

The effect of CO partial pressure on important kinetic parameters of methanation reaction on Co-based FTS catalyst studied by SSITKA-MS and *operando* DRIFTS-MS techniques

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SUPPORTING INFORMATION

2. Results

2.3. Transient Isothermal and Temperature-Programmed Hydrogenation (TIH/TPH)

Table S1: Peak centers (°C) of each individual peak of the TPH profiles derived after deconvolution.

x vol% CO	Peak 1 (°C)	Peak 2 (°C)	Peak 3 (°C)	Peak 4 (°C)
x = 3	324	362	398	443
x = 5	326	362	397	427
x = 7	319	358	399	450

2.4. DRIFTS – Transient Isothermal Hydrogenation (TIH) of CO

Table S2: IR band position (cm⁻¹) of each individual adsorbed CO-s (L₁ and L₂) formed after 2 h in FTS (5% CO/25% H₂/Ar, 200 °C) recorded under Ar purge (after 3 min) and in 50 vol% H₂/Ar gas mixture.

Gas	Peak Position (L ₁ , cm ⁻¹)	Peak Position (L ₂ , cm ⁻¹)
Ar (3 min)	2012	1960
50%H ₂ /Ar (30 s)	1964	1921
50%H ₂ /Ar (60 s)	1945	1885
50%H ₂ /Ar (90 s)	1945	1885
50%H ₂ /Ar (120 s)	1943	1884



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