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Technical Information: LEVELTECH

LEVELTECH is an immersion tin process with a metallic additive which helps promote solder ability and inhibit whisker growth associated with pure tin deposits. **LEVELTECH** can be used in either immersion or flood conveyor applications but cannot be sprayed. Care should be taken when specifying flood systems and conveyorized equipment to ensure minimum agitation of solution and correct construction materials used. **LEVELTECH** is a direct alternative to HASL and ENIG; it deposits a thickness of between 0.7 and 1 micron of planar tin. The deposit is ideal for subsequent soldering and will withstand up to three thermal cycles.

The unique metallic additive helps to product a dense, fine crystalline deposit and reduces the possibility of whiskering. **LEVELTECH** can be fully controlled by standard analysis techniques and replenishments made to control the bath. **LEVELTECH** is the ideal process for surface mount and press fit applications.

LEVELTECH offers the following benefits for the user:

- Consistent, uniform coating thickness
- Extended storage, up to 12 months
- Multiple thermal exposures without decreased solderability
- Compatible with commonly used fluxes including no-cleans
- Short process cycle
- Ideal for press fit connections
- Economical to use

PROPERTIES OF LEVELTECH DEPOSIT

- Good Solder Wetting
 - Solder spread over 50% after 168 hours at 85°C with 85% Relative Humidity
- Reliable Solder Joints
 - Surface Mount Components soldered with 60/40 SnPb paste
 - Thermal Shock – 55°C to +125°C, 5 seconds transition time, 2000 cycles
 - No solder joint failures
 - Shear strength comparable to ENIG and OSP
- Robust Surface Finish
 - Successfully passed electrical probe test of rigid and flexible circuits after baking for 4 hours at +125°C in air atmosphere.

LEVELTECH SOLDERABILITY

LEVELTECH deposit is suitable for printed circuits boards which have both SMD and conventional components, multilayer, double sided PTH or conventional, along with press fit applications.

LEVELTECH protects the copper surface with an anti corrosive metallic film, which is fully compatible with most soldering fluxes, including those with low activity.

LEVELTECH has no effect on solder masks and the deposit can be easily stripped and reworked without damage.

The film is flat with a controlled thickness of a maximum of one micron, ideal for surface mount assembly.

The **LEVELTECH** deposit meets the long-term solderability requirements of BS9760. Even after storage for up to 12 months no special activation is required prior to soldering – i.e. flux as normal.

LEVELTECH Performance in Soldering Operations

Automatic Soldering

Pre heat temperature should be in the range of 110°C with the solder 245 / 255°C, conveyor speed approximately 0.8 meters/minute.

Hand Soldering

Due to the very thin layer of Leveltech deposit, heat can be drawn from the soldering iron bit by the copper pad below the **LEVELTECH** layer. It is recommended that the soldering bit should be raised 30 – 40 °C higher than the normal to prevent cold soldering. The use of flux is recommended prior to soldering with wire. The amount of flux contained with the solder wire is not usually sufficient to obtain a reliable solder joint.

Multistage soldering

In Multistage soldering no more than 5 separate soldering operations should be carried out. The **LEVELTECH** layer will begin to deteriorate after 5 heat cycles due to repeated heating and cooling. Any cleaning processes between soldering operations must be kept to a minimum using cleaning solutions containing no acids. Most of the masking coatings used during multistage soldering have been found to no effect on the **LEVELTECH** deposit. However, great care must be taken to ensure that the coatings have been fully removed and that no residues are left that will inhibit the soldering operation.

| LEVELTECH IMMERSION PROCESS CYCLE | | |
|------------------------------------------|-----------------------|---------------------------------------------------------------------------------|
| TREATMENT | TEMPERATURE °F | TIME (minutes) |
| Techni X-Cell 318 | 120-130 | 3 – 5 |
| City Water Rinse | Room | 2 - 3 |
| City Water Rinse(counter flow) | Room | 2 - 3 |
| Techni CU-85 | 70-90 | 1 – 2 |
| City Water Rinse | Room | 2 - 3 |
| City Water Rinse(counter flow) | Room | 2 - 3 |
| LEVELTECH Pre-Dip | 70-90 | 1 – 2 |
| LEVELTECH | 158 - 162 | 7 – 10 |
| City Water Rinse | > 70 | 1-2 |
| DI Water Rinse | room | 1-2 |
| Techni PST NEUTRALIZER | 70-90 | 1 – 2 |
| DI Water Rinse (counter flow) | room | 1-2 |
| DI Water Rinse (counter flow) | room | 1-2 |
| DRY | | As required. PCBs must be completely moisture free before stacking or packaging |