

Tuning the Cu/SiO₂ wettability features for bio-derived platform molecules valorization

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Supporting Information

TEM and STEM micrographs	page 2
TGA	page 3
XPS	page 4
Acidity measurements	page 5
IR spectra	page 6
References	page 7

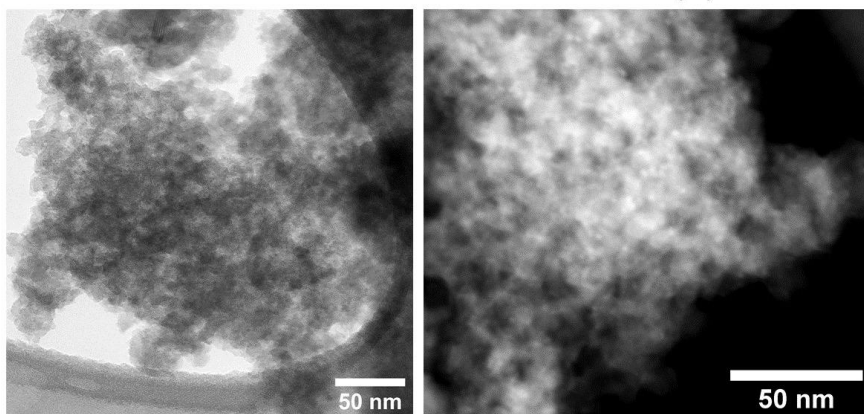


Figure S1. Representative micrographs for sample CuO/SiO₂ - 15 % TEOCS. On the left bright field TEM image and on the right side HAADF-STEM image (copper particles are the brighter roundish spots).

Table S1. TGA results from 200 ° to 700 °C for the catalysts sample.

Sample	T^a_{onset} /°C	T^b_{onset} /°C	T^b_{end} /°C	Δm % (200-700 °C)
CuO/SiO ₂	71	-		4.5
CuO/ SiO ₂ - 1% TEOCS	67	-		4.6
CuO/SiO ₂ - 5% TEOCS	68	320	492	6.7
CuO/SiO ₂ - 10% TEOCS	63	322	508	6.1
CuO/SiO ₂ - 15% TEOCS	63	335	>650	10.1

