



SOLDERON™ BP TS 4000 MATTE TIN/SILVER
 For Advanced Packaging Applications

Regional Product Availability

- North America
- Asia
- Europe

Description

SOLDERON BP TS 4000 Matte Tin/Silver bump plating bath is a low-foaming, organic sulfonate-based electrolyte for the high-speed deposition of uniform, fine-grain, matte tin/silver alloy coatings.

SOLDERON BP TS 4000 Matte Tin/Silver bath is specifically designed for use in a semiconductor wafer plating process, producing fine-grained, smooth, solderable reflowed solder bumps with consistent alloy compositions.

Advantages

- Environmentally-friendly, lead-free coating
- Completely void-free reflow performance
- Uniform deposit thickness and composition
- Uniform deposit appearance
- Low-foaming and stable electrolyte
- Excellent reflowed bump morphology
- Compatible with both horizontal and vertical plating equipment
- Suitable for both in-via and mushroom deposition
- High deposition rates
- Ease-of-process control

Deposition Data

Structure/Appearance: Fine grained, matte
 Alloy Composition: 97–98% Tin, 2–3% Silver

Bath Make-up

The working electrolyte, SOLDERON BP TS LA-200 RTU Electrolyte is pre-made and ready to use. No dilution is required.

Bath Operation—Metric		
Parameter	Range	Recommended
SOLDERON BP LA Tin-200 Concentrate	45–55 g/l	50 g/l
SOLDERON BP Silver Concentrate	0.3–0.6 g/l	Depends on CD and agitation
SOLDERON BP Acid	100–200 ml/l	*Dependent upon tool
Plating Temperature	25–35°C	30°C
Cathode Current Density	4–8 ASD	6 ASD
Agitation	Moderate	
Cathode Efficiency	> 95%	

*Please see your Dow Technical Representative for further information.

Bath Maintenance

Due to the usage of insoluble anodes, metals in the working electrolyte need to be replenished every 0.1 MTO. Once the working electrolyte reaches 1.4 MTO, it should be replaced with a new RTU electrolyte, to assure the consistent deposit characteristics.

SOLDERON™ BP TS 4000 Complexer

SOLDERON BP TS 4000 Complexer is required to maintain the stability of the silver in the bath. Replenish with SOLDERON BP TS 4000 Complexer, as required, to maintain a concentration of 75–150 ml/l based on analysis. Refer to the analytical procedure for the determination of the SOLDERON BP TS 4000 Complexer.

SOLDERON BP TS 4000 Primary

SOLDERON BP TS 4000 Primary is required to achieve uniform deposits across the full current density range. Replenish with SOLDERON BP TS 4000 Primary, as required, to maintain a concentration of 75–125 ml/l based on analysis. Refer to the analytical procedure for the determination of the SOLDERON BP TS 4000 Primary.

SOLDERON BP TS 4000 Secondary

SOLDERON BP TS 4000 Secondary is required to achieve fine grain structures in SnAg deposits. Replenish with SOLDERON BP TS 4000 Secondary, as required, to maintain a concentration of 6–14 ml/l based on analysis. Refer to the analytical procedure for the determination of the SOLDERON BP TS 4000 Secondary.

SOLDERON BP LA Tin-200 Concentrate

SOLDERON BP LA Tin-200 Concentrate is a low alpha particle emitting tin product and contains 300 g/l of Tin (II). To raise Tin (II) concentration by 1.0 g/l, add 3.33 ml/l SOLDERON BP LA Tin-200 Concentrate. With the addition of 1 ml/l SOLDERON BP LA Tin-200 Concentrate, the SOLDERON BP Acid content will also be increased by 0.6 ml/l.

SOLDERON BP Silver Concentrate

SOLDERON BP Silver Concentrate contains 25 g/l of silver (I). To raise silver concentration by 0.1 g/l, add 4 ml/l SOLDERON BP Silver Concentrate.

SOLDERON BP Acid

SOLDERON BP Acid contains methane sulfonic acid. To raise SOLDERON BP Acid concentration by 1%, add 10 ml/l.

Product Data

For the specific Product Data values, please refer to the Certificate of Analysis provided with the shipment of the product(s).

Equipment

Tanks:	Polypropylene, polyethylene or PVDC
Anodes:	Insoluble anodes: Iridium Oxide coated titanium or Platinized titanium
Heaters:	Titanium, Silica Sheathed or PTFE-coated
Filtration:	Continuous, 1–5 micron polypropylene filter cartridge

Associated Products
SOLDERON™ BP TS 4000 Complexer
SOLDERON BP TS 4000 Primary
SOLDERON BP TS 4000 Secondary
SOLDERON BP LA Tin-200 Concentrate
SOLDERON BP Silver Concentrate (25 g/l)
SOLDERON BP Acid
SOLDERON BP TS LA-200 RTU Electrolyte

Handling Precautions
Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

CAUTION! Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

CAUTION! Failure to maintain proper volume level when using immersion heaters can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

Storage
Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal Considerations
Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Electronic Materials Technical Representative for more information.

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