

Adamantylidene Carbene as an Effective Probe to the Chemical Properties of Endohedral Metallofullerenes

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Endohedral metallofullerenes (EMFs) are a collection of novel metal-carbon hybrid molecules containing a wide range of metallic species that donate a certain number of electrons to the cage.¹ It was found that the chemical properties of EMFs are highly susceptible to the encapsulated metallic species.²

Recent studies revealed that the electrophile adamantylidene carbene is an effective probe for the investigation of the chemical properties of different types of EMFs. For example, our concrete crystallographic results elucidated that a single metal ion (Sc^{3+} or Y^{3+}) encapsulated inside the cage has a key influence on the reactivity of the cage carbons *via* electrostatic interactions;³ while the metal location and strong metal-cage interactions in an EMF that violates the isolated pentagon rule were found essential for dictating the reactivity of adjacent cage carbons.⁴

References:

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