Thin film flexible barrier multilayers by magnetron plasma polymerization

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Abstract
This paper presents data on the application of magnetron plasma sources and pulsed monomer injectors for thin film barrier encapsulation. The process offers an easy upscalability maintaining control for large area production. Multilayers of different nature and composition were deposited, studied and applied to thin film perovskites solar cells.

Flexible Barrier multilayer

Plasma polymerization + Reactive sputtering process

Operational principle : OES Control loop

Process sequence

Barrier multilayers on PET

FTIR spectroscopy

Barrier performance

Application to Halide Perovskite solar cells

Conclusions
This paper demonstrates a process for the production of thin film barrier multilayers, combining magnetron plasma sources and pulsed monomer injectors. Multilayers of different nature and composition were deposited, studied and applied to thin film perovskite solar cells. The perovskite solar cells encapsulated by the presented process showed to maintain its structural properties when subjected to the conditions in the environmental chamber.

References

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