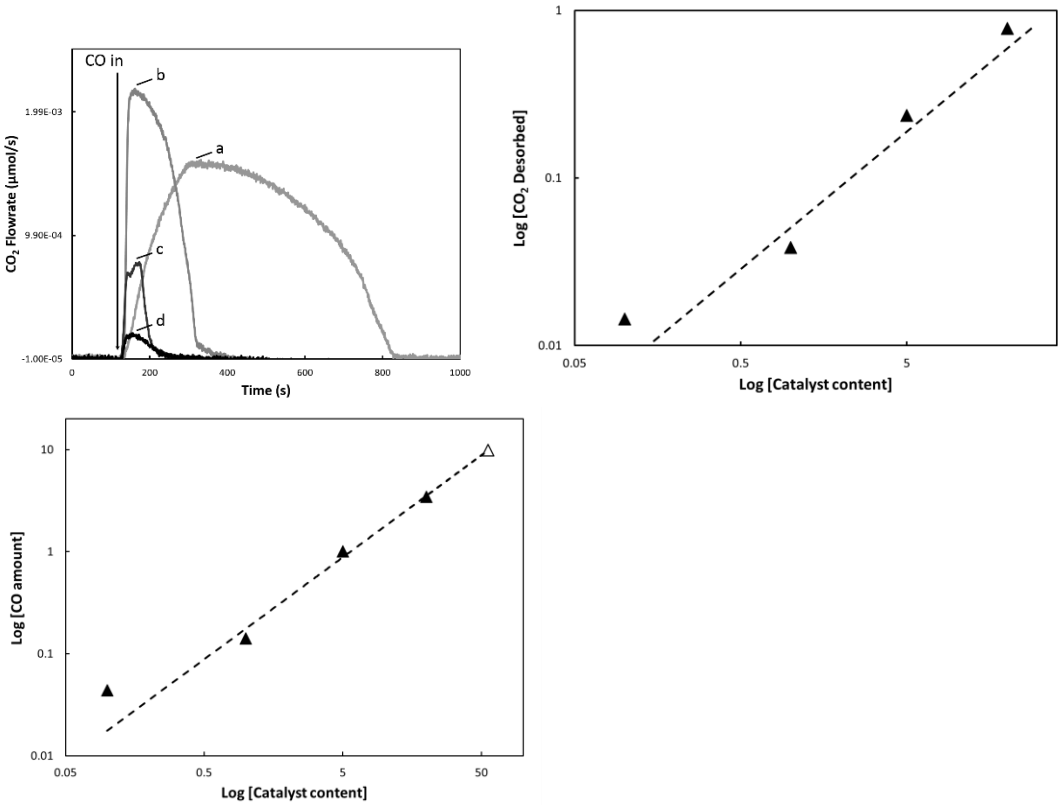


Figure 1 - Panel a: Stacked CO_2 desorption curves after previous CO isothermal titration of surface oxygen using different Pt/C sample loading a) 20mg b) 5 mg c) 1 mg and d) 0,1 mg,. Panel b: Correlation plot of log CO_2 vs log Catalyst content (hollow triangle is result obtained from Quantachrome ChemStar TPx apparatus), Panel c: log CO vs log Catalyst content

