Dielectric property of CR-S thin films prepared by spin coating

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Organic thin film transistors (OTFTs) based on organic materials (oligomers or polymers) have been proposed for flexible and disposable electronics. The dielectric material required very high resistivity and highest possible dielectric constant. Cyanoresin (CR-S) is one of the promising representatives of polymer gate dielectric for its high dielectric constant (15 @1MHz) and suitable volume resistance (~4*1012Ωcm). CR-S films were prepared on p-Si by spin coating. IR spectrum confirmed the CR-S functional groups. Morphology of CR-S thin films have been studied by SEM and AFM. MIS (Aluminium/CR-S/p-Si) structure was made and capacitance-voltage (C-V) and current-voltage (I-V) measurements were done with CR-S films. C-V measurements were performed for various frequencies (800Hz~1MHz) for a bias voltage range of -3V to 0.5V. I-V measurements were carried out to measure the leakage current density and determine deep traps of CR-S films.