

(前半)

【題目】

In-situ observation of drying distribution on cm²-scale coating films

【要旨】

Observation of drying films in industrial dryers is generally difficult, and we still do not understand drying processes. Especially, uniformity is a crucial factor in dried films and it is important to observe when and how distributions appear. In this study, we conduct in-situ observations of drying cm²-scale films using 2-D thermography, digital camera and an electric balance simultaneously. We found that surface temperature and gloss of drying films are closely related, from which we are able to determine distribution in drying progression. In addition, because both are obtained as two-dimensional data, shift from a constant-rate drying period to decreasing-rate one at a local position of drying films can be defined. Correlations of the data obtained are discussed.

(後半)

【題目】

ペロブスカイト型太陽電池向け塗工機 最近の取り組み

【要旨】

Perovskite solar cells are characterized by their lightweight, flexibility, and manufacturing cost. They also have high energy conversion efficiency and are comparable in performance to silicon solar cells. The Japanese government has set a target of introducing 20 gigawatts of power generation capacity by 2040, and there is a growing market demand for the mass production of perovskite solar cells in the future. Based on the core technologies we have developed in the fields of liquid crystal film and lithium-ion secondary batteries, namely coating, drying and web handling, we have developed a “roll-to-roll perovskite solar cell coater”.