

Organometallic compounds of Mg and Li: Use in synthesis of organic compounds

One particularly valuable reaction of alkyllithiums occurs when making lithium diorganocopper compounds, R_2CuLi , by reaction with copper(I) iodide in diethyl ether as solvent. Called Gilman reagents (LiR_2Cu), lithiumdiorganocopper compounds are useful because they undergo a coupling reaction with organochlorides, bromides, and iodides (but not fluorides). One of the alkyl groups from the Gilman reagent replaces the halogen of the organohalide, forming a new carbon-carbon bond and yielding a hydrocarbon product. Lithium dimethylcopper, for instance, reacts with 1-iododecane to give undecane in a 90% yield.

