Investigation on Mechanical Behavior of Flexible COC Thin Plates

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ABSTRACT

This study concerns with the mechanical behavior of COC(Cyclic Olefin Copolymer) material sheet which will be used as a novel display substrate. Firstly, the material properties of COC sheet are investigated by cyclic bending test with the aids of AFM(Atomic Force Microscope) and SEM(Scanning Electron Microscope). Also, 2D and 3D finite element analysis for mechanical behavior (deformation, strain, stress, and fatigue strength etc.) of COC sheet under loading is carried out by using the ANSYS software. Discussions are made and some conclusions are obtained.

Keywords : finite element method ; measurement ; COC ; polymer substrate ; thin plate ; composite plate ; deflection ; stress ; strain

Table of Contents

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