

(i) the elaboration of new methods of MPMC preparation; (ii) a detailed analysis of the influence of the metal and polymeric chain in the early stages of the chelation process and the role

of the participating chelating macroligands; (iii) an investigation of the stereochemistry of chelates in MPMC; and (iv) problems of stereoregulation and supramolecular structure of MPMC.

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Surface Studies of Osmium Alloy Coatings

The thermionic emission from a surface coated with a binary alloy has been shown to be superior to that from a pure tungsten surface, or one coated with a pure metal. As far as emission enhancement is considered, surface chemistry may have a more important effect than the substrate. It has been reported that addition of a small amount of a rare earth metal to a binary alloy coating leads to a reduction in work function. For this reason a study has been

made of osmium-rhenium-tungsten coatings on impregnated tungsten cathodes (C. S. Ares Fang and C. E. Maloney, *J. Vac. Sci. Technol.*, 1990, **8**, (3), 2329-2332).

Measurements from an uncoated area of the cathode surface were compared to those from three areas coated with different alloy compositions, and showed that the effective work function of a surface coated with 40 osmium-40 rhenium-20 per cent tungsten was 1.76 eV.