Supporting Information

Unique Reaction Mechanism of Preferential Oxidation of CO over Intermetallic Pt_3Co Catalysts: Surface-OH-Mediated Formation of Bicarbonate Intermediate

Shinya Furukawa, Kengo Ehara, and Takayuki Komatsu*

Department of Chemistry, Tokyo Institute of Technology, 2-12-1-E1-10 Ookayama, Meguro-ku, Tokyo 152-8551, Japan

Corresponding authors

Takayuki Komatsu

Department of Chemistry, Tokyo Institute of Technology, 2-12-1-E1-10 Ookayama, Meguro-ku, Tokyo 152-8551, Japan

E-mail: *komatsu.t.ad@m.titech.ac.jp,* Tel: +81-3-5734-3532, Fax: +81-3-5734-2758

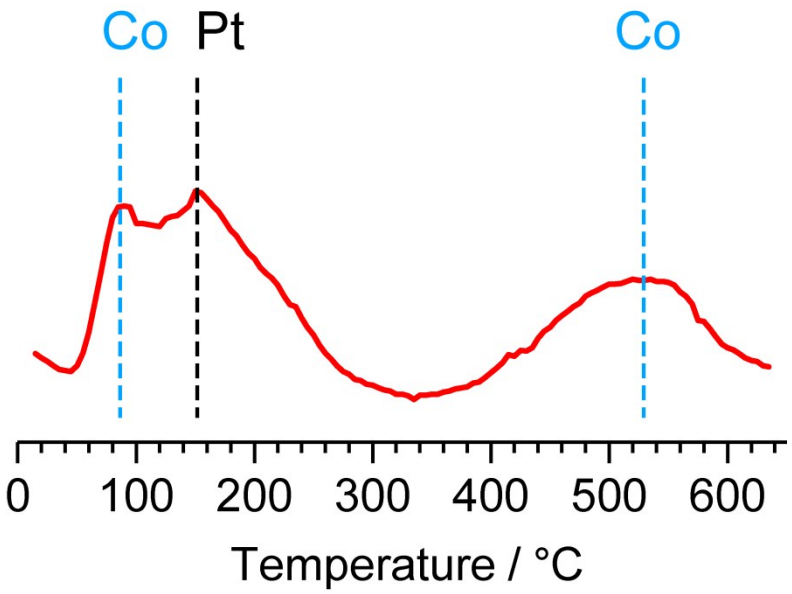

Figure S1. CO-TPD profile for Pt_3Co/SiO_2-b catalyst. The desorption peaks at low and high temperature regions (<300°C and >400°C) correspond to desorption of molecularly adsorbed CO and recombination of atomically adsorbed C and O, respectively.

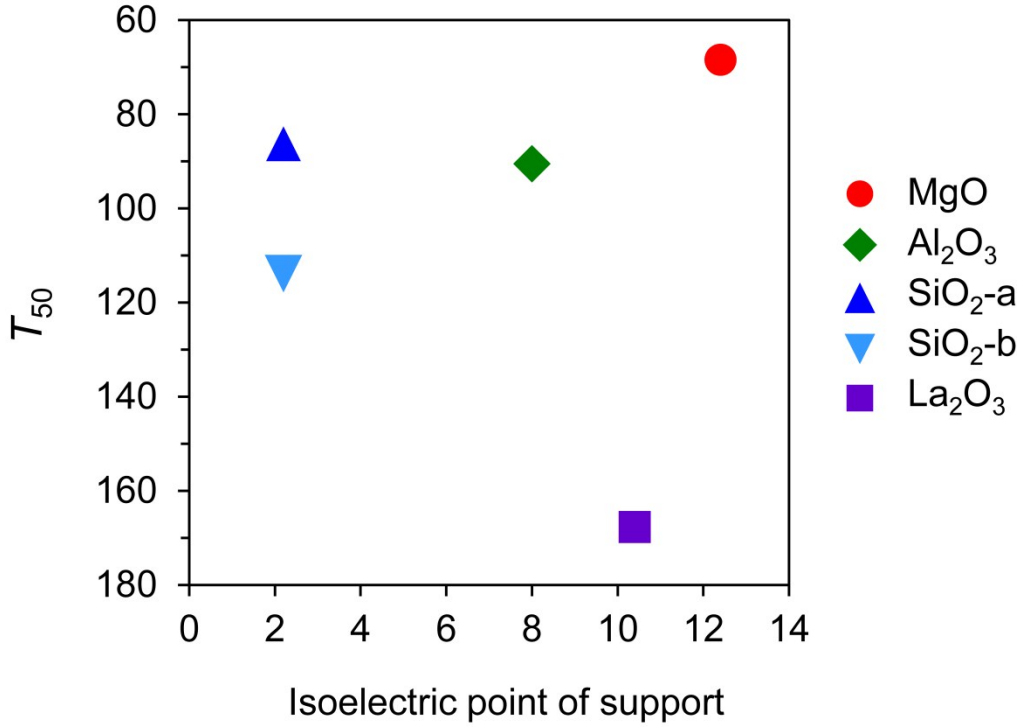

Figure S2. Correlation between T_{50} obtained for PROX over Pt_3Co supported on various oxides and their isoelectric points.

