

Effect of Polyvinylpyrrolidone (PVP) and Triton X-100 in the synthesis of nano structured PbO₂ Powder

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PbO₂ is the only electrode material to replace BDD electrode and importantly it has good resistance to corrosion and hence possess long life time and high over potential to oxygen evolution. Apart from electrochemical synthesis, chemical methods of synthesis in presence of surfactant plays an important role due to controlling factors such as CMC value of micelle, hydrophobicity and hydrophilicity of surfactant, which leads to formation of nano particles in defined morphology. On these basis, we have synthesized nano structured PbO₂ from the mixture of PVP and Triton X-100 at room temperature. The optimized concentration of both surfactants was studied. The material was characterized by the XRD, SEM and TEM techniques. Thus we achieved the optimized synthesis technique of nanosized PbO₂ in rod like morphology.