

Does solar irradiation have a high transmittance compared to pristine glass?

This is consistent with the results of solar irradiation full spectrum (200-2500 nm) transmittance characterization (Fig. S5). TSURF presents an extreme lower transmittance (<0.5 %) compared to the pristine glass in the UV wavelength (200-380 nm), demonstrating the excellent UV resistant properties of TSURF.

How to achieve high conversion efficiency of solar cells?

Therefore, in order to achieve high conversion efficiency, the ITO films need to meet the characteristics of high transmittance and low resistivity at the same time. Increasing the light transmittance of the ITO films can reduce parasitic absorption and improve the short-circuit current (I_{sc}) of the solar cells.

What makes CWO/resin composite film suitable for transparent solar-thermal-electric (TSTE) conversion?

Taken all together, the characteristics of high visible-light transmittance, superior light-selective absorbance, good stability, excellent mechanical property, and adjustable thermal conductivity make CWO/resin composite film a desirable candidate for transparent solar-thermal-electric (TSTE) conversion applications.

What is the transmittance and haze of a free-standing film?

The free-standing films show a transmittance of 94% and a haze of 54% at the wavelength of 550 nm. Moreover, anisotropic advancing contact angles of up to 160° and 156° in cross directions are achieved through tailoring a carnauba wax coating.

What is the transmittance spectra of CWO/resin films?

From the UV-vis-NIR transmittance spectra of the CWO/resin films (Figure 2a), it is apparent that the films show high transmittance in the visible portion, achieving the maximum visible-light transmittance of 87.5% and an average visible-light transmittance of 84.1% (Table S1, Supporting Information).

How does PMF affect UV-resistance and high transmittance?

The excellent performances of PMF in UV-resistance and high transmittance are underlain by the physical principle of optical interference by properly adjusting PMF layers of high and low refractive indices. As a consequence, some wavelengths of light are strongly reflected, while others are transmitted through the film.

All the γ -Ga₂O₃ films exhibit extremely high average transmittance of 95% in UV-Vis light ... the surface of the Ga₂O₃ film deposited at high sputtering power is relatively ...

Cooling and lighting effects of new plastic optical fiber lighting system based on high-transmittance heat-insulating film. Author links open overlay panel Ning Liu a c, Song Xin ...

The proposed design was selected to provide (i) high photocurrent, i.e., through high solar transmission in the visible spectrum (VIS), (ii) reduced heat source, i.e., via reflecting...

The suboptimal optical transmittance of back electrodes and complex fabrication process hindered development of bifacial perovskite solar cells. Here, authors apply single ...

In a previous study, our team combined a thin-film-type semitransparent PV module with a high-reflectivity heat insulation film to develop a type of heat insulation solar glass (HISG) that ...

Due to its excellent optoelectronic properties, ITO films not only act as a key material for the collection and transport of photogenerated carriers in HJT solar cells but also act as an antireflection film. Its performance directly ...

A wavelength-selective film consisting of $\text{Cs}_{0.33}\text{WO}_3$ and resin facilitates high visible-light transmittance (up to 88%) and outstanding ultraviolet and infrared absorbance, thereby converting...

According to the definition of haze, increasing forward scattering contributes to higher haze. Therefore, the key to achieve combined high transmittance and high haze stems from the delicate phase-separated ...

(a-c) Optimized PSCs" operating temperature (T_c --red) and power conversion efficiency (PCE--blue) as a function of multilayer electrodes" $\text{SiO}_2/\text{TiO}_2$ sublayers number (n), ...

Superhydrophilic SiO_2 antireflection film with high transmittance and excellent mechanical properties was successfully prepared via an acid-catalyzed sol-gel method using ...

