

## **A PROFOUND MICROSCOPIC STUDY ON GEOPOLYMER CONCRETE**

**A. RANGANATHAN<sup>1</sup> & R. MALATHY<sup>2</sup>**

<sup>1</sup>Department of Public Works, IHH, Chennai, Tamil Nadu, India

<sup>2</sup>Sona College of Technology, Salem, Tamil Nadu, India

### **ABSTRACT**

The alkali activation of waste materials like fly ash has become an important area of research because it is possible to use these material to synthesize inexpensive and ecologically sound cement like construction materials. In this paper, the mechanism of activation of a fly ash with highly alkaline solution is described. These solution made with NaOH and Na<sub>2</sub>SiO<sub>3</sub> having the common characteristics of having a very high OH<sup>-</sup> concentration. Owing to their high strength and predominantly amorphous microstructure the materials on the basis of latent hydraulic active substances activated by alkalis like flyash and therefore, they are included into the group of so-called “chemically bonded products”. The new eco friendly concrete being formed during the polymerisation of fly ashes exhibit their amorphous character with minority crystalline phases.

**KEYWORDS:** Alkaline Liquid, Fly Ash, Geopolymer Concrete, SEM, X-Ray Diffraction