Plating for silicon solar cells
Ni/Cu/Sn or Ag on Ag seed

nb technologies
consulting engineers

In a line of advanced metallisation concepts such as multi-print of Ag and direct plating on silicon, plating on Ag seed may be considered as an intermediate step shortly at hand and applied as back-end process at the end of an established process line without the need of line change.

The efficiency is increased, when the silver paste resistivity can be enhanced by more material on top and the line width increase is minor after plating. The thinner and finer the seed, the more efficiency increase will be effected. While inkjet approaches provide the thinnest layers, screen printing seeds base on established technologies without the need of investing in new tooling. Using screens like **sunstence® uni sp** or **sunstence® me**, a seed thickness of 2µm at 40µm width can be achieved depending on the paste.

In order to increase the benefit from the plating approach, a screen printed plating mould can be used additionally for the plating step. This is enabled by accurately aligned two-step screen printing. Another advantage of the resist is the protection in cases of porous nitride condition, which would hinder the plating approach in general.

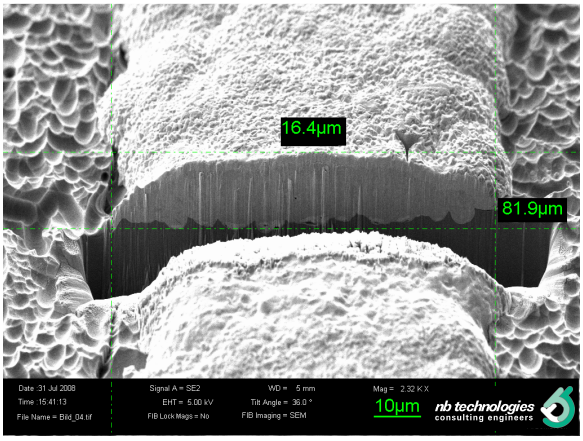
Ask for your sampling!

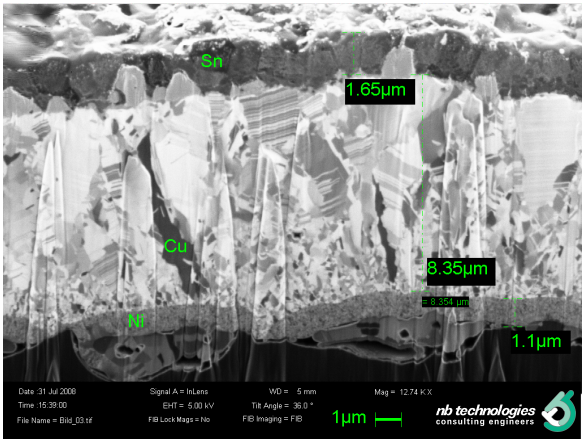
NBT recently has advanced on and offers

- screen printing of thin and fine Ag seed (5µm thick, 40µm wide)
- aligned multiple screen printing using **sunstence® uni sp** / **sunstence® me** applicable for the combination of screen printed Ag seed and resist mould for nitride protection and plating mould
- Ni plating solution for plating low-stress and grain-stable Ni
- **suncup®** plating tool for single side/backside dry processing (for lab use)

Main benefits

- efficiency increase of 0.3 to 0.8 percent
- no change of the process sequence, additional steps as back-end processing
- initial step as platform for further plating approaches basing on silicon direct plating
- silver volume reduction and efficiency increase enable CoO benefit (plating steps included)
- better line yield statistics due to less grid interruptions and more uniform electrical cell performance





sunstence® uni and **sunstence® me** are distributed under the **sunstence®** family by Hans Frintrup GmbH.

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