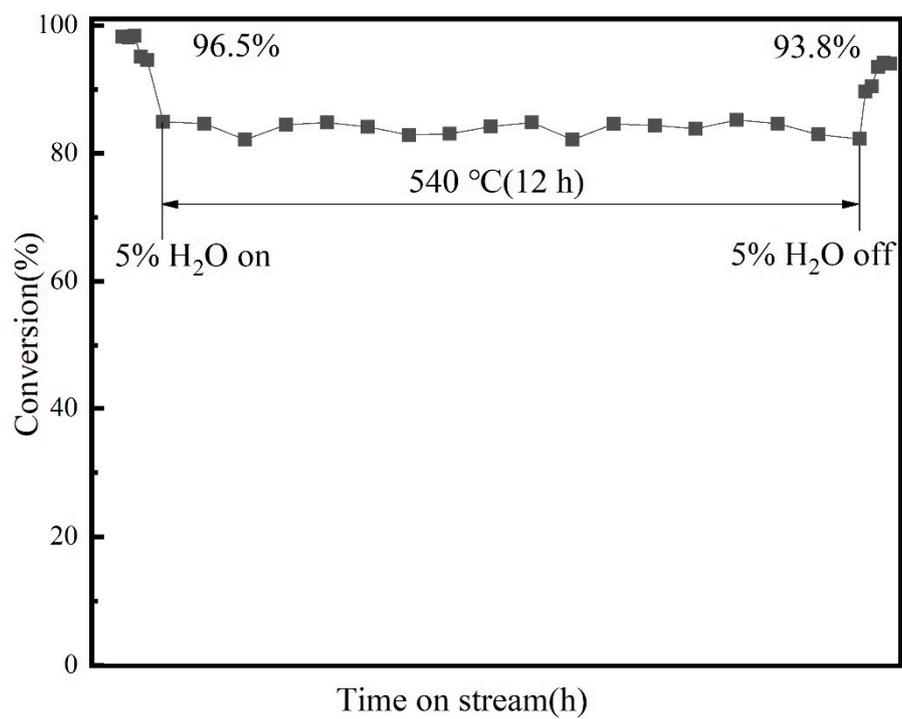
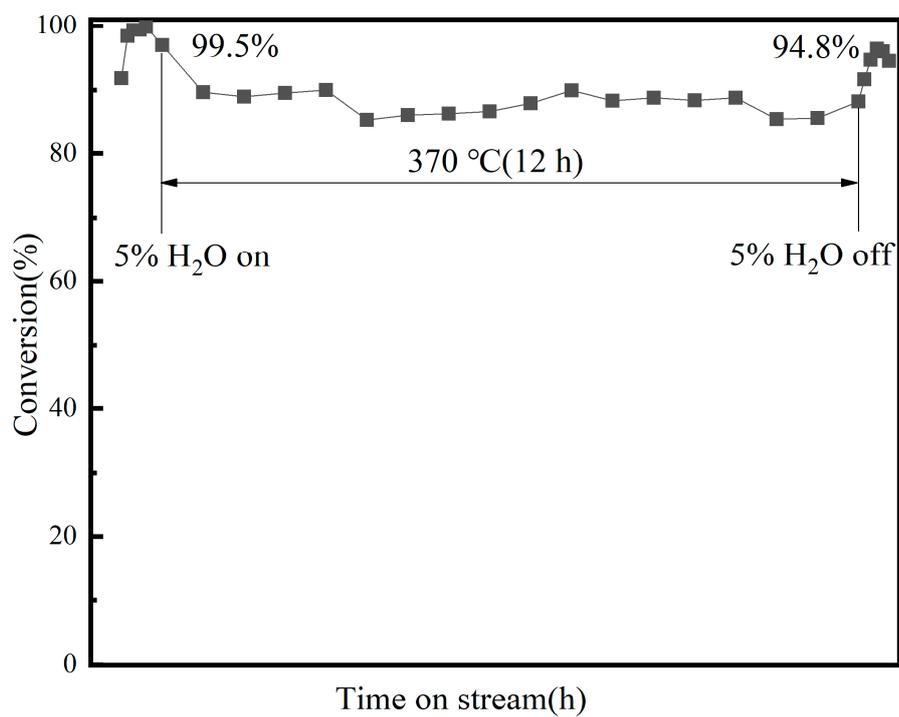


