Electronic Supporting Information for:

Domain-Confined Catalytic Soot Combustion over Co_3O_4 Anchored on TiO_2 Nanotubes Array Catalyst Prepared by Mercaptoacetic Acid Induced Surface-Grafting

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Captions of Supporting Tables and Figures:

Table S1 The diameter of Co_3O_4 nanocrystals, the Co/Ti atomic ratios and the contents of Co in the catalysts

Fig. S1 XRD patterns of the catalysts: (a) TiO_2-NA; (b) Co_3O_4/TiO_2-NA (DD); (c) Co_3O_4/TiO_2-NA (CB); (d) Co_3O_4/TiO_2-NA (SG); (e) Co_3O_4 powder

Fig. S2 UV-vis diffuse reflectance absorption spectra of the catalysts

Fig. S3 The size distribution of Co_3O_4 nanocrystals in different catalysts: (a) Co_3O_4/TiO_2-NA (DD); (b) Co_3O_4/TiO_2-NA (CB).

Fig. S4 EDX spectrum corresponding to the circled area in Fig. 2h for the catalyst Co_3O_4/TiO_2-NA(SG)

Fig. S5 DTG curves of soot oxidation in highly pure N_2 over Co-containing catalysts

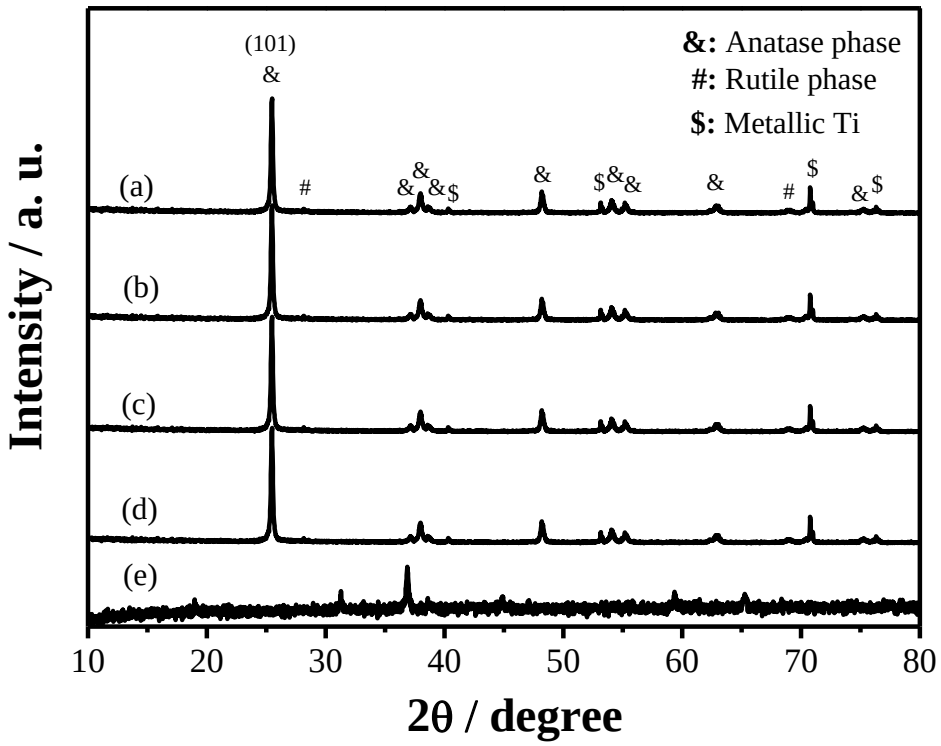
Table S1 The diameter of Co_3O_4 nanocrystals, the Co/Ti atomic ratios and the contents of Co in the catalysts

Catalyst	Co_3O_4/TiO_2-NA(DD)	Co_3O_4/TiO_2-NA(CB)	Co_3O_4/TiO_2-NA(SG)
D (nm) [a]	11.2	4.3	4.6
Co/Ti (molar ratio) [b]	1/23	1/32	1/34
Co_3O_4 content (wt %) [c]	2.00	2.06	2.02

[a] *D*: the average particle size of Co_3O_4 calculated by TEM images.

[b] Co/Ti: the molar ratio obtained through EDX results.

[c] Co_3O_4 content: the weight percentage obtained through AAS analysis.



