Short Communication

Ag/Cu plating to improve Ag grid electrodes of the recycled c-Si solar cells

Libin Mo^{1,*}, Lei Zhao^{1,2,3}, Chunlan Zhou^{1,2}, Guanghong Wang^{1,2}, Xiaojie Jia¹, Wenjing Wang^{1,2,3}

¹ Key Laboratory of Solar Thermal Energy and Photovoltaic System, Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing 100190, China

² University of Chinese Academy of Sciences, Beijing 100049, China

³ Dalian National Laboratory for Clean Energy, Dalian 116023, China

*E-mail: molibin@mail.iee.ac.cn

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More and more crystalline silicon (c-Si) solar cells, which are dominating the photovoltaic (PV) application, will be decommissioned after the service term due to the performance degradation. It will be valuable if the degraded c-Si solar cells can be recycled for reuse. For this, to restore the performance of the recycled c-Si solar cell becomes important. Here, we developed a two-step Ag/Cu electroplating method to repair Ag grid electrodes of the degraded c-Si solar cell. Such repair improved aspect ratio and excellent conductivity of the repaired Ag/Cu finger electrodes were obtained. Meanwhile, the absolute efficiency value of the repaired c-Si solar cell had 118% improvement after the Ag/Cu plating repairing process. In addition, the two-step plating Ag/Cu process is easy to operate, economic and friendly to the environment. These results demonstrated that the two-step electroplating Ag/Cu could be a promising method to repair and reuse the degraded c-Si solar cells.

Keywords: electroplating, electrode repair, recycled c-Si solar cell

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