

***In-situ* RAIRS Investigation of the Oxidation and Reduction of Cu using UV/O₃ and Ethanol**

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Fig. 1 Differential IR reflectance measurements taken following subsequent ethanol exposures on Cu (post UV/O₃ treatment at 100 °C and annealing to 300 °C) showing the reaction with **(a)** CO₂ at 2337 cm⁻¹ and C≡O at 2209 cm⁻¹ species and **(b)** the reduction of Cu₂O to Cu metal (all spectra collected at 300 °C).

