

**SOLUTION PROPERTIES OF THE PARTIALLY OXIDIZED
TETRACYANOPLATINATE(II) AND BIS(OXALATO)PLATINATE(II)^{MAS}**
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Partial Oxidation of the tetracyanoplatinate(II) and the bis(oxalato)platinate(II) results in copper colored needle like crystals where the platinum atoms are stacked on top of one another like a roll of coins with considerable Pt-Pt bonding characteristics. The platinum atoms in these complexes are in non-integral oxidation states varying from +2.2 to +2.4. These needle like crystals have interesting anisotropic physical properties, most notably they conduct electricity along the Pt-Pt chain some 10⁵ greater than perpendicular to the chain. While the solid state properties of these complexes have been well documented the solution properties

have only recently been studied to any great extent. The use of ^{195}Pt nmr and UV-Vis spectroscopies determined the different species present in the reaction solutions. The bis(oxalato)platinate(II) solutions have been thoroughly characterized. These solutions contain various oligomeric platinum species including dimers, trimers, tetramers and pentamers where the platinum oxidation state decreases as the oligomers size increases. The tetracyanoplatinate(II) also consist of oligomeric platinum species in solution. In these solutions only the Pt(III) dimer has been characterized; however, there is some evidence of a paramagnetic trimer. Understanding the solution properties of these oxidation reactions are crucial for controlling the polymerization of the platinum complexes.