Using Polyethylene Glycol to Produce Self Cured Cement Mortar

Abstract-The capacity of self-curing admixture is to reduce the evaporation of water from mortar, and subsequently they increase the ability of water retention from mortar contrasted with those traditionally cured mortar. Polymeric phase is disperse in cement causing diminish in water absorption and Likewise its connection with hydrating cement create further bond formation which lead to the increment in strength. In this study two group of mortar samples were prepared, first group consist reference and fly ash mortar, second group prepare with admixtures of polymer were PEG 400 used as self-curing agent in this study. Flow test and setting time performed on fresh mortar to reach to the optimum standard specifications. Two mechanical test were carried out include compressive, tensile strength tests, the effect of PEG 400 on bulk density of polymer-modified hardened mortar also studied. The optimum results observed at the age of curing 28 days for PEG wt% 1and 3 were 39.4 and 37.7 MPa for compressive strength tests respectively, and the tensile strength at the age of curing 28 days for PEG wt% 1and 3 were 3.67 and 4.1 MPa respectively, bulk density decrease when increasing the percentage of PEG.

Keywords- Self curing; Mortar; Polyethylene Glycol (PEG) 400; Strength.