

Supplementary Information

Synthesis, Characterization and Heterogeneous Catalytic Application of Copper Integrated Mesoporous Matrices

^aSwapan K. Das, ^aSanghamitra Mukherjee, ^bLuís M. F. Lopes, ^bLaura M. Ilharco, ^bAna M. Ferraria, ^bAna M. Botelho do Rego and ^aArmando J. L. Pombeiro*

^a*Centro de Química Estrutural, Complexo I, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais 1, 1049-001 Lisboa, Portugal.*

^b*Centro de Química-Física Molecular and IN - Institute of Nanoscience and Nanotechnology, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais 1, 1049-001 Lisboa, Portugal.*

*Address for correspondence. E-mail: pombeiro@ist.utl.pt

Fax: (+351)-21-846-4455; phone: (+351)-21-841-9237

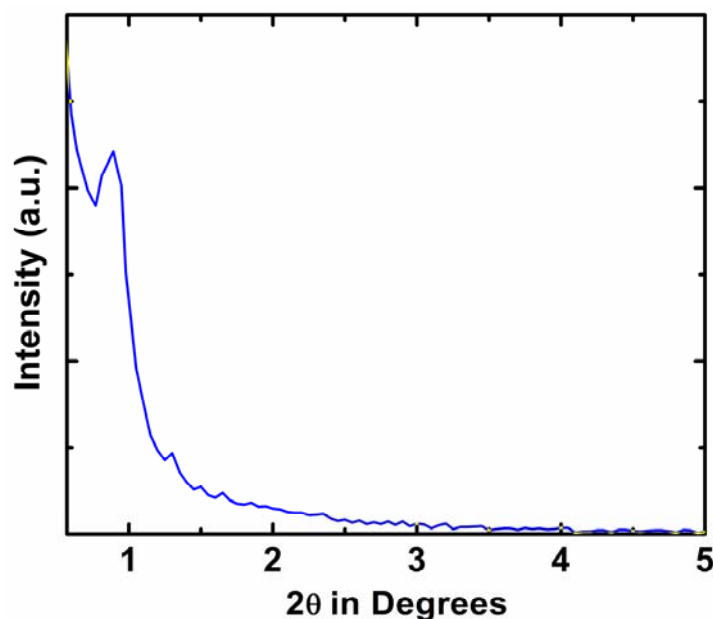


Figure S1: Small-angle powder XRD patterns of calcined mesoporous CuMSC-2 after 4th catalytic run.

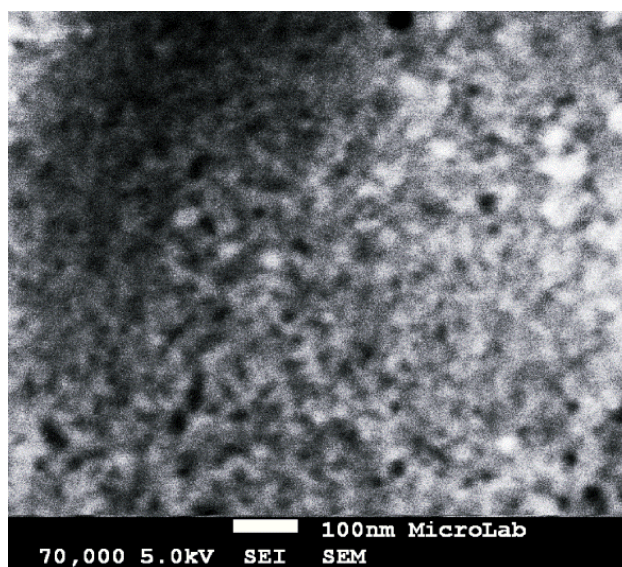


Figure S2: High resolution FE-SEM image of calcined of calcined mesoporous CuMSC-3 sample

