

Abstract

A variety of soluted sulphates are often found in groundwater, wastewater or seawater. These sulphate solutions are aggressive for concrete and react with cement paste hydrates, which can cause expansion and even loss of the binding properties of C-S-H phase. Two high performance concretes reinforced with steel fibres, produced of Portland cement or of binder in which 15% of cement was replaced by blastfurnace granulated slag, were used in this work. On the basis of flexural and compressive strength, as well as capillary suction, porosity and water absorption measurement of concrete samples cured in saturated gypsum solution it was found that they are resistant in this condition. After 24 months of gypsum solution attack some changes of microstructure were found, which are the beginning of corrosion of concrete without slag.