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## MATERIAL RECOVERY FROM PHOTOVOLTAIC PANELS BY MEANS OF THERMAL TREATMENT: THE EFFECT OF BACKSHEET REMOVAL

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### ABSTRACT

The thermal combustion of polymers contained in PV has been studied by 9-Tech, and it has been shown to be an efficacious way to recover from end-of-life (EoL) photovoltaic secondary raw materials with high efficiency and purity. In this work, the removal of the backsheet from photovoltaic (PV) panels has been investigated as a pre-treatment step in the thermal recycling process, assessing its impact on material recovery, energy consumption, and environmental emissions. The backsheet has been removed by means of an innovative technology developed by CEA based on sanding. The analysis of the materials recovered from PV panels with and without backsheet indicated that backsheet removal improves material purity by eliminating contamination with titanium dioxide (TiO<sub>2</sub>) powder. Furthermore, it reduced dust emissions and avoided the production of toxic hydrofluoric acid. Finally, it also slightly increased energy consumption due to the removal of combustible polymeric material.



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