Formal Hydroacylation of Alkynes on Mg₃Al–CO₃-Layered Double Hydroxide

Significance: Mg₃Al–CO₃-layered double hydroxide (Mg₃Al–CO₃ LDH) catalyzed the formal hydroacylation of terminal arylalkynes with aromatic aldehydes under argon to give the corresponding diaryl α,β-unsaturated ketones in up to 85% yield (24 examples).

Comment: In the reaction of phenylacetylene with p-anisaldehyde, Mg₃Al–CO₃ LDH was recovered and reused three times with a slight loss of its catalytic activity (fresh: 91% yield; third reuse: 73% yield).

Selected examples:

- R = OMe, 76% yield
- R = H, 71% yield
- R = Me, 68% yield
- R = CF₃, 53% yield
- R = Cl, 78% yield
- R = NMe₂, 64% yield
- R = CN, 54% yield

81% yield

85% yield

65% yield

54% yield

76% yield

66% yield

81% yield

53% yield