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Autocatalytic Reduction of dichloro 5, 10, 15, 20 tetraphenylporphinatoplatinum(IV) by 1-Methylimidazole

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Abstract: It was observed that in toluene solution, excess 1-methyl-imidazole (Melm) reduces dichloro 5, 10, 15, 20 tetraphenyl-porphinatoplatinum(IV) (PtTPPCI₂) to tetraphenylporphinato-platinum(II) (PtTPP) autocatalytically (Fig. 1). There was no Pt(III) intermediate or 1-methylimidazole radical detected by Electron Resonance Spectroscopy (ESR) at 25°C. The reaction was found to be autocatalyzed by the PtTPP product when the 1-methylimidazole to PtTPPCI₂ concentration ratio is about 10⁴ or more. From the data obtained it is reasonable to suppose that aggregation of the PtTPP product with PtTPPCI₂ plays an important role in this reduction process.

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