

Supplementary Material

CO₂ Trace Investigations

2%Ag-20%K/CZA was heated to 300 °C under flowing N₂ (200 cm³ min⁻¹) while CO₂ evolution was monitored by FTIR gas analysis. The temperature was held at 300 °C until the CO₂ concentration decreased to 0 ppm (Figure S1). The reactor was then cooled to 125 °C, before a NO_x reduction test (using NH₃ as reductant) was carried out (Figure S2).

As Figure S2b shows, following the heat treatment, there was no CO₂ evolution below 200 °C and the CO₂ peak seen at 300 °C in Figure S2a was no longer present. We assign the CO₂ peak in Figure S2a to the transformation from a mixture of hydrated K₂CO₃ and KHCO₃ into well-defined K₂CO₃.

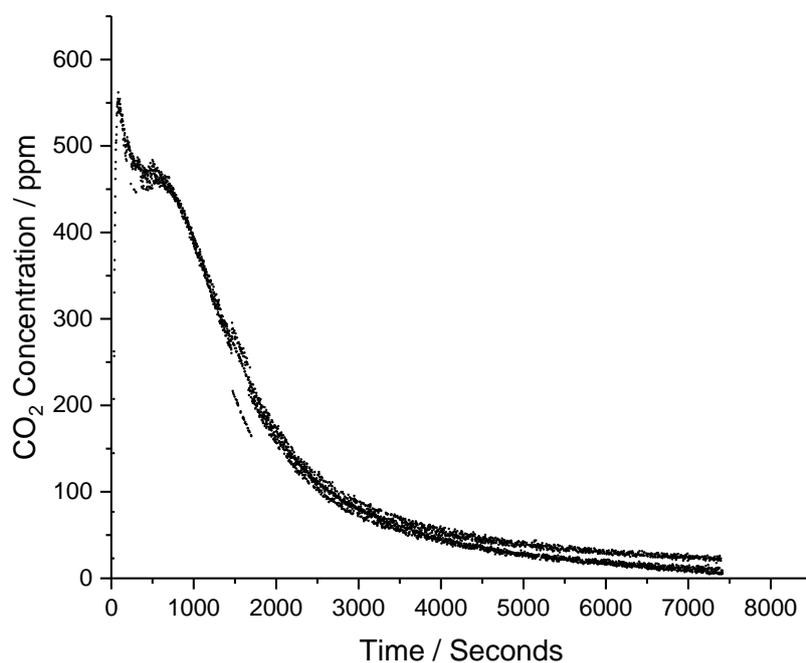


Figure S1. Evolution of CO₂ during heat treatment of 2%Ag-20%K/CZA at 300 °C.

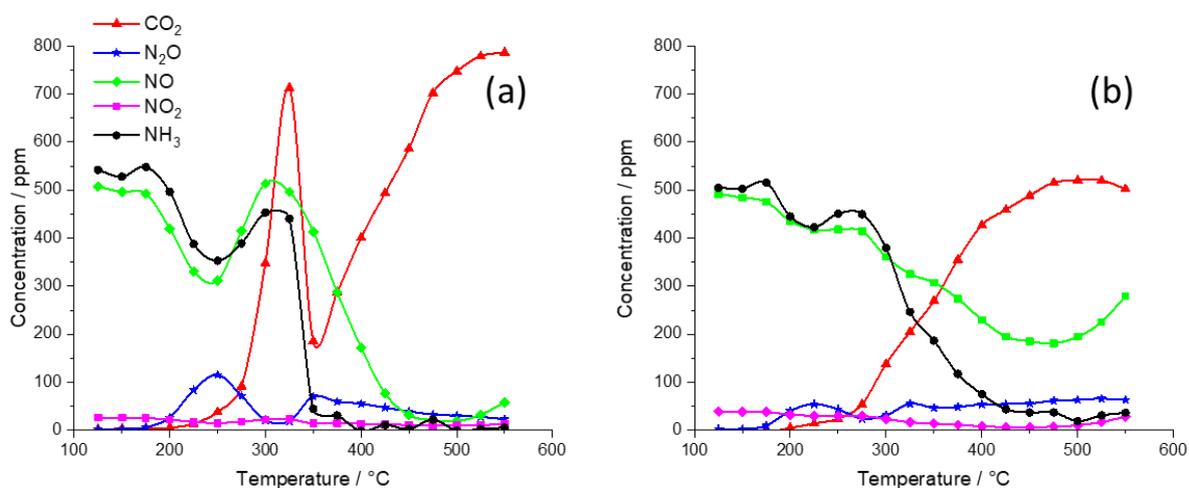


Figure S2. NO_x reduction performance of 2%Ag-20%K/CZA (a) before and (b) after heat treatment at 300 °C.

