Blank Experiment

1. Blank Test of Whole System

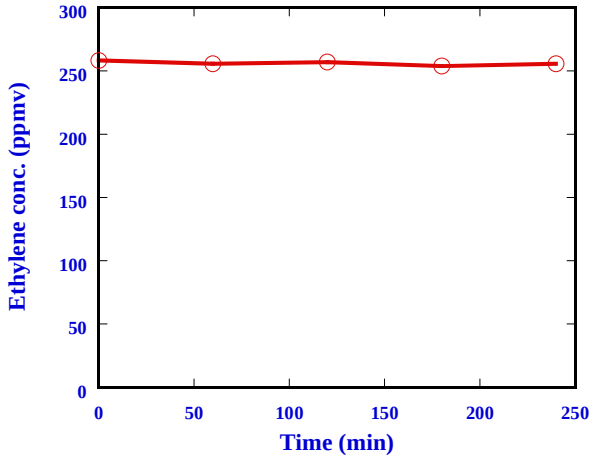

Figure S.1 Blank Test of Whole System.

Experiment condition：flow rate = 3000 mL/min, initial ethylene concentration = 258 ppmv, relative humidity = 5%, oxygen concentration = 210000 ppmv, reaction temperature = 25 ℃.

2. Blank Test of Adsorption

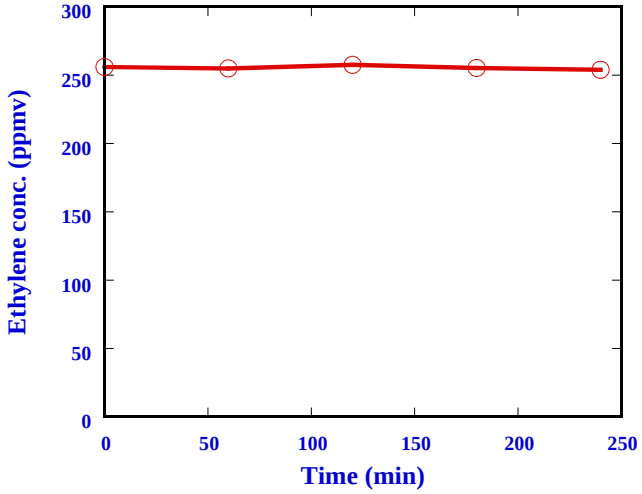

Figure S.2 Blank Test of Adsorption.

Experiment condition：flow rate = 3000 mL/min, initial ethylene concentration = 256 ppmv, relative humidity = 5% , oxygen concentration = 210000 ppmv, reaction temperature = 25 ℃.

3. Blank Test of Visible-Light

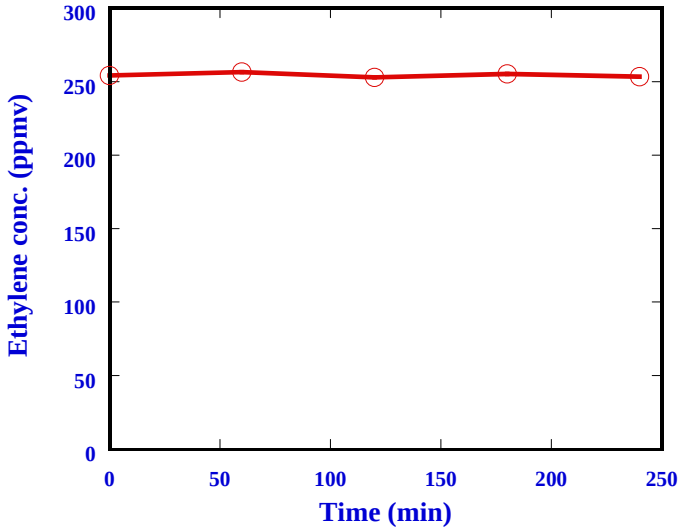

Figure S.3 The Ethylene Degradation of Visible Light without Photocatalyst.
Experiment condition：flow rate = 3000 mL/min, initial ethylene concentration = 254 ppmv, relative humidity = 5% (absolute humidity = 1561 ppmv), oxygen concentration = 210000 ppmv, visible light intensity = 8 mW/cm^2, reaction temperature = 25 °C.