

Supporting Information

Temperature Dependence of Photocatalytic CO₂

Reduction by *Trans*(Cl)-Ru(bpy)(CO)₂Cl₂:

Activation Energy Difference between CO and

Formate Production

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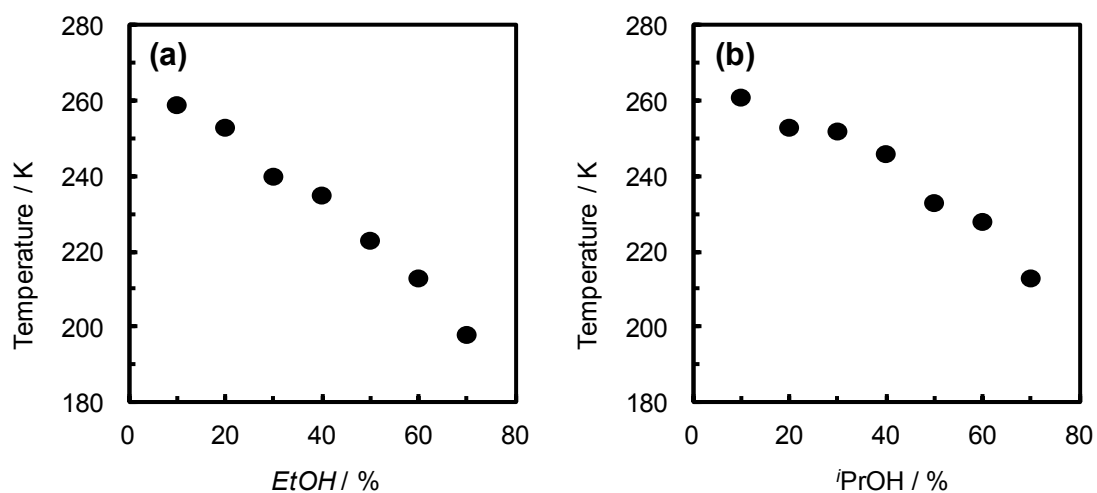


Figure S1. The lowest temperatures (K), at which (a) EtOH/DMA and (b) ⁱPrOH/DMA are in liquid states, vs. the alcoholic contents.