Figure S4b shows that after pre-treatment of the catalyst under flowing N_2 at $500\text{ }^\circ\text{C}$, CO_2 is still formed at temperatures between 300 and $550\text{ }^\circ\text{C}$ during testing. We attribute this to nitration of the potassium, *i.e.* transformation of K_2CO_3 to KNO_3 , which is also seen in Figure S2b.

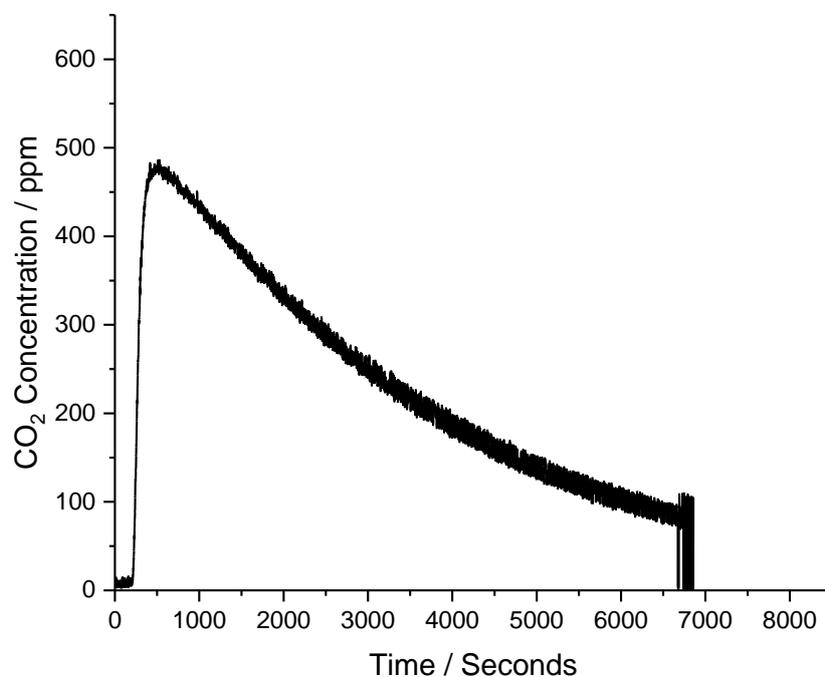


Figure S3. Evolution of CO_2 during heat treatment of 2%Ag-20%K/CZA at $500\text{ }^\circ\text{C}$.