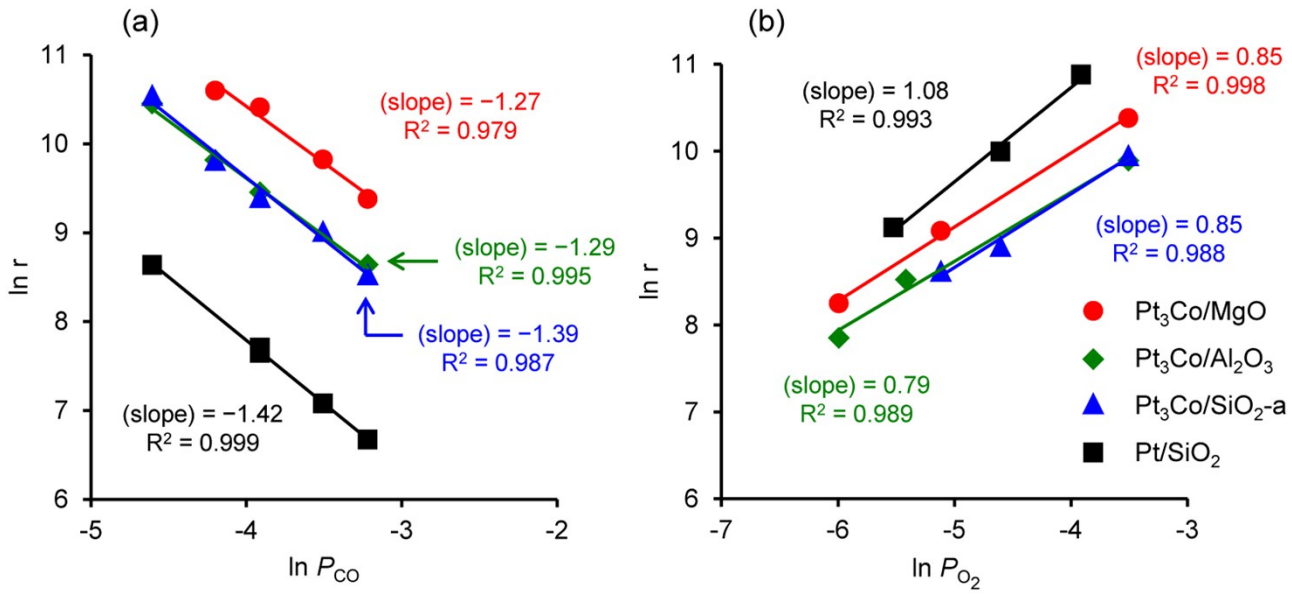

Figure S3. Relation between ln*r* and (a) lnP_{CO} or (b) lnP_{O_2}.

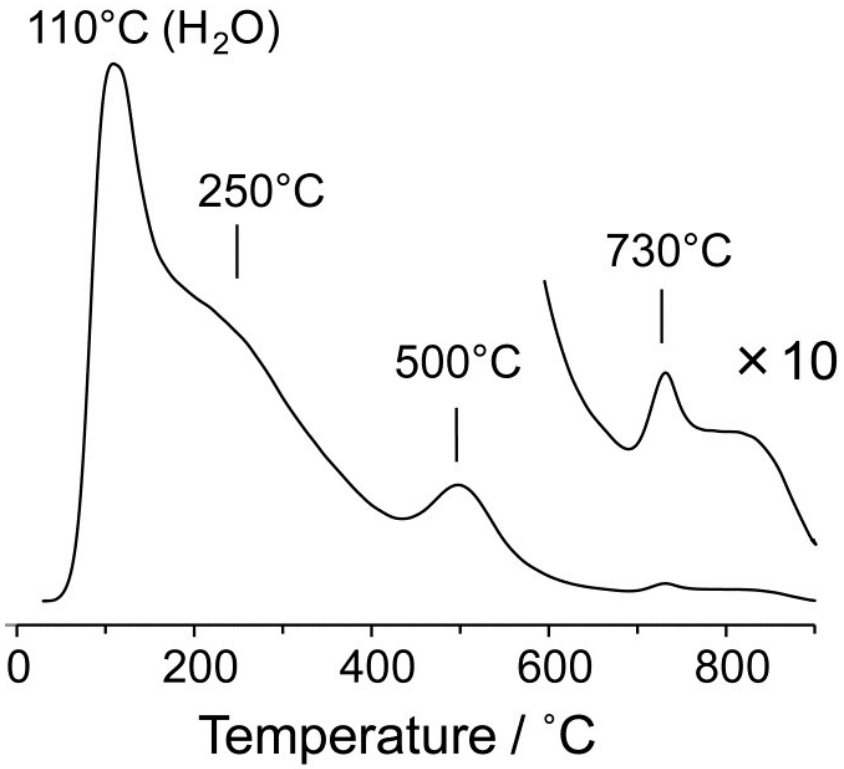

Figure S4. TPD profile of CO_2 adsorbed on MgO.

