

Thermal Emittance and Solar Absorptance of CdS Thin Films

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Abstract

CdS thin films were grown on highly cleaned substrates of Microscope glass slides using solution deposition technique at different molar concentrations at constant time and repeated at a fixed molar concentration at for different deposition times. Measurement of the thermal emittance on polished and coated substrates was determined before and after growth. The average thermal emittance value of polished uncoated sample plate was 0.152 with an error of ± 0.013 while an average thermal emittance value of the coated sample was 0.15 ± 0.01 . Equally when the average solar absorptance values of the coated sample plate substrate was 0.473 with an error of ± 0.01 . Thin film thickness varied from 0.212 - 0.614 μm with an error of ± 0.01 . These outcomes formed the basis for proposing these thin films as appropriate for photothermal solar energy application.

Keywords: Thermal Emittance, Solar Absorptance, Solar Thermal Devices