

ABSTRACT

Working on enhancing the performance of lead acid batteries done over the recent years and different problems such as sulphation, grid corrosion, shedding of active material from electrode, low charge acceptance and low capacitance of batteries have been reduced to certain extent. Nowadays use of carbon additives more specifically graphene and graphite for enhancing the performance of battery has become an appealing field of research, because of the excellent properties that these element possess. Different researchers are working on this subject. Because of the vast and increasing scope of this field, we aim our research to analyze the performance of the battery by using carbon additives in paste material of battery. We have used graphite by varying its quantity in paste and fabricated the batteries. Different electrochemical tests are performed on both existing and newly fabricated battery. Obtained results show that battery containing graphite additive in paste is up to the standard and approximately meets the performance of existing one but not good enough. Nevertheless, in some standard test it shows good results. Only graphite addition is not sufficient to pass the capacity test at 5 hours and at 20 hours and posses low charge acceptance property, while addition of carbon black with graphite ensures high capacity and charge acceptances property. However, both type of paste materials (with and without carbon black) qualifies Cold cranking ampere (CCA) and High rate discharge (HRD) that are Japanese industrial Standard tests (JIS). Furthermore, materials of grid are also characterized using Scanning electron microscope (SEM) , Ultimate tensile strength (UTS), elongation percentage and active material is characterized by X-ray Diffraction (XRD).