Studi pengaruh elektrolit H2SO4, NaOH, H3PO4 dan H2C2O4 terhadap nilai kekerasan dan ketebalan lapisan oksida aluminium hasil anodizing untuk aplikasi piston = Study influence of electrolyte H2SO4, NaOH, H3PO4 and H2C2O4 compare with hardness value and alumunium oxide layer thickness result of anodizing for piston application

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Abstrak

One of important element from automotive component is head of piston that made from alumunium.Head of piston in application experience dinamics friction show that needs high abrasive and corrosion resistance. The properties of abrassive resistance and corrosion resistance from head of piston will influence for it life time. One of final treatment methode that can used for getting good abrasive and corrosive resistance is anodizing. In this anodizing process, the alumunium surface will be changed in to alumunium oxide (Al2O3) that very hard and good corrosion resistance. One of the most important factor to determine the result of surface characteristic in anodizing are electrolyte types. This research was then conduct to understand influence from difference electrolyte that used in this process to hardness and thickness from oxide layer that resulted in the surface of alluminiun silicon alloy. The variabel that used in this research from the variation of kinds electrolyte which is H2SO4, NaOH, H2C2O4 dan H3PO4. The result shows that are difference hardness and thickness from the oxide layer in this anodizing methode in H2SO4, NaOH, H2C2O4 and H3PO4 electrolyte, were caused by the diffrence of dissociation degree and ion conductivity from each solution. The hardness value from this oxide layer, based on microhardness testing, the result are 401 _HV in H2SO4, 125 _HV in NaOH electrolyte, 151 _HV in H2C2O4 electrolyte, and 1288 _HV in H3PO4 electrolyte. And then the thickness value from oxide layer based on microhardness testing, the result are 17 _m in H2SO4 electrolyte , 3 _m in NaOH electrolyte, 4 _m in H2C2O4 electrolyte , and 7 _m in H3PO4 electrolyte.