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

- R = F, 79% yield
- R = Br, 65% yield
- R = OMe, 74% yield
- R = n-Bu, 69% yield

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**Category**
Polymer-Supported Synthesis

**Key words**
transition-metal-free reaction
layered double hydroxide
hydroacylation
alkynes
aldehydes

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*Synfacts* 2019, 15(03), 0283 Published online: 15.02.2019

DOI: 10.1055/s-0037-1611209; Reg-No.: Y01019SF