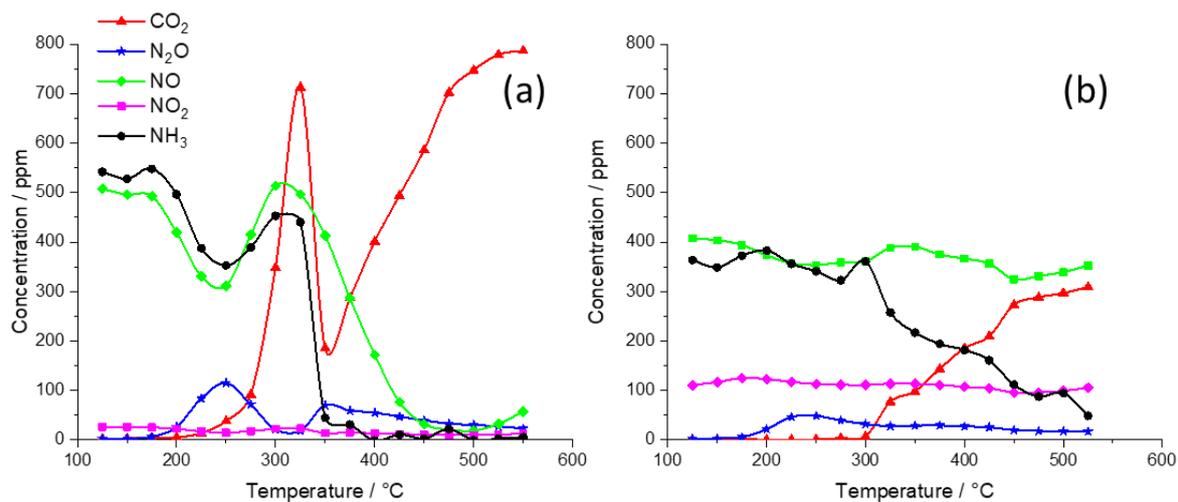


Figure S4. NO_x reduction performance of 2%Ag-20%K/CZA (a) before and (b) after heat treatment at $500\text{ }^\circ\text{C}$.

