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organometallic compounds

Classically compounds having bonds between one or more metal atoms and one or more carbon atoms of an organyl group. Organometallic compounds are classified by prefixing the metal with organo-, e.g. organopalladium compounds. In addition to the traditional metals and semimetals, elements such as boron, silicon, arsenic and selenium are considered to form organometallic compounds, e.g. organomagnesium compounds MeMgI iodo(methyl)magnesium, Et_2Mg diethylmagnesium; an organolithium compound BuLi butyllithium; an organozinc compound $ClZnCH_2C(=O)OEt$ chloro(ethoxycarbonylmethyl)zinc; an organocuprate $Li^+[CuMe_2]^-$ lithium dimethylcuprate; an organoborane Et_3B triethylborane. The status of compounds in which the canonical anion has a delocalized structure in which the negative charge is shared with an atom more electronegative than carbon, as in enolates, may vary with the nature of the anionic moiety, the metal ion, and possibly the medium; in the absence of direct structural evidence for a carbon–metal bond, such compounds are not considered to be organometallic.
See: acetylides, ferrocenophanes, Grignard reagents, metallocenes

Source:
PAC, 1995, *67*, 1307 *(Glossary of class names of organic compounds and reactivity intermediates based on structure (IUPAC Recommendations 1995))* on page 1353

