

Abstract Submitted  
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**Morphological and Chemical Analysis Of Degraded Single Junction Amorphous Silicon Module.**<sup>1</sup> GILBERT OSAYEMWENRE, EDSON MEYER, SAMPSON MAMPHWELI, Fort Hare — Photovoltaic solar modules have different defects and degradation characteristic modes. These defects/degradation modes normally heats up some regions in the PV module, depending on the degree and size of the localised heat or hot spot, the localized heat can rise above the temperature limit of the module thereby cause damage to the structural orientation. The presence of severe defect and degradation correlates with high temperature gradients that usually results in morphological damage especially under outdoor conditions. The present study investigates the effect of defect/degradation on the surface morphology of the single junction amorphous silicon modules (a-Si:H) during outdoor deployment. The observed structural damage was analysed using scanning electron microscope (SEM) and energy dispersion X-ray (EDX) to ascertain the elemental composition. Results show huge discrepancies in the chemical composition constitute alone different regions. The presence of high concentration of carbon and oxygen was found in the affected region.

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Gilbert Osayemwenre  
Fort Hare

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