

Supplementary Information

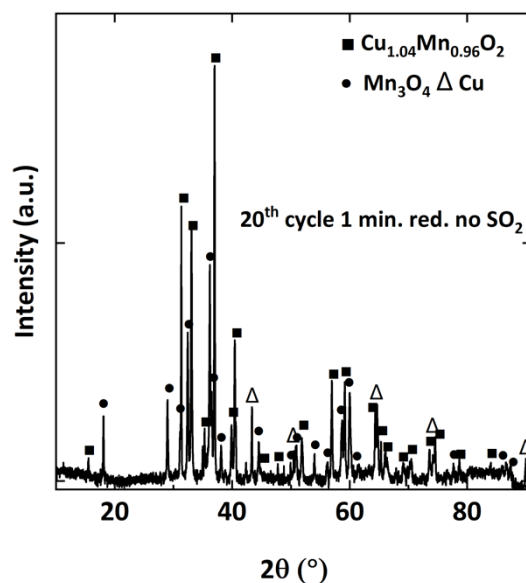


Figure S1. XRD patterns of samples reduced for 1 minute for 20 cycles at 900°C with 9% CH_4 -balance N_2 .

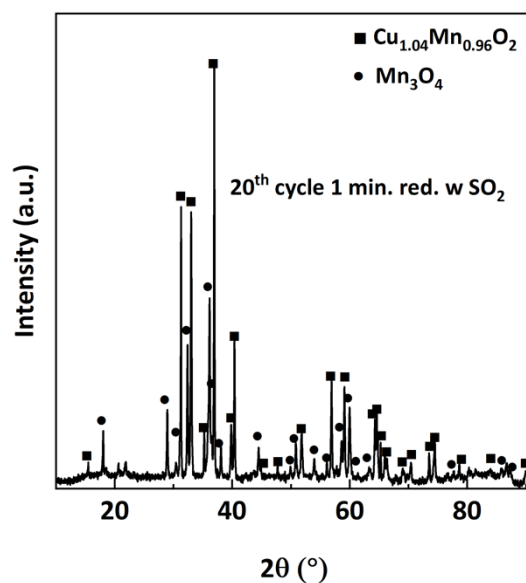


Figure S2. XRD patterns of samples reduced for 1 minute for 20 cycles at 900°C with 9% CH_4 -5000 ppm SO_2 -balance N_2 .

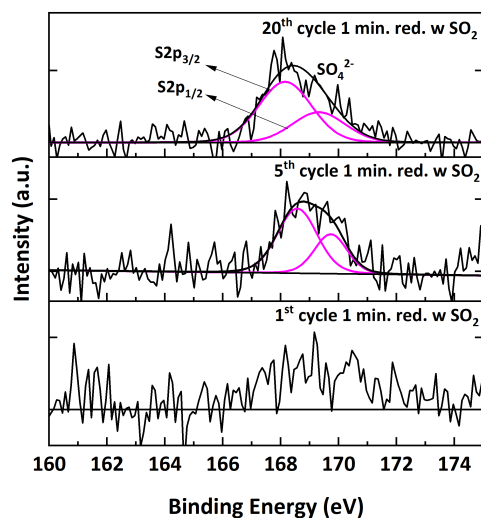


Figure S3. S 2p spectra of samples reduced for 1 minute for 1, 5 and 20 cycles at 900°C with 9%CH₄-5000ppm SO₂-balance N₂.

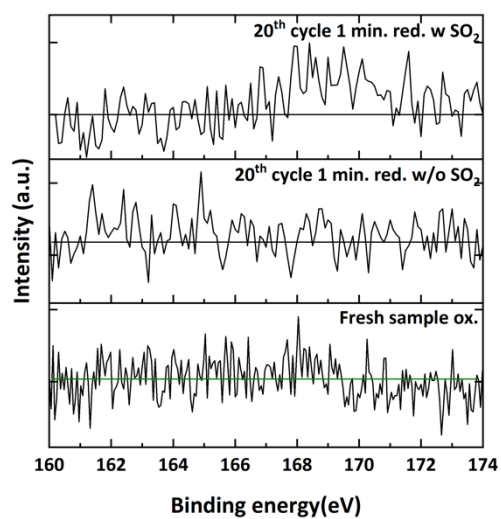


Figure S4. S 2p spectra of fresh sample and oxidized samples after 20 cycles at 900°C with 9%CH₄-balance N₂ and 9%CH₄-5000ppm SO₂-balance N₂.

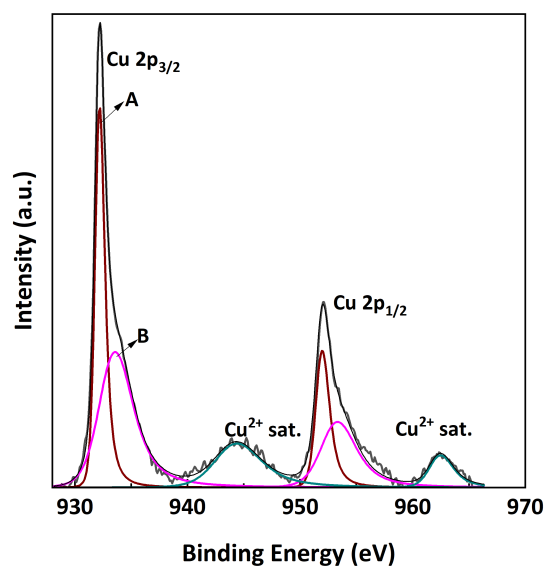


Figure S5. C Cu 2p spectra of a sample reduced for 1 minute for 1 cycle at 900°C with 9%CH₄-balanced N₂.

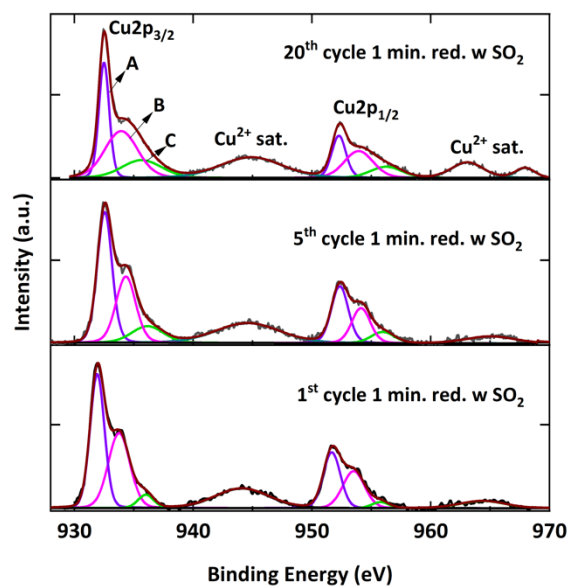


Figure S6. Cu 2p spectra of samples reduced for 1 minute for 1, 5 and 20 cycles at 900°C with 9%CH₄-5000ppm SO₂-balance N₂.