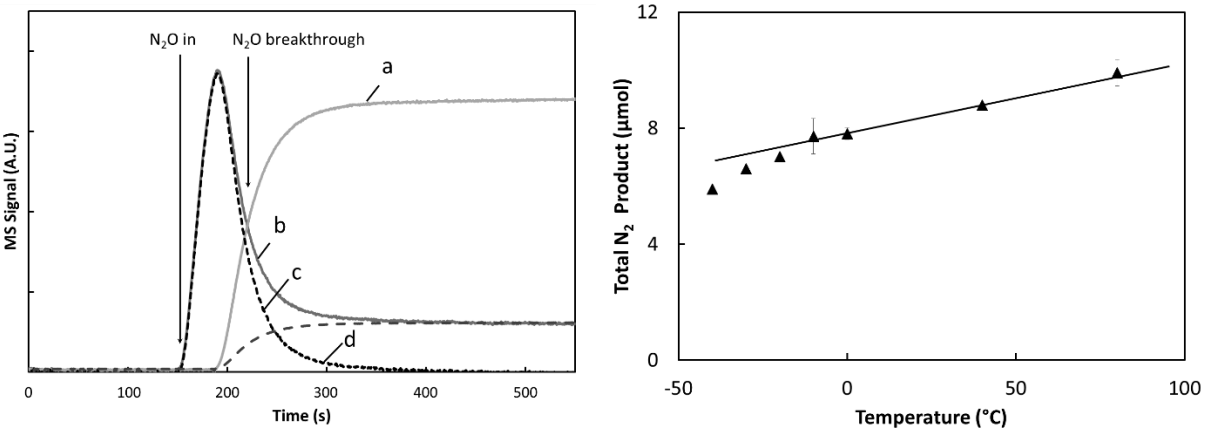
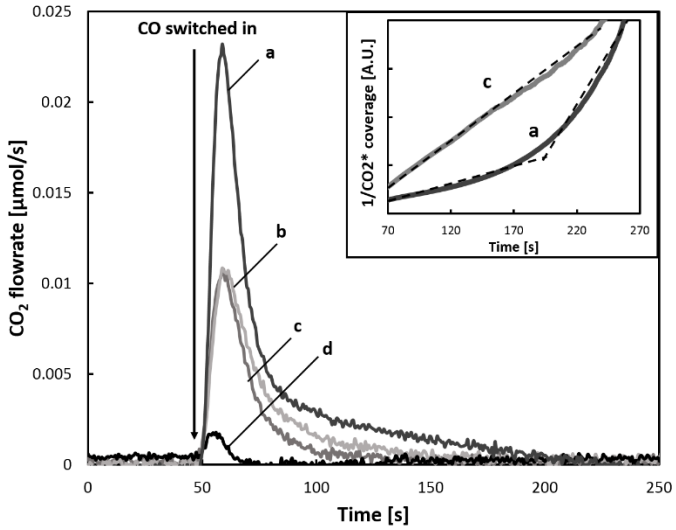


Figure 2 - Panel a: The 4µm Cu powder titration data is processed as following: online fragmentation ratio is directly obtained from stabilized (after 450 s) a) N_2O (amu 44) and b) N_2 (amu 28) MS raw signals, the N_2 contribution from N_2O fragmentation is thus calculated (curve a times the ratio obtained) c) and subtracted from N_2 raw signal and obtain N_2 net signal (curve b minus curve c) d). Panel b: Integration of the N_2 product net peak after each N_2O titration process on 4µm

Cu metallic powder from -40 to 80 °C. The titrations are performed by exposing 20 sccm 0.5% N_2O in Ar after the catalyst is reduced in 20 sccm hydrogen/Ar (1:9) at 100 °C for 10 min.



b)

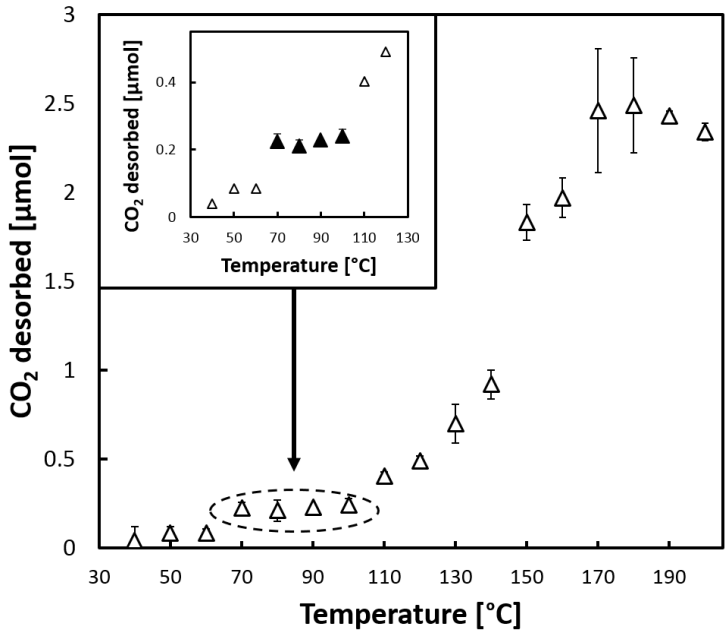


Figure 3 - Panel a): CO_2 product from 200°C pre-oxidized Au/TiO_2 in isothermal CO titration at: a) 130°C, b) 100°C, c) 80°C, and d) 40°C (Inset: Comparison of 80°C and 130°C decay curves; $1/CO_2$* coverage vs time, Panel b): Tabulated results of total CO_2 desorbed versus experiment temperature (Inset: expanded view of plateau region)