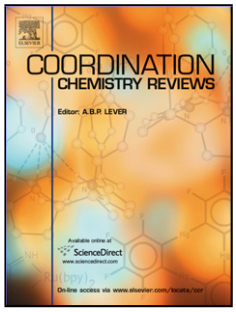


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# Manganese organometallic compounds in homogeneous catalysis: past, present, and prospects

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Highlights

- Manganese is a good metal for catalysis due to its abundance and biocompatibility.
- Manganese organometallic complexes do catalyze a broad variety of reactions.
- Mn catalysts can provide improved chemoselectivity and functional group tolerance.

**Abstract**

The use of first row transition metal complexes is one of the mainstreams in modern homogeneous catalysis. The case of manganese is peculiar in that catalytic applications of its coordination compounds featuring nitrogen- and oxygen-based ligands are well established, whereas those of its organometallic complexes exhibiting Mn–C and/or Mn–H bonds are still underdeveloped and have only recently focused substantial attention. The aim of the present report is to provide for the first time a comprehensive overview of this rapidly emerging area and to outline some prospects.

**Keywords:** Organometallic manganese complexes, Cross-coupling, C–H activation, Hydrosilylation, $CO_2$ reduction, Electrochemical hydrogen production

**Contents**