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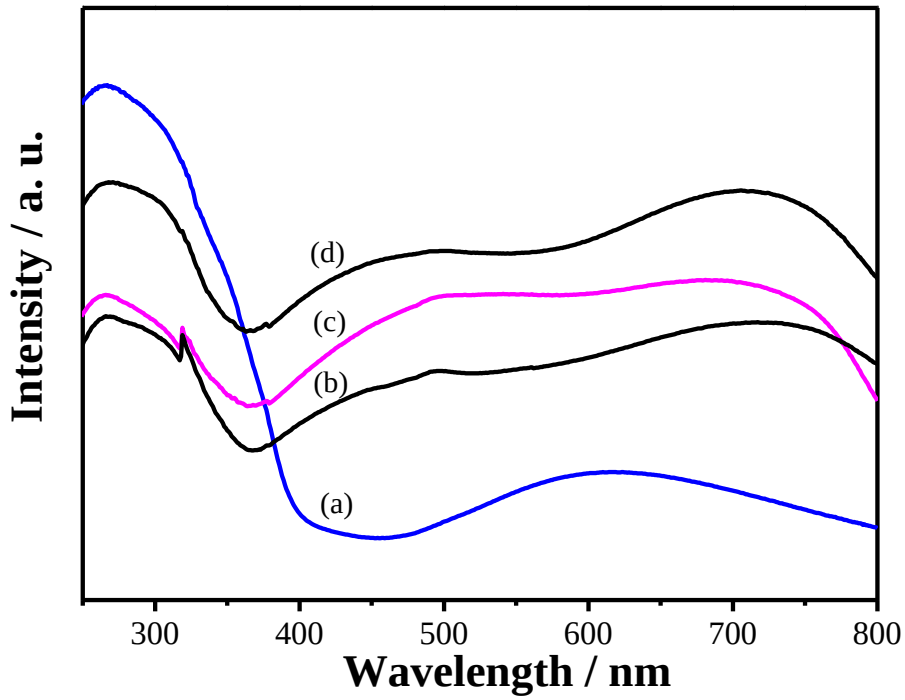
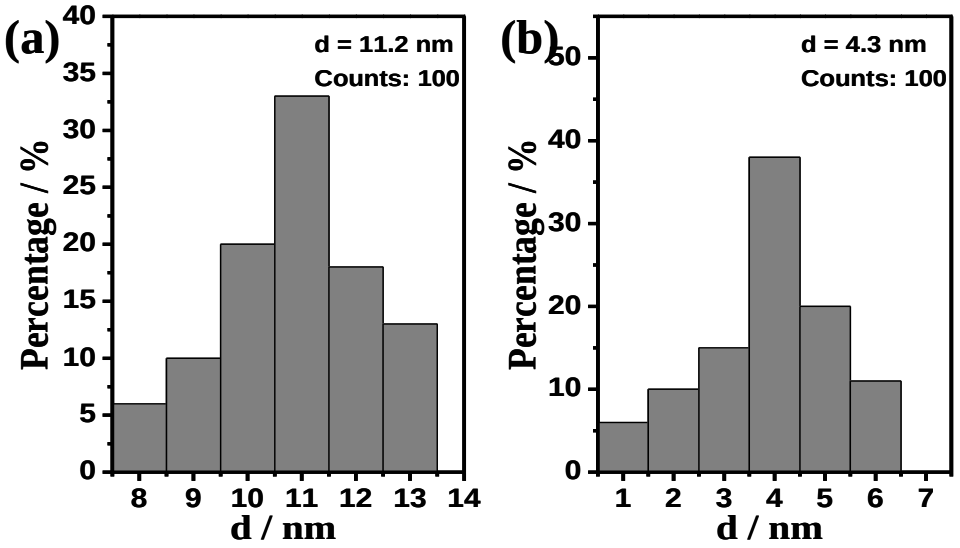


Fig. S2 UV-vis diffuse reflectance absorption spectra of the catalysts: (a) TiO_2-NA; (b) Co_3O_4/TiO_2-NA(CB); (c) Co_3O_4/TiO_2-NA(SG); (d) Co_3O_4/TiO_2-NA(DD).