Temperature-programmed XRD

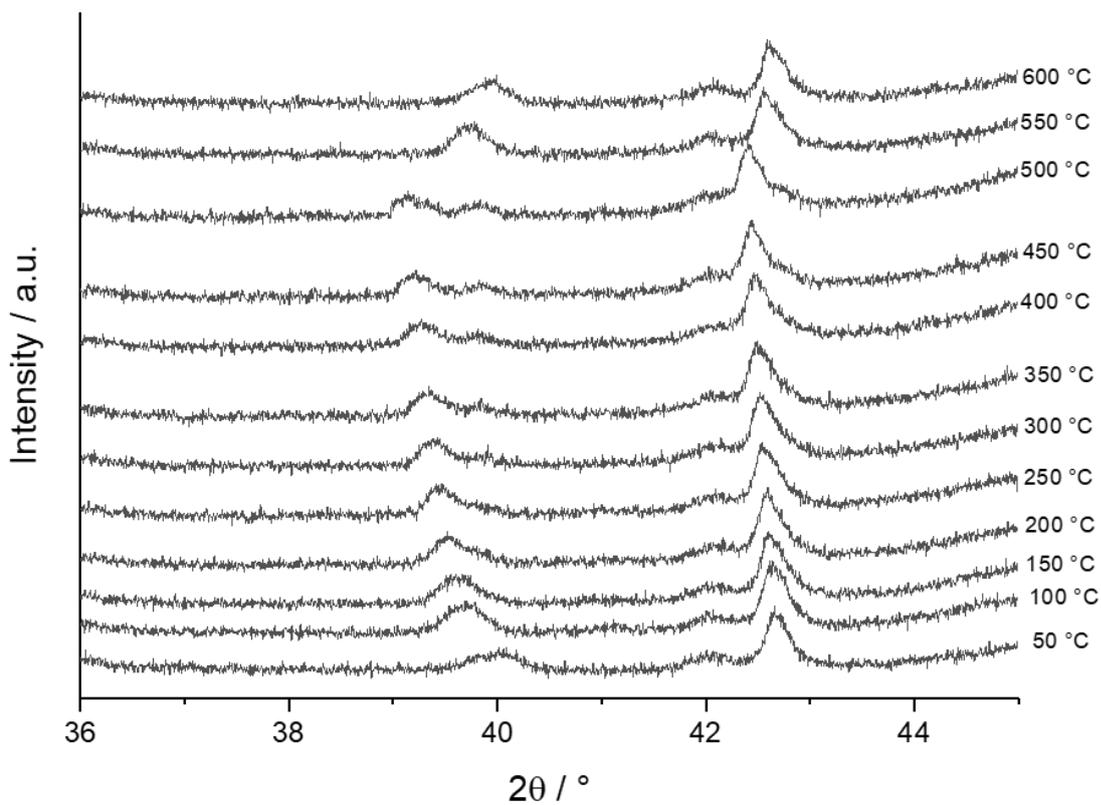


Figure S5. CZA

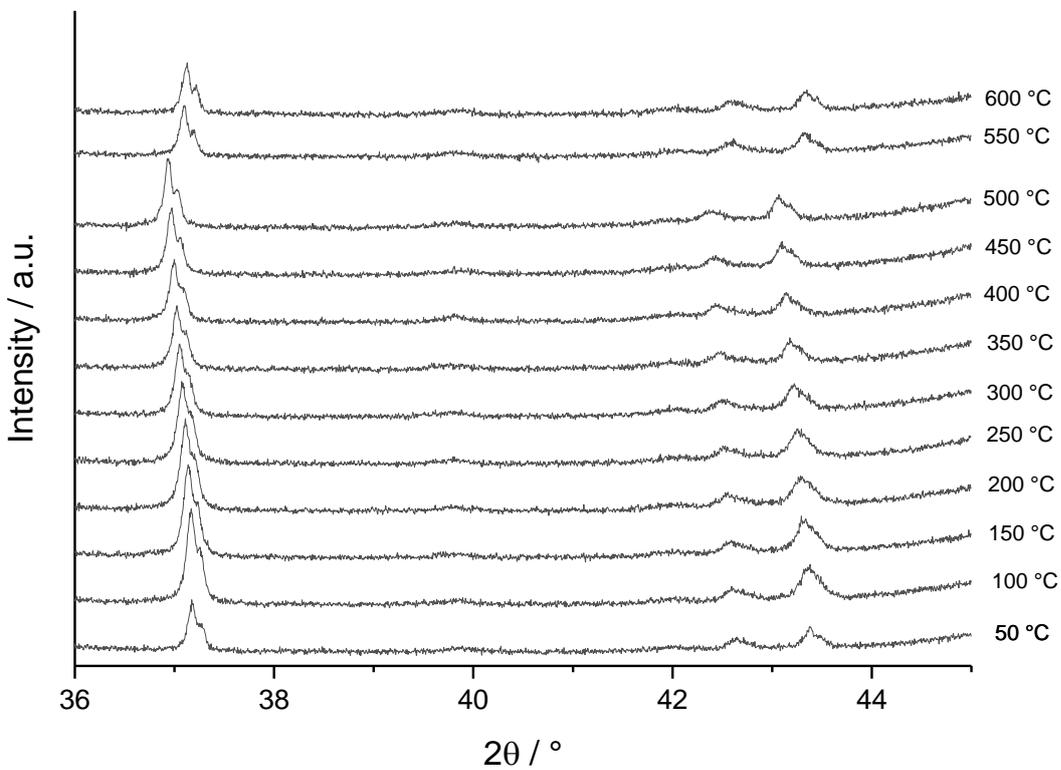