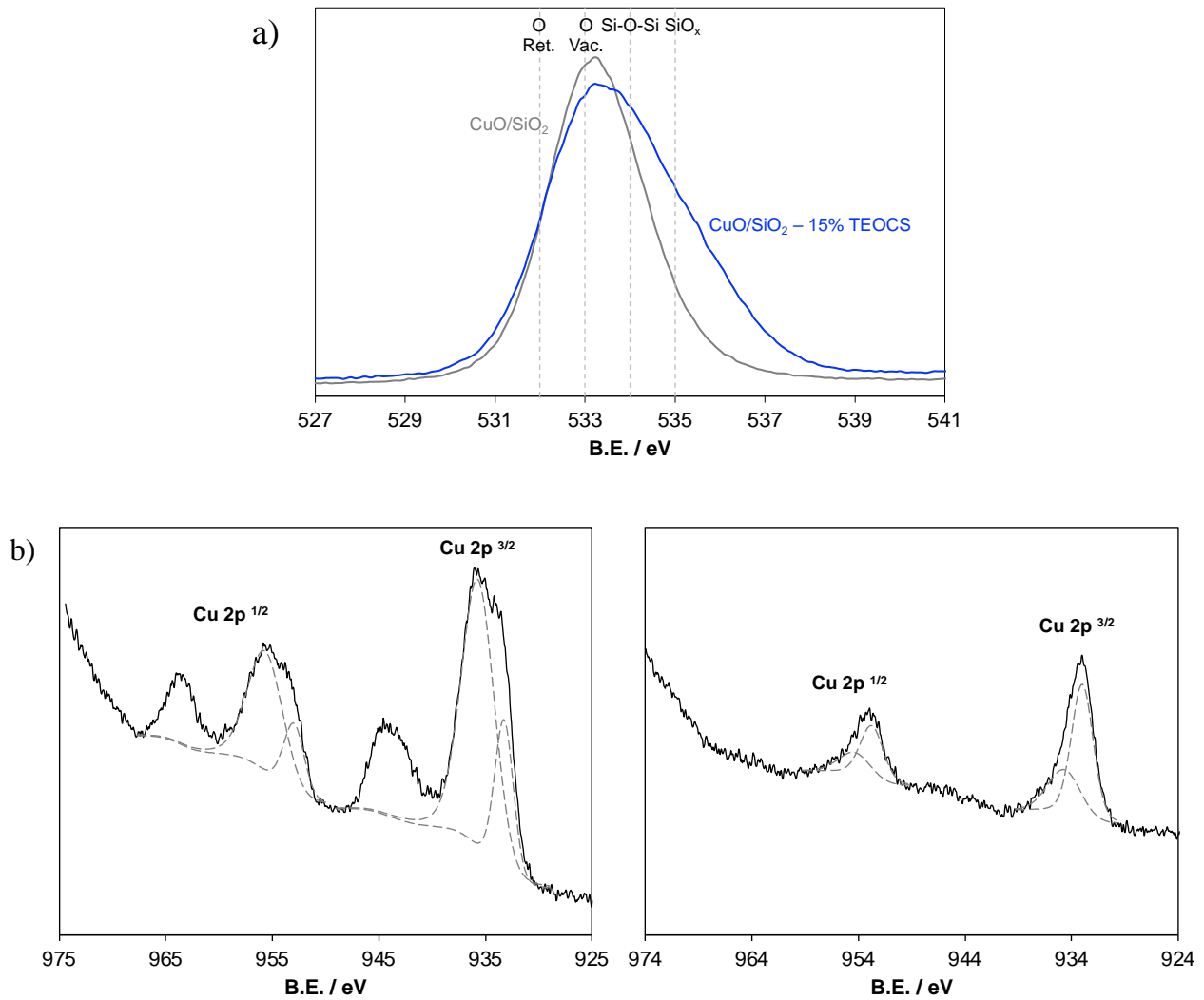


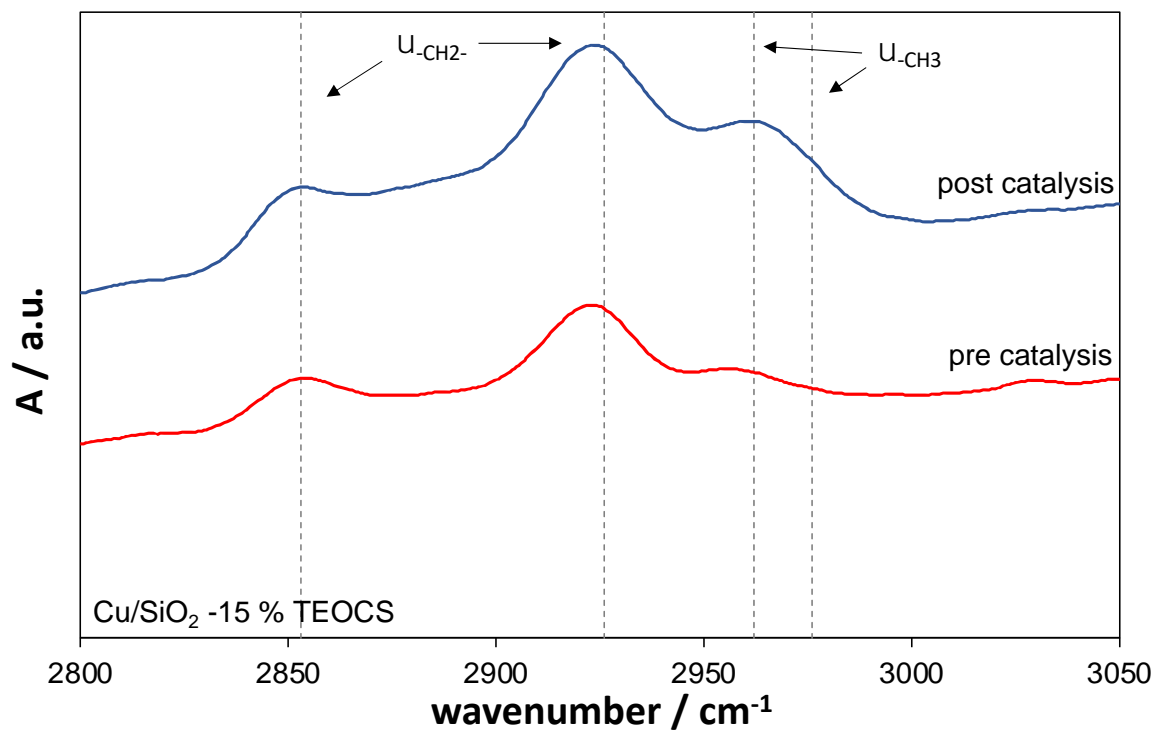
Figure S2. a) O 1s High resolution spectra of the bare and functionalized CuO/SiO₂ – 15% TEOCS catalysts. The typical band of SiO₂ reticular oxygen [1,2], CuO oxygen [3], Si-O-Si [4] bond of silane, SiO_x [5,6] are shown. b) Cu 2p spectra of the calcined (left) and reduced catalyst (right).

Sample	Adsorbed pyridine (mmol(py) g_{cat}⁻¹)	Adsorbed ammonia^a / (mmol(NH₃) g_{cat}⁻¹)
Cu/SiO ₂	0.24	0.35
Cu/SiO ₂ – 5% TEOCS	0.25	0.31
Cu/SiO ₂ – 10% TEOCS	0.34	0.33
Cu/SiO ₂ – 15% TEOCS	0.22	0.36

Table S2. Adsorbed pyridine and ammonia quantification

^a the measure were affected by 8% error

Figure S3. a) IR spectra of the fresh and of the spent CuO/SiO₂ – 15% TEOCS catalyst.



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