

Supporting Information

Mechanism of Methanol Synthesis from CO₂/CO/H₂ Mixtures over Au/ZnO Catalyst: An Isotope Labelling Study

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Table S1 TOFs of total amount of MeOH produced, amount of MeOH formed from CO₂ and MeOH formed from CO obtained during hydrogenation of a 15% ¹³CO₂/15% ¹²CO/45% H₂ mixture at 5 bar at steady-state conditions over Au/ZnO catalyst (STREM Chemicals) as a function of temperature (240 – 300°C).

Temperature / °C	Total MeOH TOF / 10 ⁻³ s ⁻¹	MeOH from CO ₂ TOF / 10 ⁻³ s ⁻¹	MeOH from CO TOF / 10 ⁻³ s ⁻¹
240	1.5	1.2	0.3
270	3.6	2.7	0.9
300	4.4	3.0	1.4

Fig. S1 MeOH (■) and CO (●) formation rates as well as selectivity (◆) during CO₂ hydrogenation with increasing CO₂ concentration between 15 – 30% in the CO₂/H₂/Ar reaction gas mixture at 5 bar and 240°C on a Au/ZnO catalyst (STREM Chemicals) after calcination in 20 Nml min⁻¹ in 1% O₂/Ar at 400°C for 1 h (O400).

