Supporting Information

In-situ sulfation of Cu/TiO_2 catalysts for catalytic combustion of dichloromethane

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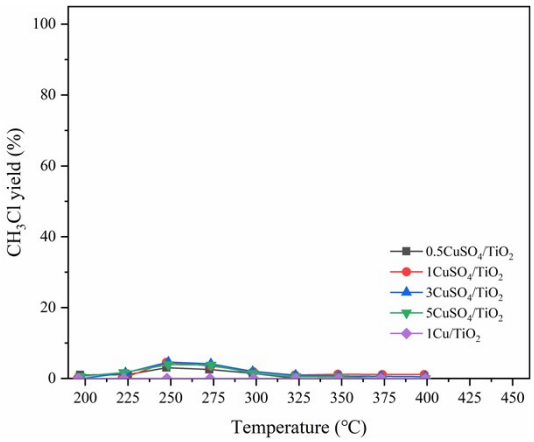


Fig. S1. MCM yield during the catalytic oxidation process. Gas composition: 1000 ppm DCM, 10% O_2 and N_2 balance; GHSV = 30,000 mL g^{-1} h^{-1}.

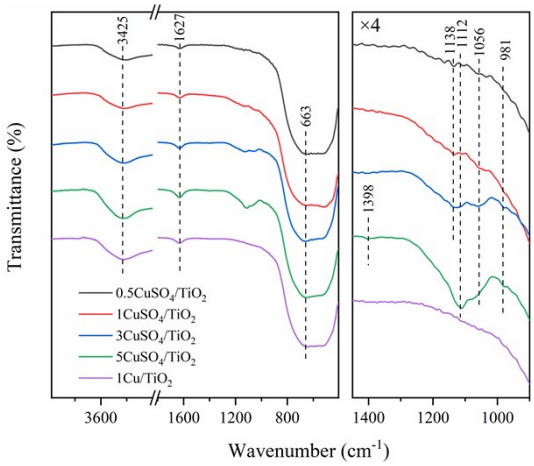


Fig. S2. FT-IR spectra of $1Cu/TiO_2$ and $xCuSO_4/TiO_2$ samples.

