Wish to search for any solar cell business?
Yes, it is our next generation dye-sensitized solar cell industrialization using spray pyrolysis deposition technique.

Photo-excitation dye molecules inject electron into the conduction band of the TiO₂. The dye molecule is regenerated by the redox system, which itself is regenerated at the counter electrode by electrons passed through the load. The open-circuit voltage of the DSC corresponds to the difference between the redox potential of the mediator and the Fermi level of the TiO₂.

Outside view of DSC module (15 × 15 cm²)

I-V characteristic of DSC module (15 × 15 cm²)

<table>
<thead>
<tr>
<th>Jsc (mA/cm²)</th>
<th>Isc (A)</th>
<th>Voc (mV)</th>
<th>FF</th>
<th>η (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1</td>
<td>2.5</td>
<td>720</td>
<td>0.68</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Fabrication processes of DSC:

I Photo-electrode
- Glass
- FTO deposition
- Coating of Ag grids
- Masking of FTO
- TiO₂ deposition
- Impregnation of dye onto TiO₂

II Counter electrode
- Ti substrate
- Pt deposition
- Making holes

III Pile of both electrodes
A solution containing starting compounds is atomized not continuously but intermittently by a pneumatic spraying system, since the substrate temperature is lowered by spraying the solution with compressed air. It thus takes several seconds for the next spray until the temperature will recover. Droplets are transported onto a substrate of 25 mm × 25 mm × 1 mm in size that is heated up to the prescribed temperature.

**SPD Machines**

**Features**
1. Film formation with a simple machine in air
2. Application to large substrates (~30 cm × 30 cm)
3. Various source solutions used
4. Low temperature preparation
5. High growth rate (10 nm/s)

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