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Pilot Scale Tests for Recycling of Photovoltaic Panels by Physical and Chemical Treatment

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Abstract:

In this work, the experimental results of the treatment at pilot scale of photovoltaic panels of different technologies were reported. The recycling route includes a sequence of mechanical and chemical operations in order to recover glass and other useful materials. After mechanical treatment, ground material is sieved and only the coarse fraction is treated by solvent treatment in order to have the detachment of panel fragments into different components: solar grade glass, metallic filaments, back sheet foils (Tedlar), polymeric gluing components (EVA aggregates). The fine fractions emerging from mechanical treatment is treated by acid leaching in order to remove metals and obtain another recoverable glass powder. Recycling rate of the demonstrated process was 80% and 85% for Si based panels and CdTe panels, respectively.

Keywords:

Leaching; Metal; Photovoltaic; Recycling; Wastes;

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