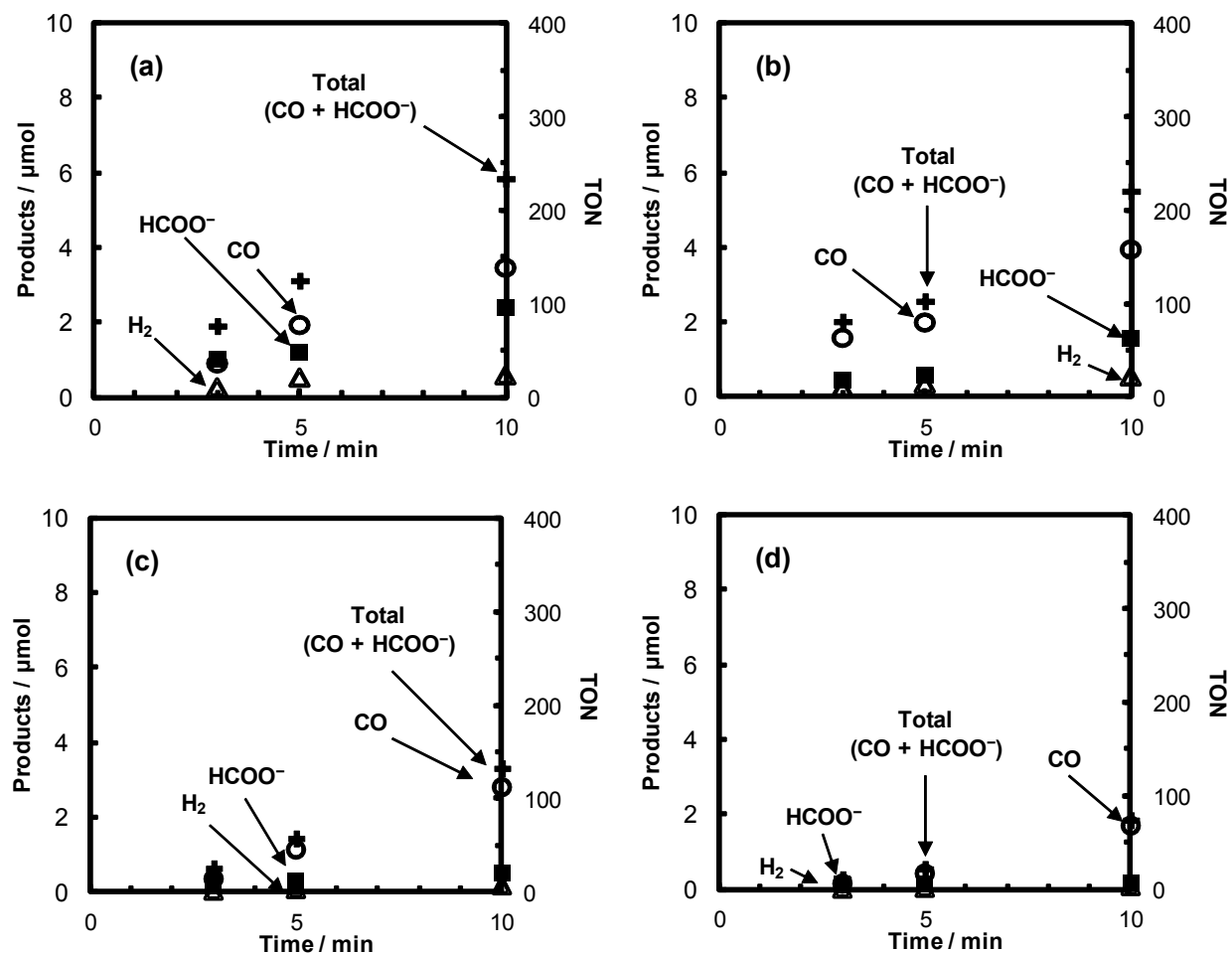


Figure S2. Photo-irradiation time dependence of the products (CO (○), HCOO⁻ (■), H₂ (▲), and the total amounts of CO and HCOO⁻ (+)) in CO₂-saturated 20%-EtOH/DMA at (a) 313 K, (b) 293 K, (c) 273 K, and (d) 253 K; *trans*(Cl)-Ru(bpy)(CO)₂Cl₂ (5.0 μM), [Ru(bpy)₃](PF₆)₂ (0.50 mM) and BNAH (0.10 M) under photo-irradiation (> 400 nm).

