1}\text{Fe-w}$. 
Fig.S10 $T_{50}$ for soot oxidation under loose contact over K$_{0.1}$Co·w in 3 times of TPO recycles.
Fig. S11 Activity curves of 3 times recycle evaluations for NO oxidation on K$_{0.1}$Co-w in 500 ppm NO + 8 % O$_2$/Ar.