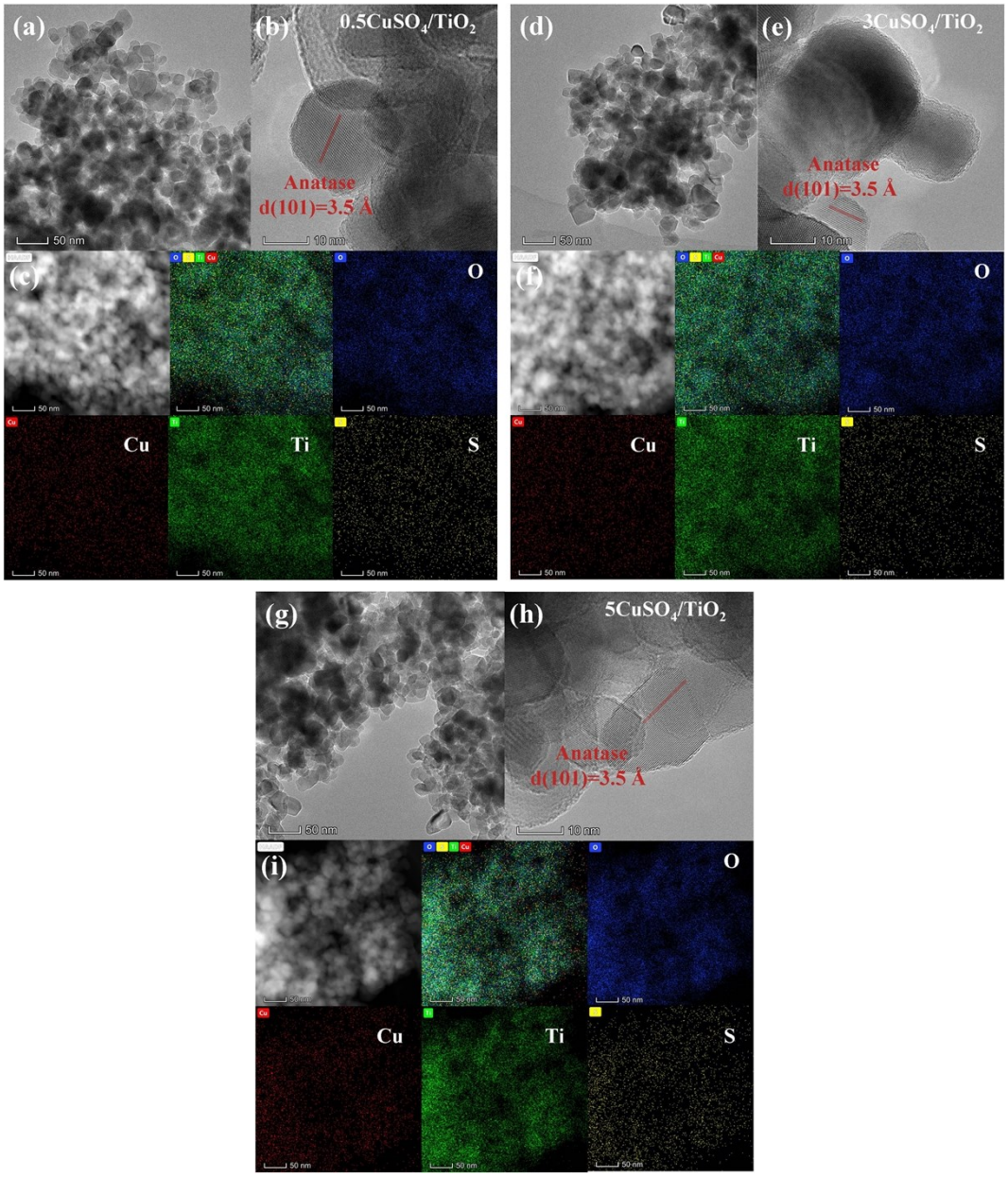
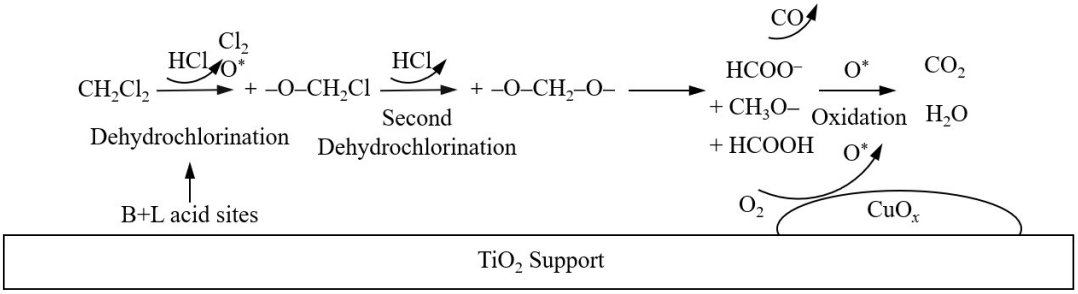


Fig. S3. TEM, HRTEM, HAADF-STEM, and EDS-Mapping images of $0.5CuSO_4/TiO_2$ **(a, b, c)**, $3CuSO_4/TiO_2$ **(d, e, f)**, and $5CuSO_4/TiO_2$ **(g, h, i)**.



Scheme S1. The possible reaction mechanism for the catalytic combustion of DCM over the $CuSO_4/TiO_2$ catalyst.

39 **Table S1.** Catalytic activity in DCM oxidation over various catalysts.

Entry	Catalyst	Reaction conditions	T_{90}	Reference
1	$1CuSO_4/TiO_2$	1000 ppm DCM+10% O_2, 30000 ml g_{cat}^{-1} h^{-1}	270 °C	This work
2	Ce/TiO_2	1000 ppm DCM+10% O_2, GHSV = 30000 h^{-1}	320 °C	26
3	$Cr_{0.1}Ti_{0.9}$	1000 ppm DCM, 30000 ml g_{cat}^{-1} h^{-1}	320 °C	52
4	SO_4^{2-}/Fe_2O_3-II	750 ppm DCM+10% O_2, GHSV = 30000 h^{-1}	305 °C	21
5	PO_x-CeO_2-0.05	500 ppm DCM, 15000 ml g_{cat}^{-1} h^{-1}	275 °C	19
6	$Ru/Ti_{0.6}Sn_{0.4}$	1000 ppm DCM+10% O_2, 30000 ml g_{cat}^{-1} h^{-1}	295 °C	43
7	Ru/Ti	1000 ppm DCM+10% O_2, GHSV = 30000 h^{-1}	305 °C	53

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