**Figure S1.** Catalytic activity of Pt/Ce<sub>0.01</sub>Ti<sub>0.99</sub>O<sub>2</sub> catalysts in the low temperature range. Reaction conditions: [C<sub>2</sub>H<sub>6</sub>] = 1000 ppm, [O<sub>2</sub>] = 4 vol%, balance N<sub>2</sub>, total flow rate = 200 mL/min, and GHSV = 60000 h<sup>-1</sup>.



**Figure S2.** Durability test at 540 °C of Pt/Ce<sub>0.01</sub>Ti<sub>0.99</sub>O<sub>2</sub> catalyst under moisture condition. Reaction conditions: [C<sub>2</sub>H<sub>6</sub>] = 1000 ppm, [O<sub>2</sub>] = 4 vol%, [H<sub>2</sub>O] = 5%, balance N<sub>2</sub>, total flow rate = 200 mL/min, and GHSV = 60000 h<sup>-1</sup>.



**Figure S3.** Durability test at 370 °C of Pt/Ce<sub>0.01</sub>Ti<sub>0.99</sub>O<sub>2</sub> catalyst under moisture condition. Reaction conditions: [C<sub>2</sub>H<sub>6</sub>] = 1000 ppm, [O<sub>2</sub>] = 4 vol%, [H<sub>2</sub>O] = 5%, balance N<sub>2</sub>, total flow rate = 200 mL/min, and GHSV = 60000 h<sup>-1</sup>.

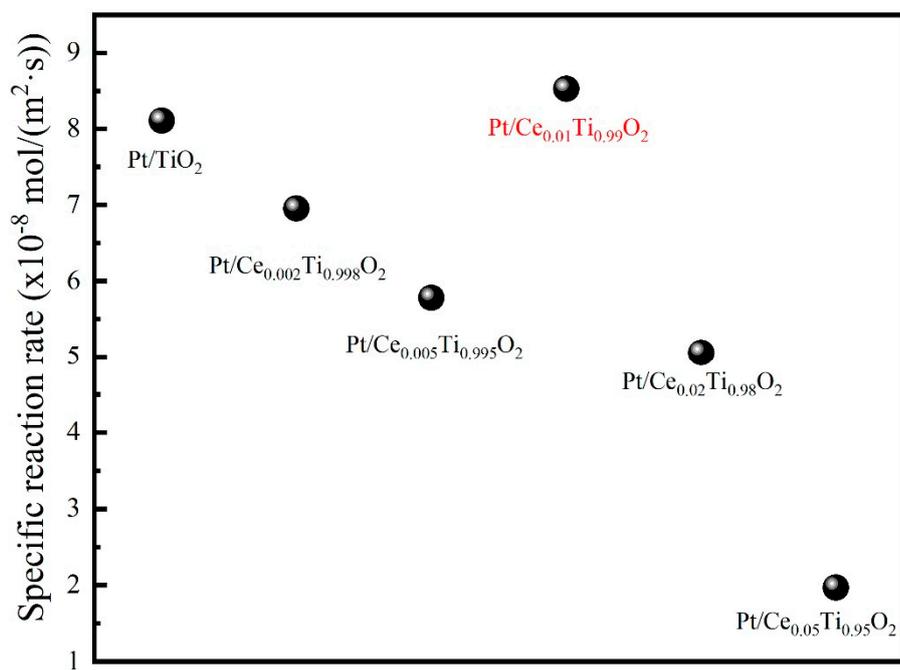


Figure S4. Specific reaction rates of Pt/Ce<sub>0.01</sub>Ti<sub>0.99</sub>O<sub>2</sub> catalysts at 280 °C.