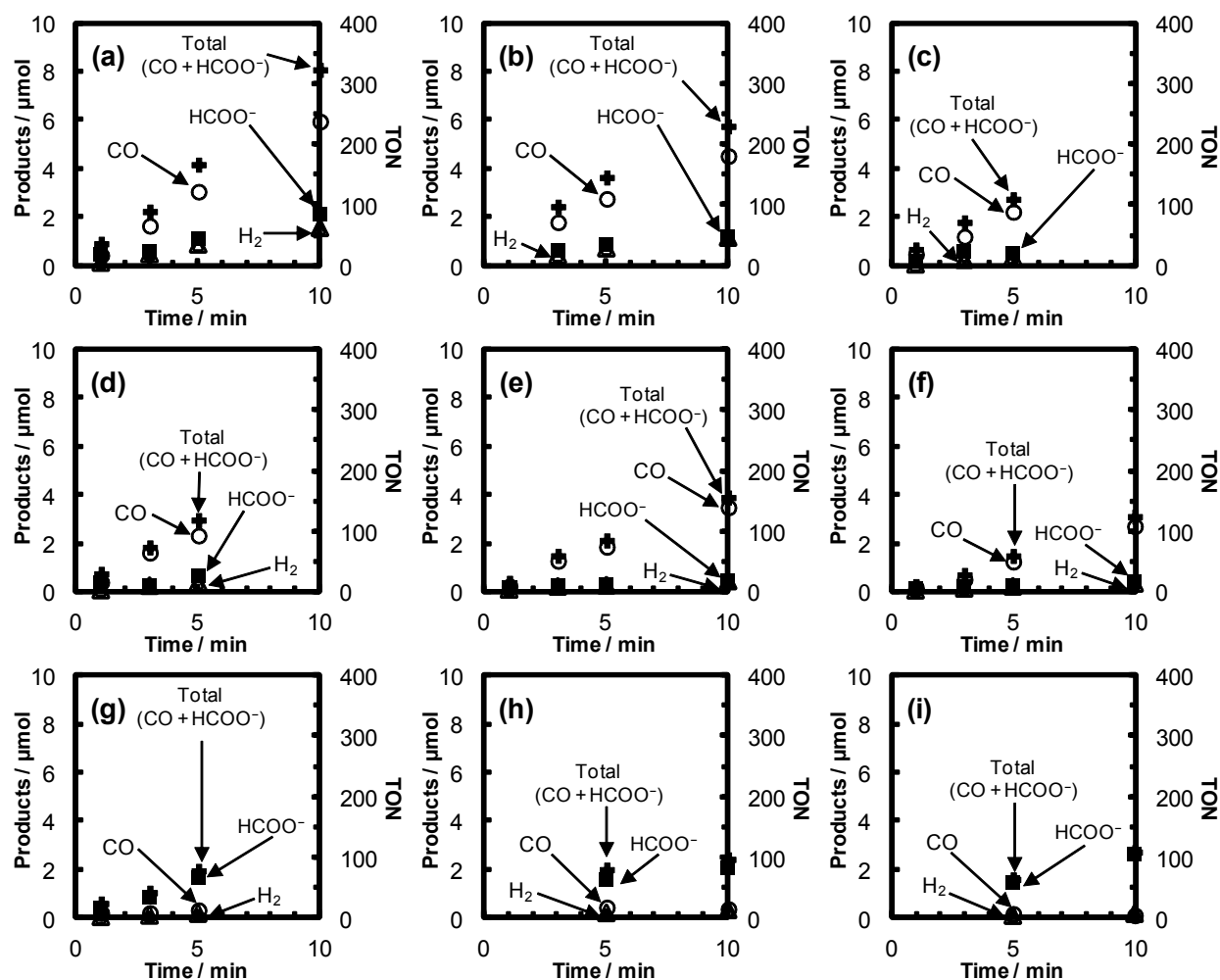


Figure S3. Photo-irradiation time dependence of the products (CO (○), HCOO⁻ (■), H₂ (▲), and the total amounts of CO and HCOO⁻ (+)) in CO₂-saturated 40%-EtOH/DMA at (a) 313 K, (b) 303 K, (c) 293 K, (d) 283 K, (e) 268 K, (f) 263 K, (g) 258 K, (h) 253 K, and (i) 243 K; *trans*(Cl)-Ru(bpy)(CO)₂Cl₂ (5.0 μM), [Ru(bpy)₃](PF₆)₂ (0.50 mM) and BNAH (0.10 M) under photo-irradiation (> 400 nm).

