



Article

Ethynylation of Formaldehyde over CuO/SiO₂ Catalysts Modified by Mg Species: Effects of the Existential States of Mg Species

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Table S1. Acid-base properties of supports and catalysts.

Samples	Acidity ^a (μmol·g ⁻²)	Basicity ^b (μmol·g ⁻²)
SiO ₂	4.3	2.4
MgO/SiO ₂	18.4	83.5
SiO ₂ -MgO	131.2	102.3
CuO/SiO ₂	20.6	9.3
CuO/MgO/SiO ₂	16.9	65.8
CuO/SiO ₂ -MgO	47.8	88.4

^a Acidity was calculated by NH₃-TPD peaks; ^b Basicity was calculated by CO₂-TPD peaks of medium-strong base sites

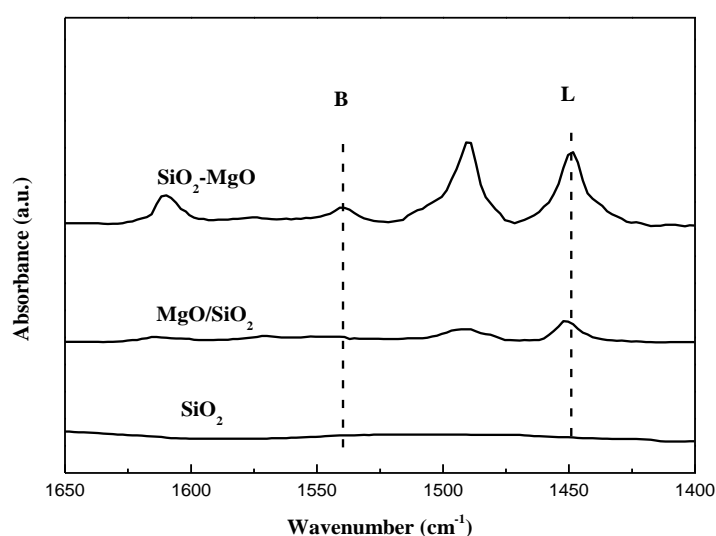


Figure S1. Py-IR spectra of supports.

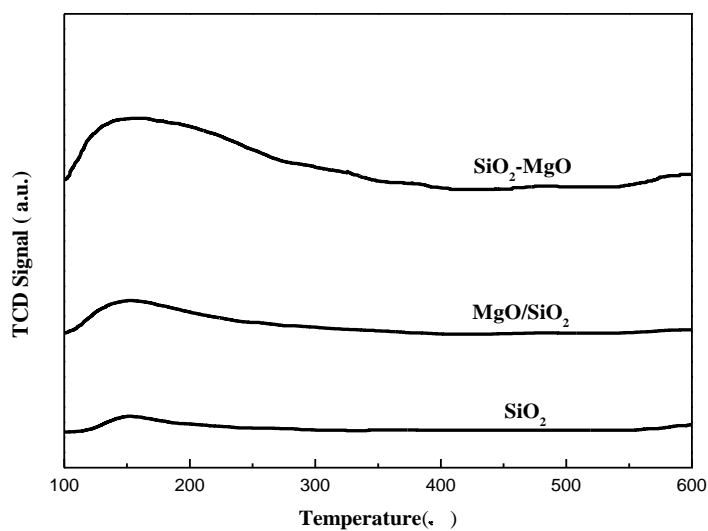


Figure S2. NH₃-TPD spectra of supports.

Table S2. Ethynylation performance of catalysts under the reaction temperature of 90 °C.

Catalysts	Conversion of HCHO/%	Selectivity of BD/%	Yield of BD/%
CuO/SiO ₂	39.4	89.9	35.4
CuO/MgO/SiO ₂	63.1	89.6	56.5
CuO/SiO ₂ -MgO	75.1	90.1	67.2
MgO/SiO ₂	0	0	0
SiO ₂ -MgO	0	0	0

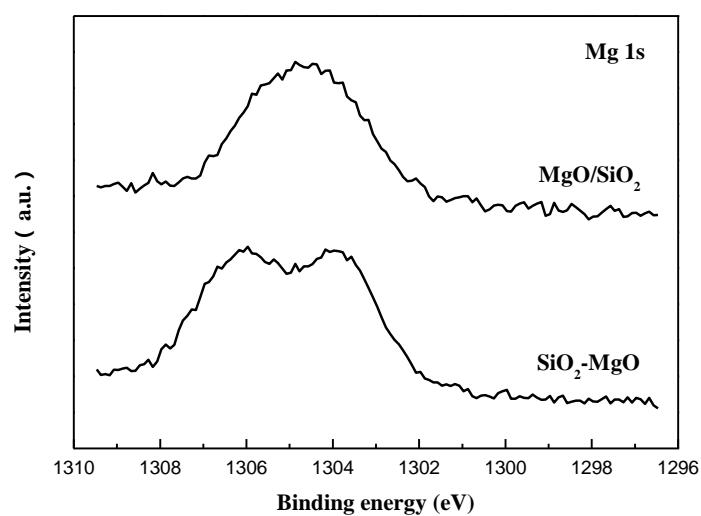


Figure S3. XPS spectra of supports.