Supporting Information

A Novel Approach for the Development of Moisture Encapsulation Poly(vinyl alcohol-co-ethylene) for Perovskite Solar Cells

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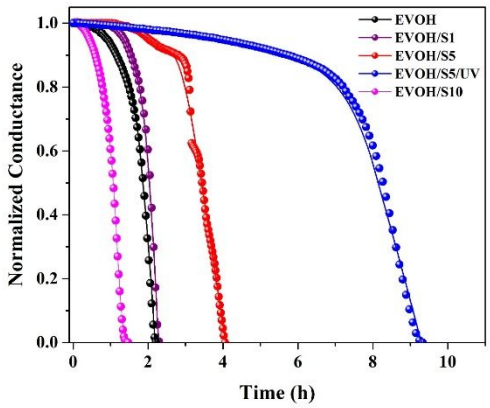

Figure S1 Conductance changes of EVOH manifested following the addition of SiO_2.

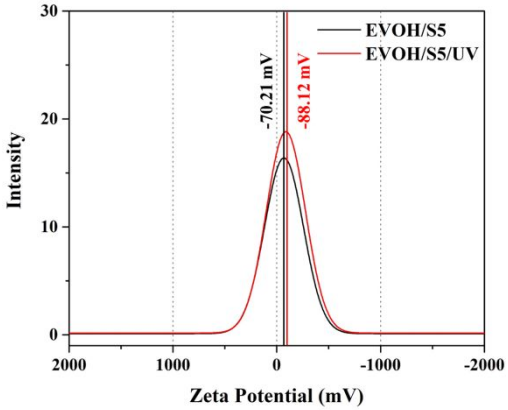

Figure S2 Zeta potential analysis of EVOH precursor solution after the dispersion of SiO_2 fillers.

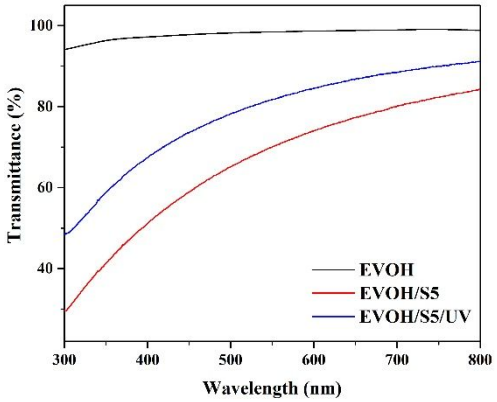

Figure S3 Transmittance analysis of EVOH after the incorporation of SiO_2 fillers.

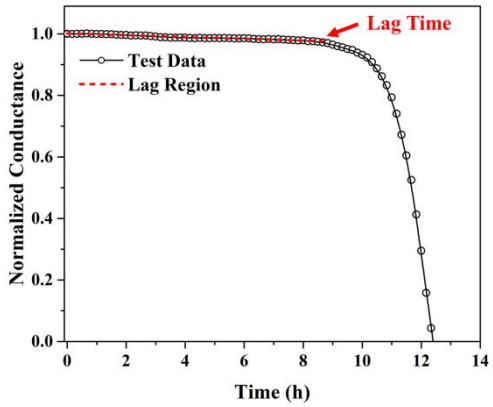

Figure S4 Normalized conductance based on the calculated values of WVTR.

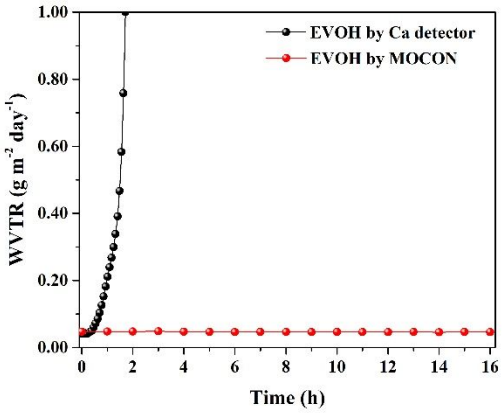

Figure S5 WVTR calculation results of Ca detector and MOCON.

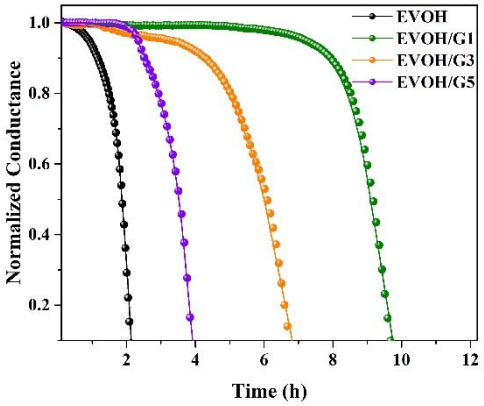

Figure S6 Conductance changes of EVOH manifested following the addition of GO.

Table S1. WVTR calculation outcomes for GO as a function of concentration

Sample (in wt%)	WVTR (g/m^2 day)	Lag Time (h)
EVOH	4.72×10^{-2}	0.74

EVOH/G1	3.66×10^{-3}	6.65
EVOH/G3	2.14×10^{-2}	4.05
EVOH/G5	6.09×10^{-3}	2.18

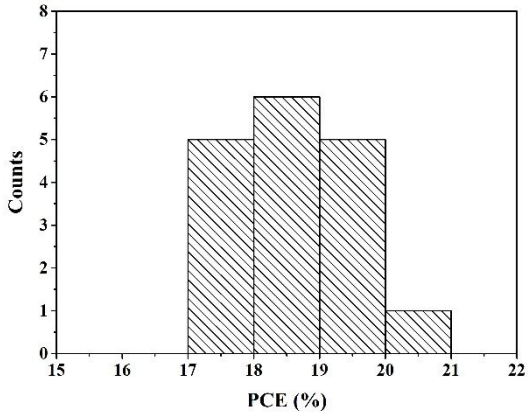

Figure S7 Efficiency distribution histogram of perovskite solar cells.

Table S2. WVTR calculation outcomes depending on the concentration of fillers.

Sample (in wt%)	WVTR (g/m^2 day)	Lag Time (h)
EVOH	4.72×10^{-2} ($\pm 0.1\times10^{-2}$)	0.74 (± 0.1)
EVOH/S1	3.76×10^{-2} ($\pm 0.2\times10^{-2}$)	1.28 (± 0.2)
EVOH/S5	2.87×10^{-2} ($\pm 0.3\times10^{-2}$)	2.21 (± 0.4)
EVOH/S5/UV	1.55×10^{-2} ($\pm 0.1\times10^{-2}$)	4.40 (± 0.3)
EVOH/S10	1.20×10^{-1} ($\pm 0.2\times10^{-1}$)	0.42 (± 0.1)
EVOH/G1	3.66×10^{-3} ($\pm 0.2\times10^{-3}$)	6.65 (± 0.2)
EVOH/G3	2.14×10^{-2} ($\pm 0.3\times10^{-2}$)	4.05 (± 0.3)
EVOH/G5	6.09×10^{-3} ($\pm 0.3\times10^{-3}$)	2.18 (± 0.3)

EVOH/S5/UV/G1	3.34×10^{-3} ($\pm$ 0.1×10^{-3})	6.92 ($\pm$ 0.2)