

Supplementary material

Thickness-Dependent Photocatalysis of Ultra-Thin MoS₂ Film for Visible-Light-Driven CO₂ Reduction

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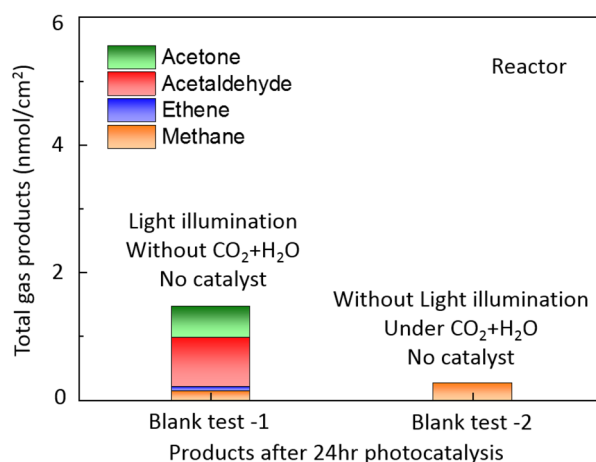


Figure S1. The total gas products of two kinds of blank test conditions for photocatalysis: 1.47 nmol/cm² for blank test-1 and 0.27 nmol/cm² for blank test-2, respectively.

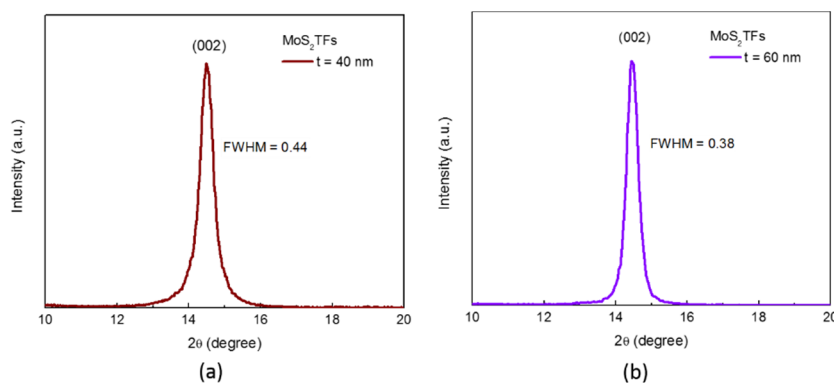
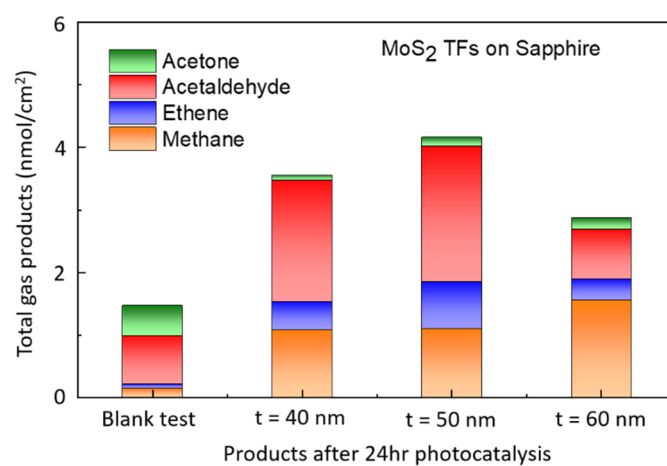
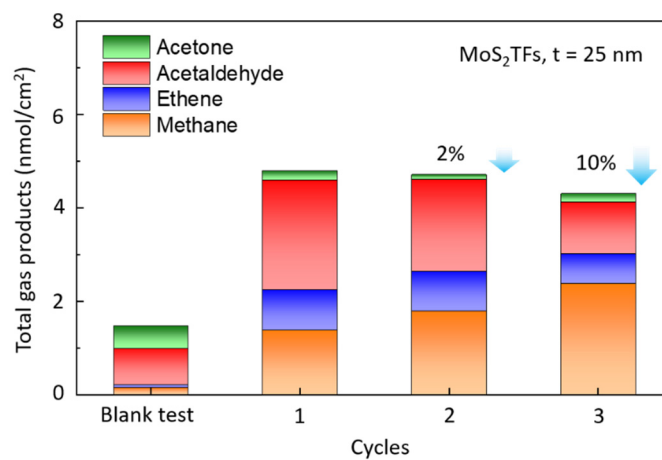


Figure S2. XRD pattern of the MoS₂TFs on sapphire with different thicknesses: (a) *t* = 40 nm and (b) *t* = 60 nm.

Table S1. The calculated grain size of MoS₂TFs on sapphire from (002) peak using Scherrer's formula.

Thickness (nm)	β /degree	2θ /degree	D/nm
40	0.44	14.49	18.22
60	0.38	14.47	21.10

**Figure S3.** The PC-CO₂RR activity of MoS₂TFs on sapphire with thickness increasing from 40 to 60 nm.**Figure S4.** The stability study of the photocatalytic CO₂ reduction over the MoS₂TFs with 25 nm thickness.