

STUDY THE KAISER EFFECT OF ACOUSTIC EMISSION SIGNAL DURING TENSILE TESTING OF GFRP COMPOSITE

M. SEEMAN

Assistant Professor, Department of Manufacturing Engineering, Annamalai University,
Annamalainagar, Tamil Nadu, India

ABSTRACT

In this work, Kaiser Effect of acoustic emission signal during tensile testing of GFRP (reinforcement: E-glass fiber, matrix: Poly-ester resin) composite studied. The Kaiser effect fails most noticeably in situations where time- dependent mechanisms control the deformation. The rheological flow or relaxation of the matrix in highly stressed composites is a prime example. A flow of the matrix at loads below the previous maximum can transfer stress to the fibers, causing them to break and emit. Other cases where the Kaiser effect will fail are corrosion processes and hydrogen embrittlement, which are also time dependent. The AE waveform of GFRP specimen found more burst type signal this mainly due to individual fibers breakage.

KEYWORDS: Tensile testing, Acoustic Emission Signal (AE signal), Kaiser Effect, Glass Fiber Reinforced Polymer (GFRP)