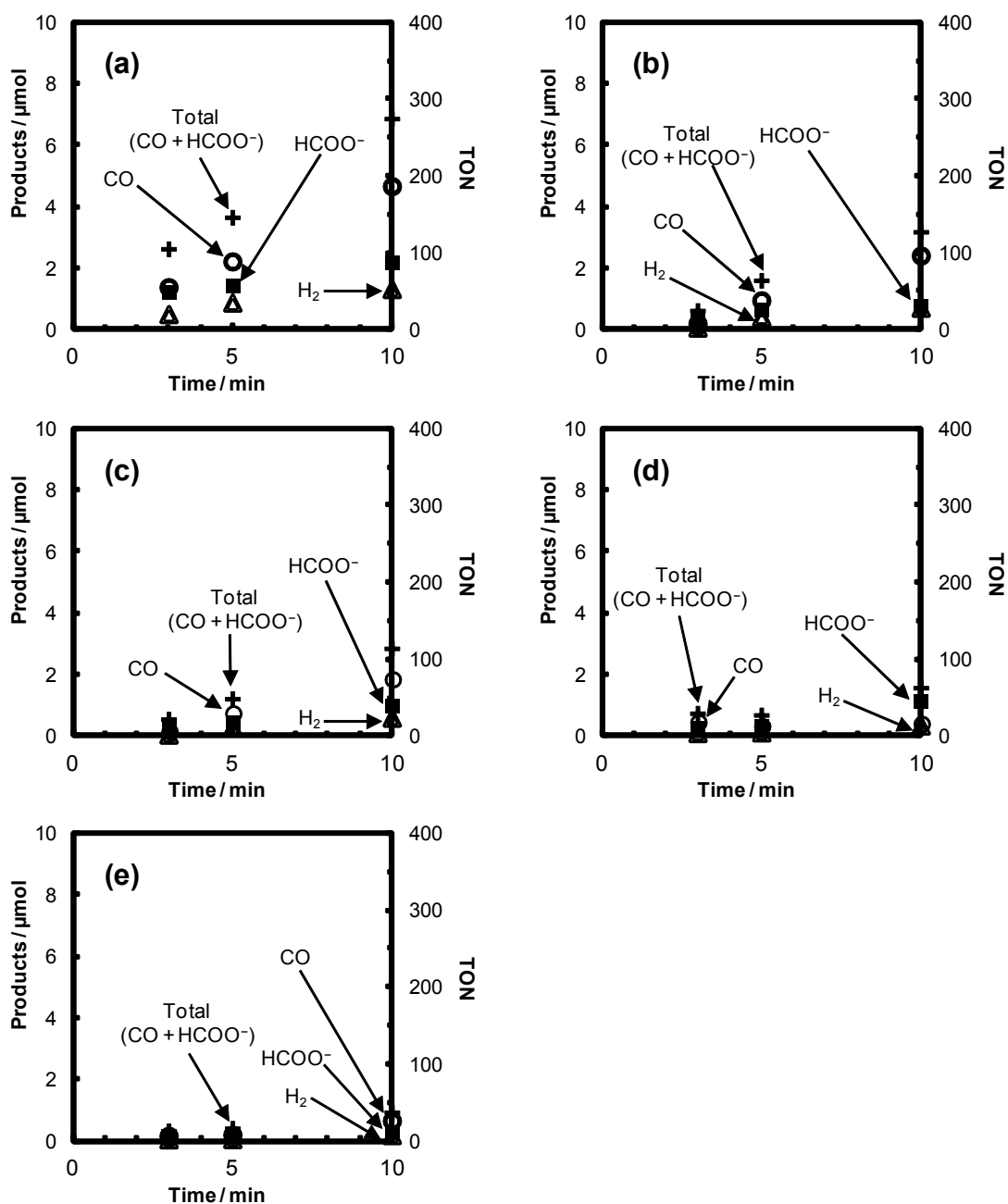


Figure S4. Photo-irradiation time dependence of the products (CO ($\circ$), HCOO^- ($\blacksquare$), H_2 ($\blacktriangle$), and the total amounts of CO and HCOO^- (+)) in CO_2 -saturated 60%-EtOH/DMA at (a) 313 K, (b) 293 K, (c) 273 K, (d) 253 K, and (e) 233 K; *trans*(Cl)-Ru(bpy)(CO) $_2$ Cl $_2$ (5.0 μM), [Ru(bpy) $_3$](PF $_6$) $_2$ (0.50 mM) and BNAH (0.10 M) under photo-irradiation (> 400 nm).