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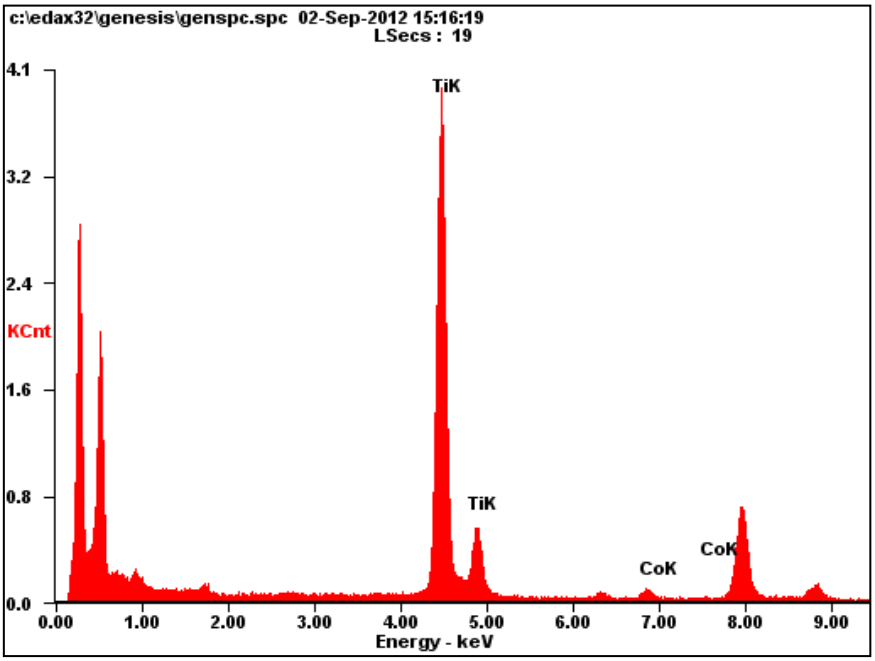

Fig. S4 EDX spectrum corresponding to the circled area in Fig. 2h for the catalyst Co_3O_4/TiO_2-NA(SG).

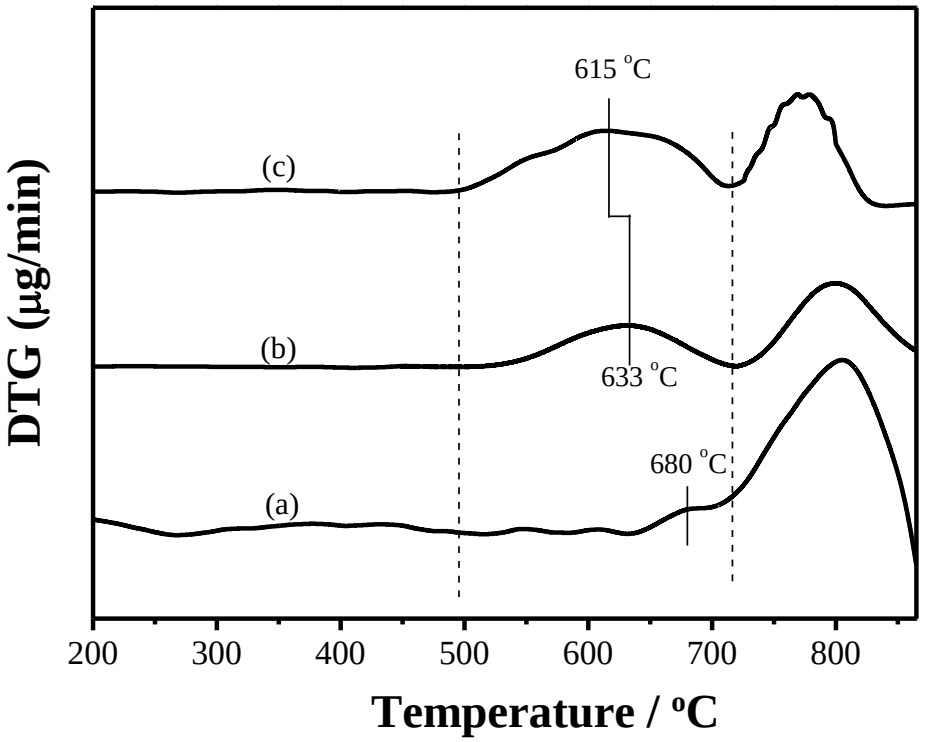

Fig. S5 DTG curves of soot oxidation in highly pure N_2 over Co-containing catalysts: (a) Co_3O_4/TiO_2-NA (DD); (b) Co_3O_4/TiO_2-NA (CB); (c) Co_3O_4/TiO_2-NA (SG).