Probing Reactivity Differences of an Unknown Fullerene with Lewis Acids

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Electric-arc vaporization of metals and graphite rods produce extracts containing complex soot mixtures of empty cage fullerenes, classical metallofullerenes, and metallic nitride fullerenes. These different fullerene structures demonstrate varying reactivities. Recent advances have led to the creation of a new molecule present in substantial quantities. Separation attempts have shown that the new “mystery” molecule exhibits reactivity greater than that of the least reactive fullerenes but less reactive than that of the most reactive fullerenes. A Lewis Acid study has been conducted to isolate this unknown molecule by selectively binding then subsequently releasing it from the Lewis acid complex. Lewis acids in this study include: MnCl₂, SnCl₄, CuCl₂, and ZnCl₂.