

# Spherolyte<sup>®</sup> SnAg

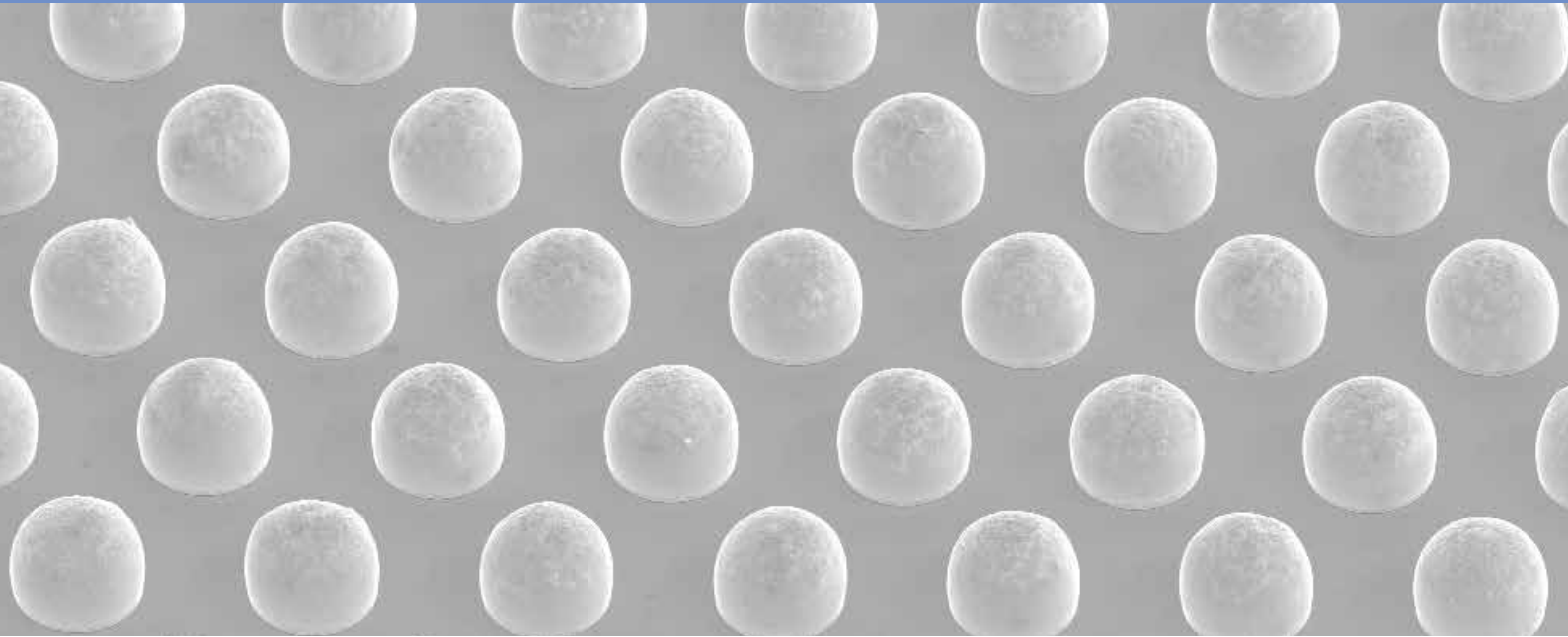
## Highly uniform SnAg plating



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## Highly uniform and cost-efficient tin silver deposits for advanced packaging

### SnAg plating for advanced packaging

Spherolyte<sup>®</sup> SnAg is the solder of choice for interconnect applications which require high reliability at moderate costs. The process is optimized for new design requirements which demand high CoP uniformities. The robustness of the process allows long bath life-times and high-speed plating while ensuring highest purity and void-free results.

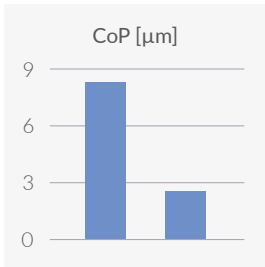
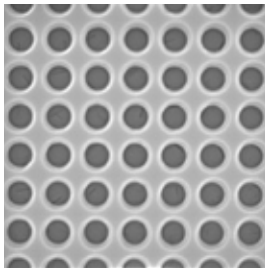
Spherolyte<sup>®</sup> SnAg is qualified for direct metal tin replenishment (DMR) and thus enables moderate costs.

### Working parameters

- Current density: 3-15 ASD
- Deposition rate: 1.5 – 7.5  $\mu\text{m}/\text{min}$
- Temperature: 20 – 32 °C
- pH: < 1

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**Figure 1-3:**  
1) Cross section of Cu/SnAg pillar; 2) X-Ray-CT investigation shows completely void-free pillars; 3) COP of state of the art SnAg (left) vs. Spherolyte<sup>®</sup> SnAg (right) on complicated pillar design

### Cost-efficient, DMR qualified tin silver plating with highest purity

Spherolyte<sup>®</sup> SnAg is a robust process for solder bump and pillar capping applications for advanced packaging applications. The process demonstrates a high-speed alloy deposition with a large application window. Spherolyte<sup>®</sup> SnAg is qualified for direct metal replenishment (DMR), allowing to bypass expensive ultra low alpha Sn MSA replenishments. By omitting the additive, the process is additionally easier to manage and very robust, which results in longer bath life-times than conventional processes.

### Highly uniform deposition at constant silver concentration

In contrast to conventional processes, Spherolyte<sup>®</sup> SnAg is run at constant and widely adjustable silver concentrations and no increase of free acid when run as DMR process. An excellent WID uniformity thickness can be achieved and even with complicated substrate designs lowest possible COP values are generated. The high purity of the deposited material results in excellent voiding performance after reflow as well as high reliability and yield.

### Features and benefits

- Cost efficient due to DMR qualification – up to 70% CoM reduction
- Excellent uniformity for WID – for complicated designs lowest possible values generated
- High speed plating capability up to 15 ASD
- Highest purity and reliability
- Adjustable and uniform Ag content from 0 – 3.5 wt%
- Robust plating process with long life-time – bath-life > 200 Ah/L