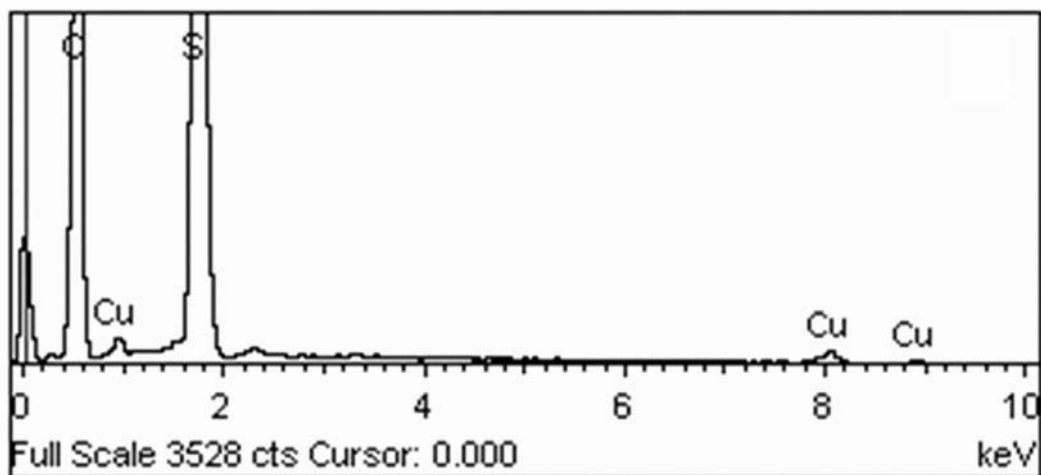
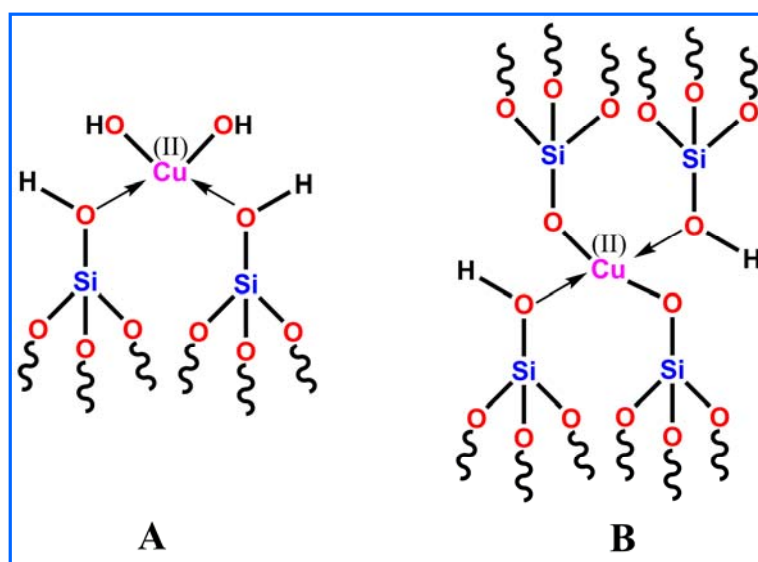


Figure S3: EDS surface chemical analysis of mesoporous CuMSC-2 after 5th run.

Table S1: EDS surface chemical analysis of mesoporous CuMSC materials after 5th run.

Entry	Elements	(keV)	Weight%	Weight% error	Atomic%
CuMSC-2	O K	0.52	54.40	0.27	68.20
	Si K	1.74	43.62	0.26	31.17
	Cu K	8.05	1.98	0.20	0.63
	Total		100		100



Scheme S1: Schematic representation of postulated copper coordination in integrated mesoporous silicate matrix. Model A taken from ref. 38c.

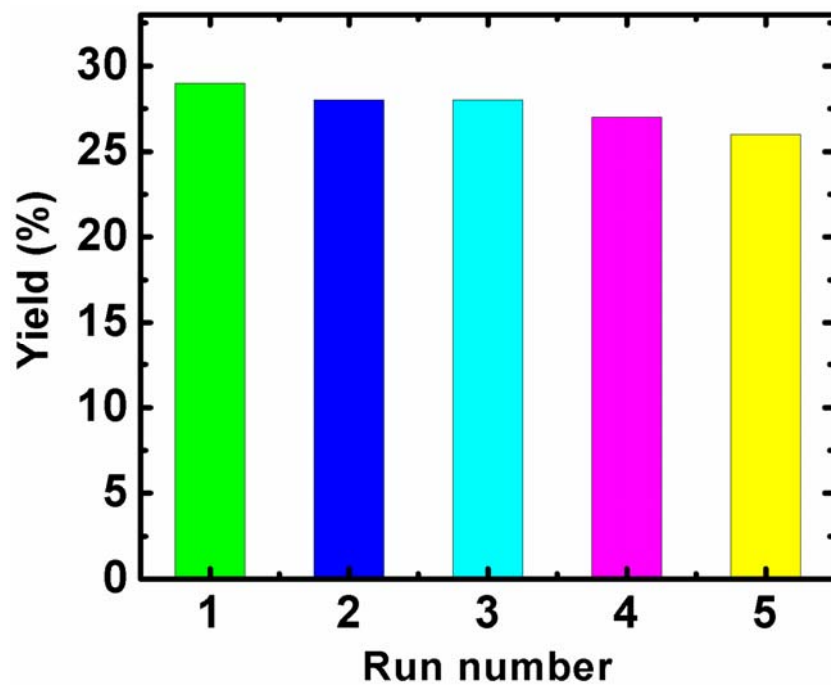


Figure S4: Product yields in various runs, upon catalyst recycling for cyclohexane oxidation by using CuMSC-2.