Electroplated metallisation for silicon solar cells enables efficiency increase and CoO reduction, but involves multiple technical disciplines. We offer a manifold portfolio of techniques and services to respond to your needs in the field of plating technologies for solar cell metallisation.

**Services**
- Plating process, chemistry & tooling
- Etching process, chemistry & tooling
- Fine-line screen printing (Ag and etch paste for ARC patterning)
- Passivation layer patterning by wet etch
- Production line optimisation (CoO, efficiency)
- Reliability studies
- Layer characterisation (cross section, FIB, TEM, Auger, XRF)
- Sampling

**Highlights**
In NBT’s suncup® smart plating tool, the wafer process is single-sided, the backside keeps dry during wet process. All wet processes can be performed without restrictions from the backside.

Screen printed photo resists can be applied as etch resist for wet etch of nitride, plating mould and blind plating protection, while lithography is not needed.

Resist moulds are suitable for plating on Ag paste as well as for direct plating on silicon.

NBT’s direct plating on silicon enables contacting of high-ohmic emitters or even without selective emitter. The silicide formation is **limited to a shallow porous silicon** (patent pending), which avoids short cutting of shallow emitters. There is no electroless plating involved and silicide is formed after the completion of the full stack.

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**Process flow variations**

<table>
<thead>
<tr>
<th>Process</th>
<th>Silver paste</th>
<th>PR for nitride opening</th>
<th>Nitride opening</th>
<th>PR removal</th>
<th>Seed (e.g. TiW/Cu)</th>
<th>Seed patterning</th>
<th>Porous silicon</th>
<th>Plating mould</th>
<th>Plating</th>
<th>Ni-silicide formation</th>
<th>Seed removal after plating</th>
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</thead>
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**Sept 2011**

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