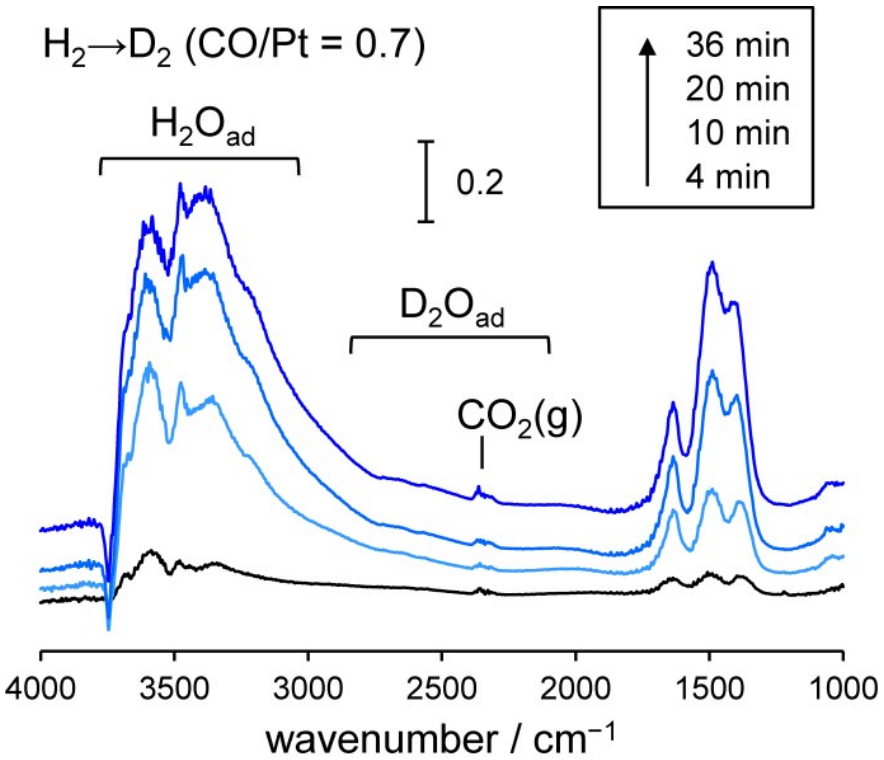

Figure S5. FT-IR spectra obtained during low-temperature PROX (25°C) with small amount of reactant molecules ($CO : O_2 : H_2 = 1:1:17$, CO/Pt = 0.7)

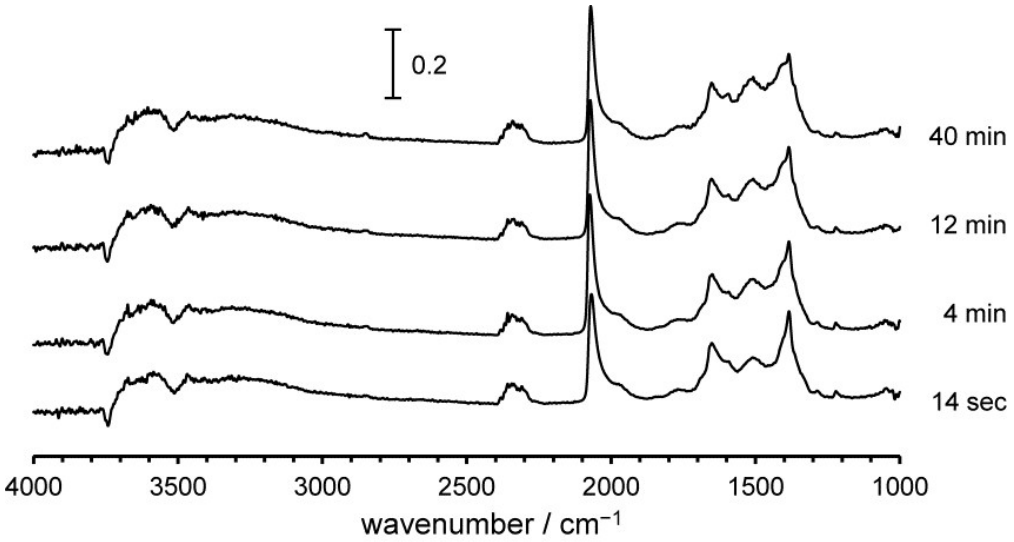

Figure S6. FT-IR spectra obtained during high-temperature PROX (100°C).