Figure S6. 2%Ag-2%K/CZA

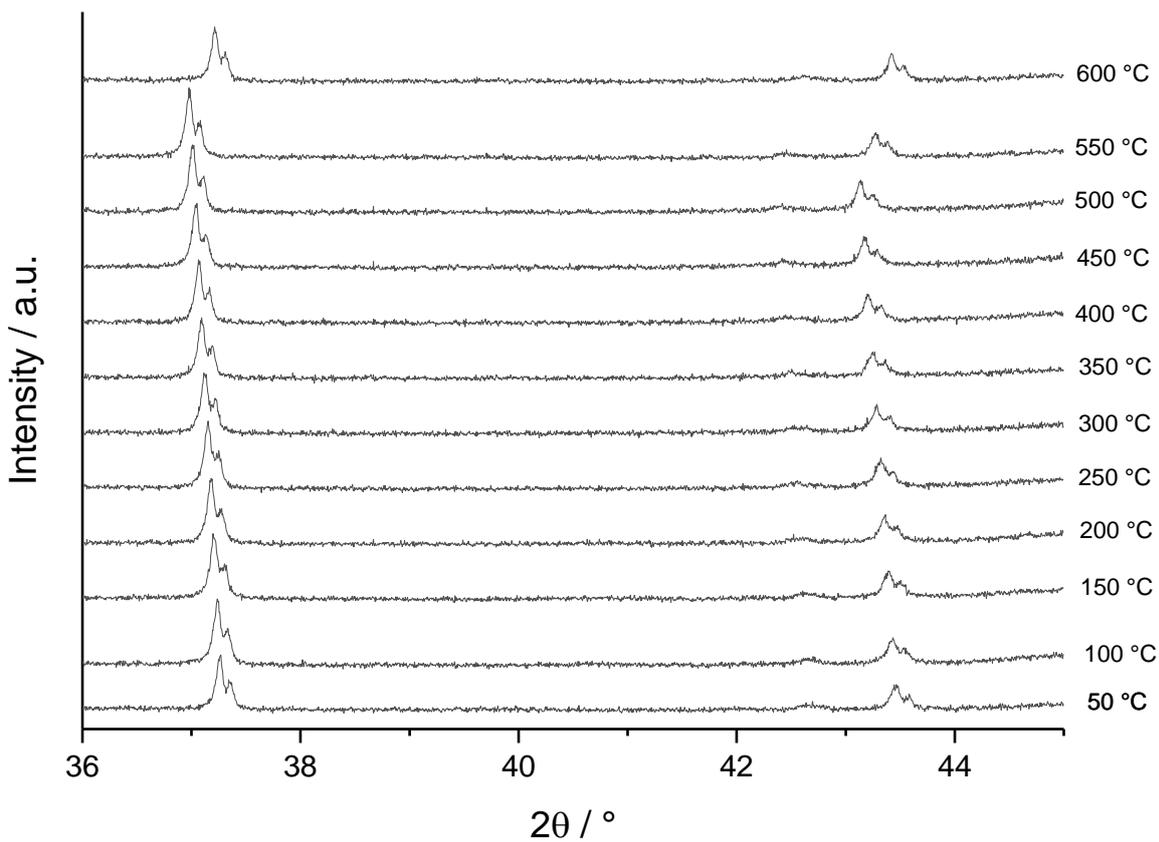


Figure S7. 2%Ag-5%K/CZA

