

## Tin Iodide Perovskite Thin Film

Environmentally friendly materials for perovskite solar cells

### Overview

Currently, most perovskite solar cells use lead (Pb)-based materials, but tin (Sn)-based alternatives are gaining attention for their environmental benefits and potential performance improvements. Sn offers higher light absorption efficiency without Pb, but **challenges such as easy oxidation and the need for environmentally harmful organic solvents remain.**

To solve these issues, the inventor utilized **ascorbic acid (AA)** and found that adding it to a Sn aqueous solution **greatly improves water solubility and prevents Sn oxidation.** The precursor solution prepared using this method was mixed with MAI (methyl ammonium iodide) and coated onto a substrate, **resulting in a highly oriented perovskite layer.**

This innovation paves the way for eco-friendly solar cells that use green processes, representing a major step toward sustainable energy solutions.

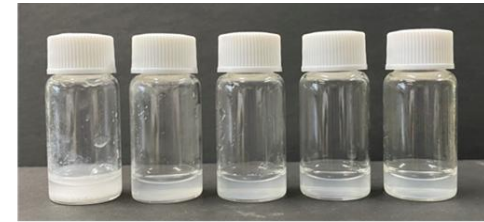
### Product Application

- Perovskite solar cells

### IP Data

IP No. : Not published  
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Admin No. : T24-077

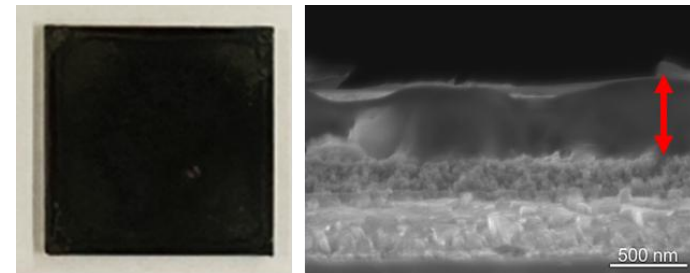
### Features · Outstandings



The ratio of  
AA/Sn

0 0.25 0.5 0.75 1.0

- Dissolve  $\text{SnCl}_2$  and AA in water to create an ink
- Improved solubility at  $\text{AA/Sn} \geq 0.25$ .



**MASnI<sub>3</sub> thin film (500 nm)**

- Mix  $\text{SnCl}_2/\text{AA}$  with MAI and coat it onto a substrate.
- A highly oriented perovskite layer

**Expected to enhance perovskite solar cells.**

### Contact

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