

# AnoTin Bi

Quality Finishing and  
Support Operations.  
Since 1960.



## **Lead-free, RoHS Compliant Environmentally Friendly Replacement for Tin-Lead Plating**

Environmentally responsible OEM's coupled with a myriad of European Legislation known as RoHS, WEEE and ELV are mandating products free from hazardous substances including lead. Electronic applications have long employed tin-lead plating on components for which alternative finishes must now be specified, however, due to the real propensity for pure tin electrodeposits to form whiskers or tin pest, many OEM's are reluctant to specify pure tin plating. Just as alloying tin with lead gave OEM's comfort in this regard, doping tin with bismuth virtually eliminates the potential for whiskers and tin pest formation and has been specified by giants in the electronics world including IBM and Rockwell.

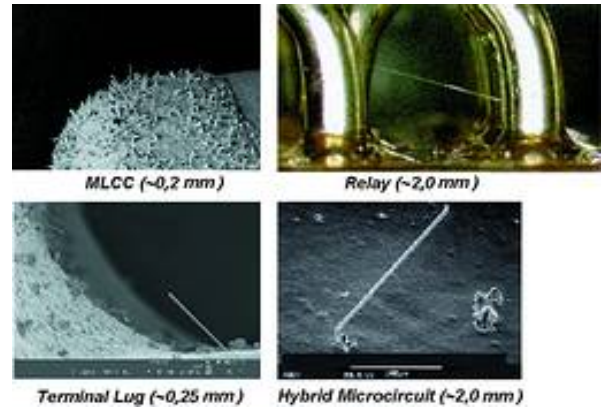
AnoTin Bi represents proven and demonstrated technology used to deposit a process controlled alloy of tin alloyed with bismuth which can be directly substituted for any tin-lead plating callout.

## **Product Description**

- ▶ Matte, high tin alloy deposit that contains controlled addition of bismuth
- ▶ Can be deposited on nearly any substrate with options for copper, electroless nickel, or electroplated nickel underplate.
- ▶ Meets ASTM B-545 and various corporate specs including IBM, Rockwell, Raytheon
- ▶ 100% Lead free deposit in compliance with RoHS, ELV and WEEE regulations

## **Typical Physical Properties**

|                |                                     |              |
|----------------|-------------------------------------|--------------|
| Composition:   | Tin:                                | 99.0 – 99.7% |
|                | Bismuth:                            | 0.3 – 1.0%   |
|                | Lead:                               | 0 ppm        |
| Appearance:    | White, matte, unbrightened tin      |              |
| Solderability: | Readily solderable with Type R flux |              |
| Melting Point: | 450° F / 232° C                     |              |



Unalloyed tin electroplating has a long history of whisker formation and growth resulting in reliability problems for various types of electronic equipment.

## **Summary**

Anoplate's AnoTin Bi offers the advantages of tin-lead plating to electronic manufacturers while minimizing the risk of tin whiskers or tin-pest.

With an internationally accredited ISO 14001 Environmental Management System, Anoplate is committed to routinely reducing its environmental impact – Anoplate's AnoTin Bi is another product of that commitment.



Tin pest shown here is an allotropic, naturally occurring transformation from white  $\alpha$ -tin to gray  $\beta$ -tin that results in the tin coating crumbling off the plated component. Prevalent in cold weather applications, the likelihood of transformation is greatly reduced by incorporated bismuth in the deposit.