

A Brief Note on Organometallics

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LETTER

Dr. Brian W. Pfennig defines organometallic chemistry as "the chemistry of compounds that contain at least one metal-carbon link (other than cyanide)" in his book *Principles of Inorganic Chemistry*. Organometallic chemistry is a very new sub-discipline of chemistry when compared to other contemporary chemistry disciplines, despite its straightforward definition. Inorganic chemistry's coordination complexes are combined with organic chemistry's synthetic methods in organometallic chemistry. Bioorganometallic chemistry and catalytic chemistry are two examples of how organometallic chemistry has grown entwined with other fields.

Modern organic chemistry relies heavily on the former. So much so that without an organometallic catalyst, processes like the Heck reaction, which won the Nobel Prize in 2010, would not be conceivable. The former is required for life activities within organisms, such as the iron that coordinates the heme group in blood cells, which carries oxygen to the tissues, but the latter is not. Organometallic chemistry is now widely employed in modern life,

from the creation of polymers, plastics, and gasoline to electronic circuitry and solar panel manufacturing, as well as medicinal developments like immunization and chemotherapy.

Organometallic inclusion is defined as the formation of at least one direct metal-carbon bond in an organometallic supramolecular system consisting of a cavity-shaped host and a guest that is partially or deeply included inside the host. This subject has seen a boom in activity in the last ten years, particularly in the discovery of catalytic chemicals. The syntheses and applications of organometallic host/guest complexes have had a significant impact on the structure and reactivity of these supramolecular materials.

The goal of this study of organometallic inclusion systems is to thoroughly investigate the literature from 1993 to the start of 2005. For your convenience, appropriate references have been added prior to 1993. Only studies in which organometallic inclusions have been identified or are highly suspected of having been present will be considered. We're not going to discuss examples where the receptor served as a scaffold rather than a true host. Due to space limits, only representative examples of these organometallic inclusions will be displayed.

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