

CHEMICAL RESISTANCE OF REPAIR MORTARS ADMIXED WITH JOINT INTERPENETRATING POLYMER NETWORKS (IPNs)

Dr. Ibtisam M. Kamal

Chemical Engineering Department, College of Eng., Basrah Univ.,
Basrah-Iraq.

ABSTRACT

Polymer concrete (PC) mixes were prepared based on (Epoxy-Novolac) joint IPVNs. The mixes were prepared with proper mix properties. The polymer/aggregate ratio was chosen so as to obtain an economical mix with accepted workability. For comparative purposes, normal concrete mixes also prepared. Laboratory tests were conducted according to standard procedures to evaluate the mechanical strength and the chemical resistance of the mixes to typical reagents (30% H₂SO₄, 10% NaOCl, 30% NaOH, 30% HCl solutions and tap water) handled in a petrochemical Industry Units. The conclusion obtained revealed that the polymer concrete exhibited good mechanical strength and excellent chemical resistance in the aggressive reagents compared with conventional concrete. The promising results candidate using the prepared PCs as coatings and /or repairing light weight engineering materials.

INTRODUCTION

Although Portland cement concrete is a remarkable and versatile material, there is a clear need for improved toughness, ductility and durability. One valid approach is to remove the concrete itself, another has been to combine the two technologies of concrete and high polymers, not only using familiar cement concrete but also developing new ones⁽¹⁾.

Polymer may be incorporated into a concrete to yield three major classes: Polymer Portland Cement Concrete (PCC), Polymer Impregnated Concrete (PIC) and