

Supplemental information

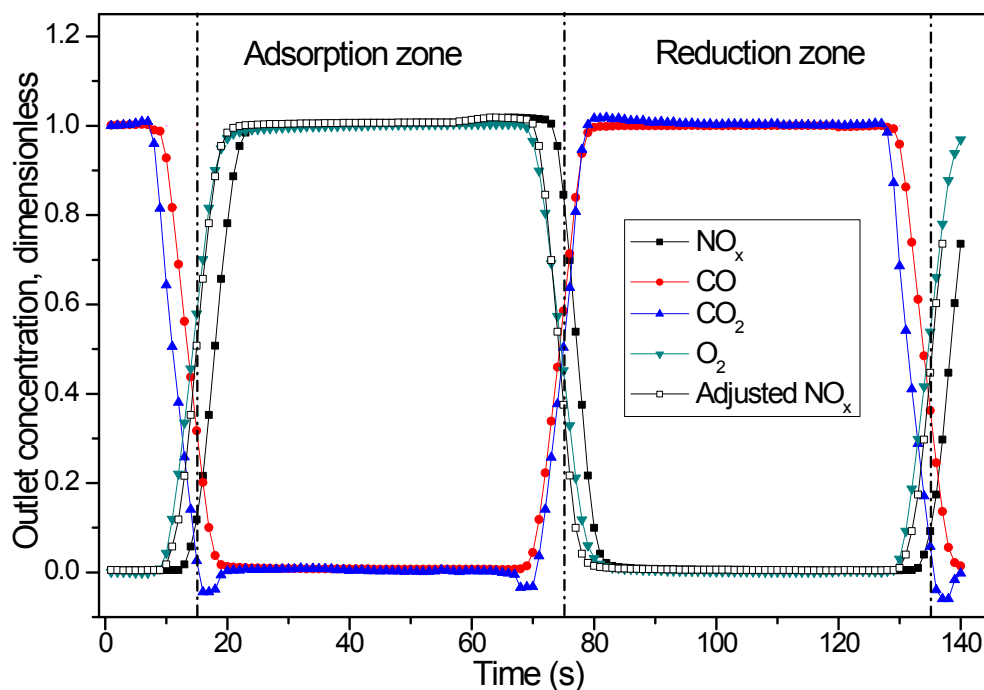


Fig. S1 Outlet concentration of bypass gas stream. (Inlet gas composition: adsorption zone, NO=1000 ppm, O₂=5%; reduction zone, CO=2000 ppm, CO₂=10%. Plotted concentrations were normalized by initial concentration.)

The reactor was bypassed to check the response of the analyzer to the inlet gas concentration. The obtained outlet concentrations were plotted in Fig. S1. Conclusions are:

1. Response of NO_x is about 3 s slower than O₂. Therefore, the profile of NO_x was moved forward by 3 s. The profile of adjusted NO_x with hollowed symbols is in good agreement with O₂, implying a synchronous response.
2. When inlet concentration is changed, it takes about 10 s for the output of the gas analyzer to reach the set value. The reason includes both the response of the gas analyzer and the dispersion in pipelines and gas analyzer's pump. The boundary between the adsorption zone and reduction zone could be set in the center of this 10 s, as plotted in the figure. When testing the performance of catalyst reactor, the boundary could be defined by oxygen profiles since oxygen is great excess and outlet oxygen concentration wouldn't be affected by the reaction.