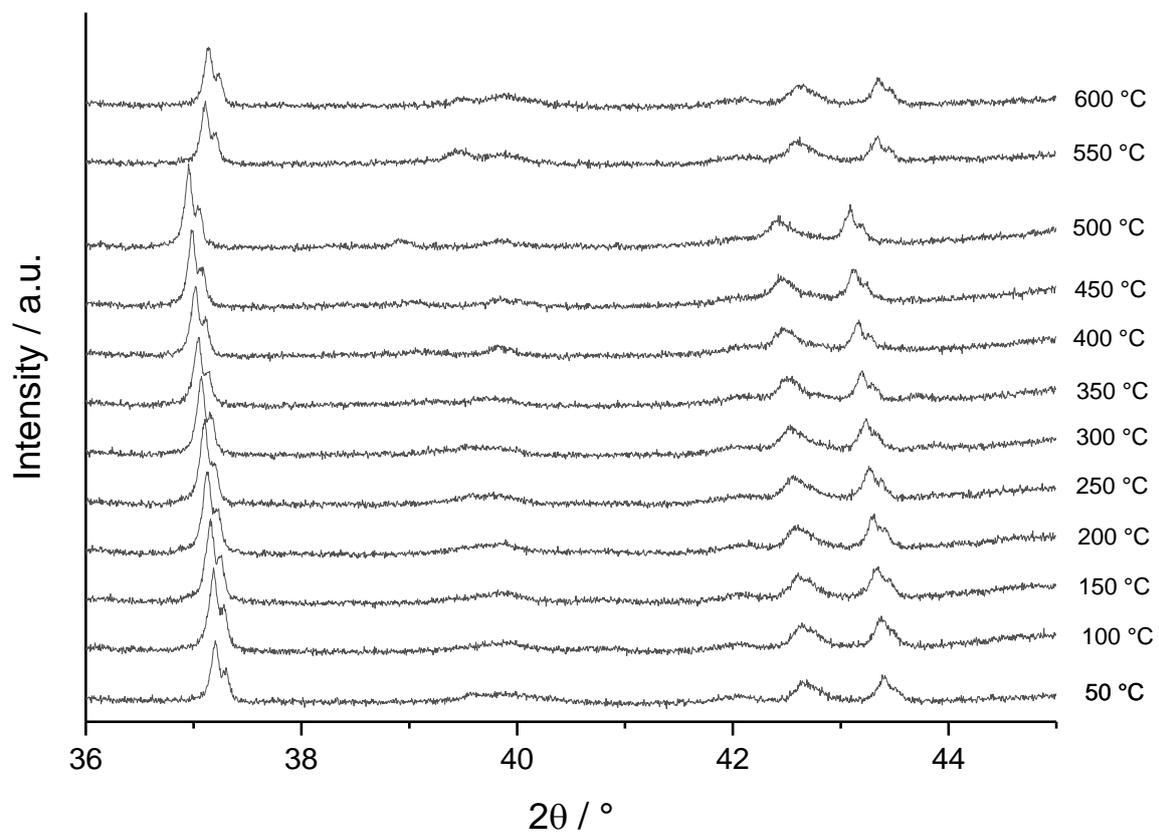


Figure S8. 2%Ag-10%K/CZA

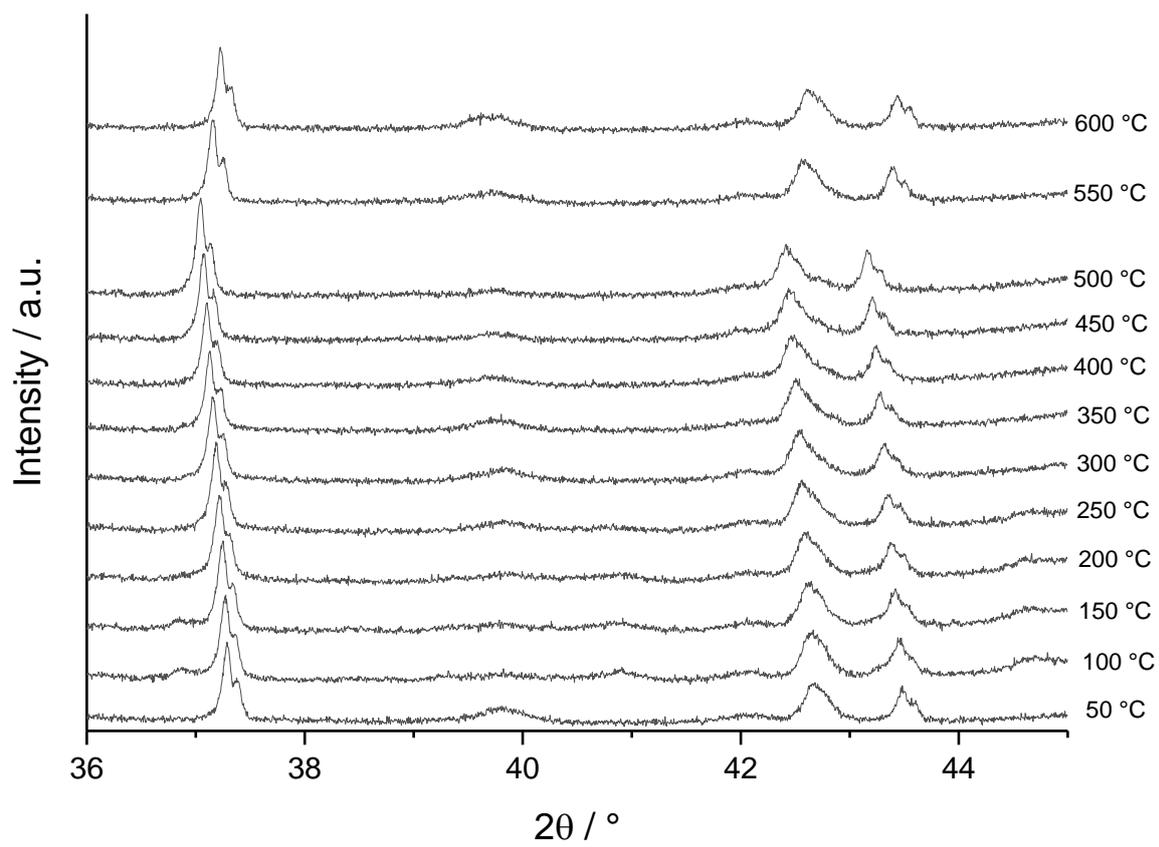


Figure S9. 2%Ag-15%K/CZA